

**NUCLEAR REGULATORY COMMISSION  
ISSUANCES**

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

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January 1, 2016 – June 30, 2016

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## PREFACE

This is the eighty-third volume of issuances (1–605) of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Boards, Administrative Law Judges, and Office Directors. It covers the period from January 1, 2016, to June 30, 2016.

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).

The Commission also may appoint Administrative Law Judges pursuant to the Administrative Procedure Act, who preside over proceedings as directed by the Commission.

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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).

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket Nos. 52-040-COL  
52-041-COL**

**FLORIDA POWER & LIGHT  
COMPANY  
(Turkey Point Nuclear Generating  
Plant, Units 6 and 7)**

**February 5, 2016**

**RULES OF PRACTICE: INTERESTED GOVERNMENTAL ENTITY**

Section 2.315(c) provides that the presiding officer will afford an interested local governmental body that has not otherwise been admitted as a party to the proceeding a reasonable opportunity to participate in a hearing.

**RULES OF PRACTICE: APPEALS, INTERLOCUTORY**

The Commission's procedural rule in 10 C.F.R. § 2.311 provides an interlocutory appeal as of right with respect to contention admissibility rulings in two specific circumstances: "(1) upon the denial of a petition to intervene and/or request for a hearing, on the question of whether it should have been granted; or (2) upon the grant of a petition to intervene and/or request for hearing, on the question of whether it should have been wholly denied."

**RULES OF PRACTICE: APPEALS, INTERLOCUTORY**

If a litigant has been denied admission of certain contentions but still has

other contentions pending in the proceeding, section 2.311 does not provide for immediate interlocutory review of the dismissal of those contentions. Rather, this appeal as of right is reserved for situations where a petition is denied “in its entirety,” therefore having the effect of wholly refusing a petitioner entry into a proceeding.

#### **INTERESTED GOVERNMENTAL ENTITY**

The denial of an interested government’s contentions does not deprive it of the right to continue participating in the proceeding.

#### **RULES OF PRACTICE: APPEALS, INTERLOCUTORY; INTERESTED GOVERNMENTAL ENTITY**

An interested government participating under section 2.315(c) is afforded the opportunity to participate on any admitted contentions. Such a participant may introduce evidence, cross-examine witnesses where such cross-examination is permitted, advise the Commission without necessarily taking a position on the contention, file proposed findings in proceedings where findings are permitted, and petition for review under 10 C.F.R. § 2.341 at the conclusion of the proceeding. As such, an entity that has been granted participant status as an interested governmental body is not in the same position as a prospective intervenor who has been wholly denied admission to a proceeding.

#### **RULES OF PRACTICE: APPEALS, INTERLOCUTORY; INTERESTED GOVERNMENTAL ENTITY**

An interested government has a real and substantial opportunity to litigate admitted contentions as if they were its own, making interlocutory review of its rejected contentions premature.

#### **RULES OF PRACTICE: INTERESTED GOVERNMENTAL ENTITY**

By the terms of the rule, the interested government must (among other things) identify those contentions on which it will participate in advance of any hearing held.

#### **APPEAL PANEL: PRECEDENTIAL EFFECT**

Although the Commission abolished the Atomic Safety and Licensing Appeal Board Panel in 1991, its decisions still carry precedential weight.

#### **RULES OF PRACTICE: INTERESTED GOVERNMENTAL ENTITY**

Among other restrictions on participation, section 2.315(c) provides that a participating government may only seek Commission review on admitted contentions. The Commission does not view this language as restricting the right to appeal the Board's denial of its proffered contentions under section 2.341 once the proceeding is over. Rather, the Commission views this limitation in section 2.315 as applying only to participation as an interested local government — it does not limit any other rights the local government may have independent of that participation.

#### **RULES OF PRACTICE: APPEALS, INTERLOCUTORY**

A petition for discretionary review under 10 C.F.R. § 2.341(f) must demonstrate that the petitioner seeking interlocutory review faces “immediate and serious irreparable impact” which could not be alleviated through a petition for review of the presiding officer's final decision, or that the issue “affects the basic structure of the proceeding in a pervasive or unusual manner.”

#### **RULES OF PRACTICE: APPEALS, INTERLOCUTORY**

The Commission has held repeatedly that routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain.

#### **APPEALS, INTERLOCUTORY**

The Commission may also exercise its inherent supervisory authority over adjudications to review on its own motion an issue not otherwise properly before it on appeal in sufficiently significant circumstances.

### **MEMORANDUM AND ORDER**

The City of Miami, Florida, has appealed the Atomic Safety and Licensing Board's ruling in LBP-15-19, in which the Board denied the City's petition to intervene in this combined license proceeding for failure to proffer an admissible

contention.<sup>1</sup> For the reasons set forth below, the City's appeal is premature, and we therefore deny review at this time.

## I. BACKGROUND

In June 2009, Florida Power & Light Company (FPL) applied for combined licenses for two new reactor units — Units 6 and 7 — at the Turkey Point Nuclear Generating Station near Homestead, Florida.<sup>2</sup> The NRC Staff docketed the application and provided an opportunity for interested persons to request an adjudicatory hearing by filing a written petition for leave to intervene within 60 days.<sup>3</sup> The NRC received three intervention petitions, two of which were granted, but did not receive a petition from the City of Miami during this time.<sup>4</sup> Rather, the City filed its intervention petition in April 2015, following the Staff's publication of the Draft Environmental Impact Statement (DEIS) for public comment.<sup>5</sup>

In its petition, the City sought admission of three contentions.<sup>6</sup> In Contention 1,

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<sup>1</sup> City of Miami's Notice of Appeal of LBP-15-19 (July 2, 2015); Brief in Support of City of Miami's Appeal of LBP-15-19 (July 2, 2015) (Appeal); LBP-15-19, 81 NRC 815 (2015).

<sup>2</sup> Florida Power & Light Company; Notice of Receipt and Availability of Application for a Combined License, 74 Fed. Reg. 38,477, 38,477 (Aug. 3, 2009).

<sup>3</sup> Florida Power & Light Company; Acceptance for Docketing of an Application for Combined License for Turkey Point Units 6 & 7 Nuclear Power Plants, 74 Fed. Reg. 51,621, 51,621 (Oct. 7, 2009); Florida Power & Light Company, Combined License Application for the Turkey Point Units 6 & 7, Notice of Hearing, Opportunity to Petition for Leave to Intervene and Associated Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation, 75 Fed. Reg. 34,777, 34,778 (June 18, 2010).

<sup>4</sup> Petitions were submitted by Citizens Allied for Safe Energy (CASE), the Village of Pinecrest, Florida, and a group consisting of two individuals and two nonprofit organizations (Joint Intervenors). The Board subsequently granted two of these petitions, admitting two of CASE's contentions and one of Joint Intervenors' contentions. LBP-11-6, 73 NRC 149, 164-65 (2011). The Board denied the Village of Pinecrest's petition but granted its alternative request to participate as an interested local governmental body pursuant to 10 C.F.R. § 2.315(c). *Id.* One contention — Joint Intervenors' Amended Contention 2.1 — remains pending before the Board. *See* Order (Granting Motion to Dismiss Joint Intervenors' Contention 2.1 and CASE Contention 6 as Moot) (Jan. 26, 2012) at 6-7 (unpublished) (dismissing Contention 2.1 as moot where the asserted omission had been cured but observing that Joint Intervenors had already filed a new contention challenging the adequacy of the measures taken to cure the omission); LBP-12-4, 75 NRC 213, 225 (2012) (granting motion for summary disposition of CASE Contention 7); LBP-12-9, 75 NRC 615, 632 (2012) (admitting amended version of Joint Intervenors' Contention 2.1); Order (Granting in Part and Denying in Part Motion for Summary Disposition of Amended Contention 2.1) (Aug. 30, 2012) at 10 (unpublished) (August 2012 Order).

<sup>5</sup> Combined License Application for Turkey Point Nuclear Plant, Unit Nos. 6 and 7, 80 Fed. Reg. 12,043 (Mar. 5, 2015).

<sup>6</sup> Petition by the City of Miami, Florida, for Leave to Intervene in a Hearing on Florida Power & (Continued)

the City asserted that the DEIS did not identify the source data of various chemical concentrations in the plant's liquid waste streams.<sup>7</sup> In Contention 2, the City asserted that the DEIS failed to sufficiently evaluate the impact the plant's radial collector wells — which would pull water from the Biscayne aquifer as an alternative water source for non-safety-related system cooling — would have on the groundwater plume extending outward from the existing industrial wastewater facility serving the Turkey Point facility.<sup>8</sup> And in Contention 3, the City claimed the DEIS was deficient because it did not address the percentage of water extracted by the plant's radial collector wells that could conceivably come from underneath the industrial wastewater facility.<sup>9</sup> In the alternative, the City requested to participate in the proceeding as an interested local governmental body pursuant to 10 C.F.R. § 2.315(c).<sup>10</sup>

In March, the Board directed that “all petitions for admission of contentions based on new information in the DEIS” be filed by April 13, 2015.<sup>11</sup> The City filed its petition in apparent reliance upon the Board's order.<sup>12</sup> Both the Staff and FPL opposed the City's petition on the grounds that it satisfied neither the requirements for filing a hearing request after the deadline referenced in 10 C.F.R. § 2.309(c) nor the contention admissibility criteria.<sup>13</sup>

The Board concluded that the City had established standing, but found that it had not submitted an admissible contention. The Board rejected all three proposed contentions on timeliness grounds: it found Contention 1 to be “virtually identical” to a previous version of the remaining admitted contention in this proceeding

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Light Company's Combined Construction and Operating License Application for Turkey Point Units 6 & 7, or in the Alternative, Participate as a Non-Party Local Government (Apr. 13, 2015) at 6-11 (Petition).

<sup>7</sup> *Id.* at 6.

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

<sup>9</sup> *Id.* at 10-11.

<sup>10</sup> *Id.* at 12. As relevant here, section 2.315(c) provides that the presiding officer will afford an interested local governmental body that has not otherwise been admitted as a party to the proceeding a reasonable opportunity to participate in a hearing.

<sup>11</sup> Order (Granting Motion for Additional Time) (Mar. 25, 2015) at 3 (unpublished). The Board's order responded to CASE's request for an extension of time to file an intervention petition based on the DEIS. CASE's participation in the proceeding was previously terminated. *See supra* note 3.

<sup>12</sup> Petition at 1 (“The filing deadline for contentions concerning the draft EIS is April 13, 2015.”).

<sup>13</sup> NRC Staff Answer to “Petition by the City of Miami, Florida, for Leave to Intervene in a Hearing on Florida Power & Light Company's Combined Construction and Operating License Application for Turkey Point Units 6 & 7, or in the Alternative, Participate as a Non-Party Local Government” (May 8, 2015), at 1-2; Florida Power & Light Company's Answer Opposing City of Miami's Petition to Intervene in a Hearing on Florida Power & Light Company's Combined Construction and Operating License Application for Turkey Point[ ] Units 6 & 7 (May 8, 2015) at 1-2; *see* 10 C.F.R. §§ 2.309(c), 2.309(f).

(which the Board reformulated to its present form in August 2012),<sup>14</sup> without any new supporting information.<sup>15</sup> The Board rejected Contentions 2 and 3 because the City did not demonstrate that the contentions were based upon new information materially different from that which was previously available.<sup>16</sup> The Board, however, granted the City's unopposed request to participate in the proceeding as an interested local governmental body pursuant to 10 C.F.R. § 2.315(c).<sup>17</sup> The City's appeal followed.

## II. DISCUSSION

Our procedural rule in 10 C.F.R. § 2.311 provides an interlocutory appeal as of right with respect to contention admissibility rulings in two specific circumstances: “(1) upon the denial of a petition to intervene and/or request for a hearing, on the question of whether it should have been granted; or (2) upon the grant of a petition to intervene and/or request for hearing, on the question of whether it should have been wholly denied.”<sup>18</sup> If a litigant has been denied admission of certain contentions but still has other contentions pending in the proceeding, section 2.311 does not provide for immediate interlocutory review of the dismissal of those contentions.<sup>19</sup> Rather, this appeal as of right is reserved for situations

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<sup>14</sup> See *supra* note 3.

<sup>15</sup> LBP-15-19, 81 NRC at 822 (citing 10 C.F.R. § 2.309(c)). Compare LBP-12-9, 75 NRC 615, 629 (2012) (“The [FPL Environmental Report, or ER] is deficient in concluding that the environmental impacts from FPL’s proposed deep injection wells will be ‘small’ because the ER fails to identify the source data of the chemical concentrations in ER Rev. 3 Table 3.6-2 for ethylbenzene, heptachlor, tetrachloroethylene, and toluene. Such information is necessary to ensure the accuracy and reliability of those concentrations, so it might reasonably be concluded that those chemicals will not adversely impact the groundwater by migrating from the Boulder Zone to the Upper Floridan Aquifer.”), with Petition at 6 (“The [DEIS] is deficient in concluding that the environmental impacts from FPL’s proposed deep injection wells will be ‘small’ because the [DEIS] fails to identify the source data of the chemical concentrations in [DEIS] Table 3-5 for ethylbenzene, heptachlor [sic], tetrachloroethylene, and toluene. Such information is necessary to ensure the accuracy and reliability of those concentrations, so it might reasonably be concluded that those chemicals will not adversely impact the groundwater by migrating from the Boulder Zone to the Upper Floridan Aquifer.”).

<sup>16</sup> LBP-15-19, 81 NRC at 824, 826. The Board also rejected Contentions 2 and 3 for failing to raise an issue material to the findings the NRC Staff must make, provide adequate support for the contention, or demonstrate a genuine dispute with the DEIS, as required by 10 C.F.R. § 2.309(f)(1)(iv), (v), and (vi), respectively. *Id.* at 825, 826-27.

<sup>17</sup> *Id.* at 827-28.

<sup>18</sup> *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-13-3, 77 NRC 51, 54 (2013).

<sup>19</sup> *Id.*; see also *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-00-2, 51 NRC 77, 80 (2000) (stating that such rulings must “abide the end of the case”).



where a petition is denied “in its entirety,” therefore having the effect of wholly refusing a petitioner entry into a proceeding.<sup>20</sup>

Although none of the litigants have addressed the matter in their briefs, the circumstances here are governed by an earlier precedent that addresses the timing of appeals by an interested government.<sup>21</sup> In *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), the Atomic Safety and Licensing Appeal Board denied interlocutory review to Massachusetts, which was granted status as an “interested State” but which attempted to appeal the dismissal of particular issues it sought to litigate.<sup>22</sup> As the Appeal Board recognized, the denial of an interested government’s contentions does not deprive it of the right to continue participating in the proceeding.<sup>23</sup> Rather, an interested government participating under section 2.315(c) is afforded the opportunity to participate on any admitted contentions.<sup>24</sup> Such a participant may introduce evidence, cross-examine witnesses where such cross-examination is permitted, advise the Commission without necessarily taking a position on the contention, file proposed findings in proceedings where findings are permitted, and petition for review under 10 C.F.R. § 2.341 at the conclusion of the proceeding.<sup>25</sup> As such, an entity that has been granted participant status as an interested governmental body is not in the same position as a prospective intervenor who has been wholly denied admission to a proceeding. An interested government has a real and substantial opportunity to litigate admitted contentions

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<sup>20</sup> See, e.g., *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-08-7, 67 NRC 187, 191 (2008).

<sup>21</sup> We have reviewed Commissioner Baran’s dissent, and it does not change our opinion that *Seabrook* is controlling precedent here. While in its 2004 Part 2 revision, the Commission clarified the distinction between the rights and responsibilities of parties and interested governments, it did not significantly alter those rights and responsibilities. Final Rule: “Changes to Adjudicatory Process,” 69 Fed. Reg. 2182, 2200-01, 2217, 2223 (Jan. 14, 2004). As such, in *Seabrook*, the Appeal Board considered circumstances similar to the ones before us, and its decision appropriately governs here.

<sup>22</sup> ALAB-838, 23 NRC 585, 588-91 (1986) (citing *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-329, 3 NRC 607, 610-11 (1976)). Although the Commission abolished the Atomic Safety and Licensing Appeal Board Panel in 1991, its decisions still carry precedential weight. See *Entergy Nuclear Operations, Inc.* (Palisades Nuclear Plant), CLI-08-19, 68 NRC 251, 260 n.23 (2008).

<sup>23</sup> *Seabrook*, ALAB-838, 23 NRC at 589-90.

<sup>24</sup> 10 C.F.R. § 2.315(c); *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619, 627 (2004). By the terms of the rule, the interested government must (among other things) identify those contentions on which it will participate in advance of any hearing held.

<sup>25</sup> 10 C.F.R. § 2.315(c). One point warrants further clarification. Among other restrictions on participation, section 2.315(c) provides that a participating government may only seek Commission review on admitted contentions. As indicated by our holding, we do not view this language as restricting the City’s right to appeal the Board’s denial of its proffered contentions under section 2.341 once the proceeding is over. Rather, we view this limitation in section 2.315 as applying only to the City’s participation as an interested local government — it does not limit any other rights the City may have independent of that participation.

as if they were its own, making interlocutory review of its rejected contentions premature.<sup>26</sup>

Here, none of the City of Miami's three contentions were admitted, but the Board granted its request to participate pursuant to 10 C.F.R. § 2.315(c).<sup>27</sup> The City does not have an appeal as of right under these circumstances.<sup>28</sup> We therefore consider the City's appeal as a petition for discretionary interlocutory review under 10 C.F.R. § 2.341(f).<sup>29</sup> Such a petition must demonstrate that the petitioner seeking interlocutory review faces "immediate and serious irreparable impact" which could not be alleviated through a petition for review of the presiding officer's final decision, or that the issue "affects the basic structure of the proceeding in a pervasive or unusual manner."<sup>30</sup> We have held repeatedly that routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain.<sup>31</sup> The appeal does not demonstrate circumstances that would cause us to deviate from our established practice of requiring a litigant in its position to wait until the conclusion of a proceeding to challenge the denial of its contentions. This conclusion reflects our longstanding disfavor of interlocutory, piecemeal review of Board rulings, barring extraordinary circumstances not present here.<sup>32</sup>

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<sup>26</sup> Here, while the City's rejected Contention 1 asserted that the "source data" for chemical concentrations of four identified effluents was missing from the DEIS, as an interested local governmental body the City will have the opportunity to participate with respect to Joint Intervenor's Amended Contention 2.1, concerning the accuracy and reliability of that source data for the same four effluents. Compare Petition at 6, with August 2012 Order at 10.

<sup>27</sup> LBP-15-19, 81 NRC at 828.

<sup>28</sup> To be sure, the City's assumption that it should file its appeal pursuant to 10 C.F.R. § 2.311(b) is understandable; the Board directed the City to that provision. *Id.* at 828 ("Miami may file an appeal from this Memorandum and Order within twenty-five (25) days of service of this decision by filing a notice of appeal and an accompanying supporting brief pursuant to 10 C.F.R. § 2.311(b)."). Further, the situation presented here — interlocutory appeal of the denial of contentions by an entity also granted participant status — is rare in our jurisprudence. In circumstances such as this where appeal rights appear unclear, we will take the opportunity to clarify the matter. See, e.g., *South Texas Project Nuclear Operating Co.* (South Texas Project, Units 3 and 4), CLI-09-18, 70 NRC 859, 861-62 (2009) (clarifying that a necessary prerequisite for a section 2.311 appeal is that the Board first rule fully on an intervention petition).

<sup>29</sup> See, e.g., *Pa'ina Hawaii, LLC*, CLI-06-18, 64 NRC 1, 4 (2006).

<sup>30</sup> 10 C.F.R. § 2.341(f)(2).

<sup>31</sup> See, e.g., *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-12-13, 75 NRC 681, 688 (2012); *South Texas Project Nuclear Operating Co.* (South Texas Project, Units 3 and 4), CLI-10-16, 71 NRC 486, 491 (2010) (citing *Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), CLI-09-9, 69 NRC 331, 365 (2009)); *Indian Point*, CLI-08-7, 67 NRC at 192.

<sup>32</sup> *Seabrook*, CLI-13-3, 77 NRC at 54. We may also exercise our inherent supervisory authority  
(Continued)

### III. CONCLUSION

As discussed above, the City of Miami's appeal does not lie under 10 C.F.R. § 2.311 and does not satisfy the criteria for interlocutory review in 10 C.F.R. § 2.341(f)(2). We therefore *deny* review without prejudice. The City may renew its appeal at the end of this proceeding pursuant to 10 C.F.R. § 2.341(b).

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 5th day of February 2016.

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over adjudications to review on our own motion an issue not otherwise properly before us on appeal in sufficiently significant circumstances. *See, e.g., Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 489 (2010); *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-07-1, 65 NRC 1, 4-5 (2007). We decline to do so here; the Board's contention admissibility ruling does not present an issue that merits such review. *Id.*

### Commissioner Baran, Dissenting

I respectfully dissent from the majority opinion, which relies on the Atomic Safety and Licensing Appeal Board's decision in *Seabrook*.<sup>1</sup> Since 1986, when *Seabrook* was decided, the Commission has clarified that participation as a section 2.315(c) interested participant and as a section 2.309 party are not equivalent. Therefore, a core rationale for the holding in *Seabrook* — that a decision to deny a petition for section 2.309 party status but grant a petition for section 2.315(c) interested participant status does “nothing to affect the [entity's] status in the proceeding”<sup>2</sup> — is no longer valid. In the interest of procedural fairness, an appeal of such a decision should not be treated as a petition for discretionary interlocutory review under section 2.341(f). Instead, such an appeal should be treated as an appeal as of right under section 2.311(c). Like any other person denied section 2.309 party status, states, local governments, and tribes should be permitted to bring an appeal as of right under section 2.311(c). In my view, the Commission should issue an order recognizing that *Seabrook* is no longer applicable and addressing the merits of the City of Miami's appeal.

The Appeal Board in *Seabrook* relied on its 1976 decision in *River Bend*, which stated that “[t]he sole practical consequence of [denying the State of Louisiana's participation to intervene but granting its request to participate as an interested state] was that the scope of the health and safety hearing would not be further broadened to encompass the additional issues which the State sought to inject into it.”<sup>3</sup> Accordingly, the Appeal Board in *Seabrook* found that, despite denial of the Attorney General of Massachusetts' sole contention, his “right to participate fully in this proceeding remains wholly unaffected.”<sup>4</sup>

In NRC's 2004 rulemaking to revise 10 C.F.R. Part 2, the Commission explained the distinction between a section 2.315(c) interested participant and a section 2.309 party:

[T]he Commission intended to maintain the distinction between a State, local governmental body, or Indian Tribe participating as parties under § 2.309, versus their participation in a hearing as an “interested” State, local governmental body or Indian Tribe under § 2.315(c). . . . A State, local governmental body or Indian Tribe admitted as a party is entitled to the rights and bears the responsibilities of a full party, including the ability to engage in discovery, initiate motions, and take positions on the merits. By contrast, an “interested” State, local governmental

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<sup>1</sup> *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-838, 23 NRC 585 (1986).

<sup>2</sup> *Id.* at 591 (quoting *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-329, 3 NRC 607, 610-11 (1976)).

<sup>3</sup> *River Bend*, ALAB-329, 3 NRC at 611.

<sup>4</sup> *Seabrook*, ALAB-838, 23 NRC at 591.

body or Indian Tribe may participate in a hearing by filing testimony, briefs, and interrogating witnesses if parties are permitted by the rules to cross-examine witnesses, as provided in § 2.315(c). However, such participation is dependent on the existence of a hearing independent of the interested State, local governmental body or Indian Tribe participation, and such participation ends when the hearing is terminated.<sup>5</sup>

This statement makes clear, contrary to the analysis of the Appeal Board in *Seabrook*, that the participation of a section 2.315(c) interested participant is distinct from that of a section 2.309 party.

Embedded in the legal question of whether the City is entitled to an immediate appeal as of right with respect to the denial of its petition to intervene as a full-fledged party is a policy question of whether it is fair to treat a state, local government, or tribe differently than every other entity that is denied party status. Notably, the City petitioned to intervene as a section 2.309 party and, then only if that petition were denied, to participate as a section 2.315(c) interested participant. Thus, when faced with the mutually exclusive options of section 2.309 party status or section 2.315(c) interested participant status, the City made its preference for section 2.309 party status clear.<sup>6</sup> In the interest of procedural fairness, we should decide on the City's appeal of the Board's denial of that petition now — which would, if granted, afford the City a different set of rights and responsibilities in the proceeding — rather than wait until the end of the proceeding to consider the issue. The City should not have to wait an undetermined and possibly lengthy amount of time before receiving a ruling on the Board's decision.

The only argument against treating the City's appeal as a section 2.311(c) petition for interlocutory review as of right is a concern that it could undermine the interlocutory appeal rule. I do not see this as a realistic problem. Interlocutory appeals of Board decisions in which an entity is denied party status but granted interested participant status are rare. In fact, these circumstances appear to have arisen only three times in the agency's history: in 1976, 1986, and here.<sup>7</sup> There is no plausible risk that providing states, local governments, and tribes an interlocutory appeal as of right in these unusual circumstances will open the floodgates to a wave of interlocutory appeals. Furthermore, if we endorse the *Seabrook* approach of denying states, local governments, and tribes an immediate appeal as of right of the complete denial of their hearing requests, they could

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<sup>5</sup> Final Rule: "Changes to the Adjudicatory Process," 69 Fed. Reg. 2182, 2200-01 (Jan. 14, 2004).

<sup>6</sup> The Commission decided in *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619 (2004), that, as used in section 2.315(c), the phrase "that has not been admitted as a party under section 2.309" means that an entity cannot be admitted as an interested participant under section 2.315(c) if it is already admitted as a party under section 2.309.

<sup>7</sup> See *Seabrook*, ALAB-838, 23 NRC at 591 (quoting *River Bend*, ALAB-329, 3 NRC at 610-11).

easily bypass the ruling to obtain both immediate review and interested participant status if that appeal is unsuccessful. Avoiding the *Seabrook* restriction would simply require the state, local government, or tribe to petition to intervene as a section 2.309 party and *not* petition, in the alternative, to intervene as a section 2.315(c) interested participant. If the Board wholly denied the entity's section 2.309 petition to intervene, the entity could seek review under section 2.311(c). If that appeal failed, the entity could then request section 2.315(c) interested participant status, having already obtained immediate interlocutory review of the denial of its petition to intervene as a party. The rarity of these particular circumstances and the ease with which a state, locality, or tribe could bypass the *Seabrook* restriction weigh in favor of allowing an interlocutory appeal as of right in circumstances such as these.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket Nos. 52-012-COL  
52-013-COL**

**NUCLEAR INNOVATION NORTH  
AMERICA LLC  
(South Texas Project, Units 3  
and 4)**

**February 9, 2016**

**MANDATORY HEARINGS**

Atomic Energy Act § 189a requires that the Commission hold a hearing on each application to construct a nuclear power plant, regardless of whether an interested member of the public requests a hearing on the application. The Notice of Hearing for the “uncontested” or “mandatory” portion of this proceeding outlines the standards for the Commission’s review.

**MANDATORY HEARINGS: SAFETY ISSUES**

On the safety side, the Commission must determine whether: (1) the applicable standards and requirements of the Atomic Energy Act and the Commission’s regulations have been met; (2) any required notifications to other agencies or bodies have been duly made; (3) there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the Commission’s regulations; (4) the applicant is technically and financially qualified to engage in the activities authorized by the license; and (5) issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.

## **MANDATORY HEARINGS: NATIONAL ENVIRONMENTAL POLICY ACT ISSUES**

On the environmental side, the Commission must: (1) determine whether the requirements of NEPA § 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51 (the NRC regulations implementing NEPA), have been met; (2) independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken; (3) determine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the combined licenses should be issued, denied, or appropriately conditioned to protect environmental values; and (4) determine whether the NEPA review conducted by the NRC Staff has been adequate.

## **MANDATORY HEARINGS**

The Commission does not review NINA's application *de novo*; rather, it considers the sufficiency of the Staff's review of the application — that is, whether the Staff's review was sufficient to support the required findings.

## **MANDATORY HEARINGS**

The scope of an uncontested proceeding is defined by the scope of the contested proceeding: all of the safety and environmental issues in NINA's combined license application, except for the contested matters and those previously resolved as part of the ABWR design certification rulemaking, are subject to our review in the uncontested proceeding.

## **MEMORANDUM AND ORDER**

On November 19, 2015, we held a hearing on the combined license application of Nuclear Innovation North America LLC (NINA) to construct and operate two new nuclear reactors at the South Texas Project site in Matagorda County, Texas.<sup>1</sup>

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<sup>1</sup> See In the Matter of Nuclear Innovation North America LLC, Combined Licenses for South Texas Project, Units 3 and 4; Notice of Hearing, 80 Fed. Reg. 61,492 (Oct. 13, 2015) (Notice of Hearing); In the Matter of Nuclear Innovation North America LLC, Combined Licenses for South Texas Project, Units 3 and 4; Notice of Hearing; Correction, 80 Fed. Reg. 69,986 (Nov. 12, 2015); Tr. at 1-225 (attached as Appendix B to Order of the Secretary (Adopting Proposed Transcript Corrections, Admitting Post-Hearing Exhibits, and Closing the Record of the Proceeding) (Dec. 21, 2015) (unpublished)).



The purpose of the hearing was to consider the sufficiency of the NRC Staff's review of NINA's application. As discussed below, we conclude that the Staff's review has been adequate to support the findings set forth in 10 C.F.R. §§ 52.97(a) and 51.107(a). We authorize issuance of the combined licenses.

## **I. BACKGROUND**

### **A. Proposed Action**

NINA seeks to build two Advanced Boiling Water Reactors (ABWRs) at the South Texas Project site in Matagorda County, Texas. Two units are currently operating at the site: Unit 1 began operation in 1988, and Unit 2 began operation in 1989. NINA's predecessor, South Texas Project Nuclear Operating Company (STPNOC), submitted a combined license application for Units 3 and 4 in September 2007.<sup>2</sup> The Staff accepted the application for review shortly thereafter.<sup>3</sup> NINA became the lead applicant for STP Units 3 and 4, with STPNOC remaining as the proposed operator, in January 2011.<sup>4</sup>

Consistent with 10 C.F.R. § 52.73, NINA's application references the ABWR standard design certification, which was adopted as a final rule in May 1997.<sup>5</sup> Subsequently, the agency issued an amendment to the ABWR design certification

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<sup>2</sup>The Staff published a hearing notice on December 27, 2007, but later withdrew that notice. *See* South Texas Project Nuclear Operating Company; Notice of Hearing and Opportunity to Petition for Leave to Intervene on a Combined License for the South Texas Project Units 3 and 4, 72 Fed. Reg. 73,381 (Dec. 27, 2007); Letter from David Matthews, Office of New Reactors, NRC, to Mark McBurnett, STPNOC (Jan. 30, 2008) (ADAMS Accession No. ML080230721) (suspending review of certain portions of the combined license application pursuant to STPNOC's request); *South Texas Project Nuclear Operating Co.* (South Texas Project Units 3 and 4) Order (Feb. 13, 2008) (unpublished) (withdrawing the hearing notice). The hearing notice was republished early the next year. South Texas Project Nuclear Operating Company Application for the South Texas Project Units 3 and 4; Notice of Order, Hearing, and Opportunity to Petition for Leave to Intervene, 74 Fed. Reg. 7934 (Feb. 20, 2009).

<sup>3</sup>South Texas Project Nuclear Operating Company; Acceptance for Docketing of an Application for Combined License for South Texas Project Units 3 and 4, 72 Fed. Reg. 68,597 (Dec. 5, 2007).

<sup>4</sup>The applicants are NINA; STPNOC; City Public Service Board of the City of San Antonio, Texas; NINA Texas 3 LLC; and NINA Texas 4 LLC. *See* Ex. NRC-001, "The Staff's Statement in Support of the Uncontested Hearing for Issuance of Combined Licenses for the South Texas Project, Units 3 and 4," Commission Paper SECY-15-0123 (Sept. 30, 2015), at 2 (Staff Information Paper) (citing Letter from Mark McBurnett, STPNOC, to NRC Document Control Desk (Jan. 19, 2011) (ADAMS Accession No. ML110250369)).

<sup>5</sup>*See* 10 C.F.R. Part 52, App. A; Standard Design Certification for the U.S. Advanced Boiling Water Reactor Design, 62 Fed. Reg. 25,800 (May 12, 1997).

rule to comply with the NRC's aircraft impact assessment regulations.<sup>6</sup> Currently, the NRC is reviewing a renewal application for the ABWR design certification submitted by GE Hitachi Nuclear Energy; the STP combined license application does not reference this renewal application.<sup>7</sup>

Issues resolved in the ABWR design certification rulemaking or the contested portion of this combined license proceeding are closed and will not be revisited here; however, a brief discussion of these matters is included to provide context for today's decision. We also provide a brief history of this proceeding.

Over the past 8 years, the Staff has spent approximately 157,000 hours on the safety and environmental reviews for the application to determine whether it complies with the Atomic Energy Act of 1954, as amended (AEA), the National

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<sup>6</sup> See U.S. Advanced Boiling Water Reactor Aircraft Impact Design Certification Amendment, 76 Fed. Reg. 78,096 (Dec. 16, 2011). STPNOC was the applicant for this amendment. Ex. NRC-001, Staff Information Paper, at 3. The reference ABWR Design Control Document is Revision 4 of the ABWR Design Control Document submitted by General Electric Nuclear Energy (GE) in March 1997, as codified in 10 C.F.R. Part 52, Appendix A, and as modified by the September 2010 STP application to amend the ABWR Design Certification Rule. Ex. STP-002, Applicants' Pre-Filed Testimony of Scott M. Head for the Mandatory Hearing on Uncontested Issues for South Texas Project Units 3 and 4, at 14 (Nov. 12, 2015) (NINA Prefiled Testimony) (citing "ABWR Design Control Document," Rev. 4 (Mar. 1997) (ADAMS Accession No. ML11126A129)).

<sup>7</sup> While the ABWR renewal application does not directly affect the combined license application for STP Units 3 and 4, GE Hitachi Nuclear Energy recently discovered an issue that is relevant to the STP combined license application. In January 2016, GE Hitachi informed the Staff of an inconsistency between Tier 1 and Tier 2 information in the ABWR certified design related to the Containment Overpressure Protection System (COPS), which is a subsystem of the non-safety-related Atmospheric Control System. Letter from Michael Spencer, NRC Staff, to the Commission (Jan. 19, 2016) (Staff Notification). GE Hitachi informed the Staff that "during the process of confirming the detailed design of the COPS pipe diameter in an ABWR under construction, it was determined that the [Tier 1] required minimum capacity COPS flow rate . . . could not be achieved with the current Tier 2 design information." *Id.*, Attachment 1, at 1. As a result, GE Hitachi proposed changes to Tier 2 information that would increase the diameter of the COPS piping and the rupture disk size to maintain the flow rate required by Tier 1. *Id.*

As the Staff noted, where there is a conflict between Tier 1 and Tier 2 of a Design Control Document, Tier 1 controls. 10 C.F.R. Part 51, App. A, § III.C; Staff Notification Letter, Attachment 1, at 2. "Thus, the constructed plant must satisfy the Tier 1 COPS flow rate notwithstanding the Tier 2 pipe and rupture disk sizes." Staff Notification Letter, Attachment 1, at 2. Further, the Staff noted that a licensee must confirm that the Tier 1 COPS flow rate requirement is met in the as-built design to complete inspections, tests, analyses, and acceptance criteria (ITAAC) 2.14.6-04. *Id.* If NINA were to change any Tier 2 information with respect to the COPS design, such changes would be subject to the change process in Part 52, Appendix A. *Id.*; 10 C.F.R. Part 52, App. A, § VII.B. In the Staff's view, this inconsistency does not impact the issuance of combined licenses for STP Units 3 and 4 because it has low safety significance, the existing Tier 1 requirement for the flow rate controls, an ITAAC requires confirmation that the detailed as-built design meets the Tier 1 flow rate, and a process for changing Tier 2 information exists. Staff Notification, Attachment 1, at 2. We agree with the Staff's assessment.

Environmental Policy Act of 1969 (NEPA), and the NRC's regulations.<sup>8</sup> During this time, the Staff conducted more than 150 public meetings and conference calls, and NINA responded to over 1700 questions from the Staff.<sup>9</sup> In addition, the Staff considered approximately 380 comments on the draft environmental impact statement.<sup>10</sup>

The Office of New Reactors led the NRC's review, with support from the Office of Nuclear Security and Incident Response, the Office of Nuclear Material Safety and Safeguards, the Office of Nuclear Reactor Regulation, the Office of the General Counsel, and NRC Regions I and IV.<sup>11</sup> In its environmental review, the Staff worked closely with the U.S. Army Corps of Engineers, a cooperating agency.<sup>12</sup> Other federal agencies, including the U.S. Department of Homeland Security, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service, also contributed to the Staff's review of NINA's application.<sup>13</sup> In addition, the Staff consulted with state, local, and tribal organizations concerning a variety of issues, including issues arising under the National Historic Preservation Act.<sup>14</sup> The Advisory Committee on Reactor Safeguards (ACRS), a committee of technical experts advising the Commission, provided an independent assessment of the safety aspects of the application.<sup>15</sup>

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<sup>8</sup> Tr. at 53 (Dr. Uhle).

<sup>9</sup> Tr. at 54 (Dr. Uhle); Ex. NRC-001, Staff Information Paper, at 4.

<sup>10</sup> Ex. NRC-005-R, NRC Staff Responses to Commission Pre-Hearing Questions (Oct. 29, 2015), Attachment: Staff Responses to Commission Pre-Hearing Questions at 42 (Staff Answers to Prehearing Questions).

<sup>11</sup> Tr. at 53-54 (Dr. Uhle).

<sup>12</sup> See Tr. at 63-64 (Mr. Delligatti).

<sup>13</sup> See Ex. NRC-001, Staff Information Paper, at 5; Tr. at 65 (Mr. Delligatti).

<sup>14</sup> Tr. at 64-65 (Mr. Delligatti).

<sup>15</sup> AEA § 182b, 42 U.S.C. § 2232(b); 10 C.F.R. §§ 1.13, 52.87; see Letter from John Stetkar, Chairman, ACRS, to Stephen Burns, Chairman, NRC (Feb. 19, 2015) (ADAMS Accession No. ML15039A006) (ACRS Letter). The ACRS concluded that "[t]here is reasonable assurance that STP Units 3 and 4 can be built and operated without undue risk to the health and safety of the public" and recommended that the combined license application "be approved following its final revision." *Id.* at 1. It also found that "[t]here is reasonable assurance that the ABWR design and the STP Units 3 and 4 site satisfy" NRC requirements that were imposed as part of the agency's lessons learned from the March 11, 2011 Fukushima Dai-ichi accident. *Id.* at 2. The ACRS identified two issues that the Staff should address "with the issuance" of the combined licenses. *Id.* These issues related to NINA's turbine missile analysis: (1) "The final plant-specific turbine missile [analysis] should explicitly evaluate each turbine control and protection system including the turbine speed sensors, all component failure modes, all required support systems and the measured material toughness properties for the STP Units 3 and 4 monoblock rotors"; and (2) "Rather than imposing a requirement for weekly testing of turbine valves until the turbine missile analysis is submitted, the staff should incorporate a risk-informed analysis to determine the appropriate test frequency." *Id.* The Staff agreed that these

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NINA did not pursue an early site permit for STP Units 3 and 4.<sup>16</sup> Therefore, all relevant site characteristics, including site geology, hydrology, seismology, and man-made hazards, as well as the potential environmental impacts of the project, were considered as part of the Staff's combined license review and are within the scope of our decision today.

## **B. Review Standards**

The AEA, section 189a, requires that we hold a hearing on each application to construct a nuclear power plant, regardless of whether an interested member of the public requests a hearing on the application.<sup>17</sup> Our Notice of Hearing for the "uncontested" or "mandatory" portion of this proceeding outlines the standards for our review.<sup>18</sup> On the safety side, we must determine whether:

- (i) The applicable standards and requirements of the [AEA] and the Commission's regulations have been met;
- (ii) Any required notifications to other agencies or bodies have been duly made;
- (iii) There is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the [AEA], and the Commission's regulations;
- (iv) The applicant is technically and financially qualified to engage in the activities authorized by the license; and
- (v) Issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.<sup>19</sup>

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two issues would be addressed upon applicant submittal and NRC Staff approval, of a plant-specific turbine missile analysis. Letter from Mark Satorius, EDO, NRC, to John Stetkar, Chairman, ACRS (Apr. 2, 2015), at 2 (ADAMS Accession No. ML15072A109) (Staff Response to ACRS); Ex. NRC-001, Staff Information Paper, at 11-12. The ACRS also identified two generic issues that relate to (1) acceptance criteria in NUREG-0800, the Standard Review Plan, for Charpy V-notch energy and fracture appearance transition temperature, and (2) "fire-induced spurious actuations that may result from heat or fire damage to digital instrumentation and control signal cabinets, when external connections to those cabinets are made via fiber optic cables." ACRS Letter at 2; Staff Response to ACRS at 2-3. As to the Standard Review Plan issue, the Staff indicated that NINA's assessment of this issue was acceptable, but that it would consider developing specific guidance in the next revision of the SRP. Ex. NRC-001, Staff Information Paper, at 12. As to the fire hazard issue, the Staff noted that the STP 3 and 4 design is adequate, but as a generic matter, the Staff continues to work with stakeholders and committed to update the ACRS in the future. *Id.*

<sup>16</sup> Ex. STP-002, NINA Prefiled Testimony, at 4. *See generally* 10 C.F.R. Part 52, Subpart A (describing the process for obtaining an early site permit).

<sup>17</sup> AEA § 189a, 42 U.S.C. § 2239(a).

<sup>18</sup> *See* Notice of Hearing, 80 Fed. Reg. at 61,493.

<sup>19</sup> 10 C.F.R. § 52.97(a)(1).

On the environmental side, we must:

- (1) Determine whether the requirements of [NEPA] section[ ] 102(2)(A), (C), and (E) . . . , and the applicable regulations in [10 C.F.R. Part 51 (the NRC regulations implementing NEPA)] have been met;
- (2) Independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken;
- (3) Determine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the combined licenses should be issued, denied, or appropriately conditioned to protect environmental values; and
- (4) Determine . . . whether the NEPA review conducted by the NRC Staff has been adequate.<sup>20</sup>

We do not review NINA's application *de novo*; rather, we consider the sufficiency of the Staff's review of the application — that is, whether the Staff's review was sufficient to support the required findings.<sup>21</sup>

### C. Contested Proceeding

After the Staff docketed the combined license application for STP Units 3 and 4, it provided interested persons an opportunity to challenge the application in a contested proceeding, in accordance with AEA § 189a.<sup>22</sup> A group of organizations and individuals filed an intervention petition opposing the application.<sup>23</sup> The Atomic Safety and Licensing Board granted the initial hearing request of Sustainable Energy and Economic Development Coalition (SEED Coalition), the South Texas Association for Responsible Energy, and Public Citizen (collectively, Intervenor) and admitted five environmental contentions in 2009.<sup>24</sup> While the

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<sup>20</sup> *Id.* § 51.107(a).

<sup>21</sup> *See, e.g., DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-13, 81 NRC 555, 560-61 (2015).

<sup>22</sup> *See supra* note 2.

<sup>23</sup> Petition for Intervention and Request for Hearing (Apr. 21, 2009).

<sup>24</sup> The Board ruled on the initial petition in two decisions. In LBP-09-21, 70 NRC 581, 638 (2009), the Board admitted one contention relating to the impacts that a severe accident at one of the units would have on the other three. The same decision rejected eighteen proposed contentions and deferred ruling on nine proposed contentions to a later order. *Id.* STPNOC sought an extension to appeal LBP-09-21; we denied that request on the ground that the appeal had not yet come due: where the Board had ruled only partially on the initial intervention petition, the appeal right under 10 C.F.R. § 2.311 did not accrue until the Board had ruled on the entire petition. CLI-09-18, 70 NRC 859 (2009). In LBP-09-25, 70 NRC 867, 896-97 (2009), the Board admitted four of the remaining contentions and

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Board was considering the initial petition, the Intervenor submitted seven new contentions challenging the completeness of the information contained in the application's Mitigative Strategies Report.<sup>25</sup> In January 2010, the Board rejected all of the mitigative strategies contentions.<sup>26</sup>

In July 2010, the Board admitted a new contention, based on a supplement to STPNOC's environmental report, challenging the applicant's analysis of cost-beneficial severe accident mitigation design alternatives (SAMDAs).<sup>27</sup> In that contention, designated CL-2, the Intervenor argued that STPNOC had underestimated the costs of replacement power should an accident at one unit necessitate the shutdown of the other units on the site.<sup>28</sup> In the same decision, the Board ruled that STPNOC's November 2009 environmental report supplement had cured the previous deficiencies forming the bases of the five contentions admitted in LBP-09-21 and LBP-09-25 and granted STPNOC's motion for summary disposition relating to those contentions.<sup>29</sup>

In February 2011, the Board admitted a new contention, based on the Staff's draft environmental impact statement (DEIS) and designated DEIS-1-G, in which the Intervenor argued that the Staff's need-for-power analysis was incomplete because it failed to consider reduced demand resulting from energy efficiency.<sup>30</sup> In the same ruling, the Board rejected five other proposed contentions and denied the Staff's and NINA's motions for summary disposition of Contention CL-2.<sup>31</sup> The Board rejected the Staff's argument that the Commission had resolved all environmental issues regarding SAMDAs in this proceeding by rule (the ABWR design certification) because it found that the STP site characteristics were not

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rejected the remaining five proposed contentions. The four contentions admitted in LBP-09-25 related to the impacts of increased radiological discharges to the shared main cooling reservoir, the potential increase of tritium in the groundwater, the effects of seepage from the main cooling reservoir to the groundwater, and the effects of increased groundwater withdrawal due to operation of two additional units. *Id.* at 896.

<sup>25</sup> Intervenor's Contentions Regarding Applicant's Submittal Under 10 C.F.R. § 52.80 and 10 C.F.R. § 50.54(hh)(2) and Request for Subpart G Hearing (Aug. 14, 2009) (nonpublic).

<sup>26</sup> LBP-10-2, 71 NRC 190 (2010).

<sup>27</sup> LBP-10-14, 72 NRC 101, 127-29 (2010); *see also* Memorandum and Order (Ruling on Motion for Reconsideration of Contention CL-2) (Aug. 10, 2010) (unpublished).

<sup>28</sup> LBP-10-14, 72 NRC at 122-29.

<sup>29</sup> *Id.* at 147.

<sup>30</sup> LBP-11-7, 73 NRC 254, 289-94, 314 (2011). The Board rejected the other seven bases proposed to support the contention. *Id.* at 285.

<sup>31</sup> *Id.* at 314. The five rejected contentions challenged the DEIS discussion of (1) global warming; (2) comparison of greenhouse gas emissions; (3) greenhouse gas mitigation; (4) climate change; and (5) water needs. *See also* Intervenor's Motion for Leave to File New Contentions Based on the Draft Environmental Impact Statement (May 19, 2010).

bounded by the site parameters in the Technical Support Document for the ABWR and, therefore, that SAMDA issues were not resolved by rule.<sup>32</sup>

The Board held evidentiary hearings on Contentions CL-2 and DEIS-1-G in August 2011 and October 2011, respectively.<sup>33</sup> In December 2011, the Board resolved Contention CL-2 in the Staff's and NINA's favor, finding that NINA and the Staff reasonably accounted for the economic factors raised by the Intervenor and demonstrated that no cost-beneficial SAMDAs exist for the combined license application.<sup>34</sup> Shortly thereafter, the Board resolved Contention DEIS-1-G in the Staff's and NINA's favor, finding that the Final Environmental Impact Statement adequately accounts for reduced demand caused by the adoption of energy-efficient building codes in Texas and demonstrates a need for power from the proposed units.<sup>35</sup>

The third and final contention to be adjudicated on the merits was Contention FC-1, in which the Intervenor argued that NINA (by that point the lead applicant) was subject to foreign control and domination.<sup>36</sup> Toshiba Corporation, which is the vendor for the project as well as the Japanese "grandparent" corporation of one partner in the joint venture, had agreed to provide all the financing to complete the licensing process after another partner discontinued its financial support of the project.<sup>37</sup> In December 2011, after reviewing NINA's foreign ownership Negation Action Plan and responses to requests for additional information, the Staff concluded that the combined license application did not meet the requirements of 10 C.F.R. § 50.38 related to foreign ownership, control, or domination.<sup>38</sup> In April 2014, after an evidentiary hearing, the Board resolved FC-1 in NINA's favor.<sup>39</sup> The Board found that NINA's ownership and management had been structured to ensure that Toshiba could not influence operations or any decision relating to

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<sup>32</sup> LBP-11-7, 73 NRC at 274-76.

<sup>33</sup> LBP-11-38, 74 NRC 817, 821 (2011) (First Partial Initial Decision); LBP-12-5, 75 NRC 227, 233 (2012) (Second Partial Initial Decision).

<sup>34</sup> LBP-11-38, 74 NRC at 821, 860.

<sup>35</sup> LBP-12-5, 75 NRC at 254-55.

<sup>36</sup> See LBP-11-25, 74 NRC 380 (2011) (admitting the proposed contention); Intervenor's Motion for Leave to File a New Contention Based on Prohibitions Against Foreign Control (May 16, 2011).

<sup>37</sup> LBP-14-3, 79 NRC 267, 283-84 (2014) (Third Partial Initial Decision). NINA has overall responsibility for the combined license application and the construction of STP Units 3 and 4 until lead licensee responsibilities are transferred to STPNOC at the operation stage. *Id.* at 283 n.77, 284. At the time of the Board's decision, NRG Energy owned approximately 90% of NINA and Toshiba America Nuclear Energy Corporation owned approximately 10% of NINA. *Id.* at 284. Toshiba America Nuclear Energy Corporation is a wholly-owned subsidiary of Toshiba America, Inc., which, in turn, is a wholly-owned subsidiary of Toshiba Corporation. *Id.*

<sup>38</sup> *Id.* at 274 (citing Letter from David Matthews, Office of New Reactors, NRC to Mark McBurnett, NINA (Dec. 13, 2011), at 1 (ADAMS Accession No. ML14028A332)).

<sup>39</sup> *Id.* at 312.

safety or security.<sup>40</sup> The Intervenor petitioned for review, with the Staff filing an answer in support of elements of the Intervenor's appeal.<sup>41</sup> We denied review.<sup>42</sup>

Also during the pendency of the contested proceeding, the U.S. Court of Appeals for the District of Columbia Circuit vacated and remanded our 2010 Waste Confidence Decision and Temporary Storage Rule, which for this and other NRC licensing actions served as part of the environmental analysis of the impacts of spent fuel storage after the end of a reactor's license term pending ultimate disposal in a repository.<sup>43</sup> In light of the D.C. Circuit's vacatur and remand of the rule, and in response to a number of suspension petitions filed on multiple dockets (including this one), we held in abeyance the issuance of final licensing decisions for affected matters while we addressed the court's remand.<sup>44</sup> To address the court's remand and provide comprehensive analysis of the environmental impacts of continued storage, we issued a final Continued Storage Rule and supporting Generic Environmental Impact Statement.<sup>45</sup> Concurrent with this action, we lifted the licensing suspension and dismissed, or directed licensing boards to dismiss, proposed contentions that had been filed with the multidocket suspension petitions and held in abeyance.<sup>46</sup> The Board dismissed the Intervenor's continued storage contention consistent with our direction and terminated the contested portion of the proceeding.<sup>47</sup>

Separately, the Staff considered whether the Continued Storage Rule and the associated Generic Environmental Impact Statement presented new and signif-

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<sup>40</sup> *Id.*

<sup>41</sup> Intervenor's Petition for Review of Licensing Board Memorandum and Order LBP-14-03 (May 5, 2014); NRC Staff Answer to Intervenor's Petition for Review of the Licensing Board's Partial Initial Decision on Contention FC-1 (May 30, 2014).

<sup>42</sup> CLI-15-7, 81 NRC 481, 499 (2015).

<sup>43</sup> See *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012). See generally Final Rule: "Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation," 75 Fed. Reg. 81,032 (Dec. 23, 2010); Waste Confidence Decision Update, 75 Fed. Reg. 81,037 (Dec. 23, 2010).

<sup>44</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63, 67-69 (2012); see Petition to Suspend Final Decisions in All Pending Reactor Licensing Proceedings Pending Completion of Remanded Waste Confidence Proceedings (June 18, 2012).

<sup>45</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-14-8, 80 NRC 71, 77 (2014). See generally Final Rule: "Continued Storage of Spent Nuclear Fuel," 79 Fed. Reg. 56,238 (Sept. 19, 2014); Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel, 79 Fed. Reg. 56,263 (Sept. 19, 2014); "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel," NUREG-2157, Vols. 1 and 2 (Sept. 2014) (ADAMS Accession Nos. ML14196A105 and ML14196A107). Several groups, including SEED Coalition, have filed a petition for review in the D.C. Circuit challenging the Continued Storage Rule. *New York v. NRC*, Nos. 14-1210, 14-1212, 14-1216, and 14-1217 (consolidated).

<sup>46</sup> *Calvert Cliffs*, CLI-14-8, 80 NRC at 79-81.

<sup>47</sup> LBP-14-14, 80 NRC 144, 145 (2014).



icant information such that a supplement to the FEIS was required.<sup>48</sup> The Staff compared the fuel cycle impacts analysis in the FEIS with the analysis in the Generic Environmental Impact Statement for Continued Storage and determined that the information in the Generic Environmental Impact Statement did not present a seriously different picture of the environmental impacts of the proposed action when compared to the impacts that were described in the FEIS.<sup>49</sup> The Staff concluded that the new information related to the impacts of the continued storage of spent fuel would not have changed the Staff's conclusions in the FEIS regarding the alternatives or the benefit-cost balance.<sup>50</sup>

SEED Coalition, a party to the contested proceeding, joined a group of petitioners in a multidocket petition requesting a supplement to the environmental impact statements for a number of applications, including NINA's combined license application for STP Units 3 and 4, to incorporate by reference the analysis in the Generic Environmental Impact Statement for Continued Storage.<sup>51</sup> SEED Coalition also filed a new contention, accompanied by a motion to reopen the record, as a "placeholder" to permit it to challenge the Staff's FEIS for STP Units 3 and 4 assuming that separate challenges to the Continued Storage Rule filed in the D.C. Circuit are successful.<sup>52</sup> We denied the petition to supplement and declined to admit SEED Coalition's "placeholder" contention.<sup>53</sup>

Additionally, SEED Coalition and Public Citizen, together with several other petitioners, raised issues related to the accident at the Fukushima Dai-ichi Nuclear Power Station. In CLI-11-5, the Commission denied petitions filed on multiple dockets to suspend licensing proceedings.<sup>54</sup> In December 2011, the Board rejected a proposed contention arguing that the NRC's Near-Term Task Force Report

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<sup>48</sup> See Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 41 (citing Consideration of New Information Regarding the Impacts of the Continued Storage of Spent Fuel for the South Texas Project Electric Generating Station Units 3 and 4 Combined License Application (July 2015) (ADAMS Accession No. ML15096A156)).

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

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

<sup>51</sup> See Petition to Supplement Reactor-Specific Environmental Impact Statements to Incorporate by Reference the Generic Environmental Impact Statement for Continued Spent Fuel Storage (Jan. 28, 2015).

<sup>52</sup> SEED Coalition's Motion to Reopen the Record of Combined License Proceeding for South Texas Units 3 and 4 Nuclear Power Plant (Apr. 24, 2015) at 1-2; SEED Coalition's Hearing Request and Petition to Intervene in Combined License Proceeding for South Texas Units 3 and 4 Nuclear Power Plant (Apr. 24, 2015) at 1-3.

<sup>53</sup> *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535, 544 (2015); *Duke Energy Carolinas, LLC* (William States Lee III Nuclear Station, Units 1 and 2), CLI-15-15, 81 NRC 803, 805 (2015), *appeal docketed*, No. 15-1262 (D.C. Cir. Aug. 7, 2015).

<sup>54</sup> *Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 175-76 (2011); see Emergency Petition to Suspend All Pending Reactor Licensing Decisions and Related Rulemaking  
(Continued)

constituted new and significant information concerning the environmental risks associated with nuclear power plants that should be analyzed in a supplemental DEIS.<sup>55</sup> The Near-Term Task Force Report was prepared by a team of senior NRC employees shortly after the accident to systematically and methodically review the agency's processes and regulations and provide recommendations on whether the agency should make further improvements to its regulatory processes. Relatedly, in February 2014, several petitioners sought to suspend reactor licensing decisions pending the resolution of a petition for rulemaking concerning the environmental impacts of the expedited transfer of spent fuel from the spent fuel pool to dry cask storage.<sup>56</sup> In July 2014, we denied the suspension petitions and provided direction on related requests.<sup>57</sup>

#### **D. Uncontested Proceeding**

The scope of an uncontested proceeding is defined by the scope of the contested proceeding: all of the safety and environmental issues in NINA's combined license application, except for the contested matters and those previously resolved as part of the ABWR design certification rulemaking, are subject to our review

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Decisions Pending Investigation of Lessons Learned from Fukushima Daiichi Nuclear Power Station Accident (Apr. 14, 2011, corrected Apr. 18, 2011) (ADAMS Accession No. ML111091154). The petition was not filed on the *South Texas* docket, although the caption included this case and Public Citizen and SEED Coalition joined in the filing. We resolved the petitions in our supervisory capacity and did not address procedural irregularities. See *Callaway*, CLI-11-5, 74 NRC at 158 & n.65. The NRC also recently denied petitions for rulemaking, filed in multiple dockets. The Petitioners requested that the NRC rescind its regulations that "reach generic conclusions about the environmental impacts of severe reactor and/or spent fuel pool accidents and therefore prohibit considerations of those impacts in reactor licensing proceedings." Environmental Impacts of Severe Reactor and Spent Fuel Pool Accidents; Petition for Rulemaking; Denial, 80 Fed. Reg. 48,235, 48,238 (Aug. 12, 2015); see Rulemaking Petition to Rescind Prohibition Against Consideration of Environmental Impacts of Severe Reactor and Spent Fuel Pool Accidents and Request to Suspend Licensing Decision (Aug. 11, 2011).

<sup>55</sup> LBP-11-39, 74 NRC 862, 871-72 (2011).

<sup>56</sup> See Petition to Suspend Reactor Licensing Decisions and Reactor Re-licensing Decisions Pending Completion of Rulemaking Proceeding Regarding Environmental Impacts of High-Density Pool Storage of Spent Fuel and Mitigation Measures (Feb. 27, 2014).

<sup>57</sup> See *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-14-7, 80 NRC 1, 10 (2014) (directing the Staff to deny the rulemaking petitioners' collateral request to suspend licensing decisions on all other pending proceedings and directing the Staff to seek Commission approval if it determines that suspension of NRC rules or the environmental assessments considering SAMDAs is necessary). The Staff continues to evaluate the petition for rulemaking concerning the environmental impacts of the expedited transfer of spent fuel from the spent fuel pool to dry cask storage. See PRM-51-31, Docket ID NRC-2014-0055 at <http://www.nrc.gov/reading-rm/doc-collections/rulemaking-ruleforum/petitions-by-year/2014/>.

in the uncontested proceeding.<sup>58</sup> Before we held the first mandatory hearings for combined license applications, we directed the Staff to provide us with an information paper on its review of each application concurrent with the completion of its final safety or environmental review document, whichever comes later.<sup>59</sup> The Staff issued the FEIS for STP Units 3 and 4 in February 2011 and the final Safety Evaluation Report (SER) in September 2015, which triggered the start of the uncontested portion of this proceeding.<sup>60</sup> We received the Staff's information paper on September 30, 2015, shortly after the Staff's issuance of the SER.<sup>61</sup>

### *1. Prehearing Activities*

We issued the Notice of Hearing on October 13, 2015, and set the schedule for the parties — the Staff and NINA — to file their witness lists, as well as for NINA to provide its prefiled testimony.<sup>62</sup> We also issued a number of questions on safety-related and environmental topics for the Staff and NINA to answer in writing before the hearing.<sup>63</sup> In addition, we invited interested states, local government bodies, and federally recognized Indian tribes to provide statements of issues or questions for us to consider as part of the uncontested proceeding.<sup>64</sup> We received one response from Matagorda County Judge Nate McDonald, expressing support for the issuance of the combined licenses.<sup>65</sup>

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<sup>58</sup> See Notice of Hearing, 80 Fed. Reg. at 61,493.

<sup>59</sup> See generally Staff Requirements — SECY-10-0082 — Mandatory Hearing Process for Combined License Application Proceedings Under 10 C.F.R. Part 52 (Dec. 23, 2010) at 1-2 (ADAMS Accession No. ML103570203). This direction has been memorialized in our procedures. See Internal Commission Procedures, ch. IV, “Commission Meetings/Hearings,” at IV-13 (June 12, 2012).

<sup>60</sup> See Ex. NRC-010A and NRC-010B, “Environmental Impact Statement for Combined Licenses (COLs) for South Texas Project Electric Generating Station Units 3 and 4” (Final Report), NUREG-1937, Vols. 1-2 (Feb. 2011) (ADAMS Accession Nos. ML11049A000 and ML11049A001) (FEIS); Ex. NRC-008, “Final Safety Evaluation Report for the South Texas Project Units 3 and 4 Combined License Application” (Sept. 29, 2015) (ADAMS Accession No. ML15232A128) (Safety Evaluation Report); Ex. NRC-009, “Final Safety Evaluation Report for the South Texas Project Units 3 and 4 Combined License Application, Chapters with Sensitive Information — Chapter 1, Chapter 3, and Chapter 19, Attachment A (Sept. 29, 2015) (ADAMS Accession Nos. ML15089A104, ML15226A256, ML15132A346) (nonpublic).

<sup>61</sup> See Ex. NRC-001, Staff Information Paper, at 1.

<sup>62</sup> Notice of Hearing, 80 Fed. Reg. at 61,493. The Staff's information paper serves as its prefiled testimony.

<sup>63</sup> See Order (Transmitting Pre-Hearing Questions) (Oct. 16, 2015) (unpublished) (Prehearing Question Order).

<sup>64</sup> Notice of Hearing, 80 Fed. Reg. at 61,493-94.

<sup>65</sup> Letter from Nate McDonald, County Judge, Matagorda County, to Annette Vietti-Cook, Secretary, NRC (Oct. 7, 2015) (ADAMS Accession No. ML15280A414); see also Tr. at 18 (Mr. McBurnett)

(Continued)

## 2. *The Hearing*

The Secretary of the Commission transmitted a scheduling note to NINA and the Staff setting the topics for and the order of presentations at the hearing.<sup>66</sup> In the first panel, witnesses for NINA and the Staff provided an overview of NINA's combined license application and the Staff's review. The next three panels focused on safety-related issues, and the final panel focused on environmental issues.

The Staff made available 100 witnesses at the hearing, thirteen of whom were scheduled panelists.<sup>67</sup> Ten additional witnesses answered questions on topics relating to their expertise at the hearing. A total of eight witnesses offered testimony on behalf of NINA on panels at the hearing and in prefiled written testimony.<sup>68</sup>

### *a. Summary of the Overview Panels*

Mark McBurnett, Chief Executive Officer (CEO) of NINA, Dennis Koehl, President/CEO of STPNOC, and Scott Head, Manager of Regulatory Affairs for NINA, represented NINA on the overview panel.<sup>69</sup> Mr. McBurnett provided background on the development of NINA's license application, including the ownership structure for the units, the decision to pursue combined licenses, the selection of the ABWR design, and the selection of Toshiba as a vendor.<sup>70</sup> Mr. Head provided additional information on the history of the development of the ABWR, some key aspects of the certified design, departures from the certified design, and selection of the STP site.<sup>71</sup>

Jennifer Uhle, Director of the Office of New Reactors, Gary Holahan, Deputy Director of the Office of New Reactors, Frank Akstulewicz, Director of the Division of New Reactor Licensing in the Office of New Reactors, and Mark Delligatti, Deputy Director of the Division of New Reactor Licensing in the Office of New Reactors, provided background on the Staff's review of the

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(describing Judge McDonald as the elected chief executive for Matagorda County and serving as the county emergency management director in that capacity).

<sup>66</sup> Scheduling Note, "Hearing on Combined Licenses for South Texas Project, Units 3 and 4: Section 189a of the Atomic Energy Act Proceeding (Public Meeting)," (Scheduling Note) (revising the scheduling note issued on November 5, 2015) (ADAMS Accession No. ML16014A431).

<sup>67</sup> See Tr. at 12-15, 178-79; NRC Staff Witness List (Nov. 18, 2015); Scheduling Note at 2-5.

<sup>68</sup> See Witness List of Nuclear Innovation North America LLC for the Hearing on Uncontested Issues (Oct. 29, 2015); Tr. at 11; Ex. STP-002, NINA Prefiled Testimony.

<sup>69</sup> Tr. at 17-18.

<sup>70</sup> See Ex. STP-011, NINA Presentation Slides: Overview Presentation (Nov. 19, 2015) (NINA Overview Presentation); see also Tr. at 20-24 (Mr. McBurnett).

<sup>71</sup> See Tr. at 25-34 (Mr. Head); Ex. STP-011, NINA Overview Presentation, at 3-6.

combined license application.<sup>72</sup> Mr. Holahan explained that the Staff focused its review on the plant-specific aspects of the application — operational programs, site-specific design features, combined license information items, and departures from the certified design.<sup>73</sup> He noted that this combined license application is the first to reference the ABWR design, and NINA's application likewise references the Aircraft Impact Assessment amendment to the ABWR.<sup>74</sup> Mr. Akstulewicz provided a summary of the Staff's findings under 10 C.F.R. § 52.97(a).<sup>75</sup> Mr. Delligatti provided background on the Staff's environmental review, including a summary of the Staff's findings in accordance with NEPA § 102(2)(A), (C), and (E) and 10 C.F.R. § 51.107(a).<sup>76</sup>

*b. Summary of the Safety Panels*

The first safety panel focused on departures from the certified design and exemptions from the regulations, including the exemption from the financial qualification regulations.<sup>77</sup> Mr. Head testified for NINA, and Mr. McBurnett joined him on the panel.<sup>78</sup> Tom Tai, Senior Project Manager and lead project manager for the STP Units 3 and 4 review, Licensing Branch 2, Office of New Reactors; Richard Turtill, Senior Financial Analyst, Financial Analysis and International Projects Branch, Office of Nuclear Reactor Regulation; and Dinesh Taneja, Senior Electronics Engineer, Instrumentation, Controls, and Electronics Engineering Branch, Office of New Reactors, provided testimony for the Staff.<sup>79</sup> Mr. Turtill discussed NINA's request for an exemption from the financial qualification requirements in 10 C.F.R. § 50.33(f) and Part 50, Appendix C.<sup>80</sup> Mr. Taneja discussed the Staff's review of the Tier 1 departure on instrumentation and control.<sup>81</sup> In addition to departures and exemptions, the remainder of Chapter

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<sup>72</sup> See Ex. NRC-011, Staff Presentation Slides — Overview (Nov. 19, 2015) (Staff Overview Presentation); Tr. at 51-70.

<sup>73</sup> Tr. at 57 (Mr. Holahan).

<sup>74</sup> *Id.* (Mr. Holahan); Ex. NRC-011, Staff Overview Presentation, at 4.

<sup>75</sup> Tr. at 60-62 (Mr. Akstulewicz); Ex. NRC-011, Staff Overview Presentation, at 10-12.

<sup>76</sup> Tr. at 63-69 (Mr. Delligatti); Ex. NRC-011, Staff Overview Presentation, at 12-18.

<sup>77</sup> See Tr. at 69 (Dr. Uhle); Ex. STP-012, NINA Presentation Slides: Safety Panel 1 — Financial Qualifications (Nov. 19, 2015); Ex. NRC-012, Staff Presentation Slides — Safety Panel 1 (Nov. 19, 2015) (Staff Safety Panel 1 Presentation).

<sup>78</sup> Tr. at 89-92.

<sup>79</sup> Tr. at 92-103; Scheduling Note at 2.

<sup>80</sup> Tr. at 96-100 (Mr. Turtill). This exemption is discussed in greater detail in Section II.A.1, *infra*.

<sup>81</sup> Tr. at 100-03 (Mr. Taneja).

1 of the final Safety Evaluation Report was subject to our examination during the first safety panel.<sup>82</sup>

The second safety panel focused on the novel issues associated with the review of actions to address (1) NRC Bulletin 2012-01, “Design Vulnerability in Electric Power System” and (2) the issues in Order EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events.”<sup>83</sup> Mr. Head provided testimony for NINA, with Steven Thomas, Engineering Manager for NINA, and Willem Mookhoek, Licensing Supervisor for NINA, on the panel.<sup>84</sup> Mr. Tai; Ryan Nolan, Reactor Systems Engineer, Plant Systems Branch, Office of New Reactors; and Sheila Ray, Senior Electrical Engineer, Electrical Engineering Branch, Office of Nuclear Reactor Regulation, provided testimony for the Staff.<sup>85</sup> The remaining portions of Chapters 8 and 22 of the final Safety Evaluation Report, as well as Chapters 11 through 16, 18, and 19 were also subject to our examination during the second safety panel.<sup>86</sup>

The third safety panel focused on the design-basis flood assessment for the STP site and the Staff’s review of the qualifications of Toshiba as an alternate vendor for the certified ABWR design.<sup>87</sup> Mr. Head provided testimony for NINA, with Mr. Thomas and Mr. Mookhoek on the panel.<sup>88</sup> Mr. Tai, Dr. Henry Jones, Senior Hydrologist, Hydrology and Meteorology Branch 1, Office of New Reactors, and Richard McIntyre, Senior Reactor Operations Engineer, Quality Assurance Vendor Inspection Branch, Office of New Reactors, provided testimony for the Staff.<sup>89</sup> The remaining portions of Chapters 2 and 27 of the final Safety Evaluation Report, as well as Chapters 3 through 7, 9, and 10 were also subject to our examination during the third safety panel.<sup>90</sup>

### *c. Summary of the Environmental Panel*

The environmental panel summarized the process for developing the envi-

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<sup>82</sup> Scheduling Note at 2.

<sup>83</sup> *Id.* at 3; Tr. at 69-70 (Dr. Uhle); *see* NRC Bulletin 2012-01: Design Vulnerability in Electric Power System (July 27, 2012) at 1 (ADAMS Accession No. ML12074A115); Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Effective Immediately), EA-12-049 (Mar. 12, 2012), at 3 (ADAMS Accession No. ML12054A735) (Order EA-12-049).

<sup>84</sup> Tr. at 119-22; Scheduling Note at 3.

<sup>85</sup> Tr. at 119, 122-31; Scheduling Note at 3.

<sup>86</sup> Scheduling Note at 3.

<sup>87</sup> *Id.* at 4; Tr. at 70 (Dr. Uhle).

<sup>88</sup> Tr. at 148, 150-53; Scheduling Note at 4.

<sup>89</sup> Tr. at 148, 153-61; Scheduling Note at 4.

<sup>90</sup> Scheduling Note at 4.

ronmental impact statement, the analysis of alternatives, the assessment of new information, and the conclusions and recommendations of the final environmental impact statement.<sup>91</sup> Mr. Head testified for NINA and was joined on the panel by Peggy Travis, Environmental Supervisor for STPNOC, and Russell Kiesling, Chief Consultant, Kiesling Ventures LLC, who was the environmental lead for NINA.<sup>92</sup> Patricia Vokoun, Project Manager, Environmental Projects Branch, Office of New Reactors, and Andrew Kugler, Senior Project Manager, Environmental Technical Support Branch, Office of New Reactors, provided testimony for the Staff.<sup>93</sup>

### **3. *Post-Hearing Questions***

After the hearing, we issued additional questions for written answers from NINA and the Staff.<sup>94</sup> We then admitted NINA's and the Staff's responses as exhibits, adopted corrections to the hearing transcript, and closed the evidentiary record.<sup>95</sup>

## **II. DISCUSSION**

### **A. Exemptions and Departures**

NINA submitted four requests for specific exemptions from our regulations that are outside the scope of the design certification rule; one request was later withdrawn.<sup>96</sup> In addition, the combined license application contains a total of 275 departures from the ABWR certified design.<sup>97</sup> The Staff performed an extensive review of the exemption requests and departures and noted that NINA effectively responded to its requests for additional information.<sup>98</sup>

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<sup>91</sup> Scheduling Note at 5.

<sup>92</sup> Tr. at 184-87; Scheduling Note at 5.

<sup>93</sup> Tr. at 185, 187-98; Scheduling Note at 5.

<sup>94</sup> Order (Transmitting Post-Hearing Questions) (Nov. 30, 2015) (unpublished) (Post-Hearing Questions Order).

<sup>95</sup> Order (Adopting Proposed Transcript Corrections, Admitting Post-Hearing Exhibits, and Closing the Record of the Proceeding) (Dec. 21, 2015) (unpublished).

<sup>96</sup> Ex. NRC-001, Staff Information Paper, at 13 (citing Letter from Mark McBurnett, STPNOC, to Document Control Desk, NRC (Sept. 16, 2009), at 2 (ADAMS Accession No. ML092930393) (withdrawing previous request for exemption from Appendix A to 10 C.F.R. Part 52, § IV.A.2.a)).

<sup>97</sup> Ex. STP-002, NINA Prefiled Testimony, at 10.

<sup>98</sup> Tr. at 114-16 (Mr. Tai, Mr. Turtill, Mr. Taneja).

## 1. Exemptions

The Staff evaluated and found acceptable three requests to exempt NINA from NRC regulations outside the scope of the design certification rule. First, NINA requested an exemption from the definition of “construction” in 10 C.F.R. § 50.10(a)(1) to allow the installation of crane foundation retaining walls during the excavation process prior to the issuance of the combined licenses.<sup>99</sup> Second, NINA sought an exemption from the material control and accounting requirements of 10 C.F.R. §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51, which either do not apply to reactors or expressly contain exclusions for reactors licensed under Part 50.<sup>100</sup>

Third, NINA requested an exemption from our financial qualifications requirements.<sup>101</sup> Under 10 C.F.R. §§ 52.77, 50.33(f), and Part 50, Appendix C, a combined license applicant must submit information that demonstrates that it either possesses or has reasonable assurance of obtaining the funds necessary to cover estimated construction and operating costs for the term of the license. Our regulations also require that an applicant identify the specific sources of funds on which it will rely.<sup>102</sup> The Staff was not able to find that NINA met these financial qualifications requirements “primarily due to an absence of specifically identified sources of funds.”<sup>103</sup>

Outside of this adjudication, the Staff provided us a recommendation that the NRC proceed with a rulemaking to amend or rescind the 10 C.F.R. Part 50 financial qualifications demonstration requirements.<sup>104</sup> The Staff proposed, among other things, that the financial qualifications requirements for merchant-plant initial-license applicants be changed to be consistent with the Part 70

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<sup>99</sup> See, e.g., Ex. STP-002, NINA Prefiled Testimony, at 9; Ex. NRC-001, Staff Information Paper, at 17. The Staff approved this request in 2010, but NINA has not yet installed the two crane foundation retaining walls. Ex. NRC-001, Staff Information Paper, at 17 (citing Letter from George Wunder, Sr. Project Manager, NRC to Mark McBurnett, STPNOC (Nov. 5, 2010) (ADAMS Accession No. ML102770454)).

<sup>100</sup> See, e.g., Ex. STP-002, NINA Prefiled Testimony, at 9. These exclusions do not include Part 52 applicants, even though, for purposes of these requirements, the applications are for the same facility type. The Staff evaluated the request and determined that it satisfies the criteria for exemption, primarily because the NRC has found that these requirements are unnecessary for similar Part 50 applicants. Accordingly, the same exemption has been granted to applicants for previously-issued combined licenses. Ex. NRC-001, Staff Information Paper, at 16-17. For both Part 50 and Part 52 applicants, 10 C.F.R. Part 74, Subpart B (excluding section 74.17), contains material control and accounting performance requirements. *Id.*

<sup>101</sup> See, e.g., Ex. STP-002, NINA Prefiled Testimony, at 9.

<sup>102</sup> Ex. NRC-001, Staff Information Paper, at 14.

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

<sup>104</sup> See “Policy Options for Merchant (Non-Electric Utility) Plant Financial Qualifications,” Commission Paper SECY-13-0124 (Nov. 22, 2013), at 16-18 (ML13057A006).



standard, which provides that an application will be approved if the applicant (among other things) “appears to be financially qualified.”<sup>105</sup> We approved the Staff’s recommendation and directed that in the rulemaking the Staff “should seek to develop a standard of review that approximates, as appropriate, the approach currently used for 10 CFR Part 70 applications, but does not reduce the standard of review below that of ‘appears to be financially qualified.’”<sup>106</sup> We also directed the Staff to consider using an exemption process “that anticipates the outcome of the proposed changes to the current” requirements during the pendency of the rulemaking “to address existing and emergent cases.”<sup>107</sup>

The Staff issued a Draft Regulatory Basis for the Financial Qualifications for Reactor Licensing Rulemaking in June 2015.<sup>108</sup> The Draft Regulatory Basis provides the basis for a future proposed rule that, if published, would solicit public comment on a proposal to change the Part 50 standard. The proposed rule would not require the applicant to demonstrate that it possesses or can provide reasonable assurance of obtaining the funds necessary for construction and operation. Rather, the applicant would be held to the standard currently used in Part 70, that it “appears to be financially qualified.”<sup>109</sup> Under the approach set out in the Draft Regulatory Basis, the applicant would provide a construction cost estimate and financial capacity plan.<sup>110</sup> The plan would describe how the applicant will finance construction and operation of the proposed facility and would demonstrate that the applicant has the financial capacity to obtain the necessary financing for construction and operation.<sup>111</sup>

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<sup>105</sup> *Id.* at 17-18; 10 C.F.R. § 70.23(a)(5) (“An application for a license will be approved if the Commission determines that . . . the applicant appears to be financially qualified to engage in the proposed activities in accordance with the regulations in this part.”).

<sup>106</sup> Staff Requirements — SECY-13-0124 — Policy Options for Merchant (Non-Electric Utility) Plant Financial Qualifications (Apr. 24, 2014), at 1 (ADAMS Accession No. ML14114A358) (quoting 10 C.F.R. § 70.23(a)(5)).

<sup>107</sup> *Id.* at 2 (unnumbered).

<sup>108</sup> Ex. NRC-001, Staff Information Paper, at 14 (citing Financial Qualifications for Reactor Licensing Rulemaking: Draft Regulatory Basis Document (June 2015) (ADAMS Accession No. ML14324A706) (Draft Regulatory Basis)); Financial Qualifications for Reactor Licensing: Draft regulatory basis; public meeting and request for comment, 80 Fed. Reg. 34,559 (June 17, 2015).

<sup>109</sup> Ex. NRC-001, Staff Information Paper, at 14.

<sup>110</sup> Draft Regulatory Basis at 13-14. As currently envisioned, this plan would include descriptions of the management team and of the anticipated funding methods and sources, including a discussion of past successes with such financing used in past energy or other large build projects. *Id.*

<sup>111</sup> *Id.* An applicant’s financial capacity “reflects [its] level of understanding of the size and scope of the project, including the level of capital necessary to undertake the project, and . . . the organizational and human resources, experience, skills, and expertise required to obtain proper financing.” *Id.* at 14. The Draft Regulatory Basis distinguishes between those applicants that have more than 50% of their financing and those with 50% or less financing at the time of the application. For the latter, the

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NINA requested an exemption from the NRC's financial qualifications requirements in 10 C.F.R. §§ 52.77, 50.33(f), and Part 50, Appendix C and proposed instead to satisfy a financial qualifications standard similar to that of 10 C.F.R. Part 70, consistent with the approach envisioned in our Staff Requirements Memorandum for SECY-13-0124.<sup>112</sup> In its request, NINA addressed the standards governing exemptions in 10 C.F.R. §§ 52.7 and 50.12, submitted a financial capacity plan with proposed license conditions, and referenced previously submitted construction and operational cost estimates.<sup>113</sup> The Staff reviewed NINA's exemption request using the analysis it prepared for the Draft Regulatory Basis.<sup>114</sup> The Staff concluded that NINA demonstrated its financial capacity, that its construction and operational cost estimates are reasonable, and that the proposed license conditions, as revised by the Staff, were consistent with our direction in the Staff Requirements Memorandum for SECY-13-0124.<sup>115</sup> As approved by the Staff, the license conditions require NINA to provide updated cost estimates and demonstrate secured financing prior to construction and operation.<sup>116</sup>

The Staff further concluded that the exemption request satisfied the requirements of 10 C.F.R. § 50.12.<sup>117</sup> Section 50.12(a) provides that the Commission may grant exemptions from the regulations, if the exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security and when special circumstances exist. First, the Staff determined that the exemption is authorized by law because the exemption would not conflict with the AEA or any other law.<sup>118</sup> The Staff

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applicant is expected to propose one or more license conditions that will ensure funding is available before beginning reactor construction. *Id.* at 15 & n.10 (noting that the use of license conditions is not required and that an applicant could "propose an alternate approach" for the NRC to consider).

<sup>112</sup>Letter from Scott Head, NINA, to Document Control Desk, NRC (May 18, 2015), at 2 (ADAMS Accession No. ML15140A077) (NINA Exemption Request). This amended exemption request superseded an earlier request: Letter from Scott Head, NINA, to Document Control Desk, NRC (June 19, 2014) (ADAMS Accession No. ML14175A142).

<sup>113</sup>NINA Exemption Request at 2; Ex. NRC-001, Staff Information Paper, at 15; *see also* Tr. at 91-92 (Mr. Head) (discussing NINA's financial capacity plan and stating the expectation that NINA will receive funding through project financing using a combination of loans under the Department of Energy loan guarantee program, from the Japan Bank of International Cooperation, and from other sources, as well as equity).

<sup>114</sup>*See* Ex. NRC-001, Staff Information Paper, at 15.

<sup>115</sup>*Id.* The comment period on the Draft Regulatory Basis ended on August 3, 2015. The Staff received three comments on the draft basis, all of which supported amending the financial qualification requirements for reactors; none suggested a stricter standard than the one the Staff has applied in its review of NINA's exemption request here. *Id.* at 15 n.3; *see also* Tr. at 113-14 (Mr. Turtill).

<sup>116</sup>Ex. NRC-001, Staff Information Paper, at 15.

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

<sup>118</sup>Ex. NRC-008, Safety Evaluation Report § 1.11S.5.4; *see* 10 C.F.R. § 50.12(a).

observed that the AEA affords us “broad discretion to prescribe requirements for financial qualifications.”<sup>119</sup>

Second, the Staff found that the exemption does not present an undue risk to the public health and safety because the exemption is not directly related to any safety requirements.<sup>120</sup> Although the financial qualifications regulations are intended to protect public health and safety (for example, to prevent safety lapses caused by underfunding), the Staff observed that the NRC has not found a direct correlation between preclicensing financial reviews and later safe construction and operation, and the NRC maintains a number of programs and processes that more directly ensure safe construction and operation.<sup>121</sup> Moreover, consistent with the analysis in its Draft Regulatory Basis, the Staff concluded that NINA meets the Part 70 standard for financial qualifications, as appropriately modified for a combined license applicant (that is, NINA appears to be financially qualified) and the license conditions would prevent NINA from constructing or operating STP Units 3 and 4 unless and until the necessary funding is secured.<sup>122</sup>

Third, the Staff found that the exemption is consistent with the common defense and security.<sup>123</sup> The Staff determined that the exemption does not relate to any requirements that directly govern security-related activities at proposed Units 3 and 4.<sup>124</sup> The Staff also found that NINA satisfied the Part 70 standards as modified in the Draft Regulatory Basis, and, relatedly, the license conditions ensure that the common defense and security will not be impacted.<sup>125</sup>

And fourth, the Staff asserts that special circumstances are present as described in 10 C.F.R. § 50.12(a)(2)(vi): there is a material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption.<sup>126</sup> Because the Staff relies exclusively on that section, we

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<sup>119</sup> Ex. NRC-008, Safety Evaluation Report § 1.11S.5.4, at 1-177; *see* AEA § 182a, 42 U.S.C. § 2232(a) (“Each application for a license hereunder . . . shall specifically state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the technical and financial qualifications of the applicant . . . .”); *New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87, 93 (1st Cir. 1978) (“The [AEA] gives the NRC complete discretion to decide what financial qualifications are appropriate.”).

<sup>120</sup> Ex. NRC-008, Safety Evaluation Report § 1.11S.5.4, at 1-177.

<sup>121</sup> *Id.* at 1-176; *see* 10 C.F.R. § 50.12(a). These programs include a detailed technical licensing review, the construction reactor oversight process, the reactor oversight process, the resident inspector program, the operating experience program, the vendor inspection program, and the quality assurance inspection program. Ex. NRC-008, Safety Evaluation Report § 1.11S.5.4.

<sup>122</sup> *Id.* at 1-777 to 1-778.

<sup>123</sup> *Id.* at 1-778.

<sup>124</sup> *Id.*

<sup>125</sup> *Id.*; *see* 10 C.F.R. § 50.12(a).

<sup>126</sup> Ex. NRC-008, Safety Evaluation Report § 1.11S.5.4, at 1-778; Ex. NRC-001, Staff Information  
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must be consulted before the exemption is granted.<sup>127</sup> The Staff's Information Paper served as the necessary consultation.<sup>128</sup> NINA is the first applicant to seek an initial license as a merchant plant.<sup>129</sup> In the Staff's view, the current Part 50 financial qualifications standards go "beyond the NRC's mandate of ensuring safety and have become an unnecessary impediment to licensing."<sup>130</sup> While our rules contemplate applications from merchant plants, "[a]ll current nuclear power reactor licensees were found to be financially qualified at initial licensing [of the facility] on the basis of their status as rate-regulated utilities."<sup>131</sup> Merchant plants, unlike rate-regulated utilities, may not have a predictable source of funds for construction or operation at the time of licensing because they cannot recover costs through the ratemaking process like utility applicants can.<sup>132</sup> And without identified sources of funds, an applicant cannot meet our current Part 50 financial qualification standards. Consistent with our direction in the Staff Requirements Memorandum for SECY-13-0124, the Staff's review anticipates the outcome of the proposed changes to the regulation by virtue of its use of the Draft Regulatory Basis.<sup>133</sup> For this reason, and for those discussed above, we approve the Staff's decision to grant NINA's requested exemption, subject to the license conditions identified by the Staff.

## 2. *Departures*

NINA identified 275 departures from the certified design in its application.<sup>134</sup> Of the 275 departures in the combined license application, 246 are standard departures, which would apply to future ABWR combined license applicants that use the STP Units 3 and 4 combined license application as the reference application for the ABWR.<sup>135</sup> The Staff noted that the ABWR design was certified in 1997, a decade before the STP combined license application was docketed,

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Paper, at 15-16; *see* 10 C.F.R. § 50.12(a)(2)(vi). In its exemption request, NINA asserted that section 50.12(a)(2)(ii) also applies because the Part 50 financial qualification requirements are not necessary to achieve the purpose of the rule — to prevent safety lapses from underfunded projects — because the license conditions will ensure that the project will only proceed once adequate funding is obtained. NINA Exemption Request, Attachment 1, at 6.

<sup>127</sup> *See* 10 C.F.R. § 50.12(a)(2)(vi).

<sup>128</sup> *See* Ex. NRC-001, Staff Information Paper, at 16.

<sup>129</sup> STP Units 3 and 4 are considered merchant plants, with over 90% of their electricity to be sold in deregulated markets. Tr. at 96 (Mr. Turtill).

<sup>130</sup> Ex. NRC-001, Staff Information Paper, at 16; Tr. at 100 (Mr. Turtill).

<sup>131</sup> Draft Regulatory Basis at 6.

<sup>132</sup> *Id.*

<sup>133</sup> Ex. NRC-008, Safety Evaluation Report § 1.11S.5.4, at 1-778 to 1-779.

<sup>134</sup> Ex. NRC-001, Staff Information Paper, at 17; Ex. STP-002, NINA Prefiled Testimony, at 10-11.

<sup>135</sup> Ex. STP-002, NINA Prefiled Testimony, at 11.

and therefore, it was “reasonable to expect that improvements in technology and innovations in design will occur over such a period and that these improvements and innovations will result in proposed design changes.”<sup>136</sup>

The Staff reviewed all departures to ensure that NINA adhered to the applicable regulatory criteria.<sup>137</sup> When evaluating the departures, the Staff evaluated the impacts of a departure in its totality; for example, a change to a pump, valve, control circuit, or piping system is not evaluated in isolation but may require the coordination of engineers in various disciplines to ensure that all of the impacts of the change are considered.<sup>138</sup> Additionally, NINA evaluated the cumulative change in risk from its departures, and the Staff found that the cumulative impact is not a significant change to the plants’ risk profile.<sup>139</sup> Further, the Staff stated that granting the exemptions, in its view, did not result in any cumulative impacts.<sup>140</sup>

## **B. Site-Specific Issues Addressed in the Proceeding**

Although our review encompassed the entire application, we discuss here a brief selection of the topics discussed at the hearing and in responses to pre- and post-hearing questions.

### ***1. Toshiba as an Alternate Vendor***

Toshiba is referred to as an “alternate vendor” because it is not the entity that obtained the design certification.<sup>141</sup> NINA submitted a due diligence report that provided its assessment evaluating whether Toshiba is qualified to supply the ABWR design for STP Units 3 and 4 under 10 C.F.R. § 52.73(a).<sup>142</sup> As part of its due diligence, NINA identified a number of potential areas of vulnerability for Toshiba and focused its review on those areas.<sup>143</sup> As a result of its evaluation, NINA concluded that Toshiba is qualified to supply the certified design.<sup>144</sup> To confirm NINA’s conclusion, the Staff reviewed the due diligence report and conducted a vendor inspection at Toshiba’s Isogo Nuclear Engineering Center

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<sup>136</sup> Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 1.

<sup>137</sup> *Id.*

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

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

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

<sup>141</sup> Tr. at 158 (Mr. McIntyre).

<sup>142</sup> *Id.* (Mr. McIntyre).

<sup>143</sup> Tr. at 170-71 (Mr. Thomas).

<sup>144</sup> Tr. at 170 (Mr. Thomas).

in Yokohama, Japan.<sup>145</sup> As part of its review, the Staff investigated whether Toshiba had access to engineering documents that are design basis documents for the U.S. ABWR and, if not, whether Toshiba could independently develop the documents.<sup>146</sup> The Staff conducted a comprehensive evaluation of whether Toshiba could support the design as the original design vendor would have; the Staff assessed, among other things, Toshiba's quality assurance program, subcontractor qualification procedures, and corrective action program.<sup>147</sup> In response to a question at the hearing, NINA noted that Toshiba produced references cited in the Design Control Document, as well as design-basis calculations requested by NINA, and satisfactorily performed calculations that had to be redone.<sup>148</sup> As both the Staff and NINA noted at the hearing, Toshiba has considerable experience in the design and construction of nuclear power plants and has supplied major portions of the international design of ABWRs currently in operation.<sup>149</sup> The Staff concluded that Toshiba's programs are consistent with 10 C.F.R. Part 50, Appendix B and 10 C.F.R. Part 21 and that Toshiba has the technical ability and access to necessary technical documentation. Therefore, the Staff found Toshiba to be qualified to supply the ABWR certified design under 10 C.F.R. § 52.73(a).<sup>150</sup>

## ***2. Fukushima Near-Term Task Force Recommendation 4.2 — Mitigation Strategies for Beyond-Design-Basis External Events***

In SECY-12-0025, the Staff provided the Commission with proposed orders requiring, among other things, mitigation strategies for beyond-design-basis external events to be issued to all power reactor licensees and construction permit holders.<sup>151</sup> At that time, the Staff also indicated its expectation that applications for combined licenses under active review (as the STP application was) would address all Commission-approved Fukushima recommended actions prior to licensing "to the fullest extent practicable."<sup>152</sup> In 2012, the NRC issued Order EA-12-049 requiring all operating reactors to develop and implement strategies to cope

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<sup>145</sup>Tr. at 158 (Mr. McIntyre); Ex. NRC-008, Safety Evaluation Report, § 1.4S.4, at 1-24; Ex. NRC-014, Staff Presentation Slides — Safety Panel 3 (Nov. 19, 2015), at 11-14.

<sup>146</sup>Tr. at 159, 174 (Mr. McIntyre), 174-75 (Mr. Tai).

<sup>147</sup>Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 4.

<sup>148</sup>Tr. at 172-73 (Mr. Thomas); see Ex. NRC-008, Safety Evaluation Report § 1.4S.4.

<sup>149</sup>Tr. at 33-34, 152-53 (Mr. Head), 160 (Mr. McIntyre).

<sup>150</sup>Tr. at 161 (Mr. McIntyre).

<sup>151</sup>*Id.* at 123 (Mr. Nolan); "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," Commission Paper SECY-12-0025 (Feb. 17, 2012) (ML12039A111) (SECY-12-0025).

<sup>152</sup>SECY-12-0025 at 10-11 (addressing pending and future new reactor design certification and license applications); see Tr. at 123 (Mr. Nolan).

without alternating current (AC) power for an indefinite amount of time.<sup>153</sup> The Order required all current license holders to use a three-phase approach for mitigating beyond-design-basis external events.<sup>154</sup> The initial phase requires the use of installed equipment and resources to maintain or restore core cooling, containment, and spent fuel pool cooling; the transition phase requires providing sufficient portable, onsite equipment and consumables to maintain or restore these functions until offsite resources can be brought in; and the final phase requires using offsite resources to maintain those functions indefinitely.<sup>155</sup> After issuance of Order EA-12-049, the Staff issued Interim Staff Guidance JLD-ISG-2012-01, which the Staff used to guide its review of NINA's mitigation strategies for STP Units 3 and 4.<sup>156</sup>

At the hearing, NINA and the Staff both described the mitigation strategies for STP Units 3 and 4.<sup>157</sup> NINA explained that there is no requirement for a transition phase in NINA's FLEX strategy because it can use permanently installed initial phase equipment to support a coping duration of at least 36 hours — long enough for final phase offsite equipment to arrive at the site.<sup>158</sup> Nonetheless, the STP site maintains portable onsite equipment that provides defense in depth.<sup>159</sup>

The mitigation strategies for STP Units 3 and 4 include unique design features or approaches to sustain core cooling and enhance the ability of the ABWR certified design to withstand a station blackout event.<sup>160</sup> These features and approaches include: (1) enhanced core cooling and spent fuel pool cooling capabilities; (2) strategic management of power systems that can provide direct current (DC) power supplies for at least 36 hours; (3) use of the remote shutdown panel to maximize DC battery service time; (4) capability to access water in the ultimate heat sink for long-term core cooling and spent fuel pool cooling; and (5) use of containment overpressure protection to ensure containment integrity.<sup>161</sup>

The Staff reviewed the information provided by NINA using the standards set forth in Order EA-12-049.<sup>162</sup> The Staff proposed a license condition requiring the licensee to develop “an overall integrated plan to maintain or restore core cooling,

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<sup>153</sup> Tr. at 123 (Mr. Nolan).

<sup>154</sup> Order EA-12-049 at 4.

<sup>155</sup> *Id.*

<sup>156</sup> Tr. at 124 (Mr. Nolan); “Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” JLD-ISG-2012-01, Rev. 0 (2012) (ADAMS Accession No. ML12146A014).

<sup>157</sup> Tr. at 119-21 (Mr. Head), 123-26 (Mr. Nolan), 127-28 (Ms. Ray).

<sup>158</sup> Tr. at 120 (Mr. Head).

<sup>159</sup> *Id.* (Mr. Head).

<sup>160</sup> Ex. NRC-001, Staff Information Paper, at 23.

<sup>161</sup> *Id.* at 23-24.

<sup>162</sup> *Id.* at 24 (citing Order EA-12-049).

containment function, and [spent fuel pool] cooling capabilities in the event of a simultaneous loss of all AC power and loss of normal access to the [ultimate heat sink].”<sup>163</sup> This license condition requires the licensee to finalize development of strategies and guidance and specify implementation details.<sup>164</sup> Based on this license condition and the information NINA provided in the application, the Staff concluded that there is reasonable assurance that the application meets the underlying purpose of Order EA-12-049.<sup>165</sup>

### 3. *Flammability Control System*

NINA proposed to eliminate the flammability control system from the ABWR certified design for STP Units 3 and 4. The ABWR flammability control system “consists of two redundant hydrogen recombiners located in secondary containment” and “was designed to control the potential buildup of a combustible mixture of hydrogen and oxygen inside the containment during a design basis accident.”<sup>166</sup> The Staff approved this departure for STP Units 3 and 4 because the NRC eliminated the requirement to maintain equipment needed to mitigate a design-basis loss-of-cooling accident hydrogen release, including hydrogen recombiners, when 10 C.F.R. § 50.44 was revised in 2003.<sup>167</sup> The application for STP Units 3 and 4 meets the requirements of 10 C.F.R. § 50.44(c), which applies to water-cooled reactor combined licenses issued after 2003.<sup>168</sup> Under section 50.44(c), reactor containments must “have a capability for ensuring a mixed atmosphere during design-basis and significant beyond design-basis accidents,” and license applicants must perform a structural analysis that demonstrates containment structural integrity in the event of an accident that releases “hydrogen generated from 100 percent fuel clad-coolant reaction accompanied by hydrogen burning.”<sup>169</sup>

In a prehearing question, we noted that section 50.44 was revised because inerted containments provide protection from hydrogen combustion, but the Fukushima event showed that hydrogen combustion events can occur outside the inerted primary containment and cause significant damage to the secondary

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

<sup>164</sup> Tr. at 128 (Ms. Ray).

<sup>165</sup> Ex. NRC-001, Staff Information Paper, at 24; Ex. NRC-008, Safety Evaluation Report § 22.2.

<sup>166</sup> Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 8, 9.

<sup>167</sup> *Id.* at 8.

<sup>168</sup> See 10 C.F.R. § 50.44(c).

<sup>169</sup> *Id.* §§ 50.44(c)(1) and (5); see also Ex. STP-001, NINA Answers to Prehearing Questions, at 9 (“The NINA review of the Fukushima event confirms that the Flammability Control System . . . removed from the primary containment in the ABWR design would not prevent hydrogen combustion in the secondary containment.”).



containment building.<sup>170</sup> We therefore asked whether the possible benefit of the flammability control system in the context of severe accident mitigation and recovery was considered with respect to the system's elimination in STP Units 3 and 4.<sup>171</sup> The Staff responded that studies conducted since the certification of the ABWR design have shown that hydrogen recombiners of the size and quantity included in the ABWR design do not provide a safety benefit for severe accidents.<sup>172</sup> The Staff explained that the size of the flammability control system was designed to account for the "combustible buildup of hydrogen and oxygen from a design basis metal water reaction and radiolysis of water during a loss of coolant accident. The severe accident amount of combustible hydrogen is much greater than the design basis assumptions used to size the [flammability control system]."<sup>173</sup> As such, the Staff concluded there was "limited benefit" in retaining the system in support of severe accident mitigation and recovery.<sup>174</sup>

#### **4. Design-Basis Flood Above Plant Grade**

The Staff conducted a hydrology safety review using several potential flooding scenarios and determined that the most limiting flood would result from an instantaneous breach of the north segment of the main cooling reservoir embankment.<sup>175</sup> NINA concluded that such a breach would result in a probable maximum flood of 38.8 ft (11.8 m) above mean sea level (MSL) and therefore proposed a design-basis flood elevation of 40 ft (12.2 m) MSL.<sup>176</sup> The Staff reviewed NINA's analysis and conducted an independent confirmatory analysis.<sup>177</sup> The power block of STP Units 3 and 4 is 34 ft (10.36 m) MSL.<sup>178</sup> Consequently, the design-basis flood is approximately 6 ft (1.83 m) above the grade of the power block.<sup>179</sup> The

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<sup>170</sup> Prehearing Question Order at 6.

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

<sup>172</sup> Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 9.

<sup>173</sup> *Id.*

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

<sup>175</sup> Ex. NRC-001, Staff Information Paper, at 25-26; Ex. NRC-008, Safety Evaluation Report §§ 2.4S.4, 2.4S.10.

<sup>176</sup> Ex. NRC-006C, South Texas Project, Units 3 and 4, Combined License Application Rev. 12 — Part 2 (Final Safety Analysis Report) Tier 2 (2015), § 2.4S.4, at 2.4S.4-1, 2.4S.4-20 (ADAMS Accession No. ML15124A421); Ex. NRC-001, Staff Information Paper, at 26.

<sup>177</sup> Ex. NRC-001, Staff Information Paper, at 26.

<sup>178</sup> Ex. NRC-006C, Final Safety Analysis Report, § 2.4S.4, at 2.4S.4-1; Ex. NRC-001, Staff Information Paper, at 25.

<sup>179</sup> Ex. NRC-001, Staff Information Paper, at 26; Tr. at 151-52 (Mr. Head).

Staff evaluated this proposal and concluded that the safety-related facilities will remain free from flooding.<sup>180</sup>

An NRC Staff member did not concur with the Staff's hydrological conclusions, specifically with respect to determining the design-basis flood level and maximum groundwater level.<sup>181</sup> These site parameters are important for structural design and protecting safety-related facilities from flooding.<sup>182</sup> The nonconcurrency stated that the design-basis flood level was not determined accurately or conservatively in either NINA's application or the Staff's Safety Evaluation Report.<sup>183</sup> To resolve the issues raised by the nonconcurrency, the Staff solicited independent expert reviewers from the University of Maryland, the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation, Virginia Polytechnic Institute and State University, Taylor Engineering Research Institute (University of North Florida), and the University of North Carolina.<sup>184</sup> The independent review panel concluded that all the technical issues were resolved correctly by the Staff.<sup>185</sup> In addition, the ACRS reviewed the nonconcurrency as part of the ABWR Subcommittee's review of the STP Units 3 and 4 combined license application; the nonconcurring individual made a presentation before the ACRS Subcommittee.<sup>186</sup> The ACRS concurred with the Staff's conclusions from its review of the site hydrology.<sup>187</sup>

Prior to the uncontested hearing, the nonconcurring individual sent us a statement of technical concerns related to determining the design-basis flood level for the STP combined license application.<sup>188</sup> The statement was served on the parties, and we have reviewed it. At the hearing, the Staff indicated that it had reviewed the statement, determined that the statement did not add anything new to the nonconcurrency, and maintained its position, documented in

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<sup>180</sup> Ex. NRC-001, Staff Information Paper, at 26; Ex. NRC-008, Safety Evaluation Report §§ 2.4S.4, 2.4S.10.

<sup>181</sup> Ex. NRC-001, Staff Information Paper, at 27; *see* Non-Concurrence Process Record for NCP-2011-014 (Dec. 13, 2012) (ADAMS Accession No. ML12348A249).

<sup>182</sup> Ex. NRC-001, Staff Information Paper, at 27.

<sup>183</sup> *Id.* The individual asserted that the errors related to the design-basis flood level resulted in several regulatory requirements not being met — 10 C.F.R. § 52.79(a)(1)(iii); General Design Criterion 2, "Design bases for protection against natural phenomena," of 10 C.F.R. Part 50, Appendix A; and 10 C.F.R. § 100.20(c)(3). *Id.*

<sup>184</sup> *Id.*

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

<sup>186</sup> *Id.* at 28.

<sup>187</sup> *Id.*; ACRS Letter at 6.

<sup>188</sup> Memorandum from Emile Julian, Office of the Secretary, NRC, to NINA and the Staff (Nov. 12, 2015) (ADAMS Accession No. ML15316A848) (serving on the parties an e-mail forwarding "Technical Concerns Regarding the Uncontested Hearing for Issuance of Combined Licenses for the South Texas Project Units 3 and 4, SECY 15-0123" (Nov. 2, 2015)).

the Safety Evaluation Report, on the design-basis flood level.<sup>189</sup> Similarly, NINA reviewed the statement and indicated that the statement did not alter its analysis or conclusions on the design-basis flood level for the site.<sup>190</sup>

### **5. NRC Bulletin 2012-01 — Electric Power System**

Our regulations require the use of onsite and offsite electric power systems that permit the functioning of structures, systems, and components important to safety.<sup>191</sup> In Bulletin 2012-01, the NRC requested information about operating facilities' electric power system designs, in response to the loss of one of the three phases of the offsite power circuit (known as a single-phase open circuit condition) at Byron Station, Unit 2.<sup>192</sup> The Byron event led to identification of a design vulnerability in the protection scheme for certain engineered safety features buses. The Bulletin was issued to notify plants of the design vulnerability and the potential impact on safety-related equipment.<sup>193</sup> "The [S]taff was concerned that an undervoltage condition due to a loss of phase event could damage engineered safety features equipment and actuate protective devices."<sup>194</sup> To address this vulnerability, when one or more phases in the three-phase offsite power system is lost, reactors with active safety systems, such as STP Units 3 and 4, should (1) detect an offsite power system open-phase circuit condition on the high voltage side of the main power transformer under all loading and operating configurations; (2) activate an alarm in the main control room; and (3) provide automatic mitigation and response to the event.<sup>195</sup> The Staff determined that these steps would ensure that AC power, with adequate capacity and capability, is available to safety-related equipment to meet its intended safety function.<sup>196</sup>

NINA is the first combined license applicant to resolve the open-phase issue discussed in Bulletin 2012-01 for an active design.<sup>197</sup> The Staff found NINA's solution acceptable because it provides features for detection and alarm in addition

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<sup>189</sup> Tr. at 167 (Dr. Jones), 169 (Mr. Flanders).

<sup>190</sup> Tr. at 168 (Mr. Head).

<sup>191</sup> 10 C.F.R. Part 50, App. A (General Design Criterion 17), § 50.55a(h)(3).

<sup>192</sup> Bulletin 2012-01 at 1. NINA addressed the issues raised in the Bulletin in several responses to requests for additional information. Ex. NRC-008, Safety Evaluation Report § 8.2S, at 8-36.

<sup>193</sup> Tr. at 129 (Ms. Ray).

<sup>194</sup> Ex. NRC-001, Staff Information Paper, at 28.

<sup>195</sup> *Id.* at 29; Tr. at 129-30 (Ms. Ray); Ex. NRC-008, Safety Evaluation Report § 8.2S.

<sup>196</sup> Ex. NRC-001, Staff Information Paper, at 29; Tr. at 130 (Ms. Ray); Ex. NRC-008, Safety Evaluation Report § 8.2S.

<sup>197</sup> Ex. NRC-001, Staff Information Paper, at 29; Tr. at 130 (Ms. Ray).

to automatically protecting safety-related equipment.<sup>198</sup> The Staff further determined that NINA's solution prevents safety-related or non-safety-related loads from exceeding their ratings, which could damage equipment.<sup>199</sup> The Staff noted that NINA has added ITAAC and technical specification surveillance requirements, as well as committed to developing procedures and training, to address implementation of this solution.<sup>200</sup> The Staff concluded that the design meets the requirements in General Design Criterion 17 and 10 C.F.R. § 50.55a(h)(3).<sup>201</sup>

## **6. Reactor Vessel Material Surveillance Program**

The material surveillance program collects data used to establish the conditions under which the reactor vessel can be operated with adequate margins of safety against fracture throughout its service life. Unless the reactor vessel meets the criteria of Part 50, Appendix H, § III.A, licensees must monitor the reactor pressure vessel beltline materials through a surveillance program that complies with ASTM E 185-82, as modified by Part 50, Appendix H.<sup>202</sup> Accordingly, NINA has proposed a surveillance program for STP Units 3 and 4. The surveillance program is based on the testing of material specimens that are stored in surveillance capsules inside the reactor pressure vessel and periodically withdrawn from the vessel on an NRC-approved schedule.<sup>203</sup> Licensees analyze the material specimens to evaluate changes, due to neutron irradiation and high temperatures, in the fracture toughness properties of the ferritic materials in the reactor vessel beltline region.<sup>204</sup>

The Design Control Document for the ABWR specifies the minimum number of capsules to be included in the ABWR (four) and provides a sample withdrawal schedule that is different from the schedule included in the ASTM standard.<sup>205</sup> Further, the Design Control Document directs a combined license applicant to identify the withdrawal schedule for each surveillance capsule as part of its

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<sup>198</sup> Ex. NRC-001, Staff Information Paper, at 29; Tr. at 130 (Ms. Ray); Ex. NRC-008, Safety Evaluation Report § 8.2S.

<sup>199</sup> Ex. NRC-001, Staff Information Paper, at 29; Tr. at 130-31 (Ms. Ray); Ex. NRC-008, Safety Evaluation Report § 8.2S.

<sup>200</sup> Ex. NRC-001, Staff Information Paper, at 29; Tr. at 131 (Ms. Ray); Ex. NRC-008, Safety Evaluation Report § 8.2S.

<sup>201</sup> Ex. NRC-001, Staff Information Paper, at 29; Tr. at 131 (Ms. Ray); Ex. NRC-008, Safety Evaluation Report § 8.2S.

<sup>202</sup> 10 C.F.R. Part 50, App. H, § III.B; ASTM E 185-82, Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels (1982) (ASTM E 185-82).

<sup>203</sup> 10 C.F.R. Part 50, App. H, § III.B.3.

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

<sup>205</sup> See ABWR Design Control Document, Tier 2, § 5.3.1.6.1.

combined license application.<sup>206</sup> This direction is consistent with 10 C.F.R. Part 50, Appendix H, which requires applicants to submit a proposed withdrawal schedule with a technical justification.<sup>207</sup>

By way of background, in its review of the draft Design Control Document, the Staff noted that the applicant, GE, had only included three capsules in the proposed design.<sup>208</sup> The Staff requested that GE update the number of capsules in the design to accommodate a 60-year service life.<sup>209</sup> GE did so, and the Staff approved the revision to include four capsules.<sup>210</sup> But the Staff did not approve a withdrawal schedule for the capsules. Instead, the ABWR Design Control Document indicates that a combined license applicant will provide a withdrawal schedule for each capsule as part of its license application. The schedule reflected in the Design Control Document is not part of the certified design and, as such, is subject to review as part of the combined license application.

In its application, NINA submitted a proposed withdrawal schedule for each unit that is identical to the sample schedule in the Design Control Document, but differs from the withdrawal schedule presented in Table 1 of ASTM E 185-82.<sup>211</sup> But NINA did not provide a technical justification for the use of this schedule, nor has the Staff analyzed the proposed schedule to verify its compliance with 10 C.F.R. Part 50, Appendix H.<sup>212</sup>

After our review of the proposed capsule withdrawal schedule, we note the dissimilarity between NINA's proposed schedule and that in the ASTM standard, and the absence of a clear justification for the proposed alternative schedule. Based on our review of the record and the relevant requirements, we find that a license condition directing the use of the specified schedule in the ASTM standard is appropriate here. While NINA's proposed schedule does not present

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<sup>206</sup> *Id.* § 5.3.4.2 at 5.3-19.

<sup>207</sup> 10 C.F.R. Part 50, App. H, § III.B.3.

<sup>208</sup> "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design, Main Report," NUREG-1503 (July 1994), § 5.3.1, at 5-16 (ADAMS Accession No. ML080670592).

<sup>209</sup> *Id.*

<sup>210</sup> *Id.* at 5-16 to 5-17. Although initial reactor licenses are issued for 40 years, sufficient surveillance capsules must be included to provide for an effective surveillance program for the design life of the facility, which, in this instance, is 60 years. *See id.*

<sup>211</sup> *See* Ex. NRC-006H, South Texas Project, Units 3 and 4, Combined License Application Rev. 12 — Part 2 (Final Safety Analysis Report) Tier 2 (2015), § 5.3.1.6.1 at 5.3-2; § 5.3.4.2 at 5.3-5 (ADAMS Accession No. ML15124A421); ABWR Design Control Document, Tier 2, § 5.3.1.6.1; ASTM E 185-82 at Table 1, "Minimum Recommended Number of Surveillance Capsules and Their Withdrawal Schedule (Schedule in Terms of Effective Full-Power Years of the Reactor Vessel)."

<sup>212</sup> *See* Tr. at 176-77; Ex. NRC-016, NRC Staff Responses to Commission Post-Hearing Questions (Dec. 7, 2015), at 2-3 (Staff Answers to Post-Hearing Questions); Ex. STP-016, NINA's Responses to Post-Hearing Questions (Dec. 3, 2015), at 3-4 (NINA Answers to Post-Hearing Questions).

an immediate safety concern, we direct the Staff to include a condition in each combined license to require the use of the withdrawal schedule provided in Table 1 of ASTM E 185-82 for a three-capsule program in the initial 40-year licensing period (that is, withdrawal of capsules at 6 effective full-power years, 15 effective full-power years, and at a time when the neutron fluence is between one and two times the expected end-of-life fluence for the reactor pressure vessel).<sup>213</sup> Consistent with the certified design, a fourth capsule would be reserved for a potential period of extended operation.

We note one other matter with respect to the reactor vessel material surveillance program. Sections 7.3.1 and 8.2.1 of ASTM E 185-82, which are incorporated by reference in 10 C.F.R. Part 50, Appendix H, provide criteria for dosimetry testing and require testing of dosimeters located inside of the capsules in accordance with ASTM Guide E 482. In its response to a post-hearing question on the proposed neutron dosimetry testing program, NINA indicated that it would not perform any testing of dosimeters located inside of the surveillance capsules because the linear relationship between fluence and power output precludes the need for such testing.<sup>214</sup> NINA's position is inconsistent with ASTM E 185-82, which is incorporated by reference into our regulations, as noted above. The ASTM standard and, by extension, our regulations require licensees to test dosimeters located inside of the surveillance capsules. We expect the Staff to ensure that the licensee implements an appropriate surveillance program, taking into account the internal dosimetry requirements, as part of its regular oversight of reactor operations.

## **7. Knowledge Management**

It is uncertain when, if at all, construction of STP Units 3 and 4 would begin after issuance of the licenses.<sup>215</sup> At the hearing, we explored NINA's plans to maintain the knowledge gained during the combined license review, should NINA wait for an extended period of time to begin construction.<sup>216</sup> Specifically, we asked about NINA's plans for knowledge management and transfer to ensure that it

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<sup>213</sup>Table 1 of the ASTM standard provides that the first and second capsules may need to be withdrawn earlier than the specified times depending on other factors, but these other factors would not apply to STP. *See* Ex. NRC-016, Staff Answers to Post-Hearing Questions, at 2.

We have not ourselves evaluated the technical merits of the proposed schedule in NINA's combined license application. NINA is free to submit a license amendment request seeking to remove the license condition and to use an alternate withdrawal schedule accompanied by a technical justification, which can be evaluated by the Staff.

<sup>214</sup>NINA Answers to Post-Hearing Questions at 2; Post-Hearing Questions Order at 2.

<sup>215</sup>*See, e.g.*, Tr. at 111 (Chairman Burns).

<sup>216</sup>Tr. at 111-13.

remains technically qualified to construct and operate the units.<sup>217</sup> Mr. McBurnett explained that Toshiba, the vendor for the project, has extensive knowledge and experience in the construction and maintenance of ABWRs (with several under construction and others now operating in Japan).<sup>218</sup> Additionally, Mr. McBurnett stated that NINA is working to ensure that it maintains its records and documents in an organized, searchable fashion, developing expertise within the project, and maintaining contact with the people who have worked on the project over the years.<sup>219</sup>

## **8. Environmental Issues**

The proposed site is co-located with existing STP Units 1 and 2 and would use much of the existing infrastructure.<sup>220</sup> As detailed in the FEIS, the impacts from building and operating the proposed units would be small for almost all resource areas.<sup>221</sup> The Staff's environmental review considered information from NINA's Environmental Report; consultation with federal, state, tribal, and local agencies; the Staff's independent review; and the Staff's consideration of comments received during the public scoping process and the comment period on the draft EIS.<sup>222</sup> The Staff did not identify any novel issues with respect to the environmental review for STP Units 3 and 4.<sup>223</sup> In addition, in response to our question at the hearing, the Staff stated that NINA did not take any novel approaches to its impact assessments of resource areas.<sup>224</sup>

The FEIS was completed in 2011, while the Staff was still conducting its safety review of the application.<sup>225</sup> Under 10 C.F.R. § 51.92, the Staff must supplement a FEIS if there are substantial changes in the proposed action that are relevant to environmental concerns or if there are new and significant circumstances or information relevant to environmental concerns that bear on the proposed action or its impacts. Accordingly, after publication of the FEIS, the Staff followed its process for consideration of new information to determine whether a supplement

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<sup>217</sup> Tr. at 111 (Chairman Burns).

<sup>218</sup> Tr. at 111-12 (Mr. McBurnett).

<sup>219</sup> *Id.* at 112 (Mr. McBurnett).

<sup>220</sup> *Id.* at 188 (Ms. Vokoun).

<sup>221</sup> *Id.* at 191 (Ms. Vokoun).

<sup>222</sup> *Id.* at 197 (Ms. Vokoun). "The [S]taff addressed 378 individual comments extracted from the meeting transcripts, letters, and emails." Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 42.

<sup>223</sup> Ex. NRC-001, Staff Information Paper, at 30.

<sup>224</sup> Tr. at 198 (Ms. Vokoun).

<sup>225</sup> Tr. at 196 (Ms. Vokoun).

might be needed.<sup>226</sup> The Staff's process included an audit, conducted in February 2015, of NINA's process for identifying and assessing new information.<sup>227</sup> The Staff concluded that the new information did not present a seriously different picture of the environmental impacts of constructing and operating STP Units 3 and 4 when compared to the impacts described in the FEIS and that supplementation was not required.<sup>228</sup>

In prehearing questions and at the hearing, we explored the possible impacts of recent drought conditions in the area of the STP site.<sup>229</sup> NINA noted that drought conditions are not uncommon in Texas and were considered during the original design of the STP site.<sup>230</sup> Further, the "site was originally designed to accommodate four operating units and the Main Cooling Reservoir (MCR) was sized accordingly. Also, sufficient senior water rights were procured to ensure that four units could operate even under severe drought conditions."<sup>231</sup> NINA represented that it does not anticipate the need for any new water appropriations to support STP Units 3 and 4.<sup>232</sup> In part because of its ability to operate during severe drought conditions, NINA asserts that the STP site remains the obviously superior site even when recent drought conditions are considered.<sup>233</sup> Similarly,

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<sup>226</sup> *Id.* (Ms. Vokoun); Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 39 (citing "Staff Process for Determining if a Supplement to an Environmental Impact Statement Is Required in Accordance with Title 10 of the *Code of Federal Regulations*, Part 51.92(a) or 51.72(a)" (ADAMS Accession No. ML13199A170)).

<sup>227</sup> Tr. at 196 (Ms. Vokoun); Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 39-40 (citing Memorandum from Mark D. Notich, Sr. Project Manager, NRC, to Jennifer L. Dixon-Herrity, Environmental Projects Branch Chief, NRC (Apr. 15, 2015) (ADAMS Accession No. ML15040A372) (providing summary report of the audit results of NINA's process for identifying new and potentially significant information)); *see also supra* pp. 22-23 & n.48 (regarding the Staff's consideration of the Continued Storage Rule and associated GEIS as potentially new and significant information).

<sup>228</sup> Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 40. Since the FEIS was completed, one new bird species has been federally listed as threatened under the Endangered Species Act and potentially occurs in the landscape surrounding the STP site — the rufa red knot (*Calidrus canutus rufa*). *Id.* at 45. Based on the review of information provided by experts from NINA and the U.S. Army Corps of Engineers, the Staff concluded that the STP project would not affect the rufa red knot, as it is a shorebird and the STP site does not provide, and is some distance from, its preferred habitat — beachfront and shores. *Id.* Because the Staff concludes there would be no effect on the species, the Staff is not required to seek concurrence from the U.S. Fish and Wildlife Service or take further action under the Endangered Species Act. *Id.*

<sup>229</sup> *See* Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 42-44; Ex. STP-001, NINA Answers to Prehearing Questions, at 44-45; Tr. at 199-200, 202-07. The Staff recognized that 2011 was the driest year on record for Texas and the State remained in severe drought condition from late 2010 until recently. Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 42.

<sup>230</sup> Ex. STP-001, NINA Answers to Prehearing Questions, at 44.

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

<sup>232</sup> *Id.*

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



the Staff recognized that Texas experiences frequent droughts and considered the drought of record that occurred in the 1950s and was discussed in the FEIS.<sup>234</sup> Because the recent severe drought was bounded by the earlier drought of record, the Staff's impact evaluation in the FEIS did not change based on the recent drought.<sup>235</sup>

We also asked whether the recent drought conditions impacted any of the FEIS conclusions related to terrestrial ecological impacts.<sup>236</sup> Both NINA and the Staff reiterated that droughts are not uncommon in the area, and that the recent drought was not as severe as the drought of record discussed in the FEIS.<sup>237</sup> NINA further noted that the proposed location for STP Units 3 and 4 consists mainly of areas that do not offer particularly attractive habitat to the terrestrial species that inhabit the site.<sup>238</sup> Similarly, the Staff responded that the plants and wildlife on the site are expected to be broadly tolerant of extreme environmental conditions such as droughts, but also that loss or degradation of these resources would only be of minimal ecological significance.<sup>239</sup> Therefore, although the Staff did not perform a separate analysis of the impacts of the recent drought on terrestrial ecological resources, the Staff does not expect that any of the impact determinations would have changed.<sup>240</sup>

### C. Findings

We have conducted an independent review of the sufficiency of the Staff's safety findings, with particular attention to the topics discussed above. Our findings, however, are based on the entire record. Based on the evidence presented in the uncontested hearing, including the Staff's review documents and the testimony provided, we find that the applicable standards and requirements of the AEA and the NRC regulations have been met. The required notifications to other agencies or bodies have been duly made.<sup>241</sup> NINA is technically and financially

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<sup>234</sup> Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 42.

<sup>235</sup> *Id.*

<sup>236</sup> Prehearing Questions Order at 27.

<sup>237</sup> Ex. STP-001, NINA Answers to Prehearing Questions, at 45; Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 43.

<sup>238</sup> Ex. STP-001, NINA Answers to Prehearing Questions, at 45.

<sup>239</sup> Ex. NRC-005-R, Staff Answers to Prehearing Questions, at 43.

<sup>240</sup> *Id.*

<sup>241</sup> The Staff notified the Electric Reliability Council of Texas, the Public Utility Commission of Texas, and the Federal Energy Regulatory Commission about the combined license application in May 2015. Ex. NRC-001, Staff Information Paper, at 30 (citing Letter from Tom Tai, NRC, to Craven Crowell, Electric Reliability Council of Texas (May 5, 2015) (ADAMS Accession No.

(Continued)

qualified to engage in the activities authorized. We find that there is reasonable assurance that the facility will be constructed and operated in conformity with the licenses, the provisions of the AEA, and the NRC's regulations and that issuance of the licenses will not be inimical to the common defense and security or to the health and safety of the public. In addition, we find that the Staff's proposed regulatory exemptions meet the standards in 10 C.F.R. § 50.12. And finally, we find that the Staff's proposed license conditions as well as the license condition we direct the Staff to include, discussed in Section II.B.6, above, are appropriately drawn and sufficient to provide reasonable assurance of adequate protection of public health and safety.

We also conducted an independent review of the Staff's environmental analysis in the FEIS, taking into account the particular requirements of NEPA. NEPA § 102(2)(A) requires agencies to use "a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts" in decision-making that may impact the environment.<sup>242</sup> We find that the environmental review team used the systematic, interdisciplinary approach that NEPA requires.<sup>243</sup> The environmental review team consisted of more than sixty individuals with expertise in disciplines including ecology, geology, hydrology, radiological health, socioeconomics, and cultural resources.<sup>244</sup>

NEPA § 102(2)(E) calls for agencies to study, develop, and describe appropriate alternatives.<sup>245</sup> The alternatives analysis is the "heart of the environmental impact statement."<sup>246</sup> Based on the discussion in the FEIS and the Staff's testimony at the hearing, we find that the environmental review identified an appropriate range of alternatives with respect to alternative power sources, alternative sites, and alternative system designs and adequately described the environmental im-

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ML15085A440); Letter from Tom Tai, NRC, to Brian Almon, Public Utility Commission of Texas (May 5, 2015) (ADAMS Accession No. ML15085A370); Letter from Tom Tai, NRC, to Kimberly Bose, Federal Energy Regulatory Commission (May 5, 2015) (ADAMS Accession No. ML15085A430)). The Staff published notices of the application in advance of public EIS scoping meetings on January 27, 2008, and February 3, 2008, in the *Bay City Tribune* and *Victoria Advocate*. *Id.* Notices of the combined license application were also published in advance of public meetings on the draft EIS on April 25, 2010, May 2, 2010, and May 5, 2010, in the same papers. *Id.* at 30-31. In addition, pursuant to 10 C.F.R. § 50.43(a)(3), the Staff published a notice of the application in the *Federal Register* on April 23, 2015; April 28, 2015; May 6, 2015; and May 12, 2015 (80 Fed. Reg. 22,746; 80 Fed. Reg. 23,597; 80 Fed. Reg. 26,104; and 80 Fed. Reg. 27,190, respectively). *Id.* at 31.

<sup>242</sup> NEPA § 102(2)(A), 42 U.S.C. § 4332(2)(A).

<sup>243</sup> See, e.g., Tr. at 188-91 (Ms. Vokoun) (providing an overview of the Staff's environmental review methodology); Ex. NRC-015, Staff Presentation Slides — Environmental Panel (Nov. 19, 2015), at 3-6, 9-11.

<sup>244</sup> See Ex. NRC-010B, FEIS, App. A. The team consisted of individuals from the NRC, the U.S. Army Corps of Engineers, Pacific Northwest National Laboratory, and Idaho National Laboratory. *Id.*

<sup>245</sup> NEPA § 102(2)(E), 42 U.S.C. § 4332(2)(E).

<sup>246</sup> 10 C.F.R. Part 51, App. A, § 5.

pacts of each alternative.<sup>247</sup> We find reasonable the Staff's conclusion that none of the alternatives considered is environmentally preferable to the proposed action.<sup>248</sup>

NEPA § 102(2)(C) requires us to assess the relationship between local short-term uses and long-term productivity of the environment, to consider alternatives, and to describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action.<sup>249</sup> The discussion of alternatives is in Chapter 9 of the FEIS; the other items are discussed in Chapter 10.<sup>250</sup> The review team found the principal short-term benefit of the project to be the production of electrical energy.<sup>251</sup> The review team also found that the site would have much greater economic productivity hosting the reactors than it would if used for agriculture or other probable uses of the site.<sup>252</sup> While the review team noted there would be an impact to long-term productivity when the plant is not immediately dismantled at the end of operation, the team found that "the enhancement of regional productivity resulting from the electrical energy produced by the plant is expected to result in a correspondingly large increase in regional long-term productivity that would not be equaled by any other long-term use of the site."<sup>253</sup>

Chapter 10 of the FEIS includes tables listing the unavoidable adverse environmental impacts during preconstruction, construction, and operation, along with actions to mitigate those impacts.<sup>254</sup> The review team found that the unavoidable impacts during preconstruction and construction would be small for all resource areas except for socioeconomic impacts — physical impacts, demography, economic impacts, and community services and infrastructure — which would be small to moderate.<sup>255</sup> The impact for economics would be beneficial.<sup>256</sup> For operation, the review team found that the unavoidable adverse impacts would be small for all resource areas except economics, where the impacts would be beneficial and small to large.<sup>257</sup>

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<sup>247</sup> See, e.g., Tr. at 193-95 (Mr. Kugler); Ex. NRC-010A, FEIS, ch. 9.

<sup>248</sup> See, e.g., Tr. at 195 (Mr. Kugler); Ex. NRC-010A, FEIS, § 9.2, at 9-31, 9-33; § 9.3, at 9-207; § 9.4, at 9-215.

<sup>249</sup> NEPA § 102(2)(C)(ii)-(v), 42 U.S.C. § 4332(2)(C)(ii)-(v).

<sup>250</sup> See Ex. NRC-010A, FEIS, chs. 9-10.

<sup>251</sup> *Id.*, § 10.3, at 10-13.

<sup>252</sup> *Id.*, § 10.3, at 10-13 to 10-14.

<sup>253</sup> *Id.* at 10-14. The review team also noted that "most long-term impacts resulting from land-use preemption by plant structures can be eliminated by removing these structures or by converting them to other productive uses." *Id.*

<sup>254</sup> *Id.*, Tables 10-1 and 10-2.

<sup>255</sup> *Id.*, Table 10-1.

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

<sup>257</sup> *Id.*, Table 10-2.

Finally, with regard to irreversible and irretrievable commitments of resources, the review team concluded that disposal of radioactive and nonradioactive wastes would require the long-term or irreversible commitment of land and over 22,000 gallons per minute (83,279 liters per minute) of cooling water would be lost through evaporation during operation.<sup>258</sup> While there would be both temporary and long-term changes to the abundance and distribution of terrestrial biota at the site, there is enough suitable habitat elsewhere in the area such that changes would not result in adverse impacts to the regional populations despite localized permanent loss of habitat.<sup>259</sup> With respect to aquatic biota, the review team expects preconstruction, construction, and operation to adversely affect the abundance and distribution of the aquatic community, including designated essential fish habitat in certain areas of the Colorado River.<sup>260</sup> The review team predicts that activities related to STP Units 3 and 4 would have more than minimal but less than substantial adverse effect on essential fish habitat in the Colorado River.<sup>261</sup> The review team expects that the aquatic habitat and populations would recover after Units 3 and 4 permanently cease operations and the plant is decommissioned.<sup>262</sup> The review team also concluded that during the construction of Units 3 and 4, the materials used and energy consumed, “while irretrievable, would be of small consequence with respect to the availability of such resources.”<sup>263</sup> With regard to operation of the proposed units, the review team determined that uranium would be irretrievably committed, but it would be negligible in comparison to the availability of uranium ore and existing stockpiles of highly enriched uranium in the United States and Russia that could be processed into fuel.<sup>264</sup>

We must weigh these unavoidable adverse environmental impacts and resource commitments — the environmental “costs” of the project — against the project’s benefits.<sup>265</sup> Considering the need for power in the region and the expected increase in productivity, jobs, and tax revenue as described in the hearing and in the FEIS, we find that the benefits of the project outweigh the costs described above. Moreover, we have considered each of the requirements of NEPA § 102(2)(C) and find nothing in the record that would lead us to disturb the Staff’s conclusions on those requirements.

In sum, for each of the environmental topics discussed at the hearing and in this decision, we find that the Staff’s review was reasonably supported in logic

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<sup>258</sup> *Id.* §§ 10.4.1.1 and 10.4.1.2.

<sup>259</sup> *Id.* § 10.4.1.3.

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

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

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

<sup>263</sup> *Id.* § 10.4.2.

<sup>264</sup> *Id.*

<sup>265</sup> 10 C.F.R. § 51.107(a).

and fact and sufficient to support the Staff's conclusions. Based on our review of the FEIS, we also find that the remainder of the FEIS was reasonably supported and sufficient to support the Staff's conclusions.

Therefore, as a result of our review of the FEIS environmental analysis, and in accordance with the Notice of Hearing for this uncontested proceeding, we find that the requirements of NEPA § 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51, have been satisfied with respect to the combined license application. We independently considered the final balance among conflicting factors contained in the record of this proceeding. We find, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, that the combined licenses should be issued.

### III. CONCLUSION

We find that, with respect to the safety and environmental issues before us today, the Staff's review of NINA's combined license application was sufficient to support the findings in 10 C.F.R. §§ 52.97(a) and 51.107(a). We *authorize* the Director of the Office of New Reactors to issue the combined licenses for the construction and operation of South Texas Project Units 3 and 4 subject to the directions and modifications contained herein.<sup>266</sup> We *authorize* the Staff to issue the record of decision.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK

Secretary of the Commission

Dated at Rockville, Maryland,  
this 9th day of February 2016.

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<sup>266</sup> See *supra* Section II.B.6.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket No. 50-443-LR**

**NEXTERA ENERGY SEABROOK, LLC**  
**(Seabrook Station, Unit 1)**

**February 25, 2016**

**MEMORANDUM AND ORDER**

Friends of the Coast and New England Coalition (Friends/NEC) request that we order the Final Supplemental Environmental Impact Statement (Final SEIS) for the Seabrook Station, Unit 1 license renewal application to be withdrawn, re-released as a draft or supplement to the Draft Supplemental Environmental Impact Statement (Draft SEIS), and published for public comment.<sup>1</sup> For the reasons set forth below, we deny the motion.

**I. BACKGROUND**

In May 2010, NextEra Energy Seabrook, LLC applied to renew the operating license for Seabrook for an additional 20 years.<sup>2</sup> The NRC Staff docketed the

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<sup>1</sup> Motion to Withhold or Withdraw Final Environmental Impact Statement Pending Renewed Opportunity for Comment (July 28, 2015) at 1, 8 (Motion).

<sup>2</sup> Notice of Acceptance for Docketing of the Application and Notice of Opportunity for Hearing Regarding Renewal of Facility Operating License No. NPF-86 for an Additional 20-Year Period; NextEra Energy Seabrook, LLC; Seabrook Station, Unit 1, 75 Fed. Reg. 42,462, 42,462 (July 21, 2010).

application shortly thereafter and provided an opportunity for interested persons to request an adjudicatory hearing.<sup>3</sup> Friends/NEC filed a petition to intervene at that time.<sup>4</sup> The Atomic Safety and Licensing Board granted the petition and admitted several of their proposed contentions.<sup>5</sup> We affirmed in part and reversed in part the Board's ruling, leaving two admitted contentions pending in the proceeding: Friends/NEC's Contentions 4B and 4D.<sup>6</sup>

The Staff issued the Draft SEIS in July 2011 and made it available for public comment.<sup>7</sup> The Staff's review of the Seabrook license renewal application continued, and in April 2013, the Staff issued a supplement to the Draft SEIS addressing new information.<sup>8</sup> Specifically, the Draft SEIS Supplement addressed (1) an updated SAMA analysis that NextEra submitted in March 2012; (2) the June 2012 decision of the U.S. Court of Appeals for the District of Columbia Circuit vacating the NRC's "Waste Confidence" Rule;<sup>9</sup> and (3) new issues arising from the NRC's rulemaking to revise the Generic Environmental Impact Statement (GEIS) for License Renewal of Nuclear Plants.<sup>10</sup> The Draft SEIS Supplement was also made available for public comment.<sup>11</sup>

In May 2013, NextEra sought summary disposition of Contentions 4B and

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<sup>3</sup> *Id.* at 42,462-63.

<sup>4</sup> Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions (Oct. 20, 2010).

<sup>5</sup> LBP-11-2, 73 NRC 28, 79 (2011).

<sup>6</sup> CLI-12-5, 75 NRC 301, 327, 329, 349 (2012). Both contentions challenged NextEra's severe accident mitigation alternatives (SAMA) analysis for Seabrook. In Contention 4B, Friends/NEC challenged the use in the analysis of certain source terms. In Contention 4D, Friends/NEC challenged NextEra's atmospheric dispersion model. *Id.* at 324-29.

<sup>7</sup> See "Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Seabrook Station" (Draft Report for Comment), NUREG-1437, Supp. 46 (July 2011) (ADAMS Accession Nos. ML11213A024 and ML11213A203) (Draft SEIS); NextEra Energy Seabrook, LLC; Notice of Availability of Draft Supplement 46 to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants and Public Meetings for the License Renewal of Seabrook Station, Unit 1, 76 Fed. Reg. 47,612, 47,612 (Aug. 5, 2011). The Staff held two public meetings during the comment period to receive additional input. See Summary of Public Meetings Conducted to Discuss the Draft Supplemental Environmental Impact Statement Related to the Review of the Seabrook Station License Renewal Application (TAC No. ME3959) (Oct. 26, 2011) at 1 (ADAMS Accession No. ML11277A046).

<sup>8</sup> "Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Seabrook Station" (Second Draft Report for Comment), NUREG-1437, Supp. 46 (Apr. 2013), at iii, ix (ADAMS Accession No. ML13113A174) (Draft SEIS Supplement).

<sup>9</sup> See generally *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012).

<sup>10</sup> Draft SEIS Supplement at iii, ix.

<sup>11</sup> Draft Supplement to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants; NextEra Energy Seabrook; Seabrook Station, Unit 1, 78 Fed. Reg. 26,662, 26,662 (May 7, 2013) (Notice of Draft SEIS Supplement).

4D.<sup>12</sup> Friends/NEC offered no opposition with respect to Contention 4B and the Board dismissed the contention.<sup>13</sup> With respect to Contention 4D, Friends/NEC, NextEra, and the Staff jointly requested that the Board issue two orders: the first to approve settlement of the contention; the second to dismiss the contention 7 days after the Staff had notified the Board of publication of a Final SEIS providing additional analysis that the parties agreed would resolve the contention.<sup>14</sup> The Board approved settlement of Contention 4D in August 2013.<sup>15</sup>

On July 28, 2015, Friends/NEC filed the instant motion.<sup>16</sup> The Staff issued the Final SEIS on July 29, 2015.<sup>17</sup> Among other things, the Final SEIS included (1) the updated SAMA analysis performed pursuant to the Board-approved settlement agreement;<sup>18</sup> (2) a discussion of the impacts from the NRC's Continued Storage Rule and associated GEIS for Continued Storage of Spent Nuclear Fuel;<sup>19</sup> and (3) an updated analysis related to the revision to the License Renewal GEIS, which was finalized after the issuance of the Draft SEIS Supplement.<sup>20</sup> Shortly thereafter, and consistent with the parties' earlier request, the Board dismissed Contention 4D and terminated the proceeding.<sup>21</sup>

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<sup>12</sup> See NextEra's Motion for Summary Disposition of Friends of the Coast/New England Coalition Contention 4B (SAMA Analysis Source Terms) (May 10, 2013); NextEra's Motion for Summary Disposition of Friends of the Coast/New England Coalition Contention 4D (SAMA Analysis Atmospheric Modeling) (May 10, 2013).

<sup>13</sup> See Friends of the Coast and New England Coalition's Answer to NextEra's Motion for Summary Disposition of Contentions 4B (SAMA Source Terms) and 4D (SAMA Atmospheric Modeling) (July 15, 2013) at 1; Order (Granting Summary Disposition of Contention 4B) (Aug. 12, 2013) (unpublished).

<sup>14</sup> Joint Motion for Approval of Settlement and Dismissal of FOTC/NEC Contention 4D (Aug. 8, 2013) at 1, 3; *id.*, Ex. B, Proposed Initial Consent Order, at 2. The additional information involved a sensitivity analysis and related work performed in connection with the atmospheric dispersion model used in NextEra's SAMA analysis. *Id.* at 1-3.

<sup>15</sup> Order (Approving Settlement of Contention 4D) (Aug. 12, 2013) (unpublished).

<sup>16</sup> The Staff and NextEra oppose Friends/NEC's motion. See NRC Staff's Answer to Motion to Withhold or Withdraw Final Environmental Impact Statement Pending Renewed Opportunity for Comment (Aug. 7, 2015) (Staff Answer); NextEra Energy Seabrook, LLC's Answer Opposing Friends of the Coast and New England Coalition's Motion to Withhold or Withdraw Final Environmental Impact Statement (Aug. 7, 2015).

<sup>17</sup> "Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Seabrook Station" (Final Report), NUREG-1437, Supp. 46, Vols. 1-2 (July 2015) (ADAMS Accession Nos. ML15209A575 and ML15209A870) (Final SEIS).

<sup>18</sup> See *id.*, Vol. 1, ch. 5; *id.*, Vol. 2, app. F.

<sup>19</sup> See *id.*, Vol. 1, at 1-4, § 6.1.

<sup>20</sup> See *id.*, Vol. 1, at 1-3 to -4, ch. 4.

<sup>21</sup> LBP-15-22, 82 NRC 49 (2015); see Letter from Anita Ghosh, counsel for the Staff, to the Administrative Judges (July 29, 2015) at 1-2 (advising the Board of the Final SEIS's issuance).



## II. DISCUSSION

Friends/NEC request that if the SEIS has not been finalized, then we direct that the document be withheld and issued as a draft or supplement for public comment. Alternatively, were we to consider their motion following issuance of the Final SEIS, then Friends/NEC request that we direct that the document be withdrawn and reissued as a draft or supplement for public comment.<sup>22</sup> Because the Final SEIS has been issued and Friends/NEC request, in that circumstance, that we direct that the Final SEIS be withdrawn and re-released as a draft or supplement, our regulation in 10 C.F.R. § 51.92 governs here.<sup>23</sup>

Section 51.92 specifies the circumstances under which the Staff is required to prepare a supplement to a final environmental impact statement if (as is the case here) the proposed action has not yet been taken. More specifically, section 51.92(a) requires the Staff to prepare such a supplement if there are (1) “substantial changes in the proposed action that are relevant to environmental concerns” or (2) “new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” The relevant question is whether substantial changes in the proposed action or new and significant information “presents ‘a seriously different picture’ of the environmental impacts that have been assessed in the relevant licensing action, and of our analysis of those impacts, when compared to the previously issued final environmental impact statement.”<sup>24</sup>

Friends/NEC express concern that “the DEIS is a departure from what the public was given the opportunity to review back in 2011” and that the NRC was “deprived of the benefit of public comment (input) on significant portions of the DEIS now containing new information.”<sup>25</sup> Friends/NEC also assert that the “material substance” of the Draft SEIS has been “altered” due to the nearly 4 years between the end of the public comment period for the Draft SEIS and the issuance of the Final SEIS.<sup>26</sup> Friends/NEC have not, however, identified any changes in the proposed license renewal action. Friends/NEC also have not pointed to new and significant information relevant to the Seabrook environmental review.

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<sup>22</sup> Motion at 1, 10.

<sup>23</sup> Had we considered Friends/NEC’s request in the context of the Draft SEIS, and thereby applied 10 C.F.R. § 51.72, which governs supplementation of a draft environmental impact statement, our analysis would have yielded the same result; sections 51.72(a) and (b) are substantively identical to sections 51.92(a) and (c). See *Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 167 n.103 (2011).

<sup>24</sup> *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535, 543 (2015) (quoting *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-04-39, 60 NRC 657, 659 (2004)).

<sup>25</sup> Motion at 6.

<sup>26</sup> *Id.* at 1-2.

Moreover, the Staff's approach to the environmental review for Seabrook satisfied the purposes of the National Environmental Policy Act of 1969 (NEPA). The requirement under NEPA to prepare an environmental impact statement serves two purposes.<sup>27</sup> First, it "ensures that decisionmakers 'will have available, and will carefully consider, detailed information concerning significant environmental impacts.'"<sup>28</sup> Second, it "'guarantees that the relevant information will be made available to the larger audience . . . that may also play a role in the decisionmaking process.'"<sup>29</sup> The Staff's approach has fulfilled both of these purposes.

First, the Staff's efforts have ensured that the NRC has available for its consideration detailed information regarding the environmental impacts of the Seabrook Unit 1 license renewal application. Prior to issuance of the Final SEIS, the Staff identified new information meriting preparation of a supplement to the Draft SEIS.<sup>30</sup> The Staff issued the Draft SEIS Supplement analyzing that information in April 2013.<sup>31</sup> The Final SEIS incorporates both the Draft SEIS and the Draft SEIS Supplement.<sup>32</sup> The Final SEIS also considers the public comments submitted on the Draft SEIS as well as those submitted on the Draft SEIS Supplement.<sup>33</sup> As the Staff acknowledges, the NRC's environmental review in this matter required additional time to complete, in large part because — as relevant here — the Staff identified new information that merited preparation of a supplement to the Draft SEIS.<sup>34</sup> Friends/NEC have not identified additional information that was not considered before issuance of the Final SEIS.

Second, the Staff's efforts have ensured that relevant information was made available to the public and other stakeholders. The record reflects that the Staff afforded Friends/NEC and the public sufficient opportunity to provide input to both the Draft SEIS and the Draft SEIS Supplement.<sup>35</sup> Further, the public had an

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<sup>27</sup> *Fermi*, CLI-15-10, 81 NRC at 540 (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)).

<sup>28</sup> *Id.* (quoting *Robertson*, 490 U.S. at 349).

<sup>29</sup> *Id.* at 540-41 (quoting *Robertson*, 490 U.S. at 349).

<sup>30</sup> License Renewal Application for Seabrook Station, Unit 1; NextEra Energy Seabrook, LLC, 77 Fed. Reg. 35,079, 35,080 (June 12, 2012) (informing the public of the Staff's intent to prepare a supplement to the Draft SEIS to address new information related to SAMA analysis).

<sup>31</sup> Draft SEIS Supplement at iii, ix.

<sup>32</sup> Final SEIS, Vol. 1, at 1-3.

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

<sup>34</sup> See Staff Answer at 8-9.

<sup>35</sup> See Notice of Draft SEIS Supplement, 78 Fed. Reg. at 26,662; NextEra Energy Seabrook, LLC; Notice of Availability of Draft Supplement 46 to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants and Public Meetings for the License Renewal of Seabrook Station, Unit 1, 76 Fed. Reg. 47,612, 47,612 (Aug. 5, 2011); Summary of Public Meetings Conducted

(Continued)

opportunity to provide comments on issues addressed in the Final SEIS through the Continued Storage rulemaking and the revision process for the License Renewal GEIS.<sup>36</sup>

In summary, Friends/NEC have not shown that supplementation, or an accompanying new opportunity for public comment, is required under our regulations because they have not identified substantial changes in the proposed action or significant new information. The Staff's approach to considering new and significant information, providing opportunities for public input thereon, and issuing a Final SEIS after completing these efforts was reasonable and consistent with the dual objectives of NEPA's environmental-impact-statement requirement.<sup>37</sup>

### III. CONCLUSION

As discussed above, Friends/NEC have not demonstrated that withdrawal of the Final SEIS in this matter is warranted. We therefore *deny* Friends/NEC's motion.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 25th day of February 2016.

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to Discuss the Draft Supplemental Environmental Impact Statement Related to the Review of the Seabrook Station License Renewal Application (TAC No. ME3959) (Oct. 26, 2011) at 1 (ADAMS Accession No. ML11277A046).

<sup>36</sup> See Waste Confidence — Continued Storage of Spent Nuclear Fuel, 78 Fed. Reg. 56,776, 56,776 (Sept. 13, 2013) (soliciting public comments on the proposed rule for continued storage of spent nuclear fuel); Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 74 Fed. Reg. 38,117, 38,117 (July 31, 2009) (soliciting public comments on the revised GEIS for License Renewal).

<sup>37</sup> For the same reasons, Friends/NEC have not identified a circumstance in which a supplement should be prepared as a matter of discretion. See 10 C.F.R. § 51.92(c) (providing that the Staff *may* prepare a supplement to a final environmental impact statement when, in its opinion, doing so will further the purposes of NEPA).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket No. 50-608-CP**

**SHINE MEDICAL TECHNOLOGIES, INC.**  
**(Medical Radioisotope Production**  
**Facility)**

**February 25, 2016**

**MANDATORY HEARINGS**

The Atomic Energy Act, section 189a, requires that the Commission hold a hearing on an application to construct a commercial production or utilization facility.

**MANDATORY HEARINGS: CONSTRUCTION PERMITS, SAFETY ISSUES**

The Commission must determine whether: (1) the applicant has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components incorporated therein for the protection of the health and safety of the public; (2) such further technical or design information as may be required to complete the safety analysis, and which can reasonably be left for later consideration, will be supplied in the final safety analysis report; (3) safety features or components, if any, that require research and development have been described by the applicant, and the applicant has identified, and there will be conducted, a research and development program reasonably designed to resolve any safety questions associated with such features or components; and (4) on the basis of the foregoing, there is reasonable assurance that (i) such safety

questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facility, and (ii) taking into consideration the site criteria contained in 10 C.F.R Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

#### **MANDATORY HEARINGS: CONSTRUCTION PERMITS, ADDITIONAL CONSIDERATIONS**

In making these findings, the Commission is guided by the additional considerations in 10 C.F.R. § 50.40. The Commission considers whether: (1) the processes to be performed, the operating procedures, facility and equipment, the use of the facility, and other technical specifications, or the proposals, in regard to any of the foregoing collectively provide reasonable assurance that the applicant will comply with NRC regulations, including the regulations in 10 C.F.R. Part 20, and that the health and safety of the public will not be endangered; (2) the applicant is technically and financially qualified to engage in the proposed activities; (3) the issuance of the construction permit will not be inimical to the common defense and security or to the health and safety of the public; and (4) any applicable requirements of Subpart A of 10 C.F.R. Part 51 have been satisfied.

#### **MANDATORY HEARINGS: NATIONAL ENVIRONMENTAL POLICY ACT**

To satisfy its obligations under the National Environmental Policy Act (NEPA), the Commission must consider and determine: (1) whether the requirements of NEPA § 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51 (the NRC regulations implementing NEPA), have been met; (2) the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken; (3) after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the construction permit should be issued, denied, or appropriately conditioned to protect environmental values; and (4) whether the NEPA review conducted by the Staff has been adequate.

#### **MANDATORY HEARINGS: CONSTRUCTION PERMITS**

If the Commission determines that the application meets the standards and requirements of the Atomic Energy Act and the NRC's regulations and that any notifications to other agencies or bodies have been duly made, the Commission

will issue a construction permit in such form and containing such conditions and limitations that it deems appropriate and necessary.

#### **MANDATORY HEARINGS**

The Commission does not review the application de novo; rather, it considers the sufficiency of the Staff's review of the application — that is, whether the Staff's review was sufficient to support the required findings.

#### **CONSTRUCTION PERMITS**

A construction permit will constitute authorization to the applicant to proceed with construction but will not constitute Commission approval of the safety of any design feature or specification unless the applicant specifically requests such approval and such approval is incorporated in the permit.

#### **NATIONAL ENVIRONMENTAL POLICY ACT: ENDANGERED SPECIES ACT**

Section 7 of the Endangered Species Act requires an agency, in consultation with and with the assistance of the Secretary of the Interior or the Secretary of Commerce (as appropriate), to ensure that “any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species.”

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA § 102(2)(A) requires agencies to use “a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts” in decisionmaking that may impact the environment.

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA § 102(2)(E) calls for agencies to study, develop, and describe appropriate alternatives.

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA § 102(2)(C) requires agencies to assess the relationship between local

short-term uses and long-term productivity of the environment, to consider alternatives, and to describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action.

## **MEMORANDUM AND ORDER**

On December 15, 2015, we held a hearing on the application of SHINE Medical Technologies, Inc. for a permit to construct a medical radioisotope production facility in Janesville, Wisconsin.<sup>1</sup> The purpose of the evidentiary hearing was to consider the sufficiency of the NRC Staff's review of SHINE's application. As discussed below, we conclude that the Staff's review was adequate to support the findings set forth in our regulations. We authorize issuance of the construction permit.

### **I. BACKGROUND**

#### **A. Proposed Action**

SHINE seeks to build a medical radioisotope production facility primarily to produce molybdenum-99. Molybdenum-99 decays to technetium-99m, a radioisotope used in medical diagnostic procedures, including bone scans and cardiac stress tests.<sup>2</sup> SHINE requested and received an exemption to submit its application in two parts.<sup>3</sup> It submitted Part 1 on March 26, 2013, and Part 2 on May 31, 2013.<sup>4</sup>

The Staff has spent approximately 16,000 hours, with an additional 6000 hours from outside technical experts, reviewing SHINE's application to determine whether it complies with the Atomic Energy Act of 1954, as amended, and the

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<sup>1</sup> See SHINE Medical Technologies, Inc.; Notice of Hearing, 80 Fed. Reg. 67,435 (Nov. 2, 2015) (Notice of Hearing); Tr. at 1-220 (attached as Appendix B to Order of the Secretary (Adopting Proposed Transcript Corrections, Admitting Post-Hearing Exhibits, and Closing the Record of the Proceeding) (Jan. 14, 2016) (unpublished) (Transcript Correction Order)).

<sup>2</sup> Tr. at 15-16.

<sup>3</sup> See SHINE Medical Technologies, Inc.; Exemption, 78 Fed. Reg. 19,537 (Apr. 1, 2013).

<sup>4</sup> See SHINE Medical Technologies, Inc., 78 Fed. Reg. 39,342 (July 1, 2013) (docketing Part 1 of the application); SHINE Medical Technologies, Inc., 78 Fed. Reg. 73,897 (Dec. 9, 2013) (docketing Part 2 of the application). See generally Exs. NRC-006A to NRC-006H, NRC-006J to NRC-006R, SHINE Medical Technologies, Inc., Construction Permit Application (Construction Permit Application). Staff Exhibits NRC-007A to NRC-007D contain the nonpublic portions of the Construction Permit Application, and as such, they were filed on the nonpublic docket for this proceeding.

NRC's regulations.<sup>5</sup> The Staff's review included an analysis of the environmental impacts of constructing, operating, and decommissioning the SHINE facility, in accordance with the National Environmental Policy Act of 1969 (NEPA).<sup>6</sup>

Technical reviewers from the Office of Nuclear Reactor Regulation, the Office of Nuclear Material Safety and Safeguards, the Office of Nuclear Regulatory Research, and the Office of New Reactors contributed to the review of SHINE's application. The Staff also engaged the support of other federal and state agencies and local governments, including the Department of Energy, National Nuclear Security Administration; the Environmental Protection Agency; the U.S. Fish and Wildlife Service; the Advisory Council on Historic Preservation; the Wisconsin Department of Health Services; and the Janesville City Council.<sup>7</sup> The Advisory Committee on Reactor Safeguards (ACRS), a committee of technical experts charged with reviewing and reporting on safety studies and applications for construction permits and facility operating licenses, provided an independent assessment of the safety aspects of the application.<sup>8</sup> The ACRS recommended that the construction permit be issued.<sup>9</sup>

## B. Review Standards

The Atomic Energy Act, section 189a, requires that we hold a hearing on an application to construct a commercial production or utilization facility.<sup>10</sup> The Staff published in the *Federal Register* a notice of hearing and provided an opportunity

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<sup>5</sup> Ex. NRC-014, NRC Staff Responses to Post-Hearing Questions (Dec. 29, 2015), at 2 (unnumbered).

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

<sup>7</sup> NRC-010, Construction Permit Application Review, SHINE Medical Technologies, Overview (Dec. 8, 2015), at 5 (Staff Overview Presentation); Tr. at 58-59 (Mr. Dean).

<sup>8</sup> AEA § 182b, 42 U.S.C. § 2232(b); 10 C.F.R. §§ 1.13, 50.58; see Letter from John W. Stetkar, Chairman of the ACRS, to Stephen G. Burns, Chairman of the NRC (Oct. 15, 2015) (ADAMS Accession No. ML15286A426) (ACRS Letter).

<sup>9</sup> ACRS Letter at 1; see Letter from Victor M. McCree, NRC Executive Director for Operations, to John W. Stetkar, Chairman of the ACRS (Nov. 25, 2015) (ADAMS Accession No. ML15309A005) (responding to the ACRS Letter).

<sup>10</sup> AEA § 189a, 42 U.S.C. § 2239(a) ("The Commission shall hold a hearing after thirty days' notice and publication once in the Federal Register, on each application under section 103 or 104b for a construction permit for a facility, and on any application under section 104c for a construction permit for a testing facility."). Early in the review process, the Staff determined that the proposed SHINE facility qualifies as a section 103 facility because it is intended "primarily for commercial purposes." Ex. NRC-001, "Staff Statement in Support of the Uncontested Hearing for Issuance of Construction Permit for the SHINE Medical Technologies, Inc. Medical Radioisotope Production Facility," Commission Paper SECY-15-0130 (Oct. 22, 2015) at 10-11 (unnumbered) (Staff Information Paper).



for interested members of the public to petition for leave to intervene.<sup>11</sup> No petitions to intervene were filed. Therefore, there was no separate contested hearing.

We issued a second notice that set the time and place for the uncontested hearing and outlined the standards for our review.<sup>12</sup> The standards track the two major areas of focus for the review of a license application: the Staff's safety and environmental reviews. On the safety side, we must determine whether:

- (1) the applicant has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components incorporated therein for the protection of the health and safety of the public;

- (2) such further technical or design information as may be required to complete the safety analysis, and which can reasonably be left for later consideration, will be supplied in the final safety analysis report;

- (3) safety features or components, if any, that require research and development have been described by the applicant, and the applicant has identified, and there will be conducted, a research and development program reasonably designed to resolve any safety questions associated with such features or components; and

- (4) on the basis of the foregoing, there is reasonable assurance that

- (i) such safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facility, and

- (ii) taking into consideration the site criteria contained in 10 C.F.R. Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.<sup>13</sup>

In making these findings, we are guided by the additional considerations in 10 C.F.R. § 50.40. We consider whether:

- (1) the processes to be performed, the operating procedures, facility and equipment, the use of the facility, and other technical specifications, or the proposals, in regard to any of the foregoing collectively provide reasonable assurance that the applicant will comply with NRC regulations, including the regulations in 10 C.F.R. Part 20, and that the health and safety of the public will not be endangered;

- (2) the applicant is technically and financially qualified to engage in the proposed activities;

- (3) the issuance of the construction permit will not be inimical to the common defense and security or to the health and safety of the public; and

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<sup>11</sup> SHINE Medical Technologies, Inc.; Notice of Hearing, Opportunity to Intervene, Order Imposing Procedures, 80 Fed. Reg. 13,036 (Mar. 12, 2015).

<sup>12</sup> Notice of Hearing, 80 Fed. Reg. at 67,436.

<sup>13</sup> 10 C.F.R. § 50.35(a); Notice of Hearing, 80 Fed. Reg. at 67,436.

(4) any applicable requirements of Subpart A of 10 C.F.R. Part 51 have been satisfied.<sup>14</sup>

Overlapping this last consideration are the environmental findings that we must make to support issuance of the construction permit.<sup>15</sup> The findings reflect our agency's obligations under NEPA, a statute that requires us to consider the impacts of NRC actions on environmental values.<sup>16</sup> To ensure that these obligations are fulfilled for this construction permit proceeding, we must:

1. determine whether the requirements of NEPA section 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51, have been met;
2. independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken;
3. determine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the construction permit should be issued, denied, or appropriately conditioned to protect environmental values; and
4. determine whether the NEPA review conducted by the NRC Staff has been adequate.<sup>17</sup>

If we determine that the application meets the standards and requirements of the Atomic Energy Act and the NRC's regulations and that any notifications to other agencies or bodies have been duly made, we will issue a construction permit "in such form and containing such conditions and limitations" that we deem "appropriate and necessary."<sup>18</sup> We do not review SHINE's application *de novo*; rather, we consider the sufficiency of the Staff's review — that is, we determine whether the Staff's review was sufficient to support the required findings.<sup>19</sup>

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<sup>14</sup> 10 C.F.R. § 50.40(a)-(d).

<sup>15</sup> See, e.g., *id.* § 51.105(a).

<sup>16</sup> See NEPA § 102(2), 42 U.S.C. § 4332(2); 10 C.F.R. § 51.10.

<sup>17</sup> Notice of Hearing, 80 Fed. Reg. at 67,436 (citing 10 C.F.R. § 51.105).

<sup>18</sup> 10 C.F.R. § 50.50.

<sup>19</sup> See *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 34-36 (2005).

## C. The Hearing Process

The Staff completed its review of the SHINE application in October 2015.<sup>20</sup> At that time, the Staff published its Safety Evaluation Report (SER) and Final Environmental Impact Statement (FEIS), triggering the timeline of activities for the uncontested hearing.<sup>21</sup> We received the Staff's information paper, which serves as its prefiled testimony, shortly after issuance of the SER.<sup>22</sup>

### 1. Prehearing Activities

We then set the schedule for the parties to file their lists of witnesses, as well as for SHINE to provide its prefiled testimony.<sup>23</sup> We issued questions on environmental and safety-related topics for SHINE and the Staff to answer in writing in advance of the hearing.<sup>24</sup> In addition, we invited interested states, local government bodies, and federally recognized Indian Tribes to provide statements for us to consider as part of the uncontested proceeding.<sup>25</sup> We received no responses to our invitation.

### 2. The Hearing

The scheduling note, issued to the parties before the hearing, set the topics for

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<sup>20</sup> See Ex. NRC-008, Safety Evaluation Report Related to SHINE Medical Technologies, Inc. Construction Permit Application for a Medical Radioisotope Production Facility (Oct. 2015; revised Dec. 2015) (SER); *infra* note 144 (discussing revisions to the SER); Ex. NRC-009, "Final Environmental Impact Statement for the Construction Permit for the SHINE Medical Radioisotope Production Facility," NUREG-2183 (Oct. 2015) (FEIS).

<sup>21</sup> See Staff Requirements — SECY-15-0088 — Selection of Presiding Officer for Mandatory Hearings Associated with Early Site Permit Applications and Construction Permit Applications for Medical Isotope Production and Utilization Facilities (Aug. 25, 2015), at 1 (ADAMS Accession No. ML15238B093) (directing that the first uncontested hearing on a construction permit for a medical isotope production facility follow the Commission's Internal Procedures for uncontested combined license proceedings); Internal Commission Procedures, Ch. IV, "Commission Meetings/Hearings," at IV-12 to IV-21 (ADAMS Accession No. ML11269A125).

<sup>22</sup> See Ex. NRC-001, Staff Information Paper, at 1. The Staff also provided a Draft Construction Permit and Draft Record of Decision. Ex. NRC-002-R, Draft Construction Permit; Ex. NRC-003, Draft Record of Decision.

<sup>23</sup> Notice of Hearing, 80 Fed. Reg. at 67,436.

<sup>24</sup> See Order of the Secretary (Transmitting Pre-Hearing Questions) (Nov. 10, 2015; corrected Nov. 20, 2015) (unpublished) (Pre-Hearing Questions). We also issued three questions that contain sensitive unclassified nonsafeguards information and that therefore were filed on the nonpublic docket for the proceeding. The parties' responses to those questions were likewise filed on the nonpublic docket.

<sup>25</sup> Notice of Hearing, 80 Fed. Reg. at 67,436.

and the order of presentations at the hearing.<sup>26</sup> In the first panel, witnesses for SHINE and the Staff provided an overview of the construction permit application and the Staff's review. The next two panels focused on safety-related issues, and the final panel focused on environmental issues.

The Staff made available forty-four witnesses at the hearing.<sup>27</sup> Twelve of these witnesses were scheduled panelists; the remainder stood by to answer questions on topics relating to their expertise.<sup>28</sup> A total of twenty-two witnesses offered testimony on behalf of SHINE on panels at the hearing and in prefiled written testimony.<sup>29</sup>

*a. Summary of the Overview Panels*

Greg Piefer, SHINE Chief Executive Officer, Jim Costedio, SHINE Licensing Manager, Bill Hennessy, SHINE Engineering Manager, Eric Van Abel, SHINE Engineering Supervisor, and Katrina Pitras, SHINE Vice President for Business Development, represented SHINE on the overview panel.<sup>30</sup> Dr. Piefer provided background on the company and its mission.<sup>31</sup> Mr. Costedio provided background on the location and general design of the facility, and Mr. Van Abel described SHINE's production process.<sup>32</sup> Mr. Hennessy answered questions relating to the facility's design, and Ms. Pitras answered questions regarding public engagement during the site-selection process.<sup>33</sup>

William Dean, Director of the Office of Nuclear Reactor Regulation, Mirela Gavrilas, Deputy Director of the Division of Policy and Rulemaking in the Office of Nuclear Reactor Regulation, Jane Marshall, Deputy Director of the Division of License Renewal in the Office of Nuclear Reactor Regulation, and Marissa Bailey, Director of the Division of Fuel Cycle Safety, Safeguards, and Environmental Review in the Office of Nuclear Material Safety and Safeguards, provided

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<sup>26</sup> Memorandum from Annette Vietti-Cook, Secretary of the Commission, to Counsel for SHINE and the Staff (Dec. 3, 2015) (ADAMS Accession No. ML16028A336) (Scheduling Note).

<sup>27</sup> See NRC Staff Revised Exhibit List and Witness List (Dec. 11, 2015); NRC Staff Proposed Transcript Corrections and Notification of Additional Sworn Witness (Dec. 28, 2015); Tr. at 11.

<sup>28</sup> Scheduling Note at 1-5; Tr. at 11.

<sup>29</sup> See Revised List of Anticipated Witnesses for SHINE Medical Technologies, Inc. for the Hearing on Uncontested Issues (Dec. 8, 2015); Tr. at 9; Ex. SHN-001, Applicant's Pre-Filed Testimony of James Costedio for the Mandatory Hearing on Uncontested Issues for the SHINE Medical Technologies, Inc.'s Medical Radioisotope Production Facility (Nov. 24, 2015) (SHINE Prefiled Testimony).

<sup>30</sup> Tr. at 13, 37; Scheduling Note at 1.

<sup>31</sup> Tr. at 14.

<sup>32</sup> Tr. at 23-36.

<sup>33</sup> Tr. at 37-38, 39-40, 47-48.

background on the Staff's review of the construction permit application.<sup>34</sup> Mr. Dean described the purpose of the facility and the Staff's efforts to prepare for its review of the application.<sup>35</sup> Dr. Gavrilas discussed the Staff's safety review and the regulatory standards by which the Staff conducted its review, and Ms. Marshall discussed the Staff's environmental analysis.<sup>36</sup> Ms. Bailey provided the Staff's findings in support of issuance of the construction permit.<sup>37</sup>

*b. Summary of the Safety Panels*

The first safety panel focused on the proposed design of the SHINE facility and the unique regulatory challenges that the Staff faced during its review of the construction permit application, as detailed in Chapters 1 and 4 of the SER.<sup>38</sup> Eric Van Abel testified for SHINE.<sup>39</sup> With him on the panel were Bill Hennessy and Catherine Kolb, SHINE Engineering Supervisor.<sup>40</sup> Alexander Adams, Chief of the Research and Test Reactors Licensing Branch in the Office of Nuclear Reactor Regulation, Steven Lynch, Project Manager, Research and Test Reactors Licensing Branch, Office of Nuclear Reactor Regulation, and Mary Adams, Senior Environmental Engineer, Enrichment and Conversion Branch, Office of Nuclear Material Safety and Safeguards, provided testimony for the Staff.<sup>41</sup> In addition to Chapters 1 and 4, SER Chapters 2, 3, 5, 6, and 7 were subject to our examination during the first safety panel.<sup>42</sup>

The second safety panel focused on Chapter 13 of the SER, which addressed the applicant's analyses for radiological and chemical exposure accidents.<sup>43</sup> In particular, the discussion centered on the novel application of accident analysis methodologies from 10 C.F.R. Parts 50 and 70.<sup>44</sup> Eric Van Abel again testified for SHINE, with Bill Hennessy, Jim Costedio, and Catherine Kolb on the panel.<sup>45</sup> Steven Lynch, Joseph Staudenmeier, Senior Reactor Systems Engineer, Reactor

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<sup>34</sup> Scheduling Note at 2; Tr. at 54-55.

<sup>35</sup> Tr. at 55-58.

<sup>36</sup> Tr. at 58-66.

<sup>37</sup> Tr. at 66-70.

<sup>38</sup> See Scheduling Note at 2; Ex. SHN-027, Commission Mandatory Hearing, SHINE Construction Permit Application, Safety — Panel 1, Facility (Dec. 8, 2015); Ex. NRC-011, Construction Permit Application Review, SHINE Medical Technologies, Safety Panel 1 (Dec. 8, 2015) (Staff Safety Panel 1 Presentation).

<sup>39</sup> Tr. at 99-103.

<sup>40</sup> Scheduling Note at 2.

<sup>41</sup> Tr. at 103-10; Scheduling Note at 2.

<sup>42</sup> Scheduling Note at 3.

<sup>43</sup> *Id.*

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

<sup>45</sup> Tr. at 133-37.

Systems Code Development Branch, Office of Nuclear Regulatory Research, and Kevin Morrissey, Project Manager, Fuel Manufacturing Branch, Office of Nuclear Material Safety and Safeguards, provided testimony for the Staff.<sup>46</sup> Chapters 8, 9, 11, 12, 14, and 15 also were subject to our examination during the second safety panel.<sup>47</sup>

*c. Summary of the Environmental Panel*

The environmental panel discussed the Staff's decision to prepare an environmental impact statement (EIS) for the SHINE facility; the Staff's consultation with other agencies on the EIS, as well as its interaction with the Department of Energy as a cooperating agency; the Staff's consideration of environmental impacts; and the Staff's analysis of alternatives to the proposed action.<sup>48</sup> Katrina Pitas testified for SHINE, with Bill Hennessy, Catherine Kolb, and Tim Krause, an Environmental Specialist from Sargent and Lundy, on the panel.<sup>49</sup> Jane Marshall, David Wrona, Chief of the Environmental Review and Guidance Update Branch in the Office of Nuclear Reactor Regulation, and Michelle Moser, Project Manager and Biologist in the Office of Nuclear Reactor Regulation, provided testimony for the Staff.<sup>50</sup>

**3. Post-Hearing Questions**

After the hearing, we issued additional questions for written answers from SHINE and the Staff.<sup>51</sup> We admitted SHINE's and the Staff's responses as exhibits, and we adopted corrections to the hearing transcript.<sup>52</sup> We also admitted a revised Staff exhibit and then closed the evidentiary record for the uncontested hearing.<sup>53</sup>

## II. DISCUSSION

Before we begin our discussion of the SHINE application, we emphasize what this decision does *not* do. First, although we authorize issuance of the

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<sup>46</sup> Tr. at 137-44.

<sup>47</sup> Scheduling Note at 3.

<sup>48</sup> *Id.* at 4.

<sup>49</sup> Tr. at 160-68; Scheduling Note at 4.

<sup>50</sup> Tr. at 168-87; Scheduling Note at 4.

<sup>51</sup> Order of the Secretary (Transmitting Post-Hearing Questions) (Dec. 21, 2015) (unpublished).

<sup>52</sup> Transcript Correction Order at 1.

<sup>53</sup> *Id.* at 1-2.

construction permit, our decision does not constitute approval of the design.<sup>54</sup> SHINE has represented that it will apply for an operating license and submit with that application a Final Safety Analysis Report, which will contain the final detailed design.<sup>55</sup> And second, this decision does not discuss all of the aspects of SHINE’s construction permit application, the Staff’s review, or our sufficiency review. Rather, we provide here a survey of the key facts that support our findings. We base our decision, however, on the record in its entirety.

## **A. The Proposed Design**

### ***1. Principal Features of SHINE’s Medical Radioisotope Production Facility***

SHINE’s proposed design is first-of-a-kind.<sup>56</sup> Although some of the general concepts underlying SHINE’s proposed approach to medical isotope production have individually been used in other applications, SHINE’s facility would be the first to bring them together in its production process.<sup>57</sup> There are two “facilities,” housed within the same 55,000-square-foot building that would make up the SHINE Medical Radioisotope Production Facility: the “Irradiation Facility” and the “Radioisotope Production Facility.”<sup>58</sup> The SHINE facility would be located in the center of an undeveloped, 91-acre (36.8-hectare) agricultural parcel in Janesville, Wisconsin.<sup>59</sup>

SHINE would generate the molybdenum-99 in the Irradiation Facility, using a neutron driver to induce fission in a vessel that contains a solution of low-enriched uranium and sulfuric acid (uranyl sulfate) — the “Target Solution Vessel.”<sup>60</sup> The neutron driver uses a deuterium accelerator and tritium gas target to create neutrons through a fusion reaction. The neutrons then drive the fission reaction

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<sup>54</sup> See 10 C.F.R. § 50.35(b) (“A construction permit will constitute authorization to the applicant to proceed with construction but will not constitute Commission approval of the safety of any design feature or specification unless the applicant specifically requests such approval and such approval is incorporated in the permit.”).

<sup>55</sup> See *id.* § 50.35(c); Tr. at 39-40 (Mr. Hennessy), 46 (Mr. Costedio).

<sup>56</sup> See Ex. NRC-006C, Construction Permit Application, Preliminary Safety Analysis Report (PSAR), at 1-1; Ex. NRC-011, Staff Safety Panel 1 Presentation, at 5-7.

<sup>57</sup> See Ex. NRC-010, Construction Permit Application Review, SHINE Medical Technologies, Overview (Dec. 8, 2015), at 8 (Staff Overview Panel Presentation); Ex. NRC-011, Staff Safety Panel 1 Presentation, at 5-7; Ex. NRC-006C, Construction Permit Application, PSAR, at 1-14 to 1-17.

<sup>58</sup> Ex. SHN-026, Commission Mandatory Hearing, SHINE Construction Permit Application Overview (Dec. 8, 2015), at 7-8 (SHINE Overview Panel Presentation); Tr. at 23 (Mr. Costedio).

<sup>59</sup> Ex. SHN-026, SHINE Overview Panel Presentation, at 7; Tr. at 23 (Mr. Costedio).

<sup>60</sup> Tr. at 26-27 (Mr. Van Abel).

inside the Target Solution Vessel.<sup>61</sup> The fission process would continue for about 5.5 days, after which time the irradiated solution in the Target Solution Vessel would be drained and stored for a short period of decay before it is piped to supercells in the Radioisotope Production Facility to separate the molybdenum-99 from other isotopes in the solution.<sup>62</sup>

The Target Solution Vessel and a neutron multiplier, which aids the fission reaction, sit within the “Subcritical Assembly Support Structure.”<sup>63</sup> This structure would serve to contain any leaks from the Target Solution Vessel.<sup>64</sup> An annular dump tank, the “Target Solution Vessel Dump Tank,” surrounds the bottom of the structure, with fail-open valves that would open to allow the target solution to drain passively (via gravity) out of the Target Solution Vessel.<sup>65</sup> Together these components comprise the “Subcritical Assembly,” which would be submerged in a light-water pool to provide cooling and radiation shielding.<sup>66</sup>

The Subcritical Assembly and the neutron driver, along with other supporting systems, make up an “Irradiation Unit.”<sup>67</sup> SHINE proposes to operate up to eight Irradiation Units at a time.<sup>68</sup> The other supporting systems include the “Target Solution Vessel Off-Gas System,” which would sit adjacent to the accelerator and the Subcritical Assembly and remove gases generated during the irradiation process; the light-water pool; the primary closed loop cooling system, which cools the Target Solution Vessel during the irradiation process; and the tritium purification system, which supplies clean gases to the neutron driver.<sup>69</sup>

Key to SHINE’s proposed design, the Irradiation Units would remain subcritical at all times.<sup>70</sup> To ensure that they remain subcritical, SHINE will determine the appropriate uranium concentration and corresponding maximum allowable fill height of the Target Solution Vessels using startup physics tests and computer models.<sup>71</sup> The vessels would then be “filled to a level five percent by volume

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<sup>61</sup> Ex. NRC-006C, Construction Permit Application, PSAR, at 1-9.

<sup>62</sup> Tr. at 27 (Mr. Van Abel); Ex. SHN-026, SHINE Overview Panel Presentation, at 20.

<sup>63</sup> Ex. SHN-026, SHINE Overview Panel Presentation, at 16; Tr. at 29-30 (Mr. Van Abel).

<sup>64</sup> Tr. at 30 (Mr. Van Abel).

<sup>65</sup> Ex. SHN-026, SHINE Overview Panel Presentation, at 15-16.

<sup>66</sup> *Id.*; Tr. at 31 (Mr. Van Abel).

<sup>67</sup> Ex. SHN-026, SHINE Overview Panel Presentation, at 15.

<sup>68</sup> *Id.*; Tr. at 23-24 (Mr. Costedio), 36 (Mr. Van Abel).

<sup>69</sup> Ex. SHN-026, SHINE Overview Panel Presentation, at 15; Tr. at 28-29 (Mr. Van Abel). The deuterium and tritium gases are mixed in the fusion process; the purification system separates the gases and supplies purified tritium back to the neutron driver. Tr. at 28, 30-31 (Mr. Van Abel).

<sup>70</sup> *See* Tr. at 22 (Dr. Piefer), 23-24 (Mr. Costedio).

<sup>71</sup> Ex. SHN-002, SHINE Medical Technologies, Inc.’s Responses to Commission’s Public Pre-Hearing Questions (Dec. 8, 2015), at 27-28 (SHINE Responses to Pre-Hearing Questions); Tr. at 31-32 (Mr. Van Abel).



below the predicted critical volume.”<sup>72</sup> Moreover, during the irradiation process, fission in the target solution would increase temperature and void fraction, which also would cause a decrease in reactivity and drive the system further subcritical.<sup>73</sup> Other, automatic safety features would ensure that criticality is not reached: the system would be designed to shut down under certain conditions, such as high neutron flux or high primary coolant temperature.<sup>74</sup> Under these conditions, the driver would shut down to stop generating source neutrons and the solution would drain to the Target Solution Vessel Dump Tank, which itself would be geometrically designed to prevent criticality.<sup>75</sup>

Once irradiated, the target solution would be piped to a separate area of the building, the “Radioisotope Production Facility,” where the molybdenum-99 would then be extracted, purified, packaged, and shipped to customers.<sup>76</sup> After the molybdenum-99 is separated, the uranium solution would return to the Irradiation Facility for reuse in another irradiation cycle.<sup>77</sup> SHINE plans to clean the recycled solution periodically to remove other fission products.<sup>78</sup>

In the Radioisotope Production Facility, criticality safety is treated much like it would be in a fuel cycle facility and is focused on the “detection and annunciation” of criticality accidents.<sup>79</sup> In the Radioisotope Production Facility, the piping, vessels, and components would be designed in criticality-safe geometries.<sup>80</sup> SHINE would employ a “Criticality Accident and Alarm System” to detect and alert operators in the event of a criticality accident.<sup>81</sup> To determine the likelihood of such an event, SHINE analyzed various scenarios that might result in a possible inadvertent criticality.<sup>82</sup> For example, SHINE looked at the supercell area where the molybdenum-99 would be extracted and determined that

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<sup>72</sup> Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 29; *see also* Tr. at 32 (Mr. Van Abel).

<sup>73</sup> Tr. at 32-33 (Mr. Van Abel). The increasing void fraction during the irradiation process is due to radiolytic bubble formation from a mixture of gas species, including hydrogen and noble gases. *See* Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 21.

<sup>74</sup> Tr. at 32 (Mr. Van Abel).

<sup>75</sup> Ex. NRC-004-R, NRC Staff Responses to Commission Pre-Hearing Questions (Dec. 8, 2015), at 16 (Staff Responses to Pre-Hearing Questions).

<sup>76</sup> Tr. at 24 (Mr. Costedio), 33 (Mr. Van Abel). The Radioisotope Production Facility is also where the uranium solution would be created in the first instance. Ex. SHN-026, SHINE Overview Panel Presentation, at 10.

<sup>77</sup> Tr. at 27 (Mr. Van Abel).

<sup>78</sup> Tr. at 27-28 (Mr. Van Abel).

<sup>79</sup> *See* Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 14-15.

<sup>80</sup> *See* Ex. NRC-006G, Construction Permit Application, PSAR, at 3-106.

<sup>81</sup> *See* Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 14; Ex. NRC-006G, Construction Permit Application, PSAR, at 6b-15, 7b-37.

<sup>82</sup> Ex. NRC-006G, Construction Permit Application, PSAR, at 13b-25 to 13b-29.

an inadvertent criticality could result either from “[l]eaks in the piping resulting in target solution collecting in the sump and/or trenches” leading to “a criticality unsafe accumulation of fissile material,” or “[c]hanges in piping design or valve alignment that may result in misdirection to a tank that is not designed to be criticality-safe.”<sup>83</sup> For all of the analyzed scenarios, however, SHINE determined that a criticality accident in the Radioisotope Production Facility would be highly unlikely.<sup>84</sup>

In addition to its criticality safety analyses, SHINE evaluated other accident-initiating events and scenarios.<sup>85</sup> One such analysis considered the “Maximum Hypothetical Accident” for both the Irradiation Facility and the Radioisotope Production Facility.<sup>86</sup> The Maximum Hypothetical Accident analysis was used to establish an upper limit to the radiation doses to workers and the public for all credible accidents at the facility.<sup>87</sup> The Maximum Hypothetical Accident itself is considered not credible, and nonmechanistic — that is, its hypothetical cause, whatever it may be, is not taken into account.<sup>88</sup>

For the Irradiation Facility, SHINE hypothesized that one of the Target Solution Vessels and its surrounding Subcritical Assembly Support Structure would be breached, releasing the maximum inventory of target solution for that vessel.<sup>89</sup> The presence of the light-water pool, which surrounds the Subcritical Assembly Support Structure, was ignored, but SHINE assumed that the high radiation would be detected, initiating alarms and mechanisms to confine the material.<sup>90</sup>

In the Maximum Hypothetical Accident, the Irradiation Unit cell would remain intact, and other safety features, including high-efficiency particulate air (HEPA) filters and charcoal absorbers would further limit the release of radioactive material.<sup>91</sup> SHINE calculated the dose consequences of such an accident to be 3.1 rem total effective dose equivalent (TEDE) for a worker, and 0.017 rem (17 millirem) TEDE to a member of the public at the site boundary.<sup>92</sup>

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<sup>83</sup> *Id.* at 13b-26.

<sup>84</sup> *Id.* at 13b-27.

<sup>85</sup> See Ex. SHN-028, Commission Mandatory Hearing, SHINE Construction Permit Application, Safety — Panel 2, Accident Analysis (Dec. 8, 2015) (SHINE Safety Panel 2 Presentation); Ex. NRC-006G, Construction Permit Application, PSAR, Ch. 13.

<sup>86</sup> Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 2; Tr. at 134-37 (Mr. Van Abel).

<sup>87</sup> Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 2; Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-2.

<sup>88</sup> See NRC-006G, Construction Permit Application, PSAR, at 13a2-2 to 13a2-3.

<sup>89</sup> *Id.* at 13a2-3; Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 3.

<sup>90</sup> Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-3 to 13a2-4; Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 3.

<sup>91</sup> Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 3; Tr. at 135 (Mr. Van Abel); Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-3 to 13a2-4.

<sup>92</sup> Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 3.

For the Radioisotope Production Facility, SHINE assumed the simultaneous rupture of the five tanks that would be used to store noble gases removed during the irradiation process.<sup>93</sup> These tanks would contain their maximum inventory, and their contents would be instantly released.<sup>94</sup> The high radiation detection alarms would be initiated, and redundant isolation dampers would close.<sup>95</sup> The concrete walls surrounding the storage tanks also would remain intact and confine a majority of the release.<sup>96</sup> For this hypothetical accident, SHINE calculated the dose consequences to be 3.6 rem TEDE for a worker and 0.082 rem (82 millirem) TEDE for a member of the public at the site boundary.<sup>97</sup> As this scenario provided higher dose consequences, the Radioisotope Production Facility Maximum Hypothetical Accident is considered the bounding scenario for the entire SHINE facility.<sup>98</sup> SHINE's dose consequence estimates from this accident scenario would be within the dose limits for normal operation in 10 C.F.R. Part 20.<sup>99</sup>

Because of the conservatisms included in the analysis, however, SHINE expects that any accident doses would be lower than those calculated.<sup>100</sup> The proposed design incorporates several engineered safety features to protect the public health and safety in the event of an accident, some of which SHINE did not credit in its Maximum Hypothetical Accident scenarios.<sup>101</sup> Principal among the proposed design's safety features are biological shielding — heavy concrete — surrounding the Irradiation Units and the supercells, isolation valves on piping systems, and ventilation systems, all of which would confine radiological releases.<sup>102</sup> Moreover, the SHINE facility would have a low radionuclide inventory — up to 10,000 times less than a power reactor — and it would be operating at low temperature and pressure, and therefore dispersion forces are expected to be lower than those calculated in the event of an accident.<sup>103</sup>

SHINE also analyzed design-basis accidents initiated by external events, including flooding, aircraft impacts, tornadoes, and rain and snow load on the

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<sup>93</sup> *Id.* at 4; Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-4.

<sup>94</sup> Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 4.

<sup>95</sup> *Id.*

<sup>96</sup> Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-4.

<sup>97</sup> Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 5.

<sup>98</sup> *See id.* at 4-5; Tr. at 135 (Mr. Van Abel).

<sup>99</sup> *See* 10 C.F.R. §§ 20.1201, 20.1301 (governing maximum dose to workers and members of the public during normal operation).

<sup>100</sup> *See* Ex. SHN-028, SHINE Safety Panel 2 Presentation, at 5.

<sup>101</sup> *See id.* at 3, 5; Ex. SHN-026, SHINE Overview Panel Presentation, at 22.

<sup>102</sup> Tr. at 34-35 (Mr. Van Abel).

<sup>103</sup> Tr. at 34 (Mr. Van Abel); Ex. SHN-026, SHINE Overview Panel Presentation, at 22.

roof of the facility.<sup>104</sup> Once in operation, the facility also will house a number of chemical hazards, including the acids that will be used to prepare the target solution. SHINE identified twenty-four “chemicals of concern,” eleven of which were studied closely due to their toxicity, dispersibility, or inventory.<sup>105</sup>

## **2. The Staff’s Review Methodology**

The Staff began preparing for SHINE’s construction permit application in 2009, several years in advance of its submittal.<sup>106</sup> The Staff created an interoffice working group, gathering personnel with expertise in a number of technical areas to ensure an efficient review process.<sup>107</sup> Based on an early understanding of the design, the Staff believed that both the Irradiation Facility and the Radioisotope Production Facility fit the “production facility” definition in 10 C.F.R. § 50.2 and therefore could be licensed under Part 50.<sup>108</sup> When it received SHINE’s application, however, the Staff determined that only the Radioisotope Production Facility qualified as a production facility under our rules.<sup>109</sup> The Irradiation Facility did not fit the definition of a “production facility.”<sup>110</sup> Because they would remain subcritical, the Irradiation Units also did not fit the definition of a “utilization facility” in 10 C.F.R. § 50.2.<sup>111</sup> The Staff reasoned, however, that the units otherwise would be designed with several features of a nuclear reactor, with a power level similar to nonpower reactors that are licensed as utilization facilities under Part 50.<sup>112</sup> Accordingly, with our approval, the Staff issued a direct final rule to amend the definition of a “utilization facility” in 10 C.F.R. § 50.2 to include the SHINE Irradiation Facility.<sup>113</sup> The rule became effective on

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<sup>104</sup> Tr. at 149 (Ms. Kolb), 150 (Mr. Lynch); Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-15.

<sup>105</sup> Tr. at 151 (Mr. Van Abel); *see also* Ex. NRC-006G, Construction Permit Application, PSAR, at 13b-37 to 13b-51.

<sup>106</sup> Ex. NRC-010, Staff Overview Panel Presentation, at 5; Tr. at 57 (Mr. Dean).

<sup>107</sup> Ex. NRC-010, Staff Overview Panel Presentation, at 5; Tr. at 57 (Mr. Dean).

<sup>108</sup> Direct Final Rule: “Definition of a Utilization Facility,” 79 Fed. Reg. 62,329, 62,330 (Oct. 17, 2014) (Direct Final Rule).

<sup>109</sup> *Id.* at 62,331.

<sup>110</sup> *Id.* at 62,331-32.

<sup>111</sup> *Id.* at 62,332.

<sup>112</sup> *Id.*; *see also* Tr. at 107-08 (Mr. Lynch).

<sup>113</sup> Direct Final Rule, 79 Fed. Reg. at 62,335. That section now states: “Utilization facility means: (1) Any nuclear reactor other than one designed or used primarily for the formation of plutonium or U-233; or (2) An accelerator-driven subcritical operating assembly used for the irradiation of materials containing special nuclear material and described in the application assigned docket number 50-608.” 10 C.F.R. § 50.2 (2015) (emphasis added).

December 31, 2014, thus enabling the entire SHINE facility to be licensed under Part 50.<sup>114</sup>

The Staff also updated its guidance documents to support its review of SHINE's application.<sup>115</sup> Because of the similarity of SHINE's proposed design to a non-power reactor, the Staff used the Standard Review Plan for Non-Power Reactors, NUREG-1537.<sup>116</sup> In addition, the Staff created interim guidance to supplement NUREG-1537 that specifically addresses applications for medical radioisotope production facilities, including SHINE's.<sup>117</sup> The interim staff guidance incorporates relevant guidance from NUREG-1520, the Standard Review Plan for applications for fuel cycle facilities.<sup>118</sup> SHINE followed the guidance in these documents when it prepared its application.<sup>119</sup>

Because of the uniqueness of SHINE's proposed design, we focused part of the hearing on the Staff's review methodology.<sup>120</sup> The Staff also had identified its licensing process as a novel issue in its prefiled testimony.<sup>121</sup> We asked the parties to discuss the application of Part 50 to the SHINE application and to discuss SHINE's use of the General Design Criteria in 10 C.F.R. Part 50, Appendix A, for the proposed design.<sup>122</sup> In particular, we explored with the parties their technical judgment in determining the regulatory scheme to apply and whether any exemptions from our regulations were necessary to license the SHINE facility.<sup>123</sup> SHINE stated that it prepared its application to "fully address the requirements in 10 [C.F.R.] Part 50 that apply to Construction Permits, and that are applicable to the SHINE facility."<sup>124</sup> SHINE represented that because its facility is not a power reactor, it applied all of the regulations necessary for a

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<sup>114</sup> Direct Final Rule, 79 Fed. Reg. at 62,329.

<sup>115</sup> See Tr. at 57-58 (Mr. Dean).

<sup>116</sup> See *id.* (Mr. Dean); "Guidelines for Preparing and Reviewing Applications for Licensing Non-Power Reactors: Standard Review Plan and Acceptance Criteria," NUREG-1537, Parts 1 and 2 (Feb. 1996) (ADAMS Accession No. ML12251A353 (package)) (NUREG-1537).

<sup>117</sup> Tr. at 57-58 (Mr. Dean); Final Interim Staff Guidance Augmenting NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors: Standard Review Plan and Acceptance Criteria," for Licensing Radioisotope Production Facilities and Aqueous Homogenous Reactors, Parts 1 and 2 (ADAMS Accession Nos. ML12156A069 and ML12156A075) (Oct. 2012) (Interim Staff Guidance Augmenting NUREG-1537). A notice of its issuance was published in the *Federal Register*. 77 Fed. Reg. 65,728 (Oct. 30, 2012).

<sup>118</sup> See Interim Staff Guidance Augmenting NUREG-1537, Part 1, at v (explaining that the Staff borrowed extensively from NUREG-1520 in the areas of facility description and accident analyses).

<sup>119</sup> Ex. SHN-026, SHINE Overview Panel Presentation, at 12; Tr. at 25 (Mr. Costedio).

<sup>120</sup> See, e.g., Pre-Hearing Questions at 2-3.

<sup>121</sup> Ex. NRC-001, Staff Information Paper, at 10-13.

<sup>122</sup> Prehearing Questions at 2.

<sup>123</sup> *Id.* at 2-3.

<sup>124</sup> Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 2.

construction permit application except those that expressly apply only to “power reactors” or “nuclear power plants,” consistent with the guidance in NUREG-1537, Part 1, Appendix A.<sup>125</sup> The Staff took the same approach. It reviewed SHINE’s construction permit application “under every applicable section of . . . [Part 50].”<sup>126</sup> The Staff did not apply regulations that pertained only to reactors or power reactors.<sup>127</sup> The Staff explained that because SHINE addressed all of the applicable regulations and because SHINE did not separately request any exemptions from those requirements, the Staff did not find it necessary to issue any exemptions from Part 50.<sup>128</sup>

With regard to the General Design Criteria in Part 50, Appendix A, SHINE explained that it “undertook a systematic process to identify potentially applicable [General Design Criteria]” to address the requirement that its construction permit application include the principal design criteria for the proposed facility.<sup>129</sup> Even though these criteria apply to the design of nuclear power plants and therefore do not expressly apply to SHINE’s application, SHINE considered the General Design Criteria to “provide a proven basis with which to develop an initial assessment of the safety of the design of the SHINE facility.”<sup>130</sup> SHINE’s process is documented in sections 3.5a and 3.5b of its Preliminary Safety Analysis Report.<sup>131</sup> Using the General Design Criteria to inform its review, the Staff independently assessed the adequacy of SHINE’s principal design criteria.<sup>132</sup>

We also asked the Staff to discuss any challenges it encountered during its review and to explain how it determined which aspects of the design were necessary for the issuance of a construction permit and which could be left to the operating license stage.<sup>133</sup> As noted above, the Staff based its review on the criteria in 10 C.F.R. § 50.34 and the guidance in NUREG-1537 and the Staff’s interim guidance document.<sup>134</sup> In addition, the Staff noted that the findings for issuance of a

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

<sup>126</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 2.

<sup>127</sup> *Id.* For example, in response to a prehearing question regarding the applicability of the definition of “safety-related structures, systems, and components” in 10 C.F.R. § 50.2, the Staff explained that SHINE complied with only those portions that did not expressly apply to power reactors, which is consistent with the Staff’s practice when licensing nonpower reactors. *Id.* at 4-5.

<sup>128</sup> *Id.* at 2. The Staff represented that the only exemption issued for the SHINE application was an exemption from 10 C.F.R. § 2.101(a)(5), which allowed SHINE to submit its application in two parts. See Ex. NRC-001, Staff Information Paper, at 9-10.

<sup>129</sup> Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 3. See generally 10 C.F.R. § 50.34(a)(3)(i).

<sup>130</sup> Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 3.

<sup>131</sup> Ex. NRC-006G, Construction Permit Application, PSAR §§ 3.5a, 3.5b, at 3-57 to 3-106.

<sup>132</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 3.

<sup>133</sup> Pre-Hearing Questions at 2.

<sup>134</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 1-2.

construction permit contemplate that the design might be preliminary in nature (as it is here) and that issuance of the permit would not constitute approval of the final design.<sup>135</sup> With these considerations in mind, the Staff reviewed the application to ensure that SHINE adequately described its preliminary design, including the principal design criteria, design bases, general arrangement, and approximate dimensions; that SHINE provided a preliminary analysis of structures, systems, and components, including the ability to prevent and mitigate accidents; and that SHINE identified ongoing research and development.<sup>136</sup>

According to the Staff, when determining the amount of design detail necessary for SHINE's construction permit application, the issue of criticality safety in the Radioisotope Production Facility proved particularly challenging.<sup>137</sup> And the Staff found that the "most challenging aspect of the criticality review was ensuring a properly benchmarked criticality code with sufficient margin to ensure subcriticality."<sup>138</sup>

Using the applicable guidance, the Staff ensured that SHINE had addressed all of the design criteria for criticality safety.<sup>139</sup> The Staff focused on particular passive engineered features of SHINE's proposed facility and processes "that could not readily be changed" after construction.<sup>140</sup> The Staff examined whether SHINE had provided a "validated criticality code, an acceptable minimum margin of subcriticality, and [sufficient] conservative margin, to ensure the facility and process[es] will be designed to be subcritical under normal and credible abnormal conditions," and "commitments to ensure compliance with the double contingency principle."<sup>141</sup> The Staff also evaluated SHINE's proposed criticality accident alarm system.<sup>142</sup>

The Staff requested additional information from SHINE, and based on SHINE's responses, the Staff determined that SHINE had provided sufficient information for the construction permit stage of the proceeding but that SHINE would need to provide additional information before completing construction.<sup>143</sup> The Staff

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<sup>135</sup> *Id.* at 1.

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

<sup>137</sup> *Id.* at 2.

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

<sup>139</sup> *See id.* at 2; Ex. NRC-008, SER, at 6-30 to 6-31.

<sup>140</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 2.

<sup>141</sup> *Id.* The "double contingency principle" states that the "design should incorporate sufficient factors of safety to require at least two unlikely, independent, and concurrent changes in process conditions before a criticality accident is possible." Ex. NRC-008, SER, at 6-34 (quoting a report from the American National Standards Institute/American Nuclear Society, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors," ANSI/ANS-8.1-1998 (2007)).

<sup>142</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 2.

<sup>143</sup> *See* Ex. NRC-008, SER, at 6-31 to 6-32. The requests for additional information "covered  
(Continued)

proposed four criticality-safety permit conditions that would require SHINE to submit periodic reports with additional information on: (1) the basis for the design of the criticality safety accident alarm system; (2) the basis for SHINE's determination that a criticality event in the Radioisotope Production Facility is not credible; (3) summaries of criticality safety analyses demonstrating that all processes in the Radioisotope Production Facility will remain subcritical under all normal and credible abnormal conditions and will satisfy the double contingency principle; and (4) nuclear criticality safety evaluations for all fissile isotopes or application of additional subcritical margin to account for these isotopes, either of which shall demonstrate that all processes in the Radioisotope Production Facility will remain subcritical under all normal and credible abnormal conditions.<sup>144</sup>

In addition to exploring the scope of the Staff's review, we asked several questions directed to the adequacy of the Staff's review of SHINE's accident analyses. With regard to the Maximum Hypothetical Accident for the Irradiation Facility, we asked the Staff to explain why it found sufficient SHINE's consideration of the failure of one Target Solution Vessel, rather than multiple vessels.<sup>145</sup> The Staff stated that the facility would be designed to withstand any event that might cause multiple vessel failures, and the Target Solution Vessels would be isolated from one another under robust concrete shielding, without a way for the failure of one unit to trigger the failure of others.<sup>146</sup> SHINE responded that it looked at potential events that might involve multiple units but found that none of

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topics such as SHINE's treatment of controlled parameters, application of the [double contingency principle], and [SHINE's] ability to demonstrate that, under normal and abnormal credible conditions, all nuclear processes remain subcritical." *Id.* at 6-31.

<sup>144</sup> See *id.* at 6-32 to 6-41; Ex. NRC-011, Staff Safety Panel 1 Presentation, at 8; Ex. NRC-002-R, Draft Construction Permit, at 2-3. A fifth permit condition, relating to radiation protection, would require SHINE to provide periodic information on components within the Radioisotope Production Facility, demonstrating that shielding and occupancy times are "consistent with as low as is reasonably achievable practices" and 10 C.F.R. Part 20 dose requirements. Ex. NRC-002-R, Draft Construction Permit, at 3.

Another permit condition would have established a screening process for construction changes that would require preapproval from the NRC. A similar process was developed for combined licenses (the preliminary amendment request, or "PAR," process). After responding to our prehearing questions, however, the Staff revised its prefiled testimony, SER, and Draft Construction Permit to remove this condition, finding on further reflection that such a process would not be appropriate with respect to a construction permit where, as here, the applicant has not sought approval of a final design. See NRC Exhibit List and Notice of Revisions (Dec. 8, 2015); Pre-Hearing Questions at 21-22; Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 45-47.

<sup>145</sup> Tr. at 145 (Commissioner Baran). This question was a follow-up from the Staff's response to our prehearing question on the same topic. See Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 6-7.

<sup>146</sup> Tr. at 145 (Dr. Staudenmeier).



them would be worse than what was hypothesized for the Maximum Hypothetical Accident analysis.<sup>147</sup>

We also asked the parties to address their consideration of accidents initiated by external events, including aircraft impacts.<sup>148</sup> The SHINE facility would be located directly adjacent to a small airport, the Southern Wisconsin Regional Airport.<sup>149</sup> Although SHINE's proximity to the airport would allow timely shipment of its finished product — molybdenum-99 has a 66-hour half-life<sup>150</sup> — it also places the facility in a location where aircraft impacts might be an issue of heightened concern. During its review the ACRS also identified aircraft impacts as an area of concern.<sup>151</sup>

SHINE's application included an aircraft impact analysis on the proposed facility's safety-related structures, which evaluated the types of aircraft expected near the SHINE facility and the ability of the facility to withstand impacts from those aircraft.<sup>152</sup> At the hearing, the Staff explained that its review accounted for the probability of an aircraft landing or taking off at the Southern Wisconsin Regional Airport or flying in the vicinity of the SHINE facility, no matter its size.<sup>153</sup> If the probability was below a certain threshold, it was excluded from further examination.<sup>154</sup> Based on the probabilities, SHINE considered two types of aircraft: the Challenger 605 and the Hawker 400.<sup>155</sup> The Staff reviewed SHINE's analysis as well as SHINE's responses to the Staff's requests for additional information and determined that SHINE's analysis was satisfactory.<sup>156</sup> The ACRS also was satisfied that "[a]ll areas of the . . . [facility] that contain safety-related systems and equipment . . . [would be] protected against damage from the identified design-basis aircraft impacts."<sup>157</sup>

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<sup>147</sup> Tr. at 147 (Mr. Van Abel).

<sup>148</sup> See, e.g., Tr. at 121 (Commissioner Baran); Pre-Hearing Questions at 6.

<sup>149</sup> See Ex. NRC-006G, Construction Permit Application, PSAR, at 3-34; Ex. SHN-029, Commission Mandatory Hearing, SHINE Construction Permit Application, Environmental Overview (Dec. 8, 2015), at 5 (SHINE Environmental Panel Presentation) (showing bird's-eye view of airport and SHINE facility).

<sup>150</sup> See Tr. at 15 (Dr. Piefer), 46 (Mr. Hennessy).

<sup>151</sup> See ACRS Letter at 3.

<sup>152</sup> See Ex. NRC-006G, Construction Permit Application, PSAR § 3.4.5.1; Tr. at 121-23 (Mr. Marschke).

<sup>153</sup> Tr. at 207 (Mr. Lynch).

<sup>154</sup> *Id.* (Mr. Lynch).

<sup>155</sup> *Id.* (Mr. Lynch); Ex. NRC-006G, Construction Permit Application, PSAR, at 3-35, 3-43 to 3-44.

<sup>156</sup> See Ex. NRC-008, SER, at 2-12 to 2-14.

<sup>157</sup> ACRS Letter at 3.

## B. Technical and Design Information for Later Consideration

SHINE has described the principal design features and the technology that it plans to use, but additional detail, some of which will be obtained after further research and development, will be supplied when SHINE submits its operating license application.<sup>158</sup> In particular, SHINE identified two ongoing research and development activities.<sup>159</sup> Oak Ridge National Laboratory will conduct irradiation and corrosion testing to study the mechanical performance of SHINE's systems.<sup>160</sup> And Argonne National Laboratory will conduct studies to ensure that uranyl peroxide will not precipitate out of the target solution.<sup>161</sup> The Staff will be "tracking these activities and will verify their resolution prior to the completion of construction."<sup>162</sup> SHINE represented that it expects to complete construction of its Medical Radioisotope Production Facility by December 2022.<sup>163</sup>

SHINE also has planned additional work on the computer codes that will be used to model the thermal-hydraulics behavior of SHINE's Subcritical Assembly.<sup>164</sup> Los Alamos National Laboratory "is writing a transient systems modeling code to analyze the coupled nuclear and thermal-hydraulics behavior of solution systems," including SHINE's Subcritical Assembly.<sup>165</sup> And Los Alamos is validating the code to ensure that it "matches the behavior of aqueous systems," like SHINE's, "under a wide range of conditions."<sup>166</sup> SHINE plans to use this code to perform part of its transient modeling for accident and normal operating conditions for its operating license application.<sup>167</sup>

Other code validation will be performed using data from experiments that have been conducted on systems comparable to what will be used in SHINE's irradiation process.<sup>168</sup> Thermal-hydraulic experiments were performed at the University of Wisconsin–Madison on an assembly designed to simulate the design of the Target Solution Vessel.<sup>169</sup> The experiments used "[e]lectric heaters and bubble injection . . . to replicate the power generation and gas production in the SHINE facility" in a rectangular assembly, with two of the walls of the assembly cooled

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<sup>158</sup> See, e.g., Tr. at 39-40 (Mr. Hennessy).

<sup>159</sup> Ex. NRC-008, SER, at 1-8.

<sup>160</sup> *Id.*

<sup>161</sup> *Id.*

<sup>162</sup> *Id.*; see also *id.* at A-36.

<sup>163</sup> *Id.* at 1-8.

<sup>164</sup> Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 45-46.

<sup>165</sup> *Id.* at 46.

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

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

<sup>168</sup> See *id.* at 46-47.

<sup>169</sup> *Id.* at 47.

by cooling water.<sup>170</sup> The experiments “were used to determine the heat transfer coefficients and void fractions expected for this system over a range of power conditions.”<sup>171</sup> An experiment was performed at Argonne National Laboratory to simulate conditions in the Target Solution Vessel, using a scanned electron beam to irradiate a uranyl sulfate solution in a rectangular vessel with cooled walls.<sup>172</sup> The temperature distributions were recorded throughout the vessel, and these temperatures, along with the properties of the solution and the power distribution of the electron beam, will be used for code validation.<sup>173</sup> In addition to the data obtained from the University of Wisconsin and Argonne experiments, data from previous studies also will be used to validate the thermal-hydraulics codes.<sup>174</sup> The Staff will review the adequacy of SHINE’s code validation efforts at the operating license stage.<sup>175</sup>

The Staff will be tracking several other items, listed as regulatory commitments in Appendix A of the SER, that SHINE must include in its Final Safety Analysis Report with its operating license application.<sup>176</sup> For its part, SHINE will track these items in its Corrective Action Program.<sup>177</sup> We list only some of these commitments here.

For example, SHINE committed to provide a seismic qualification for components used in the SHINE facility, by either analytical methods, tests, or combined methods.<sup>178</sup> SHINE also committed to installing a “non-safety-related seismic monitoring system to help establish the acceptability of continued operation of the plant following a seismic event.”<sup>179</sup> The monitoring system “will provide acceleration time histories or response spectra experienced at the facility to assist in verifying that structures, systems, and components (SSCs) important to safety at the SHINE facility can continue to perform their safety functions.”<sup>180</sup> As another example, SHINE will provide the locations of the isolation valves, which, as discussed above, are part of the planned confinement system for the Irradiation Facility, and which would be actuated under certain accident conditions, includ-

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

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

<sup>172</sup> *Id.*

<sup>173</sup> *Id.*

<sup>174</sup> *Id.* at 46-48.

<sup>175</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 22.

<sup>176</sup> Ex. NRC-008, SER, App. A.

<sup>177</sup> See *id.* at A-3, A-35; Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 5-6.

<sup>178</sup> Ex. NRC-008, SER, at A-3.

<sup>179</sup> *Id.*

<sup>180</sup> *Id.*; see also Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 44-45.

ing a tritium leak from the neutron driver system.<sup>181</sup> And SHINE will provide a complete list of parameters that will trigger an automatic trip to shut down an Irradiation Unit and ensure safe operation of the facility.<sup>182</sup> These parameters will be determined using the results of SHINE's planned transient system modeling, which will in turn affect the layout and position of sensors within the Irradiation Units.<sup>183</sup> SHINE currently expects the parameters to include "primary system pressure, sweep gas flow, and hydrogen concentration measurements."<sup>184</sup>

Additionally, SHINE provided a Preliminary Emergency Plan that discusses provisions for coping with radiological emergencies and minimizing accident consequences.<sup>185</sup> Among other things, the Preliminary Emergency Plan describes the roles and responsibilities of the Emergency Response Organization, the emergency classification system, and facilities and equipment necessary for responding to emergencies.<sup>186</sup> Appendix A of the SER contains several commitments for SHINE to provide detailed emergency planning information when it submits its Final Safety Analysis Report.<sup>187</sup>

In meeting with the Staff, the ACRS identified items that also should be included in SHINE's Final Safety Analysis Report, and the Staff's list of tracked commitments includes these items.<sup>188</sup> To fulfill these commitments, SHINE will provide a strategy for addressing an extended shutdown of the SHINE facility, and SHINE will provide a definition of safety-related activities to be used in its Quality Assurance Program Description in its operating license application.<sup>189</sup> In its letter, the ACRS noted that it had additional questions that it expected would be addressed at the operating license stage concerning "criticality control and margin, adequacy of confinement, systems that provide support to safety-related

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<sup>181</sup> See Ex. NRC-008, SER, at 6-8, 13-23, A-5 to A-6. SHINE considered a tritium leak from the tritium purification system as one of its design-basis accidents. See Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-59; Ex. NRC-008, SER at 13-23 to 13-25. The isolation valves are just one of the components that would be used to confine tritium in the event of a release. See Ex. NRC-006G, Construction Permit Application, PSAR, at 13a2-60. In addition, the piping for the tritium purification system and the neutron driver system would be double-walled, and isolation dampers would close in the event of a high-radiation alarm or other actuation signal. See *id.* at 13a2-59 to 13a2-60; see also *id.* at 13a2-17 (describing the double-walled piping for the neutron driver system).

<sup>182</sup> See Ex. NRC-008, SER, at A-4 to A-5; Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 39-40.

<sup>183</sup> Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 39-40.

<sup>184</sup> *Id.* at 40; Ex. NRC-008, SER, at A-5.

<sup>185</sup> Ex. NRC-008, SER, at 12-2. The emergency plan contains nonpublic information and was filed on the nonpublic docket for this proceeding.

<sup>186</sup> *Id.* at 12-3.

<sup>187</sup> *Id.* at A-10 to A-14.

<sup>188</sup> See *id.* at A-35.

<sup>189</sup> *Id.*

systems, partial losses of electrical power, hydrogen generation and control, underwater maintenance issues, and possible ‘red oil’ and acetohydroxamic acid reactions.”<sup>190</sup> We asked the parties to explain their plans to address these items.<sup>191</sup> SHINE stated that although these items are not tracked as commitments in the SER, SHINE will track these topics along with its regulatory commitments in its Corrective Action Program.<sup>192</sup> The Staff stated that it intends to follow up on all issues raised by the ACRS at the operating license stage.<sup>193</sup>

### C. The Proposed Site

SHINE plans to build its Medical Radioisotope Production Facility on a 91-acre (36.8-hectare) agricultural parcel that lies just south of the corporate boundaries of the City of Janesville in Rock County, Wisconsin.<sup>194</sup> The area surrounding the site is rural and is used primarily for agriculture.<sup>195</sup> The population within 5 miles (8 kilometers) of the SHINE site, based on 2010 estimates, is approximately 43,000.<sup>196</sup> The nearest permanent residence is about half a mile (a little less than 1 kilometer) northwest of the center of the site.<sup>197</sup> Several industrial facilities and the Southern Wisconsin Regional Airport are located within 5 miles (8 kilometers) of the SHINE site.<sup>198</sup>

The findings for the issuance of a construction permit require that we “tak[e] into consideration” the site criteria in 10 C.F.R. Part 100 to ensure that the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.<sup>199</sup> The site criteria in Part 100 apply to nuclear reactors, and therefore do not expressly apply to the SHINE facility, but the Staff considered conditions similar to those in Part 100 in its review of the suitability of the proposed site.<sup>200</sup> The Staff reviewed SHINE’s analyses of the geography and demography of the site; the proposed facility’s interaction with nearby industrial, transportation, and military facilities; and site-specific issues relating to meteorology, hydrology, geology, seismology, and geotechnical

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<sup>190</sup> ACRS Letter at 4. The ACRS identified red oil and acetohydroxamic acid as compounds that have been implicated in industrial accidents and may be present in the SHINE facility. *Id.*

<sup>191</sup> Pre-Hearing Questions at 3.

<sup>192</sup> Ex. SHN-002, SHINE Responses to Pre-Hearing Questions, at 6; Tr. at 53 (Mr. Costedio).

<sup>193</sup> Tr. at 85-86 (Dr. Gavrilas), 105-06 (Mr. Adams).

<sup>194</sup> Ex. NRC-008, SER, at 2-2.

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*; Ex. NRC-006C, Construction Permit Application, PSAR, at 2.1-7.

<sup>197</sup> Ex. NRC-008, SER, at 2-2.

<sup>198</sup> *Id.* at 2-5; Ex. NRC-006C, Construction Permit Application, PSAR, at 2.2-1 to 2.2-2.

<sup>199</sup> 10 C.F.R. § 50.35(a)(4)(ii).

<sup>200</sup> Ex. NRC-001, Staff Information Paper, at 20; Ex. NRC-008, SER, at 2-1.

engineering.<sup>201</sup> This review also included SHINE's analyses of structures, systems, and components and "equipment designed to ensure safe operation, performance, and shutdown when subjected to extreme weather, floods, seismic events, missiles (including aircraft impacts), chemical and radiological releases, and loss of offsite power."<sup>202</sup> After reviewing SHINE's analyses, the Staff concluded that there is reasonable assurance that the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.<sup>203</sup>

At the hearing, we asked SHINE to describe its seismic hazard evaluation.<sup>204</sup> Dr. Alan Hull, a seismic hazard specialist with Golder Associates, testified for SHINE.<sup>205</sup> Dr. Hull explained that the proposed facility is located in a low seismic hazard zone.<sup>206</sup> SHINE's analysis used the Central Eastern United States — Seismic Source Characterization catalog, among other references, to establish the design-basis earthquake for the SHINE facility — a 5.8 magnitude earthquake.<sup>207</sup>

We also asked SHINE to describe its flooding hazard analysis.<sup>208</sup> SHINE looked at the probable maximum precipitation event and the probable maximum flood at the proposed site.<sup>209</sup> The Rock River is about 2 miles (3.2 kilometers) from the site, but even in the event of the probable maximum flood, the water would be about 50 feet (15.2 meters) below the elevation of the site; therefore SHINE determined that flooding would not pose a hazard to the facility.<sup>210</sup> The probable maximum precipitation event would come up to the facility elevation,

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<sup>201</sup> Ex. NRC-001, Staff Information Paper, at 20; Ex. NRC-008, SER, at 2-1; *cf.* 10 C.F.R. § 100.10 (listing factors to be considered when selecting sites for nuclear reactors, including population density, seismology, meteorology, geology, and hydrology).

<sup>202</sup> Ex. NRC-001, Staff Information Paper, at 20.

<sup>203</sup> *Id.*

<sup>204</sup> Tr. at 126 (Chairman Burns).

<sup>205</sup> *Id.* (Dr. Hull).

<sup>206</sup> *Id.* at 126-27 (Dr. Hull).

<sup>207</sup> Ex. NRC-006C, Construction Permit Application, PSAR, at 2.5-14, 2.5-17; Tr. at 127 (Dr. Hull).

<sup>208</sup> Tr. at 128 (Chairman Burns).

<sup>209</sup> *Id.* (Ms. Kolb). The probable maximum precipitation event "is defined as the theoretical greatest depth of precipitation for a given duration that is physically possible over a particular drainage area at a certain time of year." Ex. NRC-006C, Construction Permit Application, PSAR, at 2.4-13. The probable maximum flood is estimated using NRC Regulatory Guides 1.59 and 3.40 and data from the U.S. Army Corps of Engineers. *Id.* at 2.4-11. *See generally* Regulatory Guide 1.59, "Design Basis Floods for Nuclear Power Plants," Rev. 2 (Aug. 1977) (ADAMS Accession No. ML003740388); Regulatory Guide 3.40, "Design Basis Floods for Fuel Reprocessing Plants and for Plutonium Processing and Fuel Fabrication Plants," Rev. 1 (Dec. 1977) (ADAMS Accession No. ML003739400).

<sup>210</sup> Tr. at 128 (Ms. Kolb); *see also* Ex. NRC-006C, Construction Permit Application, PSAR, at 2.4-9, 2.4-11 to 2.4-13 (noting the difference between site elevation and the probable maximum flood at 51 feet (15.5 meters)).

but SHINE determined that it would not flood the structure.<sup>211</sup> Berms would be constructed around the perimeter of the plant to prevent flooding due to offsite runoff.<sup>212</sup>

#### **D. Additional Safety Considerations**

SHINE also must demonstrate that it is financially qualified to construct the proposed Medical Radioisotope Production Facility.<sup>213</sup> SHINE provided information on the estimated costs of constructing the facility and related fuel cycle costs, and it described the sources of funding that it would use to cover those costs.<sup>214</sup> It explained that it has obtained funding from various sources of financing, including equity, debt, and government grants.<sup>215</sup> Among these sources, SHINE has received funding commitments to date totaling \$58 million; a cost-sharing agreement with the Department of Energy, National Nuclear Security Administration would provide \$25 million of that amount.<sup>216</sup> SHINE is in the process of obtaining equity investment financing.<sup>217</sup> SHINE also expects to enter into a short-term lease, a debt agreement, or some combination of the two, but expects that it would fully own the facility within 5 years of startup.<sup>218</sup> Although not required at the construction permit stage, SHINE also provided information on the costs and expected sources of funds during facility operation and decommissioning, which the Staff will consider when SHINE submits its operating license application.<sup>219</sup>

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<sup>211</sup> Tr. at 128 (Ms. Kolb); *see also* Ex. NRC-006C, Construction Permit Application, PSAR, at 2.4-6 to 2.4-9; Ex. NRC-008, SER, at 2-16 to 2-20 (finding acceptable SHINE's consideration of hydrologic events for the proposed site).

<sup>212</sup> Ex. NRC-006C, Construction Permit Application, PSAR, at 2.4-9.

<sup>213</sup> *See* 10 C.F.R. §§ 50.33(f)(1), 50.40(b); *see also* 10 C.F.R. Part 50, App. C.

<sup>214</sup> Ex. NRC-006G, Construction Permit Application, PSAR, at 15-1; *see* 10 C.F.R. § 50.33(f)(1) (requiring an applicant for a construction permit to demonstrate that it "possesses or has reasonable assurance of obtaining the funds necessary to cover estimated construction costs and related fuel cycle costs").

<sup>215</sup> Ex. NRC-006G, Construction Permit Application, PSAR, at 15-2.

<sup>216</sup> *Id.*

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

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

<sup>219</sup> *Id.* at 15-3 to 15-5; Ex. NRC-008, SER, at 15-1. The expected construction costs and anticipated revenue from operating the SHINE facility are proprietary and are not included in the public version of the application.

SHINE also provided information on nuclear insurance and indemnity pursuant to the Price-Anderson Act. *See* AEA § 170, 42 U.S.C. § 2210; 10 C.F.R. Part 140. But because SHINE has not applied to possess special nuclear material, the Staff determined that this information was outside the scope of the construction permit application. Ex. NRC-006G, Construction Permit Application, PSAR,

(Continued)

The Staff reviewed SHINE's financial qualifications information, including SHINE's responses to requests for additional information.<sup>220</sup> The Staff requested itemized information on SHINE's construction costs and requested that SHINE provide the basis for each estimated cost in its application.<sup>221</sup> The Staff found reasonable SHINE's construction estimates, which were prepared by an established construction company with experience across a variety of industries.<sup>222</sup> The Staff also found reasonable SHINE's estimated fuel cycle costs, which were based on information obtained from the Department of Energy, National Nuclear Security Administration for the cost of a 1-year supply of low-enriched uranium.<sup>223</sup> After reviewing SHINE's cost and funding information, the Staff concluded that SHINE had met the financial qualifications requirements for the issuance of a construction permit.<sup>224</sup>

SHINE also provided information on whether it would be subject to foreign ownership, control, or domination.<sup>225</sup> SHINE explained that it is a private corporation that has approximately twenty-five shareholders.<sup>226</sup> SHINE employees also participate in a stock options plan. SHINE stated that "[t]o the best of [its] knowledge, all of [its] current shareholders holding 1 percent or more of SHINE's stock are U.S. citizens or entities owned or controlled by U.S. citizens" and "[a]ll of [its] current employees holding stock options are U.S. citizens."<sup>227</sup> SHINE further represented that six of the seven directors on SHINE's Board are U.S. citizens.<sup>228</sup> Based on its review, the Staff found that SHINE had provided sufficient information to demonstrate that it "is not owned, controlled, or dominated by an alien, foreign corporation, or foreign government."<sup>229</sup>

## E. The Staff's Environmental Review

The Staff prepared an EIS given "the potential for . . . significant impacts

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at 15-7; Ex. NRC-008, SER, at 15-6 to 15-7. The Staff stated that it will review this information when SHINE submits its operating license application or applies for a Part 70 license to possess special nuclear material. Ex. NRC-008, SER, at 15-6 to 15-7.

<sup>220</sup> Ex. NRC-008, SER, at 15-3 to 15-4.

<sup>221</sup> *Id.* at 15-4.

<sup>222</sup> *Id.*

<sup>223</sup> *Id.*

<sup>224</sup> *Id.* at 15-4 to 15-5.

<sup>225</sup> Ex. NRC-006G, Construction Permit Application, PSAR, at 15-6; *see* 10 C.F.R. § 50.33(d)(iii) (requiring an applicant that is a corporation to state "[w]hether it is owned, controlled, or dominated by an alien, a foreign corporation, or foreign government, and if so, give details").

<sup>226</sup> Ex. NRC-006G, Construction Permit Application, PSAR, at 15-6.

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

<sup>228</sup> *Id.* One of the directors is a Canadian citizen with U.S. permanent resident status. *Id.*

<sup>229</sup> Ex. NRC-008, SER, at 15-6.



and unique considerations . . . [for] a first-of-a-kind application for a medical radioisotope production facility.”<sup>230</sup> After publishing a notice of its intent to prepare an EIS, the Staff held two public scoping meetings in Janesville to gather input on issues to consider in its environmental review.<sup>231</sup> The Staff received comments on a variety of topics, including impacts to groundwater, nearby agricultural land, impacts from potential aircraft accidents, and alternative sites and technologies.<sup>232</sup> The Staff responded to the scoping comments in the draft EIS (DEIS).<sup>233</sup> The DEIS was itself put out for public comment, and those comments received were addressed in the FEIS.<sup>234</sup>

In its preparation of the EIS, the Staff worked with the Department of Energy as a cooperating agency. The Department of Energy itself was obliged under NEPA to conduct an environmental review due to its financial support of the project, and the American Medical Isotopes Production Act of 2012 requires the NRC and the Department of Energy to ensure that their “environmental reviews of facilities to produce medical radioisotopes are [complementary] and not duplicative.”<sup>235</sup> To that end, the Staff and the Department of Energy entered into a Memorandum of Agreement, which designated the NRC as the lead agency with the primary role in preparing the EIS; the Department of Energy provided assistance as the cooperating agency.<sup>236</sup>

The Staff evaluated the environmental impacts of constructing, operating, and decommissioning the SHINE facility across a variety of resource areas, including ecological resources, water resources, and socioeconomic conditions.<sup>237</sup> The Staff concluded that the potential impacts of the proposed action would be small for all resource areas, except for traffic, where impacts could range from small to moderate due to increased vehicle traffic to and from the site.<sup>238</sup> The Staff’s review also considered the environmental impacts of waste generated from operating the SHINE facility, a topic that we explored with the parties in

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<sup>230</sup> Tr. at 171 (Mr. Wrona).

<sup>231</sup> SHINE Medical Technologies, Inc., 78 Fed. Reg. 39,343 (July 1, 2013); Tr. at 172 (Mr. Wrona); Ex. NRC-009, FEIS, at xvii.

<sup>232</sup> Tr. at 172-73 (Mr. Wrona).

<sup>233</sup> Tr. at 173 (Mr. Wrona).

<sup>234</sup> See Construction Permit Application for the SHINE Medical Radioisotope Production Facility, 80 Fed. Reg. 27,710 (May 14, 2015); Ex. NRC-009, FEIS, App. A.

<sup>235</sup> Tr. at 173-74 (Mr. Wrona); see 42 U.S.C. § 2065(d) (“The Department and the Nuclear Regulatory Commission shall ensure to the maximum extent practicable that environmental reviews for the production of the medical isotopes shall complement and not duplicate each review.”).

<sup>236</sup> Tr. at 174 (Mr. Wrona); Ex. NRC-009, FEIS, at 1-5; Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 40-41.

<sup>237</sup> Tr. at 175 (Ms. Moser); see also Ex. NRC-009, FEIS, Ch. 4.

<sup>238</sup> Tr. at 175 (Ms. Moser); Ex. NRC-009, FEIS, at 6-1, 6-4.

prehearing questions and at the hearing.<sup>239</sup> In addition to other waste streams, we asked the parties to address plans for disposal of any Greater-Than-Class-C (GTCC) waste generated during SHINE's production process.<sup>240</sup> SHINE stated that it has been in discussions with facilities that are licensed to accept GTCC waste for storage.<sup>241</sup> Further, SHINE explained that a provision in the American Medical Isotopes Production Act requires the Department of Energy to take back and dispose of waste without a disposal path.<sup>242</sup> SHINE also raised the possibility that its finalized design might limit or eliminate any GTCC waste stream.<sup>243</sup>

The Staff also evaluated whether any threatened or endangered species were present onsite that could be affected by the project. Section 7 of the Endangered Species Act of 1973 requires an agency, in consultation with and with the assistance of the Secretary of the Interior or the Secretary of Commerce (as appropriate), to ensure that "any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species."<sup>244</sup> The U.S. Fish and Wildlife Service (under the Department of the Interior) and the National Marine Fisheries Service (under the Department of Commerce) jointly administer the Act.

SHINE conducted ecological surveys of the proposed site and the offsite area where construction of the sewer line would occur.<sup>245</sup> The Staff reviewed this information, as well as information obtained from the U.S. Fish and Wildlife

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<sup>239</sup> See Tr. at 154-55 (Commissioner Svinicki), 202 (Commissioner Baran); Pre-Hearing Questions at 20; Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 42.

<sup>240</sup> See Tr. at 154-55 (Commissioner Svinicki), 202 (Commissioner Baran); Pre-Hearing Questions at 20.

<sup>241</sup> Tr. at 155 (Ms. Kolb).

<sup>242</sup> *Id.* at 155-56 (Ms. Kolb), 203 (Dr. Vann Bynum); see 42 U.S.C. § 2065(c)(3)(A)(ii) (requiring that the uranium lease contracts must require the Secretary of Energy "to take title to and be responsible for the final disposition of radioactive waste created by the irradiation, processing, or purification of uranium leased under this section for which the Secretary determines the producer does not have access to a disposal path").

<sup>243</sup> Tr. at 155 (Ms. Kolb). The Environmental Protection Agency commented on this issue in the DEIS. See Ex. NRC-009, FEIS, at A-36 to A-37. After the Secretary closed the record for this proceeding, the Staff informed us that the Environmental Protection Agency had again raised this issue in comments on the FEIS. The Staff attached its response, which explained that the Environmental Protection Agency had based its comments on a nonpublic draft of the FEIS that did not include the Staff's finalized discussion of the GTCC issue. The Staff provided to the Environmental Protection Agency the response from the published FEIS and supplemented that response with testimony from the hearing. See Notification of Correspondence Between the NRC Staff and the Environmental Protection Agency Regarding the Final Environmental Impact Statement (Jan. 15, 2016).

<sup>244</sup> Endangered Species Act § 7(a)(2), 16 U.S.C. § 1536(a)(2).

<sup>245</sup> Ex. NRC-009, FEIS, at 3-35.

database and concluded that no endangered species were present in this area.<sup>246</sup> The Staff also contacted the U.S. Fish and Wildlife Service, which stated that no federally listed, proposed, or candidate species would be expected within the project area and that no critical habitat is present.<sup>247</sup> The Staff conducted a similar review for state-listed species and determined that none would be present at the proposed site or nearby adjacent areas.<sup>248</sup> The Wisconsin Department of Natural Resources also determined that the site would not provide a suitable habitat for state-listed species; therefore there would be no potential for them to exist on the site.<sup>249</sup>

In accordance with the National Historic Preservation Act of 1966, the Staff reviewed whether the proposed action would have any effect on historic and cultural resources.<sup>250</sup> SHINE commissioned an archeological survey of the site, but “did not identify any archaeological sites or evidence of cultural resources within the survey area.”<sup>251</sup> The Staff contacted the Advisory Council on Historic Preservation and the Wisconsin Historical Society.<sup>252</sup> The Staff also visited the Wisconsin Historical Society and reviewed listings of archeological resources.<sup>253</sup> Based on the information it gathered, the Staff concluded that there were no historic properties or historic and cultural resources on the proposed site.<sup>254</sup> The Wisconsin Historical Society confirmed that no historic properties would be affected by the proposed action.<sup>255</sup>

Also as part of this review, the Staff initiated consultation with thirteen federally recognized Indian Tribes with historic ties to southern Wisconsin.<sup>256</sup> The Staff received scoping comments from one tribe, the Forest County Potawatomi, which stated that the proposed project would be located on Potawatomi ancestral land, expressed concern for any impacts to historic and cultural properties in that area, and requested to receive the results of the historic and cultural investigation.<sup>257</sup>

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<sup>246</sup> *Id.*

<sup>247</sup> *Id.* The Staff determined that because the site does not contain any surface water features and the nearby Rock River “does not contain marine or anadromous fish species,” there would be no federally listed species within the action area under the jurisdiction of the National Marine Fisheries Service.  
*Id.*

<sup>248</sup> *Id.* at 3-35 to 3-36.

<sup>249</sup> *Id.* at 3-36.

<sup>250</sup> *Id.* at 3-40, 4-28 to 4-29.

<sup>251</sup> *Id.* at 3-40; *see also* Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 43.

<sup>252</sup> Ex. NRC-009, FEIS, at 4-28 to 4-29.

<sup>253</sup> *Id.*; Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 43.

<sup>254</sup> Ex. NRC-009, FEIS at 4-28 to 4-29; Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 43.

<sup>255</sup> Ex. NRC-009, FEIS, at 4-29.

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

<sup>257</sup> *Id.*; Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 31-33.

The Staff attempted to contact the Tribe to share information about its review.<sup>258</sup> It also provided copies of the DEIS and FEIS to the Forest County Potawatomi, along with the other affected Tribes.<sup>259</sup> The Peoria Tribe of Indians of Oklahoma commented on the DEIS and stated that the proposed action would not appear to affect items of cultural significance to the Tribe but requested immediate notification and consultation if items covered under the Native American Graves Protection and Repatriation Act are discovered onsite.<sup>260</sup>

The Staff also analyzed alternatives to the proposed action.<sup>261</sup> This review included consideration of the no-action alternative, alternative sites, and alternative technologies.<sup>262</sup> For the no-action alternative, i.e., if the construction permit were to be denied, the Staff found that no changes would occur on the site, but that alternative also would not meet the purpose of the proposed action — to provide a domestic supply of molybdenum-99.<sup>263</sup> After reviewing the applicant's systematic site-selection process, the Staff examined two alternative sites, both in the State of Wisconsin — one in Chippewa Falls, and one in Stevens Point.<sup>264</sup> The Staff compared the environmental costs and benefits of the proposed action at these alternative sites with the costs and benefits of the proposed action at the Janesville site.<sup>265</sup> The Staff found that impacts at the Chippewa Falls site would be small for all resource areas except for noise and traffic.<sup>266</sup> It found that impacts at the Stevens Point site would be small for all resource areas except for traffic, noise, and visual impacts to the surrounding landscape.<sup>267</sup> With “small to moderate impacts” in fewer resource areas, the Staff concluded that the Janesville site was the environmentally preferable alternative site.<sup>268</sup>

The Staff considered three technologies for the production of medical isotopes that it found to be feasible: neutron capture technology, aqueous homogenous reactor technology, and linear-accelerator-based technology.<sup>269</sup> The Staff selected these technologies because at the time the Staff was preparing the EIS, they had

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<sup>258</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 32. The Staff represented that it provided information about the availability of SHINE's archeological survey report to the Potawatomi Tribe in March 2015. *Id.*

<sup>259</sup> *Id.*

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

<sup>261</sup> See Ex. NRC-009, FEIS, Ch. 5.

<sup>262</sup> *Id.* at 5-1.

<sup>263</sup> *Id.* at 5-1 to 5-2.

<sup>264</sup> *Id.* at 5-2 to 5-6.

<sup>265</sup> *Id.* at 5-103 to 5-105.

<sup>266</sup> Ex. NRC-013, Construction Permit Application Review, SHINE Medical Technologies, Environmental Panel (Dec. 8, 2015), at 12 (Staff Environmental Panel Presentation).

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

<sup>268</sup> Tr. at 181 (Ms. Moser).

<sup>269</sup> Ex. NRC-009, FEIS, at 5-92.

been selected to receive funding from the National Nuclear Security Administration.<sup>270</sup> The Staff further narrowed its review of these alternatives, however, to one technology — the linear accelerator — because sufficient information was not available to review the other alternatives.<sup>271</sup> The Staff concluded that the linear accelerator technology, if constructed, operated, and decommissioned at the Janesville site, would have similar impacts to SHINE's proposed technology — small impacts in all resource areas except for traffic, which would be small to moderate.<sup>272</sup>

Considering the results of its environmental review the Staff recommended the issuance of the construction permit to SHINE.<sup>273</sup> At the operating license stage, the Staff will prepare a supplement to the FEIS to address any new and significant information that was not available during its review of the construction permit application.<sup>274</sup>

## **F. Findings**

We have conducted an independent review of the sufficiency of the Staff's safety findings, with particular attention to the topics discussed above. Our findings, however, are based on the record as a whole. Based on the evidence presented in the uncontested hearing, including the Staff's review documents and the testimony provided, we find that SHINE has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and has identified major features or components incorporated therein for the protection of the health and safety of the public. Further technical or design information as may be required to complete the safety analysis has reasonably been left for later consideration and will be supplied in the Final Safety Analysis Report. SHINE has described the safety features or components that require research and development and has identified, and there will be conducted, a research and development program reasonably designed to resolve any safety questions associated with these features or components. On the basis of the foregoing, we find that there is reasonable assurance that open safety questions will be resolved satisfactorily at or before the latest date stated in the application for completion of construction of the proposed facility, and that, taking into consideration the site criteria in 10 C.F.R. Part 100, the proposed

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<sup>270</sup> *Id.* at 5-92 to 5-93.

<sup>271</sup> *Id.* at 5-93 to 5-94; Tr. at 179-80 (Ms. Moser).

<sup>272</sup> Ex. NRC-009, FEIS, at 5-104 to 5-105.

<sup>273</sup> *Id.* at 6-13.

<sup>274</sup> Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 40.

facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

In making these findings, we also conclude that: there is reasonable assurance that construction of the facility will not endanger the health and safety of the public, and that the authorized activities can be conducted in compliance with the NRC's regulations, including the requirements in 10 C.F.R. Part 20; SHINE is technically and financially qualified to engage in the activities authorized; issuance of the construction permit will not be inimical to the common defense and security or to the health and safety of the public; and SHINE's application meets the standards and requirements of the Atomic Energy Act and the NRC's regulations, and the required notifications to other agencies or bodies have been duly made.<sup>275</sup> Additionally, we find that the Staff's proposed permit conditions are appropriately drawn and sufficient to provide reasonable assurance of adequate protection of public health and safety.<sup>276</sup>

We also conducted an independent review of the Staff's environmental analysis in the FEIS, taking into account the particular requirements of NEPA. NEPA § 102(2)(A) requires agencies to use "a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts" in decision-making that may impact the environment.<sup>277</sup> We find that the environmental review team used the systematic, interdisciplinary approach that NEPA requires.<sup>278</sup> The environmental review team consisted of over twenty individuals with expertise in disciplines including ecology, geology, hydrology, human health, socioeconomics, and cultural resources.<sup>279</sup>

NEPA § 102(2)(E) calls for agencies to study, develop, and describe appropriate alternatives.<sup>280</sup> The alternatives analysis is the "heart of the environmental impact statement."<sup>281</sup> Based on the Staff's testimony at the hearing, as well as the discussion in the FEIS, we find that the environmental review identified an appropriate range of alternatives with respect to the no-action alternative, alternative technologies, and alternative sites and adequately described the environmental

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<sup>275</sup> See, e.g., 10 C.F.R. § 2.104(a); Ex. NRC-009, FEIS, at 1-6 to 1-7.

<sup>276</sup> See 10 C.F.R. §§ 50.35(b), 50.50; Ex. NRC-002-R, Draft Construction Permit, at 2-3. We agree with the Staff's decision to remove the proposed permit condition that would have set forth criteria for SHINE to obtain pre-approval for certain construction changes. See Ex. NRC-004-R, Staff Responses to Pre-Hearing Questions, at 45-47; see also *supra* note 144.

<sup>277</sup> NEPA § 102(2)(A), 42 U.S.C. § 4332(2)(A).

<sup>278</sup> See, e.g., Tr. at 170-87 (providing an overview of the Staff's environmental review methodology and findings); Ex. NRC-013, Staff Environmental Panel Presentation, at 5-16.

<sup>279</sup> Ex. NRC-009, FEIS, at 7-1 (listing contributors from the NRC; Department of Energy, National Nuclear Security Administration; Los Alamos Technical Associates; and Idoneous Consulting).

<sup>280</sup> NEPA § 102(2)(E), 42 U.S.C. § 4332(2)(E).

<sup>281</sup> 10 C.F.R. Part 51, Subpart A, App. A, § 5.

impacts of each alternative.<sup>282</sup> We find reasonable the Staff's conclusion that none of the alternatives considered is environmentally preferable to the proposed action.<sup>283</sup>

NEPA § 102(2)(C) requires us to assess the relationship between local short-term uses and long-term productivity of the environment, to consider alternatives, and to describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action.<sup>284</sup> The discussion of alternatives is in Chapter 5 of the FEIS; the other items are discussed in Chapter 6.<sup>285</sup> The environmental review team found that the short-term uses of the environment — construction, operation, and decommissioning of the SHINE facility — would commit land and energy indefinitely or permanently.<sup>286</sup> After the facility is decommissioned, the land could return to productive use, but it may not be suitable for farming, depending on the condition of the soil, and would be further limited if the land is used to meet waste disposal needs.<sup>287</sup> Also in the short term, however, the project would bring increased employment, expenditures, and tax revenues that would directly benefit local, regional, and state economies.<sup>288</sup> Additionally, there could be long-term benefits from “[l]ocal governments investing project-generated tax revenues into infrastructure and other required services,” which would enhance economic productivity; and the additional infrastructure resulting from the SHINE facility (e.g., connection to water and sewer systems) “would be available and beneficial for any future use of the proposed SHINE facility after its decommissioning.”<sup>289</sup>

Chapter 6 of the FEIS includes a chart of the unavoidable adverse environmental impacts during construction, operation, and decommissioning, along with actions to mitigate those impacts.<sup>290</sup> The environmental review team found that the unavoidable adverse impacts of the project would be small for all resource areas, except for increased traffic during construction and decommissioning, which could be small to moderate.<sup>291</sup> To mitigate traffic impacts, “SHINE would stagger construction work-shift schedules to reduce the hourly traffic flow . . . and

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<sup>282</sup> See, e.g., Tr. at 176-82, 188-89 (Ms. Moser); Ex. NRC-009, FEIS, Ch. 5.

<sup>283</sup> See, e.g., Tr. at 181-83 (Ms. Moser); Ex. NRC-009, FEIS, at 6-4.

<sup>284</sup> NEPA § 102(2)(C)(ii)-(v), 42 U.S.C. § 4332(2)(C)(ii)-(v).

<sup>285</sup> Ex. NRC-009, FEIS, Chs. 5-6.

<sup>286</sup> *Id.* at 6-11 to 6-12.

<sup>287</sup> *Id.* at 6-12.

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

<sup>289</sup> *Id.*

<sup>290</sup> *Id.* tbl. 6-2.

<sup>291</sup> *Id.* at 6-5, 6-9; Tr. at 65-66 (Ms. Marshall).

schedule truck deliveries early in the day to help reduce traffic congestion.”<sup>292</sup> SHINE also would follow delivery routes and avoid residential areas.<sup>293</sup>

Finally, with regard to irreversible and irretrievable commitments of resources, the environmental review team concluded that construction of the SHINE facility would irretrievably consume construction materials, unless SHINE recycles them after decommissioning.<sup>294</sup> The soils on the property could be irreversibly damaged, such that they would no longer be suitable for farming.<sup>295</sup> During operation, the uranium used in the production of molybdenum-99 “would be the main resource that would be irreversibly and irretrievably committed.”<sup>296</sup> The Staff also found that electricity, fuel, and water would be expended, but that the amounts used for constructing, operating, and decommissioning the SHINE facility would not be expected “to deplete available supplies or exceed available system capacities.”<sup>297</sup>

We must weigh these unavoidable adverse environmental impacts and resource commitments — the environmental “costs” of the project — against the project’s benefits.<sup>298</sup> Considering the need for a reliable supply of medical isotopes in the United States and the expected increase in jobs and tax revenue described during the hearing and in the FEIS, we find that the benefits of the project outweigh the costs described above. Moreover, we have considered each of the requirements of NEPA § 102(2)(C) and find nothing in the record that would lead us to disturb the Staff’s conclusions on those requirements.

In sum, for each of the topics discussed at the hearing and in today’s decision, we find that the Staff’s review was reasonably supported in logic and fact and sufficient to support the Staff’s conclusions. Based on our review of the FEIS, we also find that the remainder of the FEIS was reasonably supported and sufficient to support the Staff’s conclusions. Therefore, as a result of our review of the FEIS, and in accordance with the Notice of Hearing for this uncontested proceeding, we find that the requirements of NEPA § 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51, have been satisfied with respect to the construction permit application. We independently considered the final balance among conflicting factors contained in the record of this proceeding. We find, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, that the construction permit should be issued.

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<sup>292</sup> Ex. NRC-009, FEIS, at 6-9.

<sup>293</sup> *Id.*

<sup>294</sup> *Id.* at 6-12.

<sup>295</sup> *Id.*

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

<sup>297</sup> *Id.* at 6-13.

<sup>298</sup> *Cf.* 10 C.F.R. § 51.105(a).



### III. CONCLUSION

We find that, with respect to the safety and environmental issues before us, the Staff's review of SHINE's construction permit application was sufficient to support issuance of the construction permit. We *authorize* the Director of the Office of Nuclear Reactor Regulation to issue the permit for the construction of the SHINE Medical Radioisotope Production Facility. Additionally, we *authorize* the Staff to issue the record of decision, subject to its revision as necessary to reflect the findings in this decision.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 25th day of February 2016.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**G. Paul Bollwerk, III, Chairman**  
**Dr. Anthony J. Baratta**  
**Dr. William W. Sager**

**In the Matter of**

**Docket Nos. 52-014-COL**  
**52-015-COL**  
**(ASLBP No. 08-864-02-COL-BD01)**

**TENNESSEE VALLEY AUTHORITY**  
**(Bellefonte Nuclear Power Plant,**  
**Units 3 and 4)**

**February 29, 2016**

In this 10 C.F.R. Part 52 proceeding regarding the application of the Tennessee Valley Authority (TVA) for issuance of combined licenses (COLs) authorizing the construction and operation of two new reactors at TVA's existing Bellefonte Nuclear Power Plant site, finding that the record does not suggest any harm to the other parties to this proceeding or the public interest in general, pursuant to 10 C.F.R. § 2.107(a) the Licensing Board grants TVA's unopposed motion to withdraw its COL application, without prejudice, and terminates this proceeding.

**RULES OF PRACTICE: WITHDRAWAL OF LICENSE APPLICATION**

The circumstances under which an applicant can withdraw an application docketed by the agency are set forth in section 2.107(a) of Title 10 of the *Code of Federal Regulations*, entitled "Withdrawal of application," which states in pertinent part:

The Commission may permit an applicant to withdraw an application prior to the

issuance of a notice of hearing on such terms and conditions as it may prescribe, or may, on receiving a request for withdrawal of an application, deny the application or dismiss it with prejudice. . . . Withdrawal of an application after issuance of a notice of hearing shall be on such terms as the presiding officer may prescribe.

**RULES OF PRACTICE: WITHDRAWAL OF LICENSE  
APPLICATION (ADJUDICATORY PROCEEDING MOOTNESS)**

**MOOTNESS (LICENSE APPLICATION WITHDRAWAL)**

Commission caselaw indicates that the withdrawal of an application moots any adjudicatory proceeding regarding that application. *See Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Units 1 and 2), CLI-00-9, 51 NRC 293, 294 (2000).

**RULES OF PRACTICE: JURISDICTION (LICENSING BOARD)**

**NOTICE OF HEARING (LICENSING BOARD JURISDICTION OVER  
APPLICATION WITHDRAWAL MOTION)**

**WITHDRAWAL OF LICENSE APPLICATION (LICENSING BOARD  
JURISDICTION)**

Consistent with 10 C.F.R. § 2.107(a), a licensing board lacks jurisdiction to impose conditions upon, or otherwise impede, the withdrawal of an application associated with a proceeding before the board unless a notice of hearing has been issued. But once such a notice has been issued, any application withdrawal request must be approved by the licensing board and is subject to any appropriate conditions the board may impose. *See Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), ALAB-657, 14 NRC 967, 974 (1981); *U.S. Department of Energy* (High-Level Waste Repository), LBP-10-11, 71 NRC 609, 624 (2010), *aff'd by an equally divided Commission*, CLI-11-7, 74 NRC 212 (2011).

**RULES OF PRACTICE: WITHDRAWAL OF LICENSE  
APPLICATION (IMPOSITION OF CONDITIONS; WITH OR  
WITHOUT PREJUDICE)**

If an adequate showing is made of withdrawal-associated harm to a party or the public interest in general, a licensing board can act to grant either (1) a withdrawal without prejudice (signifying no merits disposition was made and the application can be refiled), albeit with appropriate conditions to protect a party or the public interest, *see Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3), LBP-82-81, 16 NRC 1128, 1134-35 (1982); or (2) a withdrawal with

prejudice (which precludes an application from being refiled), *see Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1132, 1135 (1981).

**RULES OF PRACTICE: BURDEN OF PROOF (CONDITIONS ON  
APPROVAL OF LICENSE APPLICATION WITHDRAWAL MOTION)**

**WITHDRAWAL OF LICENSE APPLICATION (IMPOSITION OF  
CONDITIONS)**

A licensing board has significant leeway in defining the circumstances under which an application can be withdrawn, but any withdrawal terms imposed by a board must bear a reasonable relationship to the conduct and the legal harm at which they are aimed and the record must support any findings concerning the conduct and the harm in question. *See Fulton*, ALAB-657, 14 NRC at 974. In addition, while the proponent of a withdrawal condition bears the burden of offering some explanation regarding the relief sought, *see Sequoyah Fuels Corp.*, CLI-95-2, 41 NRC 179, 192-93 (1995), purported harms that generally have not been considered adequate to warrant imposing conditions on a without-prejudice withdrawal or to sustain a with-prejudice withdrawal include the uncertainty and expense associated with additional hearings or other litigation, harm to property values, and psychological harm. *See N. Coast*, ALAB-662, 14 NRC at 1135; *Fulton*, ALAB-657, 14 NRC at 973, 978-79; *Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), LBP-84-43, 20 NRC 1333, 1337-38 (1984); *Perkins*, LBP-82-81, 16 NRC at 1134-35.

**RULES OF PRACTICE: WITHDRAWAL OF LICENSE  
APPLICATION (WITH OR WITHOUT PREJUDICE)**

Mandating a with-prejudice withdrawal is a severe sanction that should be reserved for those unusual situations that involve substantial prejudice to a party or the public interest in general. *See N. Coast*, ALAB-662, 14 NRC at 1132-33.

**RULES OF PRACTICE: JURISDICTION (LICENSING BOARD)**

**NOTICE OF HEARING (PROVIDING LICENSING BOARD  
JURISDICTION OVER APPLICATION WITHDRAWAL MOTION)**

**WITHDRAWAL OF LICENSE APPLICATION (LICENSING BOARD  
JURISDICTION)**

Generally, the initial hearing notice for an agency licensing case is a Commission-issued “notice of opportunity for a hearing,” which offers any interested

person the chance to file an intervention petition challenging a requested licensing action. Yet, in such a “contested” case, as it is often referred to, that hearing opportunity notice would not trigger licensing board jurisdiction over a withdrawal motion. *See Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), LBP-86-37, 24 NRC 719, 723-24 (1986) (in reactor operating license case, notice of hearing, rather than notice of receipt of application or notice of opportunity for a hearing, triggers licensing board jurisdiction under section 2.107(a) to approve withdrawal motion). Instead, in such a “contested” case, in most instances licensing board promulgation of a “notice of hearing” providing board jurisdiction over a withdrawal motion comes after the board has ruled on the efficacy of any intervention petitions and determined that an adjudicatory hearing is warranted. *See id.*

**RULES OF PRACTICE: NOTICE OF HEARING (MANDATORY OR UNCONTESTED PROCEEDING)**

**NOTICE OF PROPOSED ACTION OR OPPORTUNITY FOR HEARING (CONTESTED PROCEEDING)**

Consistent with the requirements of Atomic Energy Act (AEA) § 189a(1)(A), 42 U.S.C. § 2239(a)(1)(A), in a proceeding regarding a COL applicant that requests permission to construct a commercial production or utilization facility under AEA § 103, 42 U.S.C. § 2133, a Commission-issued “notice of hearing” denotes a so-called “mandatory” or “uncontested” hearing in which the applicant and the NRC Staff are the parties. *See Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232, 246 (1982), *aff’d*, *City of West Chicago v. NRC*, 701 F.2d 632 (7th Cir. 1983). Additionally, a hearing opportunity component to that notice advising interested persons that they could seek to challenge the COL application by attempting to become a party to a “contested” hearing would provide the genesis for a case before a licensing board.

**MEMORANDUM AND ORDER**  
**(Granting Motion to Withdraw Application and**  
**Terminating Proceeding)**

On February 12, 2016, the Tennessee Valley Authority (TVA) filed a motion asking that this Licensing Board authorize the withdrawal, without prejudice, of its pending application seeking 10 C.F.R. Part 52 combined licenses (COLs) to construct and operate proposed Units 3 and 4 at TVA’s existing Bellefonte Nuclear Power Plant (BNPP) site in Jackson County, Alabama. *See* [TVA]’s Motion to Withdraw COL Application Without Prejudice (Feb. 12, 2016) at 1

[hereinafter TVA Withdrawal Motion]. In its motion, TVA states that neither the NRC Staff nor intervenors Blue Ridge Environmental Defense League and Southern Alliance for Clean Energy (Joint Intervenors) oppose its withdrawal motion. *See id.* at 2; *see also* NRC Staff Response to Board Order Requesting Briefing (Feb. 12, 2016) at 1 n.4 (referencing TVA’s “unopposed” withdrawal motion) [hereinafter Staff Response].

For the reasons set forth below, we grant TVA’s motion to withdraw its COL application (COLA) for the BNPP Units 3 and 4, without prejudice, and terminate this adjudicatory proceeding.

## I. BACKGROUND

In the Board’s two previous published decisions in this case, we outlined the circumstances surrounding the October 2007 submission of TVA’s COLA for BNPP Units 3 and 4 and the 2008 initiation of this adjudicatory proceeding, *see* LBP-08-16, 68 NRC 361, 374-77 (2008), *rev’d in part*, CLI-09-3, 69 NRC 68 (2009), and *referred ruling declined*, CLI-09-21, 70 NRC 927 (2009), and the subsequent 2011 TVA-requested suspension of the Staff’s technical review of that application pending a TVA analysis of its long-term energy needs, *see* LBP-11-37, 74 NRC 774, 778-79 (2011). The Staff’s suspension of TVA’s application review, in effect, suspended this proceeding as well.<sup>1</sup> *See id.* at 779; *see also* 10 C.F.R. § 2.332(d).

Thereafter, in an August 25, 2015 issuance, the Board inquired about the status of TVA’s plans for BNPP Units 3 and 4 in light of the August 21 TVA Board of Directors’ approval of an Integrated Resource Plan (IRP) that suggested any renewed licensing activity at the BNPP site was anticipated to occur, if at all, in the mid-2020s or beyond. *See* Licensing Board Memorandum and Order (Request for Joint Status Report) (Aug. 25, 2015) at 1-3 (unpublished) [hereinafter Board Status Report Order]. Specifically, the Board asked the parties to provide a joint report addressing how this case should proceed.<sup>2</sup> *See id.* at 3. Among other things, the Board asked that the parties consider application withdrawal or a settlement

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<sup>1</sup>The parties continued to submit periodic mandatory document disclosures pursuant to 10 C.F.R. § 2.336(d). *See* Licensing Board Memorandum and Order (Revising Schedule for Mandatory Disclosure/Hearing File Updates) (Apr. 20, 2012) at 2 (unpublished).

<sup>2</sup>In requesting this status report, the Board explained that

[t]his potential decade-long hiatus once again raises the question of this adjudicatory proceeding’s continued efficacy, particularly given the strong likelihood that, prior to receiving further Board consideration as part of this adjudication (or garnering additional staff attention as part of an active licensing review), TVA’s current COLA would need appreciable revision to address intervening technical and environmental developments.

Board Status Report Order at 2-3 (citation omitted).

that would permit this adjudicatory proceeding to be terminated conditioned on a Staff commitment to seek renoticing of the opportunity for a hearing if the Staff's TVA COLA technical review was reinstated. *See id.* at 3-4 (citing UniStar Nuclear Energy [COLA] for Calvert Cliffs Nuclear Power Plant, Unit 3, 80 Fed. Reg. 42,558, 42,559 (July 17, 2015) (COLA withdrawal notice); *AmerenUE* (Callaway Plant, Unit 2), LBP-09-23, 70 NRC 659 (2009) (COLA case settlement based on renoticing)). In a September 23 response, the parties informed the Board that (1) TVA was still evaluating its plans with respect to BNPP Units 3 and 4 and did not intend to withdraw the COLA at that time; and (2) the parties anticipated engaging in settlement discussions and would provide the Board with another status report in early November. *See* Joint Status Report (Sept. 23, 2015) at 1. Subsequently, the parties filed a November 2 report declaring that no settlement had been reached and that no additional settlement discussions were planned. *See* Updated Joint Status Report (Nov. 2, 2015) at 2 [hereinafter Updated Status Report].

Advising the parties that it needed more information before determining how to proceed, the Board scheduled a telephone prehearing conference for December 4, 2015. *See* Licensing Board Memorandum and Order (Scheduling Prehearing Conference) (Dec. 1, 2015) at 1 (unpublished); *see also* Licensing Board Memorandum and Order (Scheduling Telephone Conference) (Nov. 23, 2015) at 2 (unpublished). During that conference call, when the Board raised the question of further settlement discussions,<sup>3</sup> Joint Intervenors expressed a strong disinclination to engage in further talks regarding terminating this adjudication without the application being withdrawn by TVA. *See* Tr. at 316. Then, as a followup to the December 4 prehearing conference, in a January 4, 2016 issuance the Board identified additional settlement conditions that it asked the parties to confirm they had considered previously, *see* Licensing Board Memorandum and Order (Request for Additional Status Information) (Jan. 4, 2016) at 2-4 (unpublished), which the parties did in a January 19 filing, *see* Joint Response to Board Request for Additional Status Information (Jan. 19, 2016) at 1-2.

On that same date, however, Joint Intervenors submitted a separate filing asserting, among other things, that in the absence of a settlement, termination of this adjudication could result only from TVA's withdrawal of its COLA or Board dismissal of the TVA application as having been abandoned. *See* Joint Intervenors' Separate Statement Regarding Additional Status Information (Jan. 19, 2016) at 2

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<sup>3</sup> At the outset, the Board also suggested the possibility of the appointment of a settlement judge pursuant to 10 C.F.R. § 2.338(b) to aid the parties in their discussions. *See* Board Status Report Order at 4 n.4. Although TVA initially voiced support for obtaining a settlement judge, *see* Updated Status Report at 2, in the face of Joint Intervenors' opposition to such a designation, both TVA and the Staff indicated they did not support any effort to have a settlement judge named absent agreement by all the parties, *see* Tr. at 310-14.



(citing *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-605, 12 NRC 153 (1980)). By issuance dated January 22, the Board asked the parties to submit briefs, with TVA and Staff filing first, on the issues of (1) whether the current circumstances regarding TVA planning for BNPP Units 3 and 4, as outlined in the 2015 IRP, could be considered actual or constructive abandonment of its COLA; and (2) the TVA/Staff resource implications of restarting Staff's suspended technical review as compared to TVA refiling the COLA if TVA decided to proceed with BNPP Units 3 and 4 in the mid-2020s or beyond. *See* Licensing Board Memorandum and Order (Requesting Party Briefs on the Issue of "Abandonment") (Jan. 22, 2016) at 2-3 (unpublished). But on the February 12 due date for the TVA and Staff briefs, TVA submitted the motion to withdraw the COLA for BNPP Units 3 and 4 that is now pending with the Board.<sup>4</sup>

## II. ANALYSIS

The circumstances under which an applicant can withdraw an application docketed by the agency are set forth in section 2.107(a) of Title 10 of the *Code of Federal Regulations*, entitled "Withdrawal of application," which states in pertinent part:

The Commission may permit an applicant to withdraw an application prior to the issuance of a notice of hearing on such terms and conditions as it may prescribe, or may, on receiving a request for withdrawal of an application, deny the application or dismiss it with prejudice. . . . Withdrawal of an application after issuance of a notice of hearing shall be on such terms as the presiding officer may prescribe.

Commission caselaw also indicates that the withdrawal of an application moots any adjudicatory proceeding regarding that application. *See Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Units 1 and 2), CLI-00-9, 51 NRC 293, 294 (2000).

Consistent with this regulation, a licensing board lacks jurisdiction to impose conditions upon, or otherwise impede, the withdrawal of an application associated with a proceeding before the board unless a notice of hearing has been issued. But once such a notice has been issued, any application withdrawal request must be approved by the licensing board and is subject to any appropriate conditions

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<sup>4</sup>In addition, on February 12 TVA filed a pleading stating that, in light of its withdrawal motion, submitting a brief regarding the Board's COLA abandonment and resource implication questions was unnecessary as being moot. *See* [TVA]'s Brief in Response to the Board's January 22, 2016 Order Requesting Briefs on Abandonment (Feb. 12, 2016) at 3-4. While making much the same observation, the Staff nonetheless submitted a brief addressing both the COLA abandonment and resource implication questions. *See* Staff Response at 1 n.4, 4-11.

the board may impose. *See Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), ALAB-657, 14 NRC 967, 974 (1981); *U.S. Department of Energy* (High-Level Waste Repository), LBP-10-11, 71 NRC 609, 624 (2010), *aff'd by an equally divided Commission*, CLI-11-7, 74 NRC 212 (2011). Further, because the filing of an application usually is voluntary, an applicant's withdrawal decision is generally considered a business judgment, the soundness of which is not a matter for licensing board consideration. *See Pacific Gas and Electric Co.* (Stanislaus Nuclear Project, Unit 1), LBP-83-2, 17 NRC 45, 51 (1983). If, however, an adequate showing is made of withdrawal-associated harm to a party or the public interest in general, a licensing board can act to grant either (1) a withdrawal without prejudice (signifying no merits disposition was made and the application can be refiled), albeit with appropriate conditions to protect a party or the public interest, *see Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3), LBP-82-81, 16 NRC 1128, 1134-35 (1982); or (2) a withdrawal with prejudice (which precludes an application from being refiled), *see Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1132, 1135 (1981).<sup>5</sup>

In this instance, a notice of hearing having been issued in this proceeding,<sup>6</sup> this

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<sup>5</sup> A licensing board has significant leeway in defining the circumstances under which an application can be withdrawn, but any withdrawal terms imposed by a board must bear a reasonable relationship to the conduct and the legal harm at which they are aimed and the record must support any findings concerning the conduct and the harm in question. *See Fulton*, ALAB-657, 14 NRC at 974. In addition, while the proponent of a withdrawal condition bears the burden of offering some explanation regarding the relief sought, *see Sequoyah Fuels Corp.*, CLI-95-2, 41 NRC 179, 192-93 (1995), purported harms that generally have not been considered adequate to warrant imposing conditions on a without-prejudice withdrawal or to sustain a with-prejudice withdrawal include the uncertainty and expense associated with additional hearings or other litigation, harm to property values, and psychological harm. *See N. Coast*, ALAB-662, 14 NRC at 1135; *Fulton*, ALAB-657, 14 NRC at 973, 978-79; *Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), LBP-84-43, 20 NRC 1333, 1337-38 (1984); *Perkins*, LBP-82-81, 16 NRC at 1134-35. Further, mandating a with-prejudice withdrawal is a severe sanction that should be reserved for those unusual situations that involve substantial prejudice to a party or the public interest in general. *See N. Coast*, ALAB-662, 14 NRC at 1132-33.

<sup>6</sup> Generally, the initial hearing notice for an agency licensing case is a Commission-issued "notice of opportunity for a hearing," which offers any interested person the chance to file an intervention petition challenging a requested licensing action. Yet, in such a "contested" case, as it is often referred to, that hearing opportunity notice would not trigger licensing board jurisdiction over a withdrawal motion. *See Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), LBP-86-37, 24 NRC 719, 723-24 (1986) (in reactor operating license case, notice of hearing, rather than notice of receipt of application or notice of opportunity for a hearing, triggers licensing board jurisdiction under section 2.107(a) to approve withdrawal motion). Instead, in such a "contested" case, in most instances licensing board promulgation of a "notice of hearing" providing board jurisdiction

(Continued)

Board has jurisdiction over TVA's February 12 request to withdraw its COLA for BNPP Units 3 and 4. Further, nothing on the record before us suggests that any harm to the other parties to this proceeding or the public interest in general will accrue from granting TVA's withdrawal request, which is not opposed by either Joint Intervenors or the Staff. We thus approve TVA's motion to withdraw its application, without prejudice. *See Exelon Nuclear Texas Holdings, LLC* (Victoria County Station Site), LBP-12-20, 76 NRC 215, 216 (2012).

### III. CONCLUSION

In the exercise of our authority under 10 C.F.R. § 2.107(a) and consistent with that provision's dictates,<sup>7</sup> the Licensing Board grants TVA's February 12, 2016 unopposed motion to withdraw its pending COLA for BNPP Units 3 and 4, without prejudice, and dismisses this adjudicatory proceeding.<sup>8</sup>

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over a withdrawal motion comes after the board has ruled on the efficacy of any intervention petitions and determined that an adjudicatory hearing is warranted. *See id.*

We observe, however, that this proceeding does not necessarily conform to that procedural framework because the TVA COLA requested permission to construct a commercial production or utilization facility under section 103 of the Atomic Energy Act (AEA), 42 U.S.C. § 2133. As a consequence, consistent with the requirements of AEA § 189a(1)(A), 42 U.S.C. § 2239(a)(1)(A), the initial hearing notice for this proceeding was a February 2008 Commission-issued "notice of hearing," *see* [TVA]; Notice of Hearing and Opportunity to Petition for Leave to Intervene on a [COL] for Bellefonte Units 3 and 4, 73 Fed. Reg. 7611, 7612 (Feb. 8, 2008), denoting that a so-called "mandatory" or "uncontested" hearing would be conducted in which TVA and the Staff are the parties, *see Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232, 246 (1982), *aff'd*, *City of West Chicago v. NRC*, 701 F.2d 632 (7th Cir. 1983). Additionally, a hearing opportunity component to that notice advised interested persons that they could seek to challenge the TVA COLA by attempting to become a party to a "contested" hearing, *see* 73 Fed. Reg. at 7612, thereby providing the genesis for this case before the Board.

In light of these circumstances, a question might be raised as to whether the Commission's initial February 2008 notice of hearing regarding the TVA COLA mandatory hearing operated, in and of itself, to give this Board jurisdiction over TVA's pending withdrawal motion in this contested case. This is an issue we need not reach, however, given the Board's own October 2008 issuance of a notice of hearing for this adjudication. *See* Atomic Safety and Licensing Board Panel; In the Matter of [TVA] ([BNPP] Units 3 and 4); Notice of Hearing (Application for [COL]), 73 Fed. Reg. 62,342 (Oct. 20, 2008). Moreover, whether the TVA withdrawal request requires some ruling relative to the mandatory hearing portion of this proceeding would be a matter for determination by the Commission, before which that aspect of the proceeding remains lodged.

<sup>7</sup> The Board also assumes that, in accord with 10 C.F.R. § 2.107(c), in due course the Staff will issue a *Federal Register* notice of the withdrawal of the TVA COLA for BNPP Units 3 and 4. *See supra* pp. 101-02 (referencing *Federal Register* notice of withdrawal of Calvert Cliffs facility COLA).

<sup>8</sup> Although the Board's action permitting the withdrawal of the TVA COLA for BNPP Units 3 and 4  
(Continued)

For the foregoing reasons, it is this 29th day of February 2016, ORDERED that the February 12, 2016 motion of applicant Tennessee Valley Authority to withdraw its 10 C.F.R. Part 52 COLA for BNPP Units 3 and 4, without prejudice, is *granted*, and this proceeding is *terminated*.<sup>9</sup>

THE ATOMIC SAFETY AND  
LICENSING BOARD

G. Paul Bollwerk, III, Chairman  
ADMINISTRATIVE JUDGE

Anthony J. Baratta  
ADMINISTRATIVE JUDGE

William W. Sager  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
February 29, 2016

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4 has no effect upon the efficacy of the existing 10 C.F.R. Part 50 construction permits authorizing TVA to build BNPP Units 1 and 2, *see Tennessee Valley Authority* (Bellefonte Nuclear Plant, Units 1 and 2), LBP-10-7, 71 NRC 391, *appeal dismissed*, CLI-10-26, 72 NRC 474 (2010), we note that TVA recently announced it is considering declaring the BNPP site as surplus and entertaining the site's sale, *see* TVA, Potential Sale of Bellefonte Nuclear Plant Site, <https://www.tva.gov/Newsroom/Bellefonte> (last visited Feb. 29, 2016).

<sup>9</sup>Because TVA's without-prejudice withdrawal motion is unopposed and we have not imposed any conditions in approving the motion, we do not include in this decision a statement concerning the submission of petitions for review contesting this final licensing board determination pursuant to 10 C.F.R. § 2.341(b)(1). That being said, under section 2.341(a)(2), over the next 120 days the Commission has the opportunity to conduct its own sua sponte review of this ruling.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**William J. Froehlich, Chairman**  
**G. Paul Bollwerk, III**  
**Nicholas G. Trikouros**

**In the Matter of**

**Docket No. 40-38367-ML**  
**(ASLBP No. 16-945-01-MLA-BD01)**

**RARE ELEMENT RESOURCES, INC.**  
**(Bear Lodge Project)**

**March 23, 2016**

**RULES OF PRACTICE: WITHDRAWAL OF INTERVENOR**

When a pending hearing petition is withdrawn by a petitioner and the proceeding is one in which a hearing is not required in the absence of a hearing/intervention petition, when only a single intervenor is participating, its withdrawal serves to bring the proceeding to an end.

**RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

When a petitioner's request to withdraw its hearing petition is granted without prejudice and the proceeding is terminated, should the petitioner seek to refile, it must comply with the requirements of 10 C.F.R. § 2.309(c)(1) for showing good cause for filing any future request to intervene and request for hearing.

**RULES OF PRACTICE: SUSPENSION OF PROCEEDING**  
**(EFFICIENT LICENSING AND REGULATION)**

It generally is in the public interest to avoid the expense of an adjudicatory

hearing when NRC Staff review of a docketed license application has been suspended.

**RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)**

A licensing board determination about whether an adjudicatory hearing regarding a license application can go forward, regardless of the suspension of NRC Staff review of a docketed license application, is governed by whether a petitioner sets forth with particularity both the interest of the petitioner and how that interest may be affected by the proceeding. A petitioner must also provide sufficient detail for proposed contentions to demonstrate that the issues raised are admissible and that further inquiry is warranted.

**ATOMIC ENERGY ACT: RIGHT TO HEARING**

Atomic Energy Act § 189a(1)(A), the statutory basis for affording an adjudicatory hearing to challenge a materials license application, requires that an intervenor specify one or more cognizable health, safety, or environmental concerns to obtain a hearing at which the validity of such concerns can be litigated.

**MEMORANDUM AND ORDER**  
**(Granting Defenders of the Black Hills' Request to Withdraw**  
**Hearing Request and Terminating Proceeding)**

**I. BACKGROUND**

**A. Proceeding Initiation**

On May 4, 2015, Rare Element Resources, Inc. (RER), filed an application under 10 C.F.R. Part 40 to possess and use source material associated with the processing of rare earth elements as part of the proposed Bear Lodge Project in Crook and Weston Counties, Wyoming.<sup>1</sup> On November 16, 2015, notice of RER's application to the Nuclear Regulatory Commission (NRC) was published in the *Federal Register*, allowing anyone with interests affected by the application

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<sup>1</sup> [RER] License Application for Source Material Possession Submitted to the Nuclear Regulatory Commission at 1 § 5.0, at 2 § 6.0 (May 4, 2015) (ADAMS Accession No. ML15134A434).

to petition to intervene and request a hearing.<sup>2</sup> Defenders of the Black Hills (Defenders or Petitioner) filed a timely request for hearing.<sup>3</sup>

On January 21, 2016, RER sent two requests for suspension to the NRC. Citing financial difficulties, RER sent one request to the NRC Staff to suspend all permitting and licensing efforts,<sup>4</sup> and one request to the Commission to suspend adjudicatory proceedings until the Staff's licensing process resumes.<sup>5</sup> The NRC Staff granted RER's request to suspend licensing review on February 4.<sup>6</sup>

The Commission on February 1 referred Petitioner's hearing request, along with RER's suspension request, to the Atomic Safety and Licensing Board Panel.<sup>7</sup> On February 9, the Chief Administrative Judge established this Atomic Safety and Licensing Board to conduct any adjudicatory proceeding regarding Defenders' petition.<sup>8</sup> That same day, the NRC Staff and RER filed timely answers opposing the petition to intervene and request for a hearing.<sup>9</sup> Both the NRC Staff and RER argued that Petitioner did not provide sufficient information to demonstrate standing or put forth an admissible contention.<sup>10</sup>

The Licensing Board then suspended any pending procedural dates, in particular the deadline for Defenders to file a response to NRC Staff's and RER's already-submitted answers to its request for a hearing,<sup>11</sup> and scheduled a February 22, 2016 conference call with the participants regarding RER's pending request to suspend any adjudicatory proceeding.<sup>12</sup>

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<sup>2</sup> [RER]; Bear Lodge Project, 80 Fed. Reg. 70,846 (Nov. 16, 2015).

<sup>3</sup> Letter from Charmaine White Face, Coordinator for Defenders of the Black Hills, to Kenneth Kalman, NRC Office of Nuclear Material Safety & Safeguards (Jan. 14, 2016).

<sup>4</sup> Letter from Jaye Pickarts, RER Chief Operating Officer, to Andrew Persinko, Deputy Dir., NRC Div. of Decommissioning, Uranium Recovery, & Waste Programs (Jan. 21, 2016) (ADAMS Accession No. ML16022A191).

<sup>5</sup> Letter from Tyson R. Smith, RER Counsel, to NRC Commissioners (Jan. 21, 2016) (ADAMS Accession No. ML16021A468).

<sup>6</sup> Letter from Michael A. Norato, Acting Deputy Dir., NRC Div. of Decommissioning, Uranium Recovery & Waste Programs, to Jaye Pickarts, RER Chief Operating Officer (Feb. 4, 2016) (ADAMS Accession No. ML16032A140).

<sup>7</sup> Memorandum from Annette L. Vietti-Cook, NRC Office of the Secretary (SECY), to E. Roy Hawken, Chief Administrative Judge, Atomic Safety and Licensing Board Panel (Feb. 1, 2016).

<sup>8</sup> [RER]; Establishment of Atomic Safety and Licensing Board, 81 Fed. Reg. 7834 (Feb. 16, 2016).

<sup>9</sup> NRC Staff Response to [Defenders'] Petition to Intervene and Request for Hearing (Feb. 9, 2016) [hereinafter NRC Staff Response]; [RER] Response to Petition to Intervene Filed by [Defenders] (Feb. 9, 2016) [hereinafter RER Response].

<sup>10</sup> NRC Staff Response at 1, 13; RER Response at 1, 10.

<sup>11</sup> Licensing Board Order (Suspending Deadline for Filing Reply Pleading under Section 2.309(i)(2) and Scheduling Telephone Conference Call to Establish Further Procedures) (Feb. 11, 2016) (unpublished).

<sup>12</sup> Licensing Board Notice (Scheduling Conference Call) (Feb. 17, 2016) (unpublished).

## **B. The February 22, 2016 Conference Call**

During the February 22 conference call, RER requested that the Board continue the adjudicatory proceeding, effectively seeking to withdraw its pending request for suspension.<sup>13</sup> In support of this change in position, RER noted that it had already incurred the expense of filing its response to Defenders' petition. RER asserted that the most efficient way for the Board to proceed would be to complete the only remaining steps necessary to determine whether a hearing on Defenders' petition should be convened, i.e., the submission of Petitioner's reply and the Board's ruling on the viability of Defenders' hearing request.<sup>14</sup> The NRC Staff also stated that it had no objection to moving forward with the adjudicatory proceeding rather than suspending it.<sup>15</sup> Petitioner stated that it preferred to suspend the proceeding as originally requested by RER.<sup>16</sup>

During that conference, the Board also discussed with the participants the permitting review process related to the Bear Lodge Project through which RER has been working with the United States Forest Service (Forest Service) to obtain permission to operate a rare earth elements mining operation.<sup>17</sup> The Forest Service has also suspended review of the Bear Lodge Project at RER's request.<sup>18</sup>

In an Order issued February 24, 2016, the Licensing Board directed that the adjudicatory portion of this docket would resume. The Board granted RER's February 22, 2016 oral request to withdraw its January 21 request to suspend the adjudicatory proceeding and directed Defenders to file its reply pleading by March 7, 2016.<sup>19</sup> The Board also indicated that Defenders' reply should address RER's and NRC Staff's answers in the areas of (1) Defenders' standing to participate in this proceeding under 10 C.F.R. § 2.309(d)(1); and (2) the admissibility of Petitioner's contention under 10 C.F.R. § 2.309(f).<sup>20</sup>

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<sup>13</sup> Tr. at 7-8 (Mr. Smith).

<sup>14</sup> Tr. at 16-17 (Mr. Smith).

<sup>15</sup> Tr. at 8 (Mr. Carpenter).

<sup>16</sup> Tr. at 8-9 (Ms. White Face). Also in response to a Board inquiry, the representatives for Defenders and RER indicated they were not inclined to enter into settlement discussions with an eye toward possibly dismissing this adjudication, subject to renoticing at an appropriate time in the future. *See* Tr. at 24-26.

<sup>17</sup> *See* Tr. at 10-11. The Forest Service is responsible for preparation of an environmental impact statement for the actual mine site.

<sup>18</sup> U.S. Forest Service, News Release, "Bear Lodge Project — Rare Earth Mine — Suspended" (Jan. 22, 2016), *available at* [http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/84481\\_FSPLT3\\_2669840.pdf](http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/84481_FSPLT3_2669840.pdf).

<sup>19</sup> Licensing Board Order (Addressing Request to Suspend the Proceeding) (Feb. 24, 2016) (unpublished).

<sup>20</sup> *Id.* at 5.



### C. Defenders' Reply Pleading

On March 4, 2016, Defenders filed its reply by e-mail.<sup>21</sup> Defenders' Reply alleged, without further explanation, that the "NRC was improperly implementing NEPA"<sup>22</sup> and that Defenders has "met the legal standing burden."<sup>23</sup> The reply neither addressed the admissibility of Petitioner's contention under 10 C.F.R. § 2.309(f) nor responded to the standing and admissibility challenges raised by NRC Staff and RER in their respective answers. Defenders' Reply concluded that "[t]o avoid any further expenditure of public resources on this suspended Application, we hereby formally withdraw our Request for Hearing of January 14, 2016. We reserve the right to resubmit such a Request for Hearing at such time as the suspension of this Application may be lifted."<sup>24</sup>

## II. ANALYSIS AND FINDINGS

It generally is in the public interest to avoid the expense of an adjudicatory hearing when NRC Staff review of a docketed license application has been suspended.<sup>25</sup> A licensing board determination about whether an adjudicatory hearing regarding a license application can go forward, regardless of such a suspension, is governed by whether a petitioner sets forth with particularity both the interest of the petitioner and how that interest may be affected by the proceeding. A petitioner must also provide sufficient detail for proposed contentions to demonstrate that the issues raised are admissible and that further inquiry is warranted.<sup>26</sup> Atomic Energy Act § 189a(1)(A),<sup>27</sup> the statutory basis for affording an adjudicatory hearing to challenge a materials license application

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<sup>21</sup> Reply of Defenders of the Black Hills to ASLB Order Dated Feb. 24, 2016 (Mar. 4, 2016) [hereinafter Defenders Reply]. During the February 22, 2016 conference call, Defenders assured the Board that it would be able to utilize the agency's E-Filing system. *See* Tr. at 13-14 (Ms. White Face). However, Defenders' Reply was only served on the parties and the Licensing Board's members and law clerk by e-mail, which failed to reach the Board Chairman because an incorrect e-mail address was used.

<sup>22</sup> Defenders Reply at 1.

<sup>23</sup> *Id.* at 3.

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

<sup>25</sup> *See Tennessee Valley Authority* (Bellefonte Nuclear Power Plant, Units 3 and 4), LBP-16-1, 83 NRC 97, 101 (2016) (Staff license review suspension, entered at applicant's request, had effect of suspending associated adjudicatory proceeding).

<sup>26</sup> *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), LBP-82-4, 15 NRC 199, 206 (1982); *see also Amergen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), LBP-06-22, 64 NRC 229, 234-35 (2006); *Philadelphia Electric Co.* (Limerick Generating Station, Unit 1), LBP-86-9, 23 NRC 273, 277 (1986).

<sup>27</sup> 42 U.S.C. § 2239(a)(1)(A).

like that submitted by RER, requires that an intervenor specify one or more cognizable health, safety, or environmental concerns to obtain a hearing at which the validity of such concerns can be litigated.<sup>28</sup> In this instance, while noting that the concerns expressed by RER and the NRC Staff regarding Defenders' standing and the admissibility of its sole contention are not insubstantial, given Defenders' requested withdrawal of its hearing petition, we need not reach the question of whether those challenges would be sufficient to require that Defenders' petition be dismissed.

Because Defenders has not requested, and we see no basis for mandating, that the withdrawal of its hearing petition be "with prejudice" (so as to have the effect of precluding a subsequent refiling on the same grounds), Defenders' assertion that it reserves the "right to resubmit such a Request for Hearing at such time as the suspension of the Application may be lifted" is consistent with longstanding agency case law.<sup>29</sup> At the same time, should Defenders seek to refile,<sup>30</sup> it must comply with the requirements of 10 C.F.R. § 2.309(c)(1) for showing good cause for filing any future request to intervene and request for hearing.<sup>31</sup> Additionally, Petitioner must follow NRC requirements for establishing standing and an admissible contention. For an organization to show standing on a representational basis, these requirements include providing (1) a statement as to whom the organization represents; (2) a sworn statement indicating where the represented individuals reside or how far they reside from the alleged threat and

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<sup>28</sup> *Business and Professional People for the Public Interest v. AEC*, 504 F.2d 424, 428-29 (D.C. Cir. 1974).

<sup>29</sup> See *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), LBP-73-41, 6 AEC 1057, 1057 (1973) (granting request to withdraw hearing petition, without prejudice).

<sup>30</sup> Citing computer equipment incompatibility, Defenders initially requested an exemption from the requirement in the agency's rules of practice to submit pleadings via the agency's E-Filing system. See Letter from Charmaine White Face, Defenders Coordinator, to Rulemaking and Adjudications Staff, SECY (Jan. 6, 2016); see also 10 C.F.R. § 2.302(g)(4). As we observed previously, see *supra* note 21, during the February 22 prehearing conference, Defenders Coordinator Ms. White Face indicated that with the assistance of the NRC's E-Filing Help Desk, she had been able to connect with the system, meaning that the pending exemption request had become moot. Tr. at 14. If Defenders should decide to make any additional hearing-related filings with the agency, we urge it to use the E-Filing system to ensure those filings are properly received and served. If Defenders have any issues with the E-Filing system, it should contact the Help Desk for assistance.

<sup>31</sup> See *Grand Gulf*, LBP-73-41, 6 AEC at 1057-58 (petitioner seeking to reinstate a withdrawn intervention request must show good cause under agency's then-existing late-filing requirements). Under the agency's current regulations, section 2.309(c)(1) provides that hearing requests and intervention petitions filed after the initial *Federal Register* hearing opportunity notice date regarding a requested licensing action must demonstrate good cause by showing that (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.

that the organization has the individuals' permission to represent their interests; and (3) a plausible scenario concerning how the individuals may suffer health or safety consequences.<sup>32</sup> A petitioner must also submit at least one admissible contention that satisfies all six criteria in 10 C.F.R. § 2.309(f)(1). If any one of these admissibility requirements is not met, a contention must be rejected.<sup>33</sup>

We thus conclude that Defenders' March 4 request to withdraw its pending hearing petition should be granted, without prejudice to Defenders' subsequent submission of a hearing request regarding the still-pending RER application.<sup>34</sup> Further, this proceeding being "one in which a hearing is not required in the absence of a hearing/intervention petition, when only a single intervenor is participating, 'its withdrawal serves to bring the proceeding to an end.'"<sup>35</sup>

### III. LICENSING BOARD ORDER

1. Defenders of the Black Hills' March 4, 2016 request to withdraw its January 14, 2016 request for hearing is GRANTED.
2. The adjudicatory proceeding associated with this docket is TERMINATED.
3. In accordance with the provisions of 10 C.F.R. § 2.311, as it rules upon an intervention petition, any appeal to the Commission from this Memorandum and Order must be taken within twenty-five (25) days after it is served.

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<sup>32</sup> See *International Uranium (USA) Corp.* (White Mesa Uranium Mill), CLI-01-21, 54 NRC 247, 250-51 (2001); see also *International Uranium (USA) Corp.* (White Mesa Uranium Mill), LBP-97-12, 46 NRC 1, 6 (1997). Alternatively, an organization can assert that it has standing to intervene in its own right, i.e., organizational standing, but to do so successfully it must establish a discrete institutional injury to the organization's interests, which must be based on something more than a general environmental or policy interest in the subject matter of the proceeding. See *White Mesa*, CLI-01-21, 54 NRC at 252.

<sup>33</sup> *Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155 (1991).

<sup>34</sup> The Staff indicated during the February 22 conference that if the current license review suspension is lifted, this would only be reflected in the public record by a letter from the NRC Staff to RER, not by another Federal Register notice. See Tr. at 29-30. Upon inquiry from the Board, however, RER committed to providing Petitioner with a copy of any RER request to resume the Staff's review process, while the Staff agreed to provide Petitioner with a copy of any determination regarding the resumption of that process. See NRC Staff and [RER] Joint Response to Board Memorandum (Mar. 22, 2016) at 2; see also Licensing Board Memorandum (Regarding Information Concerning Status of License Review Suspension) (Mar. 17, 2016) at 2 (unpublished).

<sup>35</sup> *International Uranium (USA) Corp.* (Receipt of Additional Material from Tonawanda, New York), LBP-00-11, 51 NRC 178, 180 (2000) (quoting *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-799, 21 NRC 360, 382 (1985)).

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

William J. Froehlich, Chairman  
ADMINISTRATIVE JUDGE

G. Paul Bollwerk, III  
ADMINISTRATIVE JUDGE

Nicholas G. Trikouros  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
March 23, 2016

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**OFFICE OF NUCLEAR REACTOR REGULATION**

**William M. Dean**, Director

**In the Matter of**

**ENTERGY NUCLEAR  
OPERATIONS, INC.  
(Vermont Yankee Nuclear Power  
Station)**

**Docket No. 50-271  
(License No. DPR-28)**

**DOMINION ENERGY  
KEWAUNEE, INC.  
(Kewaunee Power Station)**

**Docket No. 50-305  
(License No. DPR-43)  
March 29, 2016**

By letter dated March 25, 2014 [sic], Michael Mulligan (the Petitioner) filed a petition for the NRC to take a number of actions with regard to the Vermont Yankee Nuclear Power Station (VY) and the Kewaunee Power Station (KPS), which have been permanently shut down and are currently undergoing decommissioning. The actions include: conducting exigent and immediate full-scale ultrasonic inspections on the VY and the KPS reactor pressure vessels (RPVs); taking large borehole samples out of both the VY and KPS RPVs and transporting them to a respected metallurgic laboratory for comprehensive offsite testing; issuing an immediate NRC report and holding a public meeting on any identified vulnerabilities; and ultrasonically testing all RPVs in U.S. plants within 6 months if distressed and unsafe results are discovered at VY or KPS. As the basis for this request, the Petitioner states that the requested actions should be taken to determine whether foreign operating experience — specifically several thousand cracks that have been discovered during testing on the Doel 3 and Tihange 2 RPVs — could have implications for U.S. operating reactors. The petition was supplemented by e-mails dated July 7, 2015, and September 9, 2015.

The NRC Staff denied the Petitioner's request for immediate action based on the following. The identified facilities have ceased operations, and there

is no safety concern at those facilities that justifies enforcement-related action (i.e., to modify, suspend, or revoke the license) for the NRC to have reasonable assurance of the adequate protection of public health and safety. Furthermore, the NRC had previously informed industry of the operating experience at the Doel 3 and Tihange 2 by issuing Information Notice (IN) 2013-19, “Quasi-Laminar Indications in Reactor Pressure Vessel Forgings,” dated September 22, 2013.

Subsequently, on March 29, 2016, the NRC issued a final director’s decision (DD). The decision stated that with respect to the Petitioner’s request to take large borehole samples from VY and KPS reactor pressure vessels, as with the denial of immediate testing, there is no safety concern at those facilities that justifies enforcement-related action. With respect to the other requests, following the NRC Staff’s evaluation of the issue summarized in the DD, the NRC determined no further testing was necessary. The NRR Director will not be instituting the proceeding requested by the Petitioner, either in whole or in part. The NRC Staff will continue to evaluate, communicate, follow developments, and take appropriate action, if deemed necessary.

## **DIRECTOR’S DECISION UNDER 10 C.F.R. § 2.206**

### **I. INTRODUCTION**

By letter dated March 25, 2014 [sic] (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15090A487), Michael Mulligan (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,” related to the Vermont Yankee Nuclear Power Station (VY) and the Kewaunee Power Station (KPS).

The petition was supplemented by e-mails dated July 7, 2015 (ADAMS Accession No. ML15198A091), and September 9, 2015 (ADAMS Accession No. ML15286A003).

#### **A. Actions Requested for the March 25, 2014 [sic], Petition**

The Petitioner requested that the U.S. Nuclear Regulatory Commission (NRC or the Commission) take a number of actions with regard to VY and KPS, both of which have been permanently shut down and are currently undergoing decommissioning. These included the following:

- Conduct exigent and immediate full-scale ultrasonic inspections on the VY and the KPS reactor pressure vessels (RPVs), with similar or better

technology, as conducted on the RPVs at Doel 3 and Tihange 2, which revealed thousands of cracks.

- Take large borehole samples out of both the VY and KPS RPVs and transport them to a respected metallurgic laboratory for comprehensive offsite testing.
- Issue an immediate NRC report and hold a public meeting on any identified vulnerabilities.
- Ultrasonically test all RPVs in U.S. plants within 6 months if distressed and unsafe results are discovered at VY or KPS.

As the basis for this request, the Petitioner states that the requested actions should be taken to determine whether foreign operating experience (OpE) — specifically several thousand cracks that have been discovered during testing on the Doel 3 and Tihange 2 RPVs — could have implications on U.S. operating reactors. The Petitioner also requested several related actions of the NRC, such as collaboration with the Belgian regulator, and posed several questions related to water chemistry and the discovered cracks.

The Petitioner spoke with the Petition Review Board on May 19, 2015, to clarify the bases for the petition. The NRC treats the transcript of this teleconference as a supplement to the petition (ADAMS Accession No. ML15181A127), and it is available for inspection at the NRC's Public Document Room (PDR), located at One White Flint North, Room O1-F21, 11555 Rockville Pike, Rockville, MD 20852. Publicly available documents created or received at the NRC are accessible electronically through ADAMS in the NRC Library at <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents should contact the NRC's PDR reference staff by telephone at 1-800-397-4209 or 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov).

The NRC's acknowledgment letter to the Petitioner for the March 25, 2014 [sic] petition, dated August 20, 2015 (ADAMS Accession No. ML15181A099), informed the Petitioner that his request for conducting exigent and immediate full-scale ultrasonic inspections on the VY and KPS RPVs was denied and that the remaining issues in the petition were being referred to the Office of Nuclear Reactor Regulation (NRR) for appropriate action. The NRC denied the Petitioner's request to conduct immediate ultrasonic inspections at VY and KPS for the following reasons. The identified facilities have ceased operations, and there is no safety concern at those facilities that justifies enforcement-related action (i.e., to modify, suspend, or revoke the licenses) for the NRC to have reasonable assurance of the adequate protection of public health and safety. Furthermore, with respect to the operating fleet, the NRC issued Information Notice (IN) 2013-19, "Quasi-Laminar Indications in Reactor Pressure Vessel

Forgings,” dated September 22, 2013 (ADAMS Accession No. ML13242A263). The purpose was to inform industry of the quasi-laminar indications that were identified in 2012 at two European commercial nuclear power plants during the ultrasonic inspections of those RPV forgings.

The NRC sent a copy of the proposed director’s decision to the Petitioner and to Entergy Nuclear Operations, Inc. (for VY), and Dominion Energy Kewaunee, Inc. (for KPS), for comment on January 20, 2016 (ADAMS Accession Nos. ML15286A235, ML15286A265, and ML15286A258, respectively). The Petitioner responded with comments by e-mail on February 12, 2016 (ADAMS Accession No. ML16054A311). The comments and the NRC Staff’s response to the comments are included in this director’s decision. The NRC Staff did not receive any comments on the proposed director’s decision from either licensee.

## **II. DISCUSSION**

### **A. Disposition of the March 25, 2014 [sic] Petition**

Under the 10 C.F.R. § 2.206(b) petition review process, the Director of the NRC office with responsibility for the subject matter shall either institute the requested proceeding or shall advise the person who made the request in writing that no proceeding will be instituted, in whole or in part, with respect to the request, and the reason for the decision. Accordingly, the decision of the NRR Director is provided below.

It is the policy of the NRC to have an effectively coordinated program to promptly and systematically review domestic and applicable international OpE information gained from the nuclear power industry, research and test reactors, and new reactor construction. The program supplies the means for assessing the significance of OpE information, offering timely and effective communication to stakeholders, and applying the lessons learned to regulatory decisions and programs affecting nuclear reactors. This program is referred to as the Reactor OpE Program, as described in NRC Management Directive (MD) 8.7, “Reactor Operating Experience Program” (ADAMS Accession No. ML122750292). Specific implementation of the Reactor OpE Program is addressed in NRR Office Instruction (OI) LIC-401, “NRR-NRO [Office of New Reactors] Reactor Operating Experience Program” (ADAMS Accession No. ML12192A058).

One of the sources of OpE is the International Atomic Energy Agency/Nuclear Energy Agency International Reporting System (IRS) for Operating Experience. The Doel 3 experience was reported to the IRS. Subsequently, the report was updated to include the Tihange 2 experience. In accordance with the process described in OI LIC-401, the NRC OpE program Staff ensured that the appropriate technical experts within the NRC were aware of the issue and performing evaluations for relevance to the U.S. industry. In addition, the NRC has strong



collaboration with the international community and was separately in contact with the Belgian regulatory authority, the Federal Agency for Nuclear Control (FANC), to discuss this issue.

The NRC Staff has been following the issue and has taken numerous actions. Most recently, the NRC Staff used its risk-informed decisionmaking process contained in NRR OI LIC-504, Revision 4, “Integrated Risk-Informed Decision-Making Process for Emergent Issues” (ADAMS Accession No. ML14035A143) to evaluate this issue. The evaluation (ADAMS Accession No. ML15282A218) is summarized below.

## **B. Description of the Issue**

In July 2012, ultrasonic inspections of RPV ring forgings at the Doel 3 and Tihange 2 nuclear power plants in Belgium revealed thousands of indications.<sup>1</sup> After extensive investigation, the Belgian licensee, Electrabel, concluded the indications consisted of hydrogen flakes that originated during fabrication. Hydrogen flakes are planar discontinuities produced during fabrication in steels that have elevated hydrogen content before forging. In the Doel 3 and Tihange 2 inspections, the identified flakes were approximately circular disc-shaped cracks, were on average 10 millimeters in diameter, and were oriented approximately parallel to the vessel wall. Electrabel performed deterministic flaw evaluation and probabilistic fracture mechanics (PFM) analyses and concluded: (1) the indications would have been acceptable according to the requirements of the construction codes in effect when the vessels were fabricated (as well as the codes in effect today), and (2) the indications did not pose a challenge to RPV structural integrity. The licensee started a program of materials research and operational inspections to further validate the structural integrity determination of the RPV forgings. FANC initially approved restart of the two reactors in May 2013. Information related to this issue is publicly available on the FANC Web site at <http://www.fanc.fgov.be/nl/page/dossier-pressure-vessel-doe1-3-tihange-2/1488.aspx?LG=2>.

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<sup>1</sup>In an ultrasonic examination, indications are features inside the inspection volume that reflect sound above a threshold established as part of the examination procedure. Generally, the inspection procedure will define thresholds of reflectivity that examiners use to categorize indications, with more reflective indications being categorized as more significant. Indications that reflect enough sound to be detected are termed “detectable.” Detectable indications that reflect sound above a certain threshold, such that the procedure requires them to be recorded, are termed “recordable.” Generally, recordable indications must be evaluated. Applicable codes and standards referenced in the procedure or design specification establish criteria to determine if recorded indications are “acceptable” or “rejectable.” Rejectable indications are termed “flaws” or “defects” that, per the American Society of Mechanical Engineers (ASME) practice, must be repaired. Rejectable indications are “reportable” to the regulatory authority.

While the Doel 3 and Tihange 2 reactors were shut down for outages in 2014, the ring forgings were reinspected for quasi-laminar flaws. During the 2012-2013 campaign, the licensee quantified the number of recordable indications, but it recognized that many indications were detected that returned signal responses below the procedurally established recording threshold. For the 2014 examination, the licensee adjusted the ultrasonic inspection procedure by changing recording thresholds and increasing sensor gain. The objective was to record essentially all detectable indications. Newly recorded indications included cases where multiple indications spaced closely together, which were previously recorded as one large indication, could now be distinguished as several discrete indications. Most of these newly recorded indications were detected, but not recorded, during the previous exam because they were too small to meet the previously used recording criteria. After comparing the indications from the 2012 and the 2014 inspections, the Belgian licensee concluded that the actual number and size of detected indications did not change over the period.

In March 2014, FANC received the results from the ongoing Electrabel materials investigation. The results from one of the materials tested showed a greater amount of embrittlement than assumed in its safety case. Consequently, the licensee elected to place both Doel 3 and Tihange 2 into an early maintenance outage to conduct further investigation. The material with the higher-than-expected embrittlement was a modern steel made to a specification similar to that used for the Doel 3 and Tihange 2 RPVs. The component was a steam generator shell that had been rejected because of hydrogen flaking and was, therefore, included as part of the Electrabel investigation. After the March 2014 results, Electrabel performed several materials irradiation experiments that included the steam generator material, as well as other materials thought to be more representative of RPV steels in Doel 3 and Tihange 2.

On November 17, 2015, FANC reported that Electrabel demonstrated that the unexpected test results of March 2014 were probably caused by the specific material properties of the sample. Tests on another material specimen with hydrogen flakes and on the material of the reactor vessels themselves have shown that prolonged irradiation has had no abnormal effect on the mechanical properties of the reactor vessels of Doel 3 and Tihange 2. FANC concluded that the structural integrity of the reactor vessels of Doel 3 and Tihange 2 lies within the required safety standards, and the presence of hydrogen flakes does not adversely affect the safety of the plants.

### **C. Initial Actions by the NRC and the U.S. Nuclear Industry**

In September 2013, the NRC issued IN 2013-19 to inform industry of the quasi-laminar indications observed in the Belgian RPV forgings. Additionally, the NRC hosted a public meeting with industry and stakeholders on March 5, 2013, to

discuss these indications (ADAMS Accession No. ML13066A725). The industry presented plans to the NRC Staff to investigate the type of ultrasonic examination techniques used during construction and to perform a PFM evaluation of the structural integrity effect on U.S. reactors of potentially undiscovered quasi-laminar indications.

Subsequently (October 2013), the industry published a report of its findings, titled, “Materials Reliability Program [MRP]: Evaluation of the Reactor Vessel Beltline Shell Forgings of Operating U.S. PWRs [Pressurized-Water Reactors] for Quasi-Laminar Indications (MRP-367)” (ADAMS Accession No. ML14064A411 (nonproprietary version)). The objectives of the report were twofold: (1) to evaluate whether RPV forgings in U.S. plants were likely to have indications similar to those found in Doel 3 and Tihange 2, and (2) to evaluate the structural significance of indications if they did exist in an RPV. The report concluded that the ultrasonic techniques used during construction of U.S. vessels were capable of detecting quasi-laminar indications, and the reporting requirements would have caused the indications to be recorded if they were present. The report included a PFM analysis of a set of conditions based on data from Doel 3 and Tihange 2. The industry concluded that, even if quasi-laminar indications were present in a U.S. reactor vessel forging, the incremental increase in the vessel failure probability under pressurized thermal shock loading is negligible.

#### **D. Summary of the NRC’s Evaluation**

The NRC Staff’s evaluation consisted of reviewing the analyses performed by the Belgian licensee, as well as the two-pronged approach performed by the industry. Specifically, the NRC Staff reviewed evaluations of the nondestructive examination records performed by the U.S. industry to determine the likelihood of the presence of the quasi-laminar indications in U.S. RPVs. Furthermore, the NRC Staff reviewed the structural evaluations performed to determine the safety significance, even if the quasi-laminar indications were present. This was followed by applying the approach to risk-informed decisionmaking, as outlined in NRR OI LIC-504.

The Belgian licensee for Doel 3 and Tihange 2 performed deterministic flaw evaluations, which concluded that the quasi-laminar flaws observed in the RPV ring forgings were acceptable and did not compromise the structural integrity of the vessel. The Belgian licensee’s PFM analyses using very conservative assumptions returned a crack initiation frequency below the NRC threshold for through-wall cracking frequency (TWCF). The NRC Staff reviewed the analyses and found the analyses provided reasonable assurance that, even if a significant number of quasi-laminar indications existed in an RPV forging, the forging would be fully capable of performing its safety function with an extremely low probability of failure. The Electric Power Research Institute (EPRI) MRP

performed a PFM analysis and concluded that the TWCF associated with quasi-laminar indications was sufficiently low that the TWCF would meet NRC-risk criteria. The NRC Staff performed a high-level review of the industry analyses and concluded that the inputs were conservative with respect to flaw number and flaw size, at least relative to the information currently available concerning such flaws. The NRC Staff has concluded that the EPRI analyses provided reasonable assurance that, even if a significant number of quasi-laminar indications existed in an RPV forging, the forging would be capable of performing its safety function with an extremely low probability of failure.

The Pressurized-Water Reactor Owners Group (PWROG) reviewed ultrasonic examinations performed during construction and determined the inspection equipment and techniques used at the time of construction were capable of detecting quasi-laminar indications. Furthermore, the PWROG determined that the inspection recording criteria required the presence of quasi-laminar indications to be documented in nondestructive examination reports. The PWROG submitted summaries of its assessments to the NRC Staff in MRP-367. Based on its assessment of the available information related to construction ultrasonic examinations, the NRC Staff agrees that the ultrasonic examination techniques would have detected quasi-laminar indications and, if present, indications would have been required to be recorded.

The PWROG retrieved ultrasonic testing inspection records and concluded that the records indicated no quasi-laminar indications were recorded during fabrication examinations for any vessel beltline ring forging in U.S. nuclear power plants. The NRC Staff reviewed a sampling of those records and verified that no quasi-laminar indications were recorded in the reviewed reports. From these results, along with the PWROG's report that its record exams found no quasi-laminar indications, the NRC Staff concludes that it is unlikely that significant numbers of quasi-laminar indications exist in U.S. RPV forgings.

In February 2015, publications in *The Energy Daily* and a press release by Greenpeace cited concerns raised by two materials science professors — Professor W. Bogaerts, of the University of Leuven, in Belgium, and Professor D. MacDonald, of the University of California at Berkeley. Professors Bogaerts and MacDonald took issue with the initial findings from the Belgian licensee and the assessment by the Belgian regulator that concluded that the quasi-laminar indications have been present from the time Doel 3 and Tihange 2 were fabricated, and that they are not evolving (that is, increasing in number or getting bigger) over time. Professors Bogaerts and MacDonald have suggested that continued hydrogen ingress to the quasi-laminar indications could cause them to grow over time. The NRC Staff is aware of this crack growth mechanism being common in some environments (for example, down-hole service in the oil and gas industry). However, the NRC Staff is not aware of any current scientific information that would suggest that the conditions characteristic of nuclear pressure vessel service

could generate partial pressures of hydrogen that are high enough to cause such evolution during the operation of a reactor vessel.

Although these evaluations provide useful information for the two specific vessels in question, to evaluate the effects of the potential existence of quasi-laminar indications in RPV forgings in all U.S. vessels, the NRC Staff used an analysis approach, based on PFM, and examined them within the context of the NRC's approach to the risk-informed decisionmaking process described in NRR OI LIC-504. For this review, the NRC Staff considered the following five principles:

- **Principle 1:** The proposed change must meet the current regulations unless it is explicitly related to a requested exemption or rule change.
- **Principle 2:** The proposed change shall be consistent with the defense-in-depth philosophy.
- **Principle 3:** The proposed change shall maintain sufficient safety margins.
- **Principle 4:** When the proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's safety goals.
- **Principle 5:** Monitoring programs should be in place.

The NRC Staff considered three options to address, for the U.S. fleet of operating nuclear reactors, the recent operational experience from the Doel 3 and Tihange 2 reactors in Belgium:

1. Evaluate, communicate, and follow developments with no other required actions.
2. Initiate actions to require ultrasonic examination for quasi-laminar indications.
3. Immediately shut down potentially affected plants.

*Consideration of Option 1:* This option would entail acquiring information from FANC, Electrabel, U.S. industry, and other relevant sources as it becomes available. The information would be evaluated to assess whether quasi-laminar indications present a significant challenge to RPV structural integrity. If the risk is sufficiently small, then no other action would be required for NRC licensees. As part of this option, the NRC Staff would continue its review of the industry conclusions concerning the nonexistence of such flaws in U.S. plants and of the industry conclusion that the risk associated with these flaws, were they to exist, is small. The NRC Staff would use material property information available from surveillance programs to assess the potential for greater-than-expected

embrittlement revealed in some tests reported by Electrabel. In addition, the NRC Staff would continue to assess new information as it becomes available and communicate new information, subject to limitations imposed by proprietary information rights and other nondisclosure agreements.

*Consideration of Option 2:* This option would encompass the actions in Option 1, but it adds a development effort to require licensees to perform ultrasonic inspections of RPV forgings. The time frame for inspection would depend on the potential for indications to exist and the risk significance if they did exist. If the risk significance was high, as determined using risk metrics, such as large early release frequency (LERF) being greater than or on the order of  $1 \times 10^{-4}$ /year, licensees may be required to perform inspections at the next refueling outage, or even shut down and perform inspections immediately. If the risk significance was low, then licensees could wait to perform inspections during the next inservice examination outage.

*Consideration of Option 3:* This option would consist of shutting down some or all operating reactors until inspections and analyses were conducted to provide reasonable assurance that the calculated risk levels were acceptable. This option would be preferable if there was an immediate safety issue, such that the risk to operating plants was clearly demonstrated to be large and immediate.

As the estimated risk associated with quasi-laminar indications is less than  $1 \times 10^{-6}$ /year, far below the  $1 \times 10^{-4}$ /year LERF guideline in NRR OI LIC-504, no immediate action was warranted, and Option 3 was dismissed without an evaluation of the five principles of risk-informed decisionmaking.

Even if quasi-laminar indications similar to those discovered at Doel 3 and Tihange 2 existed at U.S. nuclear power plants, the indications are not expected to significantly affect RPV integrity under accident conditions. The basis for this conclusion is the industry analysis, as described in MRP-367, which indicates a vessel with 10 times as many indications as observed in the worst forging at Doel 3 would have a risk of TWCF less than  $1 \times 10^{-6}$ /year, far below the  $1 \times 10^{-4}$ /year LERF guideline<sup>2</sup> in NRR OI LIC-504 for immediate action and below the criteria for requiring additional action, as contained in 10 C.F.R. § 50.61a, “Alternate Fracture Toughness Requirements for Protection against Pressurized Thermal Shock Events.”

Based on the NRR OI LIC-504 evaluation, the NRC Staff concluded that no additional testing is necessary at this time. The NRC Staff decided that there

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<sup>2</sup> By equating TWCF and LERF, it is possible to use the LERF risk guidelines in NRR OI LIC-504 to conservatively identify an acceptable TWCF. This is conservative because TWCF is an estimate of the frequency of cracks that leak. However, not all leaks lead to core damage. Furthermore, core damage does not always lead to large early release. As a result, TWCF is less than LERF. The fraction of time that core damage or large early release was prevented could be calculated, but it is conservative and computationally convenient to assume that all through-wall cracks lead to large early release.

was not a significant risk difference between Option 1 and Option 2. However, because Option 2 would require physical activities associated with inspections, it would also require increased expenditure of licensee resources and increased radiation exposure to plant personnel. Given two options having essentially equal risk with different resource needs, the Staff determined that Option 1 was the more appropriate option. Given that no results were obtained that exceeded the NRC's risk guidelines, the NRC did not require all U.S. nuclear power plants be ultrasonically tested with the same or better technology. This addresses the Petitioner's first request, as well as the Petitioner's fourth request for testing of all operating reactors.

With respect to the Petitioner's request — to take large borehole samples out of both the VY and KPS RPVs and transport them to a respected metallurgic laboratory for comprehensive offsite testing — the NRC Staff notes that acquisition and subsequent testing of irradiated and aged plant material from decommissioned plants could be a valuable research activity that might offer useful scientific information related to understanding the progress of aging mechanisms. However, the harvesting of reactor vessel material from plants that have been permanently shut down can be a complex and radiation-dose intensive effort. The NRC, through its Office of Nuclear Regulatory Research, has previously obtained samples appropriate for testing from shutdown plants. With respect to this request, the NRC may, in the future, seek to purchase samples. However, the identified facilities have ceased operations, and there is no safety concern at those facilities that justifies enforcement-related action (i.e., to modify, suspend, or revoke the license) for the NRC to have reasonable assurance of the adequate protection of public health and safety. Therefore, the NRC will not require VY or KPS to remove large boreholes from their reactor vessels.

The Petitioner requested that the NRC issue a report and hold a public meeting on the vulnerabilities. The NRC Staff considers the NRR OI LIC-504 evaluation as satisfying the request for the agency to issue a report on the vulnerabilities. Furthermore, the NRC already held a public meeting on this topic on March 5, 2013.

The following information addresses the remaining requested actions and questions raised by the Petitioner that appear in ***bold italic type***:

***How has the average concentration of hydrogen in the coolant changed over the recent decades? Would an increasing concentration of hydrogen in the coolant lead to more hydrogen ions getting injected into the vessel iron?***

The average concentration of hydrogen in coolant has not changed significantly over the past several decades in PWRs. Doel 3 and Tihange 2 are PWRs. With no change in average hydrogen concentration, there would be no change in hydrogen ingress into PWR pressure beltline steel.

The average concentration of hydrogen in boiling-water reactors (BWRs) has increased over the past several decades to concentrations closer to those used in PWRs. However, this does not result in an appreciable increase in the hydrogen content in BWR reactor pressure steel.

*Does noble chemistry increase or decrease this kind of corrosion? Are there other chemicals added to the coolant that could make this kind corrosion worst? [sic]*

Noble metal chemistry is a water chemistry technique used to suppress corrosion reactions that cause stress-corrosion cracking in portions of BWR coolant systems. However, this does not result in an appreciable increase in the hydrogen content in BWR reactor pressure steel.

*What are they talking about here: “However, as Belgian [sic] continues to debate the fate of the reactors, prolonged studies on the steel used in the construction of the reactors revealed unprecedented embrittlement — unusual swelling — that can compromise the integrity of the plant and possibly cause ruptures, spewing dangerous radioactive material equivalent to an atomic bomb.”*

The NRC and nuclear industry are well aware of embrittlement of the steel used in RPV fabrication. It is the primary factor that limits both the operable lifetime and the operating safety of the RPV. This embrittlement is caused by exposure to neutron irradiation, which occurs as an unavoidable consequence of the production of steam by nuclear fission to generate electricity. The nuclear industry uses several means to ensure that the RPV steel maintains adequate toughness throughout its operating lifetime. These are as follows:

1. The degree of neutron embrittlement is tracked throughout the operating lifetime of the plant. This is achieved using a surveillance program in which small samples (coupons) of the RPV steel are exposed to neutron irradiation inside the reactor.
2. The NRC establishes screening criteria on the degree of embrittlement allowed and on plant operating temperatures and pressures. Several NRC rules and regulatory guides, as well as Section XI of the ASME *Boiler and Pressure Vessel Code* (Code), collectively limit the combinations of embrittlement and operating temperatures and pressures so as to ensure safe nuclear power plant operations.



*I understand all US nuclear plants have coupons and I consider them irrelevant to this problem.*

The NRC Staff recognizes the coupons are not relevant to the possibility of quasi-laminar indications.

*Request the NRC coordinate with the Belgian Federal Agency for Nuclear Control (FANC).*

The NRC Staff is actively coordinating with FANC.

*Request detailed inspection on the condition of the reactor cladding and an explanation of any defects.*

By way of this Director's Decision and the references provided within, the NRC Staff considers this request met.

Additionally, in the supplement dated September 9, 2015, the Petitioner requested the NRC Staff to consider,

*As part of the NRC review and approval of IPEC 3 [Indian Point Nuclear Generating Unit No. 3] Reactor Vessel Heatup and Cooldown curves, in ML15226A159 dated 9-3-15, was the possible adverse affects of this change considered in regard to IN 2013-19 Quasi Laminar Indications in RPV Forgings?*

The IPEC 3 RPV beltline is fabricated from rolled plates, not forgings. Because the manufacturing process used to produce plates differs from those used to produce forgings, any indications remaining after the manufacturing process in a vessel fabricated from plates would be laminar (that is, fully parallel to the plate surface), not quasi-laminar. As a result of this difference in orientation, any indications in the IPEC 3 would have no detrimental effect on the operating safety of the reactor vessel. Thus, the IPEC 3 reactor vessel heatup and cooldown curves are not affected by quasi-laminar indications.

#### **E. Summary of the Petitioner's Comments**

The Petitioner responded to the NRC's request for comment on the proposed director's decision by e-mail dated February 12, 2016 (ADAMS Accession No. ML16054A311). Overall, the Petitioner stated, "I give the NRC an A plus on this report. It accurately captured the issue and the NRC clearly stated their decisions. My job has always been to get things written down on the official documents that are missing. I am very happy with the job. Although, I disagree with the

NRC's analysis." The comments discussed below did not result in changes from the proposed director's decision.

A summary of the comments (*in bold italic type*) and the Agency's disposition of the comments are as follows:

***The Petitioner inferred from the conversation with the petition manager that the NRC was prevented from publishing its evaluation.***

The NRC disagrees with the statement that "the system prevented them from discussing the issues unless outsiders provoked the agency with an inquiry." As stated in the proposed director's decision, the NRC initially issued IN 2013-19 to inform industry of the quasi-laminar indications observed in the Belgian RPV forgings. Furthermore, IN 2013-19 and industry's response to the events led to the industry-published report MRP-367. The publication of the IN demonstrates the NRC's commitment to disseminating pertinent information surrounding operating experience. Before receipt of the petition, the NRC Staff already initiated an NRR OI LIC-504 evaluation. The NRC is not prohibited from making the results of the NRR OI LIC-504 evaluation publicly available.

***The Petitioner challenged the conclusion by the Belgian licensee that the actual number and size of detected indications did not change over the period.***

As stated in this Director's Decision, based on the analysis, Electrabel determined from the mapping of the indications that the number and size of the cracks did not increase; rather, the criteria for recording the indications changed so that more indications were recorded. Data from earlier and later examinations were compared to verify that number and size of the indications did not change.

Electrabel has indicated it will continue to measure the indications in future outages to detect if any future growth of the indications occurs.

***The Petitioner expressed concern on how the industry and the NRC calculates risk and that the agency is not very transparent to members of the public.***

The NRC Staff recognizes the complexity of risk assessment in regulation and has devoted a specific Web page to the topic: <http://www.nrc.gov/about-nrc/regulatory/risk-informed.html>.

***The Petitioner requested additional information regarding past efforts in which the NRC, through the Office of Nuclear Regulatory Research, has taken samples from shutdown plants.***

The NRC has evaluated steam generator tubes removed from service at a number of plants. The NRC performed research on control rod drive mechanism (CRDM) housing and weld material removed from the Davis-Besse Nuclear Power Station (Davis-Besse) RPV head. The NRC acquired samples of internals from the decommissioned Jose Cabrera Nuclear Power Plant and the San Onofre

Nuclear Generating Station, Unit 1, internals. The NRC performed research on material removed from the Shoreham Nuclear Power Station RPV. The NRC performed research on nozzles from a pressurizer that was removed from service and replaced. The NRC has not removed samples from a plant that had an RPV with hydrogen flakes because the NRC is unaware that any such retired plant exists.

***The Petitioner challenged the NRC Staff's argument that performing exigent testing and removing borehole samples would result in excessive radiation dose.***

The Director's Decision discusses excessive radiation dose from performing exigent testing and taking samples to remind the Petitioner that these requests are not trivial. The request would involve resources and would expose personnel to ionizing radiation. As stated in this Director's Decision, based on the NRR OI LIC-504 evaluation, the NRC Staff concluded no additional testing is necessary at this time. The NRC Staff considered that there was not a significant risk difference between Option 1 and Option 2. However, because Option 2 would require physical activities associated with inspections, it also would increase expenditure of licensee resources and radiation exposure to plant personnel. Given two options having essentially equal risk with different resource needs, the Staff determined that Option 1 was the more appropriate option.

***The Petitioner requested the NRC Staff to identify all known steel vessel vulnerabilities, including all corrosion mechanisms, and asked whether another steam/CRDM/crack corrosion mechanism like that at Davis-Besse could pop out of nowhere and interact with the hydrogen flakes.***

Reactor pressure vessel steel can be affected by the following damage mechanisms: overload, fatigue, embrittlement, and corrosion. Overload is prevented by adherence to the ASME Code by use of relief valves. Fatigue is evaluated by counting loading transients. Embrittlement is monitored by tracking accumulated neutron fluence and using fabrication material property information, such as original toughness and chemistry, to calculate changes in toughness. Corrosion is monitored by routine inspection for leakage and by programs that seek to prevent leakage.

The corrosion observed on the head at Davis-Besse would not have interacted with or been affected by hydrogen cracks.

***The Petitioner expressed concern that the industry cannot contrast an old vessel x-ray and a new ultrasonic testing at the identical area to detect any changes over time.***

In this Director's Decision, the NRC Staff states that the indications should have been detected, if present, and should have been recorded if detected. Therefore, in the U.S. fleet, the NRC does not anticipate having hydrogen flakes.

The Director's Decision also states that if hydrogen flakes were present in an RPV as a result of the orientation of the indications, they would not challenge the structural integrity of the vessel.

Radiography would not detect hydrogen flakes because the flakes are oriented parallel to the x-ray film. Radiography detects changes in density, and quasi-laminar indications or hydrogen flakes do not result in a change in density in the direction through the vessel wall sufficient to be detected by radiography. As a result, a comparison of ultrasonic testing results and radiography would be meaningless for quasi-laminar indications in an RPV forging.

*Lastly, the Petitioner expressed concern that there are no periodical means (like ultrasonic testing) to detect cracks anywhere on the core.*

The NRC Staff presumes by the use of the term "core" that the Petitioner means the RPV adjacent to the core. This region of the vessel is inspected periodically per the requirements of 10 C.F.R. § 50.55a, "Codes and Standards," and the ASME Code. These inspections are sufficient to detect quasi-laminar indications or hydrogen flakes in the area that is inspected, which is all of the welds and associated base materials, within a few inches of the weld seams.

### III. CONCLUSION

Based on the above, the NRR Director will not be instituting the proceeding requested by the Petitioner, either in whole or in part. The NRC Staff will continue to evaluate, communicate, follow developments, and take appropriate action, if deemed necessary.

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

Michele G. Evans, Deputy Director  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,  
this 29th day of March 2016.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket No. 50-247-LA**

**ENTERGY NUCLEAR  
OPERATIONS, INC.  
(Indian Point, Unit 2)**

**April 5, 2016**

The Commission affirms an Atomic Safety and Licensing Board decision that denied a petition to intervene after finding the proposed contentions inadmissible.

**CONTENTIONS, ADMISSIBILITY**

Under our rules, a request for hearing must set forth with particularity the contentions sought to be raised. The contention admissibility requirements, found in 10 C.F.R. § 2.309(f)(1), are strict by design. Failure to fulfill any one of the contention admissibility requirements renders a contention inadmissible.

**APPELLATE REVIEW**

Our rules of practice provide for an automatic right to appeal a Board decision on the question whether a petition to intervene should have been granted. We generally defer to a Board's contention admissibility rulings unless the appeal points to an error of law or abuse of discretion.

**CONTENTIONS, ADMISSIBILITY**

A petitioner cannot satisfy the contention admissibility requirements by mere

“notice pleading.” *See AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC 111, 119 (2006).

## **CONTENTIONS, ADMISSIBILITY**

Our case law makes clear that a petitioner is confined to the contention as initially filed and may not rectify deficiencies through an appeal. It is also well settled in our jurisprudence that a petitioner may not use a reply to raise new issues for the first time.

## **NO SIGNIFICANT HAZARDS CONSIDERATION**

A no significant hazards consideration determination may not be contested, consistent with our regulation in 10 C.F.R. § 50.58(b)(6).

## **NATIONAL ENVIRONMENTAL POLICY ACT: CATEGORICAL EXCLUSIONS**

Our regulations provide specific avenues for petitioners to challenge categorical exclusion determinations. *See* 10 C.F.R. § 51.22(b), (c)(9)(ii) and (iii).

# **MEMORANDUM AND ORDER**

This proceeding stems from the application of Entergy Nuclear Operations, Inc. to amend the operating license for the Indian Point Nuclear Generating Station, Unit 2, to permanently reduce the frequency of the reactor containment Integrated Leak Rate Test from once every 10 years to once every 15 years. In LBP-15-26, the Atomic Safety and Licensing Board denied the State of New York’s intervention petition challenging the request.<sup>1</sup> The State of New York has appealed. As discussed below, we affirm the Board’s decision.

## **I. BACKGROUND**

### **A. Containment Leakage Tests**

Nuclear power plants in the United States, like Indian Point, have containment

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<sup>1</sup> LBP-15-26, 82 NRC 163 (2015); *see* State of New York Petition to Intervene and Request for Hearing (May 18, 2015) (New York Petition to Intervene).

systems that serve as “the principal barrier, after the reactor coolant pressure boundary, to prevent the release of quantities of radioactive material that would have a significant radiological effect on the health of the public.”<sup>2</sup> To ensure the continued integrity of the containment system during the operating life of the reactor, 10 C.F.R. § 50.54(o) mandates that “[p]rimary reactor containments . . . shall be subject to the requirements set forth in appendix J to [10 C.F.R. Part 50].” Appendix J directs licensees to conduct periodic tests to ensure that leakage from the containment does not exceed the allowable leakage rates specified in the plant’s technical specifications.<sup>3</sup> The Appendix J test requirements ensure that the “integrity of the containment structure is maintained during its service life.”<sup>4</sup> At issue here are “Type A” tests, which measure the containment’s overall integrated leakage rate.<sup>5</sup>

As explained by the Board, under the original regulations governing these tests, licensees performed three Type A tests over a 10-year period.<sup>6</sup> In 1995, the NRC amended Appendix J to add a performance-based option for containment leakage testing requirements (“Option B”).<sup>7</sup> Under Option B, a licensee with two consecutive successful Type A tests may seek to amend its license to require one test in each 10-year period instead of the previously required three.<sup>8</sup> In 2001, the industry began developing a technical basis to justify further reducing the frequency of Type A testing.<sup>9</sup> By 2008, about seventy-five operating reactors, including Indian Point, had used this information to support a one-time extension of the Type A testing interval to 15 years.<sup>10</sup> In June 2008, the NRC Staff reviewed and accepted a methodology for licensees to apply when seeking to amend their licenses to permanently extend the Type A testing interval to 15 years.<sup>11</sup>

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<sup>2</sup> 10 C.F.R. Part 50, App. J, Option B § II.

<sup>3</sup> *Id.* Part 50, App. J, Option B § I.

<sup>4</sup> *Id.*

<sup>5</sup> *Id.* Part 50, App. J, Option B § III.A. The regulations also require licensees to perform “Type B” and “Type C” tests. Type B tests detect and measure local leakage rates across pressure-retaining, leakage-limiting boundaries. Type C tests measure containment isolation valve leakage rates. *Id.* Part 50, App. J, Option B § III.B.

<sup>6</sup> LBP-15-26, 82 NRC at 169 (citing Final Rule: “Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors,” 60 Fed. Reg. 49,495, 49,499 (Sept. 26, 1995) (Containment Leakage Testing Rule)).

<sup>7</sup> See Containment Leakage Testing Rule, 60 Fed. Reg. at 49,499.

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

<sup>9</sup> LBP-15-26, 82 NRC at 169 n.8.

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

<sup>11</sup> *Id.* at 170.

## B. Containment Leakage Tests at Indian Point, Unit 2

On December 9, 2014, Entergy submitted the subject license amendment application, which builds on two previous license amendments granted for Unit 2.<sup>12</sup> The first amendment, approved by the NRC Staff in 1997, allowed the use of the “Option B” performance-based testing schedule for Unit 2, which changed the schedule from three times every 10 years to once every 10 years.<sup>13</sup> The second amendment, approved by the Staff in 2002, allowed for a one-time extension to the Type A testing interval from once every 10 years to once every 15 years.<sup>14</sup> The instant license amendment request seeks to make this change permanent.<sup>15</sup>

Following receipt of the license amendment application, the Staff published in the *Federal Register* a notice of the application, the opportunity to request a hearing on the application, and the Staff’s proposed no significant hazards consideration determination.<sup>16</sup> In response, New York challenged the request, submitting two proposed contentions.<sup>17</sup> Entergy and the Staff both opposed New York’s intervention petition, arguing that neither contention was admissible.<sup>18</sup> The Board rejected both of New York’s proposed contentions and denied New York’s

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<sup>12</sup> Letter from Lawrence Coyle, Site Vice President, Entergy Nuclear Northeast, to NRC (Dec. 9, 2014) (ADAMS Accession No. ML14353A015) (License Amendment Request), Attach. 1, at 2.

<sup>13</sup> Letter from Jefferey F. Harold, Project Manager, Office of Nuclear Reactor Regulation, NRC, to Mr. Stephen E. Quinn, Vice President, Nuclear Power, Consolidated Edison Co. of New York, Inc. (Apr. 10, 1997) (ADAMS Accession No. ML003778846).

<sup>14</sup> Letter from Patrick D. Milano, Senior Project Manager, Office of Nuclear Reactor Regulation, NRC, to Michael R. Kansler, Senior Vice President and Chief Operating Officer, Entergy Nuclear Operations, Inc. (Aug. 5, 2002) (ADAMS Accession No. ML021860178) (2002 License Amendment).

<sup>15</sup> See License Amendment Request at 1. The Staff recently granted Entergy’s request to extend permanently the Type A testing interval from 10 to 15 years for Indian Point, Unit 3. See Letter from Douglas V. Pickett, Senior Project Manager, Office of Nuclear Reactor Regulation, NRC, to Vice President, Operations, Entergy Nuclear Operations, Inc. (Mar. 13, 2015) (ADAMS Accession No. ML15028A308).

<sup>16</sup> Biweekly Notice; Applications and Amendments to Facility Operating Licenses and Combined Licenses Involving No Significant Hazards Considerations, 80 Fed. Reg. 13,902, 13,903-06 (Mar. 17, 2015); see 10 C.F.R. §§ 50.58(b)(5), 50.92(c). The Staff has issued the license amendment to Entergy. Notification of Issuance of License Amendment (Feb. 24, 2016); Letter from Douglas V. Pickett, Senior Project Manager, Office of Nuclear Reactor Regulation, NRC, to Vice President, Operations, Entergy Nuclear Operations, Inc. (Feb. 23, 2016) (ADAMS Accession No. ML15349A794).

<sup>17</sup> See New York Petition to Intervene. The Board found that New York had established standing to intervene — neither Entergy nor the Staff argued otherwise. See LBP-15-26, 82 NRC at 172-73; see also Entergy’s Answer Opposing State of New York’s Petition to Intervene and Request for Hearing (June 12, 2015) at 1-2 (Entergy Answer to New York Petition); NRC Staff’s Answer to “State of New York Petition to Intervene and Request for Hearing” (June 12, 2015) at 3-4 (Staff Answer to New York Petition).

<sup>18</sup> Entergy Answer to New York Petition at 14-38; Staff Answer to New York Petition at 12-27.



intervention petition.<sup>19</sup> New York now seeks review of the Board's decision.<sup>20</sup> Entergy and the Staff oppose New York's appeal.<sup>21</sup>

## II. DISCUSSION

Our rules of practice provide for an automatic right to appeal a Board decision on the question of whether a petition to intervene should have been granted.<sup>22</sup> We defer to a Board's contention admissibility rulings "unless the appeal points to an 'error of law or abuse of discretion.'"<sup>23</sup>

### A. Contention Admissibility Requirements

Under our rules, a request for hearing must "set forth with particularity the contentions sought to be raised."<sup>24</sup> A petitioner 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 that support the . . . petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the . . . petitioner intends to rely to support its position on the issue; [and]
- (vi) . . . [P]rovide sufficient information to show that a genuine dispute exists with the applicant . . . on a material issue of law or fact. This information must

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<sup>19</sup> LBP-15-26, 82 NRC at 179, 180, 183.

<sup>20</sup> State of New York Notice of Appeal of LBP 15-26 (Oct. 20, 2015); State of New York Brief Supporting Appeal Pursuant to 10 C.F.R. § 2.311 of Atomic Safety and Licensing Board Decision LBP-15-26 Denying New York's Petition to Intervene and Request for Hearing (Oct. 20, 2015) (New York Appeal).

<sup>21</sup> Entergy's Answer Opposing New York State's Appeal of LBP-15-26 (Nov. 16, 2015) (Entergy Answer to New York Appeal); NRC Staff's Answer to the State of New York's Appeal from the Atomic Safety and Licensing Board's Denial of Its Petition to Intervene and Request for Hearing (LBP-15-26) (Nov. 16, 2015) (Staff Answer to New York Appeal).

<sup>22</sup> See 10 C.F.R. § 2.311(c).

<sup>23</sup> *Crow Butte Resources, Inc.* (Marsland Expansion Area), CLI-14-2, 79 NRC 11, 14 (2014) (quoting *Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 543 (2009)).

<sup>24</sup> 10 C.F.R. § 2.309(f)(1).

include references to specific portions of the application . . . that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief.

Our case law makes clear that these standards are “strict by design” and that failure to fulfill any one of these requirements renders a contention inadmissible.<sup>25</sup> Moreover, a petitioner cannot satisfy these requirements by “[m]ere ‘notice pleading.’”<sup>26</sup>

In its intervention petition, New York proposed two contentions. In Contention NYS-1, New York challenged the license amendment request on the ground that it constituted “a significant safety and environmental hazard.”<sup>27</sup> In Contention NYS-2, New York challenged the compliance of the license amendment request with the NRC's environmental regulations — specifically calling into question whether the license amendment request met the criteria in our regulations for a categorical exclusion from the requirement to prepare an environmental analysis under the National Environmental Policy Act of 1969 (NEPA).<sup>28</sup> On appeal, New York contends that the Board erred in finding its proposed contentions inadmissible.<sup>29</sup> We find that New York has not demonstrated that the Board either made an error of law or abused its discretion in declining to admit New York's contentions. Accordingly, and as explained further below, we affirm the Board's decision.

## **B. Contention NYS-1**

Contention NYS-1, as submitted by New York, states:

Entergy's request to amend the Indian Point Unit 2 operating license and technical specification should be denied because it involves a significant safety and environmental hazard, fails to demonstrate that it complies with 10 C.F.R. §§ 50.40 and 50.92 or 10 C.F.R. [Part] 50, Appendix J, and fails to demonstrate that it will

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<sup>25</sup> *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001); see *South Carolina Electric & Gas Co.* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-1, 71 NRC 1, 7 (2010).

<sup>26</sup> *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC 111, 119 (2006) (quoting *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 808 (2005)).

<sup>27</sup> New York Petition to Intervene at 5.

<sup>28</sup> *Id.* at 20; see 10 C.F.R. § 51.22 (describing the NRC's process for applying categorical exclusions); 42 U.S.C. § 4332.

<sup>29</sup> New York Appeal at 1.

provide reasonable assurance of adequate protection for the public health and safety as required by Section 182(a) of the Atomic Energy Act (42 U.S.C. § 2232[a]) if the proposed amendment to the operating license is approved.<sup>30</sup>

New York made numerous arguments in support of Contention NYS-1, but the Board determined that none rendered the contention admissible.<sup>31</sup> On appeal, New York contends that the Board erred in rejecting the contention.<sup>32</sup>

New York articulates two general challenges to the Board's ruling. First, New York argues that the Board made improper merits determinations regarding the claims New York raised in its petition.<sup>33</sup> Second, New York asserts, without more, that "the Board effectively ignored . . . aspects of Contention NYS-1 that go directly to the findings which the Commission must make to grant the license amendment . . . ." <sup>34</sup> We disagree. Regarding the first argument, as Entergy and the Staff note, rather than reach the merits of the contention, the Board followed our precedent and considered whether the bases proffered by New York actually supported the contention and found they did not.<sup>35</sup> With respect to the second argument, the Board did not ignore regulatory findings but simply provided a shorthand description of the claim at one point in the order and in fact fully stated the regulatory findings New York challenged elsewhere.<sup>36</sup> Indeed, with respect to each argument New York put forth to support Contention NYS-1, the Board identified a deficiency regarding the contention admissibility standards, ultimately concluding that NYS-1 did not meet the requirements of 10 C.F.R.

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<sup>30</sup> New York Petition to Intervene at 5.

<sup>31</sup> LBP-15-26, 82 NRC at 175.

<sup>32</sup> New York Appeal at 17-27.

<sup>33</sup> *See id.* at 18-21, 23, 25-27. For example, New York contended for the first time at oral argument before the Board that the analysis Entergy cited to support its request was insufficiently plant-specific because it relied on analysis developed for use at the Calvert Cliffs site in Maryland. Tr. at 62-63; *see also* License Amendment Request, Attach. 1, at 13. The Board did not address this argument in its decision. On appeal, New York points to what it contends are key differences between Calvert Cliffs and Indian Point, Unit 2 and argues that the Board prevented it from pursuing these claims by ruling on the merits of the contention rather than focusing solely on contention admissibility. New York Appeal at 25-27. Our case law makes clear that "[a petitioner] is confined to the contention as initially filed and may not rectify its deficiencies through its reply brief or on appeal." *U.S. Department of Energy (High-Level Waste Repository)*, CLI-09-14, 69 NRC 580, 588 (2009) (citing *Louisiana Energy Services, L.P. (National Enrichment Facility)*, CLI-04-25, 60 NRC 223, 225 (2004)). Therefore, the Board did not err in declining to consider this argument, as it was not timely made.

<sup>34</sup> New York Appeal at 18.

<sup>35</sup> Entergy Answer to New York Appeal at 16-17; Staff Answer to New York Appeal at 16-17; *see also Entergy Nuclear Operations, Inc. (Palisades Nuclear Plant)*, CLI-15-22, 82 NRC 310, 320 (2015) (noting that the "Board appropriately reviewed the support provided for the contention and determined that it did not apply to the circumstances presented").

<sup>36</sup> *Compare* New York Appeal at 18, *with* LBP-15-26, 82 NRC at 172, 175-76.

§ 2.309(f)(1).<sup>37</sup> New York has not shown that the Board erred in reaching its conclusion.

In addition to its general challenges to the Board's decision, New York raised several specific arguments on appeal. We address each in turn.

### *1. History of Unit 2 Containment Liner*

To support Contention NYS-1, New York argued that Entergy's license amendment request did not comply with 10 C.F.R. Part 50, Appendix J because it failed to consider the plant-specific history of Unit 2's containment liner.<sup>38</sup> New York contended that Unit 2 has a "specific history of structural and corrosive damage" revealed by recent inspections.<sup>39</sup> The Board found this argument both "factually and legally flawed."<sup>40</sup> Contrary to New York's claims, the Board determined that New York's argument was factually flawed because the license amendment request addressed observed corrosion or degradation of the Unit 2 containment liner.<sup>41</sup> In its ruling, the Board noted that the documents New York provided in support of its contention actually contradicted its claims.<sup>42</sup> Additionally, the Board found that New York's challenge was legally flawed, calling it "an improper attempt to graft a 'historical event' criterion onto the 'performance criteria' specified in Appendix J, Option B."<sup>43</sup> The Board therefore also concluded that this argument constituted an impermissible challenge to 10 C.F.R. Part 50, Appendix J, Option B, which, absent a waiver, is barred by 10 C.F.R. § 2.335(a).<sup>44</sup>

Further, the Board addressed New York's assertion that a decades-old recommendation by the Atomic Energy Commission (AEC) Staff "that the [Unit 2] containment liner should be subject to more frequent inspections" indicated

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<sup>37</sup> See LBP-15-26, 82 NRC at 175-79.

<sup>38</sup> New York Petition to Intervene at 5-8.

<sup>39</sup> See *id.* at 7-8.

<sup>40</sup> LBP-15-26, 82 NRC at 175.

<sup>41</sup> *Id.* (citing License Amendment Request, Attach. 1, at 11-13 (explaining that inspection records state that all observed corrosion or degradation has either been remediated or was not deemed to have reduced the structural capacity of the containment to perform its safety function)).

<sup>42</sup> *Id.* at 176 & n.25. For example, New York relied on the Staff's safety evaluation attached to the 2002 license amendment to support its arguments "that significant corrosion, resulting from a 1980 flooding event, had reduced the liner thickness to within .015 inches of the minimum required thickness." New York Petition to Intervene at 8. But the Board noted that the 2002 safety evaluation discussed the 1980 event and concluded "that the structural integrity of the containment is acceptable because the remaining liner thickness is sufficient to withstand the loading associated with design-basis accident conditions." LBP-15-26, 82 NRC at 176 n.25 (quoting 2002 License Amendment, Enclosure 2, at 8).

<sup>43</sup> *Id.* at 175 (citing 10 C.F.R. Part 50, App. J, Option B §§ II and III; Tr. at 128).

<sup>44</sup> *Id.* at 175-76.

continued concerns with the containment liner at Unit 2.<sup>45</sup> The Board noted that the AEC recommendation was superseded by the 1997 and 2002 analyses, which supported the Staff's approvals of the prior Type A testing frequency reductions.<sup>46</sup>

On appeal, New York takes issue with the Board's rulings regarding historic degradation events. Specifically, New York argues that the Board "ignored or misapplied relevant substantive law."<sup>47</sup> New York contends that the Board erred in concluding that historic degradation events had been remediated and had no ongoing impact on the Unit 2 containment liner.<sup>48</sup> And New York disagrees with the Board's conclusion that subsequent NRC assessments superseded the AEC Staff recommendation regarding increased monitoring of the containment liner at Unit 2.<sup>49</sup> Therefore, New York argues, it should have been allowed "to explore the basis and continued vitality of the AEC recommendation in an evidentiary hearing."<sup>50</sup>

As noted above, we will defer to a board's contention admissibility determinations unless an appellant demonstrates an error of law or abuse of discretion.<sup>51</sup> Based on our review of the record, New York has not done so here. Contrary to New York's suggestion, the Board did not find a legal bar to considering the operating history of the Unit 2 containment liner in the license amendment request.<sup>52</sup> Rather, in responding to an earlier assertion from New York, the Board reasonably concluded that because the "Commission was aware of containment degradation issues [but still] promulgated performance-based testing," there is no "'historical event' *restriction* on reactors electing to comply with Appendix J through performance-based testing."<sup>53</sup> Likewise, the Board did not conclude that the historic degradation events had been remediated. Instead, the Board only noted that contrary to New York's assertions in its petition to intervene, the license amendment request in fact considered the historic degradation in its analysis.<sup>54</sup> With respect to the AEC recommendation, New York argues that the Board's finding was unreasonable because the subsequent NRC findings may not have been informed by the AEC recommendation. But such speculation, without

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<sup>45</sup> New York Petition to Intervene at 7.

<sup>46</sup> LBP-15-26, 82 NRC at 176 n.26.

<sup>47</sup> New York Appeal at 19.

<sup>48</sup> *Id.* at 20.

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

<sup>50</sup> *Id.* at 21.

<sup>51</sup> *Crow Butte*, CLI-14-2, 79 NRC at 13-14.

<sup>52</sup> New York Appeal at 19.

<sup>53</sup> LBP-15-26, 82 NRC at 175 (emphasis added).

<sup>54</sup> *Id.* (citing New York Petition at 6, 7-8; License Amendment Request, Attach. 1, at 11-13).

more, does not demonstrate error.<sup>55</sup> The Board carefully considered New York's claims with respect to historic degradation at Unit 2 and reasonably concluded that New York's arguments did not support admission of Contention NYS-1.<sup>56</sup>

## 2. Test Results Trend

New York also argued before the Board that the proposed license amendment would jeopardize public health and safety because previous Type A test results reveal that Unit 2's containment leakage rate is increasing over time.<sup>57</sup> New York contended that this trend suggests that leakage would likely exceed  $0.75 L_a$  by 2016, which New York asserted was the current technical specification leakage rate acceptance criterion.<sup>58</sup> The Board found that New York's argument "reflect[ed] a fundamental misunderstanding of the acceptance criteria" and explained that the regulatory limit for Type A leakage — also known as the "as-found acceptance rate" — is, in fact,  $1.0 L_a$ .<sup>59</sup> By contrast, the Board noted "the  $0.75 L_a$  criterion cited by New York is referred to as the 'as left' criterion . . . and there is no regulatory bar to exceeding that criterion during plant operations; rather, it is a criterion that must be satisfied *prior* to a plant restart."<sup>60</sup> Moreover, the Board concluded that "dispositively, even if the apparent trend in Type A tests were extrapolated, it is undisputed that the leakage would *not* exceed the regulatory limit of  $1.0 L_a$  during the 15-year period between consecutive Type A tests."<sup>61</sup> Therefore, the Board concluded that New York's claims regarding the trend in Type A test results did not raise a material issue, as required by 10 C.F.R.

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<sup>55</sup> New York Appeal at 20-21; see *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-08-17, 68 NRC 231, 241 (2008) (finding appeals based on "nothing more than speculation" insufficient to support Commission review).

<sup>56</sup> LBP-15-26, 82 NRC at 175-76.

<sup>57</sup> New York Petition to Intervene at 8, 16-17.

<sup>58</sup> *Id.* at 17. As relevant here, 10 C.F.R. Part 50, Appendix J, Option B defines " $L_a$  (percent/24 hours)" as the maximum allowable leakage rate at pressure  $P_a$  as specified in the plant's technical specifications. " $P_a$ ," in turn, means "the calculated peak containment internal pressure related to the design basis loss-of-coolant accident as specified in the Technical Specifications."

<sup>59</sup> LBP-15-26, 82 NRC at 176; see also *id.* at 170 n.9.

<sup>60</sup> *Id.* at 176-77. Unit 2 Technical Specification 5.5.14 states that the leakage rate acceptance criterion for the first unit startup following testing — the "as left" criterion — is less than or equal to  $0.75 L_a$  for Type A tests. Further, the technical specifications clarify that the containment leakage rate acceptance criterion — or "as found" criterion — is  $1.0 L_a$ . See License Amendment Request, Attach. 2; see also 2002 License Amendment, Enclosure 2, at 4.

<sup>61</sup> LBP-15-26, 82 NRC at 177 (citing Entergy Answer to New York Petition, Attach. 1, at 5).

§ 2.309(f)(1)(iv).<sup>62</sup> The Board also cited Entergy’s explanation for the perceived trend and noted that New York did not attempt to rebut this explanation.<sup>63</sup>

On appeal, New York challenges the Board’s finding that this claim did not raise a material fact sufficient to merit a hearing.<sup>64</sup> Here again, New York argues that the Board made its determination based on the merits of the arguments rather than limiting itself to contention admissibility.<sup>65</sup> But as discussed above, the Board did not consider the merits of New York’s contention. At this stage in a proceeding the petitioner bears the burden of proffering an admissible contention. The Board found that New York has not done so, and New York has not provided us with sufficient information to show that the Board finding was an error of law or abuse of discretion.

New York also questions the distinction the Board drew between the “as left” and “as found” acceptance criteria, arguing that “the supposedly dispositive distinction between the ‘as found’ acceptance criteri[on] of 1.0  $L_a$  and the ‘as left’ acceptance criteri[on] of 0.75  $L_a$  is simply not supported by the regulations or prior submissions from Entergy or NRC Staff . . . .”<sup>66</sup> But as New York itself argues, Option B states that for Type A tests, “[t]he leakage rate must not exceed the allowable leakage rate ( $L_a$ ) with margin, as specified in the Technical Specifications.”<sup>67</sup> The Unit 2 Technical Specifications provide that the “[c]ontainment leakage rate acceptance criterion is 1.0  $L_a$ . During the first unit startup following testing in accordance with this program the leakage rate acceptance criteri[on] [is] . . . [less than or equal to] 0.75  $L_a$  for Type A tests.”<sup>68</sup> In reaching its decision, the Board relied on the plain language of the technical specifications.<sup>69</sup> Nothing New York has raised on appeal would lead us to question the Board’s determination here.

New York further argues that the Board erred when it accepted Entergy’s arguments and disregarded New York’s viewpoint.<sup>70</sup> But the Board carefully analyzed New York’s arguments regarding the perceived increasing trend in Type A test results and determined that those arguments failed to meet the requirements of 10 C.F.R. § 2.309(f)(1)(v) and (vi).<sup>71</sup> Our review of the record does not reveal

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

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

<sup>64</sup> New York Appeal at 21.

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

<sup>66</sup> *Id.* at 22.

<sup>67</sup> 10 C.F.R. Part 50, App. J, Option B § III.A; *see also* New York Appeal at 22.

<sup>68</sup> License Amendment Request, Attach. 2, Technical Specification 5.5.14.

<sup>69</sup> *See* LBP-15-26, 82 NRC at 170 n.9, 176-77.

<sup>70</sup> New York Appeal at 23.

<sup>71</sup> LBP-15-26, 82 NRC at 177-78.

any error of law or abuse of discretion with respect to the Board's holding on this aspect of NYS-1.

### **3. Seismic Risk**

In its petition to intervene, New York stated that the updated seismic hazard analysis for Unit 2 “shows that the anticipated ground motion is larger for higher frequency events than was understood when [Unit 2] received its operating license in 1973.”<sup>72</sup> The Board found that New York had merely referenced this seismic hazard analysis without adequately explaining its significance to the proposed permanent extension of the Type A test interval or how it controverts the portion of the license amendment request discussing seismic impacts.<sup>73</sup> Accordingly, the Board concluded that this portion of New York's contention neither raised a material issue nor established a genuine dispute, as required by 10 C.F.R. § 2.309(f)(1)(iv) and (vi).<sup>74</sup>

On appeal, New York argues that the Board erred in rejecting its seismic risk argument — “[t]he ‘significance’ of a [probabilistic risk assessment] purporting to evaluate a risk factor but failing to consider the most up-to-date information regarding that risk factor should be self-explanatory.”<sup>75</sup> This argument misconstrues our contention admissibility standards, which require a petitioner to address — and meet — each of the six factors set forth in 10 C.F.R. § 2.309(f)(1). Here, the Board found that New York failed to demonstrate a material issue or raise a genuine dispute with the application.<sup>76</sup> On appeal New York does not identify any error of law or abuse of discretion with respect to the Board's ruling on the updated seismic studies.

### **4. Severe Accident Mitigation Alternatives (SAMA) Analysis**

As part of NYS-1, New York claimed that the SAMA analysis prepared for the Indian Point license renewal proceeding “does not take into account the value or decontamination cost of offsite properties with iconic value,” “artificially and improperly limits its scope to land and population only within 50 miles of the

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<sup>72</sup>New York Petition to Intervene at 15.

<sup>73</sup>LBP-15-26, 82 NRC at 178.

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

<sup>75</sup>New York Appeal at 24. Additionally, New York argues in its appeal that it had “removed any remaining confusion” in its reply in support of its petition to intervene. *Id.* But a reply cannot introduce arguments not originally included in an intervention petition. *See, e.g., U.S. Department of Energy*, CLI-09-14, 69 NRC at 588.

<sup>76</sup>LBP-15-26, 82 NRC at 178.



site,” and “relied on [an outdated] dollar per person rem value of \$2,000.”<sup>77</sup> The Board concluded that New York had not demonstrated how its SAMA analysis claims raised a genuine dispute on a material issue with the license amendment application.<sup>78</sup> Moreover, the Board found that New York “fail[ed] to provide expert opinions or adequate facts in support of [the] alleged deficiencies, as required by 10 C.F.R. § 2.309(f)(1)(v).”<sup>79</sup> Therefore, the Board concluded that New York had not met its burden to show a genuine dispute with the license amendment application.<sup>80</sup>

On appeal, New York argues that the Board erred by dismissing New York’s concerns regarding the adequacy of Entergy’s license renewal SAMA analysis. Specifically, New York claims that the Board erred by turning “the evidentiary standard for an admissible contention . . . on its head — ‘expert opinions’ or multitudinous supporting facts are simply not required.”<sup>81</sup> However, the Board did not require New York to provide support for its contentions beyond our normal contention admissibility standard.<sup>82</sup> Also, the Board noted that, like the seismic claim, the SAMA claim did not demonstrate a material dispute with the application.<sup>83</sup>

In sum, New York has not persuaded us that the Board erred at law or abused its discretion in holding Contention NYS-1 inadmissible. Accordingly, we affirm the Board’s decision with respect to NYS-1.

### C. Contention NYS-2

Contention NYS-2, as submitted by New York, states:

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<sup>77</sup> New York Petition to Intervene at 20. The SAMA analysis is being litigated in the context of the Indian Point, Units 2 and 3 license renewal proceeding. *See Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-2, 81 NRC 213 (2015); *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), LBP-13-13, 78 NRC 246, 450-89 (2013) (appeals pending); *see also* Staff Answer to New York Petition at 19 & n.78.

<sup>78</sup> LBP-15-26, 82 NRC at 179.

<sup>79</sup> *Id.*

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

<sup>81</sup> New York Appeal at 25.

<sup>82</sup> *Compare* New York Appeal at 25, *with* LBP-15-26, 82 NRC at 179 (noting that New York did not provide expert opinions or “adequate facts in support of these alleged deficiencies”).

<sup>83</sup> LBP-15-26, 82 NRC at 179. To the extent that New York generally challenges the Indian Point SAMA analysis, New York has not demonstrated that such a claim is within the scope of this license amendment proceeding, as required by 10 C.F.R. § 2.309(f)(1)(iii). Nonetheless, the SAMA analysis is being litigated in the context of the Indian Point license renewal application; the adjudication on that application is ongoing and New York is pursuing its SAMA analysis claims in that forum. *See* State of New York Petition for Review of Atomic Safety and Licensing Board Decision LBP-13-13 with respect to Consolidated Contention NYS-12C (Feb. 14, 2014) (ADAMS Accession No. ML14045A414) (pending).

Entergy's request to amend the Indian Point Unit 2 operating license and technical specifications should be denied because Entergy has not submitted an Environmental Report as required by 10 C.F.R. [§§ ] 51.53 and it has not undergone the required NRC Staff environmental review pursuant to 10 C.F.R. § 51.101 and, despite Entergy's claim to the contrary, the proposed amendment is not categorically exempt from that review under 10 C.F.R. § 51.22(c)(9).<sup>84</sup>

As part of Contention NYS-2, New York asserted that the license amendment request could not be considered for a categorical exclusion<sup>85</sup> because it involves a significant hazards consideration, which would prevent it from being exempted pursuant to 10 C.F.R. § 51.22(c)(9).<sup>86</sup> New York contended that its "argument [was] relevant to whether the Commission should ultimately make such a final determination."<sup>87</sup> Additionally, New York argued that if the no significant hazards consideration determination is unreviewable, then a categorical exclusion pursuant to 10 C.F.R. § 51.22(c)(9) "becomes an unassailable substantive conclusion that Industry and NRC Staff can employ to avoid environmental review of proposed actions."<sup>88</sup>

The Board reiterated that a no significant hazards consideration determination may not be contested, consistent with our regulation in 10 C.F.R. § 50.58(b)(6).<sup>89</sup> But the Board differentiated a petitioner's ability to challenge the categorical exclusion determination. In particular, the Board observed that a petitioner may either show the existence of "special circumstances" or show that the license amendment would result in increased offsite releases of effluents or increased individual or cumulative occupational radiation exposure.<sup>90</sup> The Board found that New York did not seek to show that the license amendment would result in significant increases to offsite effluent releases or occupational radiation exposure.<sup>91</sup>

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<sup>84</sup> New York Petition to Intervene at 20.

<sup>85</sup> Section 51.22 identifies categories of actions that are exempt from NEPA review because the NRC has made a generic finding that the "actions do[ ] not individually or cumulatively have a significant effect on the human environment." 10 C.F.R. § 51.22(a). These are generally referred to as "categorical exclusions."

<sup>86</sup> New York Petition to Intervene at 21. Before the Board New York made the same argument in support of Contention NYS-1. *See* New York Petition to Intervene at 8-10. The Board rejected this argument because our regulations do not allow the Staff's no significant hazards consideration determination to be contested. LBP-15-26, 82 NRC at 178; *see* 10 C.F.R. § 50.58(b)(6). New York did not appeal this aspect of the Board's holding on Contention NYS-1.

<sup>87</sup> State of New York Reply in Support of Petition to Intervene and Request for Hearing (June 19, 2015) at 19.

<sup>88</sup> *Id.* at 20.

<sup>89</sup> LBP-15-26, 82 NRC at 180-81; *see also id.* at 178 n.30 (citing *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), CLI-01-7, 53 NRC 113, 118 (2001)).

<sup>90</sup> *Id.* at 181.

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

And while New York sought to demonstrate the existence of “special circumstances,” it first did so in its reply brief, which the Board found untimely.<sup>92</sup> The Board noted that, even if New York had timely asserted “special circumstances,” the arguments it presented — “various historical degradation events . . . as well as the reactor’s location in the most densely populated part of the country” — would have been unavailing and, therefore, that the contention was inadmissible.<sup>93</sup>

On appeal, New York renews its argument that the bar on challenges to no significant hazards consideration determinations effectively bars challenges to categorical exclusions.<sup>94</sup> We disagree. As the Board observed, our regulations provide specific avenues for petitioners to challenge categorical exclusion determinations.<sup>95</sup> New York did not avail itself of these opportunities, nor does it explain how the Board’s holding constituted an error of law or abuse of discretion. New York also objects to the Board’s rejection of the “special circumstances” argument as untimely — New York asserts that the argument was “a natural extension” of its intervention petition.<sup>96</sup> But the Board did not base its determination solely on timeliness — it reasonably determined that the arguments New York presented would have been unavailing even if timely proffered.<sup>97</sup>

New York does not demonstrate error of law or abuse of discretion by the Board; we therefore affirm the Board’s holding with respect to Contention NYS-2.<sup>98</sup>

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<sup>92</sup> *Id.* at 181-82.

<sup>93</sup> *Id.* at 182 (internal citations omitted).

<sup>94</sup> New York Appeal at 27.

<sup>95</sup> See 10 C.F.R. § 51.22(b), (c)(9)(ii) and (iii).

<sup>96</sup> New York Appeal at 29.

<sup>97</sup> LBP-15-26, 82 NRC at 182. Further, New York does not demonstrate Board error as to the timeliness determination. At oral argument New York conceded that its original petition neither cited 10 C.F.R. § 51.22(b) nor argued for “special circumstances.” See Tr. at 138-39. And it is well-settled in our jurisprudence that “a petitioner may not use its reply to raise new issues for the first time.” *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 2), CLI-15-18, 82 NRC 135, 146 (2015) (citing *Crow Butte*, CLI-09-12, 69 NRC at 568; *Nuclear Management Co., LLC* (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 732 (2006); *National Enrichment Facility*, CLI-04-25, 60 NRC at 224-25).

<sup>98</sup> Just after the Staff issued the license amendment, New York requested that we vacate or, in the alternative, stay the Staff’s issuance of the license amendment to Entergy pending our resolution of this appeal. State of New York Motion to Vacate or for Stay of Staff Action Pending Appeal of Atomic Safety and Licensing Board Decision LBP-15-26 Regarding License Amendment for Entergy Indian Point Unit 2 to Delay the Containment Leak Rate Test for Five Years (Feb. 26, 2016); see NRC Staff’s Answer in Opposition to State of New York Motion to Vacate or Stay Issuance of License Amendment (Mar. 7, 2016); Entergy’s Answer Opposing New York State’s Motion to Vacate or Stay the Effectiveness of the February 23, 2016 License Amendment Regarding Indian Point Unit 2 Integrated Leak Rate Testing (Mar. 7, 2016). We deny New York’s motion as moot. Because New York sought to stay or vacate the Staff’s action pending our review of its appeal and we have now taken action on its appeal, we need not consider the stay application further.

### **III. CONCLUSION**

For the reasons set forth above, we *affirm* the Board's decision in LBP-15-26.  
IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
This 5th day of April 2016.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket Nos. 50-237-EA  
50-249-EA**

**EXELON GENERATION  
COMPANY, LLC  
(Dresden Nuclear Power Station,  
Units 2 and 3)**

**April 5, 2016**

The Commission (with one Commissioner dissenting) dismisses as moot the appeal of an Atomic Safety and Licensing Board decision that denied a labor union's request for hearing and petition to intervene to challenge an NRC confirmatory order. The Commission also terminates the proceeding.

**MOOTNESS**

A case or controversy is moot when the issues are no longer live or the parties lack a cognizable interest in the outcome. In determining mootness, we look to whether the relief sought would, if granted, make a difference to the legal interests of the parties. *See Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), CLI-93-10, 37 NRC 192, 200 (1993). When subsequent events outrun the controversy, we will ordinarily dismiss a case as moot.

**MOOTNESS**

We have recognized an exception to the mootness doctrine when "a case is 'capable of repetition, yet evading review.'" *See, e.g., Southern California Edison*

Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-10, 78 NRC 563, 568 n.35 (2013). Similarly, we have found an exception “when the same litigants are likely to be subject to similar future action.” *See id.* at 568. But speculation as to future events, without more, does not shield a case from a mootness determination.

## MEMORANDUM AND ORDER

Before us is the appeal of Local 15, International Brotherhood of Electrical Workers, AFL-CIO, of the Atomic Safety and Licensing Board’s decision in LBP-14-4 denying Local 15’s hearing request in this enforcement matter.<sup>1</sup> The Staff and the Licensee, Exelon Generation Company, LLC, request that we uphold the Board’s decision.<sup>2</sup> As discussed below, we find that intervening events in this matter have resolved the controversy that gave rise to Local 15’s hearing request in the first instance. In the absence of a live controversy, we dismiss Local 15’s appeal as moot.

### I. BACKGROUND AND PROCEDURAL HISTORY

This case concerns an unusual enforcement matter associated with the Dresden Nuclear Power Station. In May 2012, an off-duty Dresden senior reactor operator (SRO) hijacked a car at gunpoint; he was later arrested and convicted of aggravated vehicular hijacking.<sup>3</sup> Shortly after the arrest of the SRO, an equipment operator with unescorted plant access told several individuals (including Exelon and NRC personnel) that he was asked approximately a year earlier by the SRO and another individual to participate in a violent crime.<sup>4</sup>

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<sup>1</sup> Notice of Appeal of LBP-14-04 by Local 15, International Brotherhood of Electrical Workers, AFL-CIO (May 12, 2014) (Local 15 Notice of Appeal); Brief in Support of Appeal of LBP-14-04 (May 12, 2014, corrected May 13, 2014) (Local 15 Appeal Brief); *see* LBP-14-4, 79 NRC 319 (2014).

<sup>2</sup> NRC Staff’s Brief in Opposition to Appeal of LBP-14-04 by Local Union No. 15, International Brotherhood of Electrical Workers, AFL-CIO (June 6, 2014); Exelon’s Answer Opposing Local Union No. 15, International Brotherhood of Electrical Workers, AFL-CIO’s Appeal of LBP-14-04 (June 6, 2014).

<sup>3</sup> The NRC terminated the individual’s senior reactor operator license at the request of the Licensee and subsequently issued an order prohibiting his involvement in licensed activities; the Licensee terminated his employment at the plant. *See* In the Matter of Michael J. Buhrman; Order Prohibiting Involvement in NRC-Licensed Activities (Effective Immediately), 78 Fed. Reg. 66,970 (Nov. 7, 2013).

<sup>4</sup> Letter from Gary L. Shear, NRC, to Michael J. Pacilio, Exelon Generation Company, LLC and  
(Continued)

NRC regulations require a licensee's access authorization program to include a behavioral observation program designed to detect activities or behaviors that may present an unreasonable risk to public health and safety.<sup>5</sup> The NRC Staff conducted an investigation to determine whether personnel at Dresden knew that the former SRO planned to commit an offsite crime and willfully failed to report him to plant management for "aberrant behavior."<sup>6</sup> Based upon the results of this investigation, the NRC Staff identified several examples of an apparent violation of 10 C.F.R. § 73.56(a)(2), (f)(1), and (f)(3).

The Staff notified Exelon of the apparent violation, and, among other things, offered Exelon an opportunity to request alternative dispute resolution, which Exelon accepted.<sup>7</sup> During the alternative dispute resolution session, a preliminary settlement was reached.<sup>8</sup> The resulting Confirmatory Order memorialized a number of actions Exelon had already completed, and Exelon agreed to a number of additional actions. As relevant here, the order acknowledged that Exelon had already revised its Behavioral Observation Program "to indicate that the . . .

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Exelon Nuclear, "Dresden Nuclear Power Station, Units 2 and 3; Report Nos. 05000237/2013407; 05000249/2013407 (DRS) and Results of Investigation Report No. 3-2012-020" (July 3, 2013) (Investigation Summary Letter) & Enclosure, "Factual Summary of NRC Investigation" (ADAMS Accession No. ML13184A232) (Investigation Summary). The NRC prohibited the other individual, also an SRO, from licensed activities, but took no enforcement action against the equipment operator. *See generally* In the Matter of Landon E. Brittain; Order Prohibiting Involvement in NRC-Licensed Activities (Effective Immediately), 78 Fed. Reg. 66,968 (Nov. 7, 2013). Exelon terminated the employment of the second SRO and the equipment operator. *See* Exelon's Answer Opposing the Petition to Intervene and Hearing Request Filed by Local Union No. 15, International Brotherhood of Electrical Workers, AFL-CIO (Jan. 24, 2014) at 2-3; In the Matter of Exelon Generation Company, LLC; Dresden Nuclear Power Station Confirmatory Order Modifying License, 78 Fed. Reg. 66,965, 66,965 (Nov. 7, 2013) (Confirmatory Order).

<sup>5</sup> Investigation Summary Letter at 1-2. Section 73.56(a)(2) requires that a licensee establish, implement, and maintain an access authorization program. Section 73.56(f)(1) requires access authorization programs to "include a behavioral observation program that is designed to detect behaviors or activities that may constitute an unreasonable risk" to the public health and safety and common defense and security. Section 73.56(f)(3) requires (in part) that individuals subject to an access authorization program "shall, at a minimum report any concerns arising from behavioral observation, including, but not limited to, concerns related to any questionable behavior patterns or activities of others to a reviewing official, his or her supervisor, or other management personnel" as designated in site procedures. The recipient of the report (if not the reviewing official) must convey the report to the reviewing official, who in turn will reassess the reported individual's unescorted access or unescorted access authorization status.

<sup>6</sup> *See* Investigation Summary at 1.

<sup>7</sup> *See* Letter from Steven K. Orth, Region III, NRC, to Michael J. Pacilio, Exelon Generation Company, LLC and Exelon Nuclear, "Alternative Dispute Resolution Session on September 18, 2013" (Sept. 9, 2013) (ADAMS Accession No. ML13253A196).

<sup>8</sup> Confirmatory Order, 78 Fed. Reg. at 66,965.

program includes an expectation to report offsite illegal activity.”<sup>9</sup> Exelon also volunteered to further revise its Behavioral Observation Program within 90 days to provide additional guidance on the type of credible information or offsite activities (if observed) that employees should report to their management.<sup>10</sup> In consideration of this and Exelon’s other commitments, the Staff agreed that it would issue no finding, notice of violation, or civil penalty, and that it would take no other enforcement action with respect to this matter.<sup>11</sup> The Confirmatory Order applied not only to Dresden, but also to Exelon’s entire fleet of operating reactors.<sup>12</sup>

The notice of issuance of the Confirmatory Order included an opportunity to request a hearing.<sup>13</sup> In response, Local 15 sought a hearing and submitted three contentions.<sup>14</sup> In Contention 1, Local 15 asserted that the Confirmatory Order should not be sustained because it imposed obligations on off-duty Exelon employees without justification.<sup>15</sup> In Contention 2, the Local asserted that the Confirmatory Order should not be sustained because it imposed on Exelon employees behavioral observation and reporting requirements that were “vague, over-broad and not carefully tailored . . . and improperly delegates to Exelon the discretion to interpret and implement NRC standards” for behavioral observation.<sup>16</sup> Local 15’s Contention 3 raised concerns about possible violations of the National Labor Relations Act.<sup>17</sup> Related to its Contention 3, but as a matter separate from this

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

<sup>10</sup> *Id.* Revision 10 to Exelon’s Behavioral Observation Program includes the changes memorialized by the Confirmatory Order. See SY-AA-103-513 (Rev. 10) (2014) (attached as Ex. 3 to Reply of Local Union 15, International Brotherhood of Electrical Workers, AFL-CIO to NRC Staff and Exelon Answers Opposing Local 15’s Petition to Intervene and Request for Hearing (Feb. 14, 2014).

Exelon also agreed to provide its employees training on the new revision within 90 days of its completion and to conduct an effectiveness assessment of the revised procedures and of the employee training within 18 months of the Confirmatory Order’s effective date. All activities save the effectiveness assessment were completed. Letter from Patrick R. Simpson, Exelon Generation Company, LLC, to Kenneth O’Brien, Region III, NRC, “Response to Confirmatory Order EA-13-068” (Sept. 30, 2014) (ADAMS Accession No. ML14273A482); Letter from Richard A. Skokowski, Region III, NRC, to Michael J. Pacilio, Exelon Generation Company, LLC and Exelon Nuclear, “[Acknowledgment] of Exelon Generation Company Response to NRC Request for a Written Response to Confirmatory Order EA-13-068” (Nov. 17, 2014) (ADAMS Accession No. ML14322A472). Because the procedure has since been further revised, new dates to complete the associated training and effectiveness assessment have been established. See *infra* note 24.

<sup>11</sup> Confirmatory Order, 78 Fed. Reg. at 66,966.

<sup>12</sup> *Id.* at 66,965.

<sup>13</sup> *Id.* at 66,966.

<sup>14</sup> See Petition to Intervene and Request for Hearing (Dec. 12, 2013) (Local 15 Petition).

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

<sup>16</sup> *Id.* at 18.

<sup>17</sup> *Id.* at 19.



adjudication, Local 15 pursued unfair labor practice charges before the National Labor Relations Board (NLRB).<sup>18</sup> In LBP-14-4, the Board denied Local 15's request for hearing on the grounds that the Local had neither demonstrated standing nor submitted an admissible contention.<sup>19</sup> Local 15's appeal followed.

Local 15 challenged the Board's standing determination as well as its rejection of Contentions 1 and 2. Local 15 also argued that the Board erred when it concluded that our regulations do not entitle the union to a hearing as of right.<sup>20</sup> The Local did not appeal the Board's rejection of Contention 3.

During the pendency of the Local's appeal, Exelon informed the Staff that it had entered into a settlement agreement regarding the NLRB case, and it requested a temporary relaxation of the Confirmatory Order to implement the NLRB settlement agreement.<sup>21</sup> In particular, Exelon requested that the Staff relax the Confirmatory Order to "permit a temporary rescission of the additional guidance to employees concerning their reporting obligations" provided in Revision 10; the relaxation would allow Exelon and Local 15 additional time to bargain "over the effects of [Exelon's] decisions to make revisions to its [Behavioral Observation Program] to comply with the Confirmatory Order."<sup>22</sup>

The Staff approved Exelon's relaxation request.<sup>23</sup> The approval permitted Exelon to "revert to [Revision 9 of the Behavioral Observation Program] until Exelon and Local 15 can bargain on a new revision that complies with the

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<sup>18</sup> See, e.g., LBP-14-4, 79 NRC at 337; Memorandum of Local 15, International Brotherhood of Electrical Workers, AFL-CIO Responding to Atomic Safety and Licensing Board Questions for Oral Argument (Feb. 28, 2014) at 9 (providing the status of the NLRB matter).

<sup>19</sup> LBP-14-4, 79 NRC at 334. Judge Karlin filed a dissenting opinion. *Id.* at 339-76.

<sup>20</sup> See Local 15 Notice of Appeal; Local 15 Appeal Brief.

<sup>21</sup> See Letter from Shane Marik, Exelon Generation Company, LLC, to Cynthia D. Pederson, Region III, NRC, "Request for Relaxation of Condition V(A)(A.1(1)) of Confirmatory Order EA-13-068" (Jan. 26, 2015) at 4-5 (ADAMS Accession No. ML15030A079) (Relaxation Request).

<sup>22</sup> *Id.* at 5-6. Section V(A)(A.1(1)) of the Confirmatory Order provided that, within 90 days of the effective date of the Confirmatory Order, Exelon would revise its Behavioral Observation Program "(1) to provide additional guidance on the types of offsite activities, if observed, or credible information that should be reported to reviewing officials, and (2) to ensure that procedural requirements to pass information forward without delay are clearly communicated." Confirmatory Order, 78 Fed. Reg. at 66,966. In a supplement to its Relaxation Request, Exelon requested that two other sections of the Confirmatory Order, related to the timing of completion of training and the completion of the effectiveness assessment, likewise be relaxed. Letter from Tamra Domeyer, Exelon Generation Company, LLC, to Jared Heck and Steven Orth, Region III, NRC, "Supplemental Information for Request for Relaxation of Condition V(A)(A.1(1)) of Confirmatory Order EA-13-068" (Apr. 13, 2015) (ADAMS Accession No. ML15106A427).

<sup>23</sup> Memorandum from Christopher C. Hair, Counsel for the Staff, to the Commissioners (May 6, 2015) (Staff Notification), attaching Letter from Cynthia D. Pederson, Region III, NRC, to Bryan C. Hanson, Exelon Generation Company, LLC, and Exelon Nuclear, "Dresden Nuclear Power Station — Request for Relaxation of Confirmatory Order" (May 4, 2015) (ADAMS Accession No. ML15125A103) (Relaxation Approval).

Confirmatory Order.”<sup>24</sup> Exelon has informed us that it has completed bargaining with Local 15 “over the effects of Exelon’s decision to implement changes to [Revision 10 of the Behavioral Observation Program].”<sup>25</sup> And Exelon has implemented a revised Behavioral Observation Program, incorporating revisions to the Program resulting from the negotiations with Local 15.<sup>26</sup>

Upon learning of the Staff’s approval of the Relaxation Request and the actions to be taken in furtherance of the NLRB settlement, we sought briefing from the litigants as to the impact of the actions undertaken by Local 15 and Exelon on this adjudication.<sup>27</sup> Specifically, we directed the litigants to “provide either (1) a joint stipulation that Local 15’s appeal should be dismissed or (2) briefing on the question whether Local 15’s appeal should be dismissed as moot and this proceeding terminated.”<sup>28</sup> The litigants did not agree to a joint stipulation.<sup>29</sup> Consistent with our direction in CLI-15-16, the litigants provided their views as to whether Local 15’s appeal should be dismissed as moot. Local 15, Exelon, and

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<sup>24</sup> Staff Notification at 1. The Staff’s approval extended the dates for compliance with the Confirmatory Order to allow for the actions discussed above. The relaxation revised the Order to provide (1) for revision of Exelon procedure SY-AA-103-513 until November 30, 2015, (2) for Exelon to provide training to its staff on this revision by January 15, 2016, and (3) for Exelon’s development and conduct of an effectiveness assessment of the revised procedure and associated training by May 31, 2016. Relaxation Approval at 2.

<sup>25</sup> Commission Notice (Sept. 25, 2015). The notice attaches a letter from Exelon to Local 15 providing Exelon’s representation to the Local that the bargaining required by the settlement had been completed. *See* Letter from Philip Brzozowski, Exelon Generation, to Dave Sergenti and Bill Phillips, IBEW Local 15 (Sept. 23, 2015) (Brzozowski Letter).

<sup>26</sup> *See* Brzozowski Letter at 2 (unnumbered) (“[Exelon] intends to implement Rev. 10 [of the Behavioral Observation Program] incorporating the parties’ agreed-upon revisions regarding the matters over which we were obliged to bargain.”). In a status report to the NRC, Exelon indicated that minor changes to Revision 10 of Exelon procedure SY-AA-103-513 were negotiated; Exelon implemented the revised procedure by November 30, 2015. *See* Letter from David M. Gullott, Exelon Generation Company, LLC, to Kenneth O’Brien, Region III, NRC, “Annual Response to Confirmatory Order EA-13-068 (Oct. 28, 2015) (ADAMS Accession No. ML15302A183); *see also* Letter from Steven K. Orth, Region III, NRC, to Bryan C. Hanson, Exelon Generation Company, LLC and Exelon Nuclear, “Acknowledgment of Annual Response to Confirmatory Order EA-13-068” (Nov. 6, 2015) (ADAMS Accession No. ML15313A207).

<sup>27</sup> CLI-15-16, 81 NRC 810 (2015).

<sup>28</sup> *Id.* at 813.

<sup>29</sup> NRC Staff’s Brief on Mootness in Response to CLI-15-16 (June 26, 2015) at 1 (Staff Initial Brief); Local 15’s Brief in Response to the Commission’s June 11, 2015 Memorandum and Order (June 26, 2015) at 1 (Local 15 Initial Brief).

the Staff filed initial and reply briefs.<sup>30</sup> Local 15 argues that its appeal is not moot. Exelon and the Staff argue that it is. We consider the mootness question below.

## II. DISCUSSION

We will consider a case or controversy to be “‘moot when the issues are no longer ‘live,’ or the parties lack a cognizable interest in the outcome.’”<sup>31</sup> In determining mootness, we look to “‘whether the relief sought would, if granted, make a difference to the legal interests of the parties.’”<sup>32</sup> And when subsequent events outrun the controversy, we will ordinarily dismiss a case as moot.<sup>33</sup>

### A. Mootness of Local 15’s Appeal

The fundamental dispute here is whether the controversy has been resolved by the temporary relaxation of the Confirmatory Order — specifically the rescission of Revision 10 of the Behavioral Observation Program procedure — and the Local’s opportunity to negotiate with Exelon on revised language concerning the types of obligations to be imposed on Exelon employees under the program. As discussed below, we find that it has.

Local 15 contends that the settlement of its unfair labor practice charge in the parallel case before the NLRB, provides it with “only a small portion of the relief it originally sought.”<sup>34</sup> Specifically, Local 15 argues that the resolution of the unfair labor practice charge relates only to Contention 3, leaving Contentions 1 and 2 unresolved.<sup>35</sup> The Local takes the position that, as described in those

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<sup>30</sup> See Local 15 Initial Brief; Exelon’s Brief in Response to CLI-15-16 (June 26, 2015); Staff Initial Brief; Local 15’s Reply to NRC Staff and Exelon Briefs in Response to CLI-15-16 (July 6, 2015) (Local 15 Reply Brief); Exelon’s Brief in Reply Regarding CLI-15-16 (July 6, 2015); NRC Staff’s Reply to Local 15 and Exelon’s Briefs in Response to CLI-15-16 (July 6, 2015) (Staff Reply Brief).

<sup>31</sup> *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 557 (2013) (quoting *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), CLI-93-10, 37 NRC 192, 200 (1993)). We are not strictly bound by the “case or controversy” requirement, but we generally follow it “absent the most compelling reasons.” *Comanche Peak*, CLI-93-10, 37 NRC at 200 n.28 (citations omitted).

<sup>32</sup> *Comanche Peak*, CLI-93-10, 37 NRC at 200 (quoting *Air Line Pilots Association International v. UAL Corp.*, 897 F.2d 1394, 1396 (7th Cir. 1990)).

<sup>33</sup> *Id.*; *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-605, 12 NRC 153, 154 (1980) (holding that a tribunal may “dismiss those matters placed before them which have been mooted by supervening developments”); see *McBryde v. Committee to Review Circuit Council Conduct and Disability Orders of the Judicial Conference of the United States*, 264 F.3d 52, 55 (D.C. Cir. 2001).

<sup>34</sup> Local 15 Initial Brief at 2.

<sup>35</sup> *Id.* at 3.

two contentions, the Confirmatory Order itself imposes improper obligations on Exelon employees that may only be remedied by rescission of the order.<sup>36</sup> Local 15 asserts that the settlement of the NLRB complaint addressed only the *effects* of the Confirmatory Order, rather than the “contents of or obligations imposed by the Order itself.”<sup>37</sup> But it is the effects of the Confirmatory Order (and, specifically, the provisions of Revision 10 to which the Local objects) that directly impacted Exelon employees, including members of Local 15. In our view the NLRB settlement provided Local 15 with the fundamental relief requested in this proceeding — the opportunity to address with Exelon the Local’s concerns regarding Exelon’s Behavioral Observation Program procedure.

As noted above, in Contention 1, the Local challenged the obligations placed on off-duty employees to report certain conduct of other employees. And in Contention 2, the Local opposed the imposition of observation and reporting obligations that are “vague, over-broad, and not carefully tailored” and argued that the Confirmatory Order delegates to Exelon the discretion to implement and interpret NRC standards. Both contentions are premised upon Local 15’s objection that the revisions to the Behavioral Observation Program were made without the involvement of the union.<sup>38</sup> And both of these contentions challenge the Behavioral Observation Program procedure itself.<sup>39</sup>

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

<sup>37</sup> *Id.* at 4. The record reflects that the NLRB concluded that Exelon was not required to bargain over (among other things) the decision to settle the enforcement matter with the NRC and consent to the Confirmatory Order, but was obliged to bargain over the effects of those decisions and over the guidance to employees contained in Revision 10 of the Behavioral Observation Program. Relaxation Request at 4-5.

<sup>38</sup> Local 15 Petition at 18 (regarding Contention 1, stating that “the Union strenuously objects to sweeping changes that detrimentally affect the rights and interests of every single Exelon Generation bargaining unit member being made without genuine basis or need and without the important input of the Union and the bargaining unit members”); *id.* at 19 (regarding Contention 2, stating that, although the Order instructs Exelon “to provide additional guidance on the types of offsite activities, if observed, or credible information that should be reported to reviewing officials, this instruction neither cabins Exelon’s discretion in developing that guidance nor acknowledges Exelon’s duty, pursuant to federal labor law, to engage in bargaining over its employees’ terms and conditions of employment with their duly authorized bargaining representative.” (internal quotations omitted)).

<sup>39</sup> Indeed, the Confirmatory Order itself imposed few additional requirements beyond those already found in Revision 10: it required Exelon to provide additional guidance on what activities should be reported and required Exelon to clearly communicate that such reporting should occur immediately. 78 Fed. Reg. at 66,965. Local 15 did not raise a substantial challenge to the additional requirements in the order; instead the Local focused on the infirmities in Revision 10 to the Behavioral Observation Program. Local 15 Petition at 15-21 (objecting to the language in the Confirmatory Order requiring Exelon to develop additional guidance primarily on the ground that the language was not sufficient to remedy the alleged defects in Revision 10); see *Comanche Peak*, CLI-93-10, 37 NRC at 200 (noting that when a case no longer raises a “substantial” controversy, it is moot).

Revision 10 of Exelon's Behavioral Observation Program — the revision to which Local 15 objected — has been superseded. As discussed above, Exelon obtained from the Staff a temporary relaxation of the Confirmatory Order, and Exelon and Local 15 thereafter bargained over a new revision to the Behavioral Observation Program, which has now been put in place. Thus, the specific conditions about which the Local complains, as well as its concern that these conditions were implemented without being subjected to the negotiation process, have been addressed.

To be sure, Local 15 was not guaranteed a particular outcome through the collective bargaining process, and we recognize that the Local may not have obtained all of the changes to the Behavioral Observation Program that it sought. The newly revised program procedure is not part of the record of this proceeding, and we did not review it. The precise revisions to the procedure, however, are not material to our determination. Local 15 has now had a seat at the table with Exelon, in the context of collective bargaining, to negotiate its concerns about the Behavioral Observation Program identified in its Contentions 1 and 2, including the obligations of off-duty employees, Local 15's concerns regarding the asserted vagueness or breadth of those obligations, and Exelon's implementation of the program. Put another way, Exelon and Local 15 squarely addressed the revisions to the Behavioral Observation Program that Local 15 challenged in its Contentions 1 and 2. Further, as noted above, Revision 10 has been rescinded and a new revision put in place that reflects these negotiations. As facilitated by the Staff's temporary relaxation of the Confirmatory Order, implementation of the NLRB settlement has resolved the underlying controversy in this case and rendered it moot.<sup>40</sup>

We have recognized an exception to the mootness doctrine when “a case is capable of repetition, yet evading review.”<sup>41</sup> Local 15 invokes that exception and asserts that, because Exelon continues to operate nuclear plants and Local 15 continues to represent bargaining unit employees at those plants, “it is entirely likely that there will be future enforcement actions involving Exelon that have an adverse effect on its employees.”<sup>42</sup> That exception, as discussed below, is not applicable here.

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<sup>40</sup> We have reviewed Commissioner Baran's dissent, and it does not change our opinion that this case is moot. *See, e.g., supra* note 39 and text. Moreover, we decline to permit Local 15 to relitigate here what it fairly negotiated with Exelon in its settlement agreement before the NLRB.

<sup>41</sup> *See, e.g., Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-10, 78 NRC 563, 568 n.35 (2013) (citations omitted). Similarly, we have found an exception “when the same litigants are likely to be subject to similar future action.” *Id.* at 568 (citing *San Onofre*, CLI-13-9, 78 NRC at 551, 557-58).

<sup>42</sup> Local 15 Initial Brief at 7-8; *see* Local 15 Reply Brief at 3 (stating that “it is reasonably likely that the NRC will engage in enforcement actions with Exelon which have an effect on the terms and conditions of bargaining unit members' employment”).

An injury “capable of repetition” requires “a reasonable expectation that the same complaining party would be subjected to the same action again.”<sup>43</sup> We find no reasonable expectation that the same parties will confront the same issues again. The events that led to the Confirmatory Order in this matter, set forth above, were highly unusual and are unlikely to recur.<sup>44</sup> And to evade review, a challenged action must be “too short to be fully litigated prior to its cessation or expiration.”<sup>45</sup> Local 15 argues that a future enforcement order could — like the Confirmatory Order here — require Exelon to make, within 90 days, changes to its Behavioral Observation Program that would have an adverse effect on employees. Local 15 states its concern that, within that time frame, it would be unable to obtain a Licensing Board ruling or Commission decision on a challenge to such an order.<sup>46</sup> On this point, we agree with the Staff that the underlying action must be inherently short-lived, which is not the case here: by its terms, the Confirmatory Order does not expire after the implementation period.<sup>47</sup> Standing alone, an implementation deadline in a future enforcement order of the same type would have no effect on Local 15’s ability to seek and obtain relief on such an order. Local 15’s appeal is not appropriate for consideration under an exception to the mootness doctrine.<sup>48</sup>

## **B. Advisory Opinion on the Question of Local 15’s Hearing Rights**

One other matter merits mention. Local 15 asserts that dismissal of its appeal now would leave unanswered the collateral question whether Local 15 may

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<sup>43</sup> *Weinstein v. Bradford*, 423 U.S. 147, 149 (1975); *Del Monte Fresh Produce Co. v. United States*, 570 F.3d 316, 322 (D.C. Cir. 2009); see *Comanche Peak*, CLI-93-10, 37 NRC at 205 & n.53.

<sup>44</sup> To the extent that Local 15 asserts more generally that the possibility of future enforcement actions involving Exelon will have an effect on the bargaining unit members’ employment, the Local’s argument is speculative and likewise does not fall within this narrow exception. See *Munsell v. Department of Agriculture*, 509 F.3d 572, 583 (D.C. Cir. 2007) (“speculation [as to future events], without more, does not shield a case from a mootness determination”) (internal quotes omitted).

<sup>45</sup> *Del Monte*, 570 F.3d at 322; *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio, 44041), CLI-93-8, 37 NRC 181, 185 (1993).

<sup>46</sup> Local 15 Initial Brief at 8.

<sup>47</sup> See Staff Reply Brief at 4-5 & n.20.

<sup>48</sup> In its initial brief, Local 15, anticipating a possible argument from Exelon, asserts that the matter is not mooted by the actions taken by Exelon in furtherance of the NLRB settlement. Local 15 Initial Brief at 9 (citing *Friends of the Earth, Inc. v. Laidlaw Environmental Services, Inc.*, 528 U.S. 167, 189 (2000) (“a defendant’s voluntary cessation of a challenged practice does not deprive a federal court of its power to determine the legality of the practice”) (citation omitted)). This “voluntary cessation” exception is intended to prevent a party from evading review by taking temporary action to preclude a possible adverse decision. *Laidlaw*, 528 U.S. at 189. Local 15 does not argue, nor do we otherwise find, that Exelon is likely to fail to abide by the terms of the NLRB settlement agreement should we dismiss this case as moot.

demand a hearing as of right under 10 C.F.R. § 2.202(a)(3).<sup>49</sup> This issue was initially raised not by the Local, but by the Board itself. Prior to oral argument, the Board posed questions to the litigants; several of these related to the application of section 2.202(a)(3) to Local 15.<sup>50</sup> That provision requires the Staff to “[i]nform the licensee or any other person adversely affected by the order of his or her right . . . to demand a hearing . . . except in a case where the licensee or other person has consented in writing to the order.”<sup>51</sup> As part of its response to the Board’s questions, Local 15 requested that the Board apply section 2.202(a)(3) to the Local and find that, as an entity “adversely affected” by the Confirmatory Order, the Local was entitled to a hearing and need not satisfy the standing and contention admissibility requirements.<sup>52</sup> The Board declined to do so, concluding that the regulatory history of the provision makes clear that we “did not intend to relieve third-party individuals who are not the subject of an enforcement order (but who nonetheless seek a hearing on the order) from satisfying the requirements for a petition for intervention set forth in 10 C.F.R. § 2.309.”<sup>53</sup>

In view of our determination that Local 15’s appeal is moot, we decline to reach the question of the applicability of section 2.202(a)(3) to the union in this instance, as such an opinion would be advisory in nature. We disfavor the issuance of advisory opinions and prefer instead to address issues in the context of a concrete dispute.<sup>54</sup>

### III. CONCLUSION

For the reasons discussed above, we *dismiss* Local 15’s appeal as moot and *terminate* this proceeding.<sup>55</sup>

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<sup>49</sup> Local 15 Initial Brief at 6.

<sup>50</sup> Order (Concerning Instructions for Oral Argument) (Feb. 5, 2014) (unpublished); *see* Memorandum of Local 15, International Brotherhood of Electrical Workers, AFL-CIO Responding to Atomic Safety and Licensing Board Questions for Oral Argument (Feb. 28, 2014) (Local 15 Memorandum); NRC Staff Memorandum in Response to Board Order Concerning Instructions for Oral Argument (Feb. 28, 2014) (Staff Memorandum); Exelon’s Memorandum Responding to the Questions in the Board’s February 5, 2014 Order (Feb. 28, 2014).

<sup>51</sup> 10 C.F.R. § 2.202(a)(3).

<sup>52</sup> Local 15 Memorandum at 2.

<sup>53</sup> LBP-14-4, 79 NRC at 325. Judge Karlin disagreed; he took the view that members of Local 15 qualify as individuals “adversely affected by the order” within the meaning of section 2.202(a)(3). LBP-14-4, 79 NRC at 341-49 (Karlin, J., dissenting).

<sup>54</sup> *San Onofre*, CLI-13-10, 78 NRC at 568-69; *see U.S. Department of Energy* (High-Level Waste Repository), CLI-08-21, 68 NRC 351, 353 (2008).

<sup>55</sup> No inference should be drawn with respect to our view of the correctness of the Licensing Board’s decision in LBP-14-4; we express neither approval nor disapproval of that decision. Similarly, we  
(Continued)

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 5th day of April 2016.

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have reviewed Commissioner Baran's dissent, which provides his views on the merits of Local 15's appeal. Because that appeal is moot, we do not comment on the views he has expressed.



### Additional Views of Commissioner Svinicki

I fully join my colleagues in the majority opinion. Although I need not do so, I elect to write separately to draw into sharp relief the juxtaposition between the majority's holding and Judge Karlin's critique of our hearing process in his dissenting opinion. Judge Karlin argued that our procedural regulations for adjudicatory hearings, while not contrary to law, cumulatively impose a barrier to public participation that is unnecessarily stringent.<sup>1</sup> Having now served a number of years in an adjudicatory capacity on this Commission, I do not agree with Judge Karlin's characterizations of specific aspects of our hearing process.<sup>2</sup> More fundamentally, I do not share his observation that our regulations are needlessly strict. As the Commission has often stated, our contention admissibility requirements are "strict by design" to ensure that NRC hearings "serve the purpose for which they are intended: to adjudicate genuine, substantive safety and environmental issues."<sup>3</sup> Consequently, when petitioners bring claims that are not susceptible to such adjudications, we frequently direct them toward other processes or government agencies.<sup>4</sup> In the instant case, Local 15's ability to find relief in another venue that moots the underlying contention shows the inherent benefit of adherence to this principle and reveals Judge Karlin's concerns as, at best, significantly overstated. Rather than frustrate the public interest, the Board's application of our procedural regulations allowed the underlying dispute to be resolved in a suitable venue. Therefore, instead of creating what Judge Karlin describes as "an exclusionary fortress against the conduct of adjudicatory hearings,"<sup>5</sup> our procedures ensure that NRC adjudications are narrowly focused and that the agency refrains from attempting to adjudicate claims that are more readily or effectively resolved through a different NRC process or by a different entity altogether.

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<sup>1</sup> LBP-14-4, 79 NRC at 372-76 (Karlin, J., dissenting).

<sup>2</sup> E.g., *compare id.* at 374 (alleging that in NRC adjudications the Staff "*always opposes the request for a hearing*") (citing *U.S. Dep't of Energy* (High-Level Waste Repository), CAB-02, Tr. at 352-55 (Apr. 1, 2009) (ADAMS Accession No. ML090910293)) *with Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-10-15, 72 NRC 257, 276, 285 (2010) (noting that the Staff agreed that the intervenor had shown standing and provided at least one admissible contention (thereby satisfying the requirements for a hearing request)).

<sup>3</sup> *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 2), CLI-03-14, 58 NRC 207, 213 (2003).

<sup>4</sup> E.g., *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-15-20, 82 NRC 211, 230 (2015); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-15-21, 82 NRC 295, 308 & n.69 (2015).

<sup>5</sup> LBP-14-4, 79 NRC at 375.

### **Commissioner Baran, Dissenting**

I respectfully dissent from the majority's decision. A contention seeking rescission of the NRC Confirmatory Order cannot be moot if the order remains in place. Rather than dismissing the appeal as moot, the Commission should rule on Local 15's appeal of the Licensing Board's decision and find that Local 15 has established standing and submitted an admissible contention on which a hearing should be held.

### **I. MOOTNESS**

The mootness finding in the majority decision relies on two underlying premises: first, that the fundamental relief sought by Local 15 was the opportunity to collectively bargain with Exelon on changes to the company's Behavioral Observation Program procedure, and second, that Local 15's challenge to the NRC Confirmatory Order is really just a challenge to this Exelon procedure. In my view, neither of these premises is consistent with or supported by the actual arguments made by Local 15.

The relief sought by Local 15 is not limited to its ability "to negotiate with Exelon on revised language concerning the types of obligations to be imposed on Exelon employees under the program."<sup>1</sup> Nor do Local 15's pleadings merely challenge Revision 10 of Exelon's Behavioral Observation Program procedure. Although the concern with collective bargaining is one element of Local 15's initial petition, Local 15 also seeks rescission of the Confirmatory Order on the grounds that its members will be directly harmed by the order and that the order will negatively impact public health and safety. For example, Local 15 contends that the Confirmatory Order will adversely impact safety because it "will likely have introduced into the reporting requirements numerous ambiguities and inconsistencies and rendered employee compliance far more uncertain."<sup>2</sup> Collective bargaining over Revision 10 of Exelon's procedures does not and cannot address these concerns. As Local 15 stated in its brief regarding mootness, while the NRC Staff temporarily relaxed the Confirmatory Order to allow for collective bargaining, "that bargaining will remain fully circumscribed by the entirety of the Confirmatory Order itself."<sup>3</sup> According to Local 15, "[t]he obligations imposed by the Confirmatory Order — as a separate matter from those

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<sup>1</sup> Majority Decision at p. 153.

<sup>2</sup> Petition to Intervene and Request for Hearing (Dec. 12, 2013) at 5 (Local 15 Petition); Brief in Support of Appeal of LBP-14-04 (May 12, 2014) at 24-25 (Local 15 Appeal Brief).

<sup>3</sup> Local 15 Brief in Response to the Commission's June 11, 2015 Memorandum and Order (June 26, 2015) at 5.

imposed by Exelon — remain every bit as objectionable as they were when Local 15 first filed its Petition to Intervene.”<sup>4</sup>

As long as the Confirmatory Order remains in place, Local 15’s contention seeking its rescission is not moot. The fact that “Local 15 has now had a seat at the table with Exelon, in the context of collective bargaining”<sup>5</sup> does nothing to change that. As the Staff and Exelon acknowledge in their briefs, the Staff provided a temporary relaxation of a permanent order to allow Local 15 and Exelon to collectively bargain regarding Exelon’s procedure. The relaxation period expired on November 30, 2015, so the Confirmatory Order is again in effect and Local 15’s concerns with the terms of the Confirmatory Order itself are not resolved.<sup>6</sup> Therefore, issues raised in Local 15’s initial petition remain live.

Because this case is not moot, the Commission should rule on Local 15’s appeal of the Licensing Board’s decision in LBP-14-4 denying Local 15’s petition to intervene and request for hearing.<sup>7</sup> I would affirm in part and reverse in part the Board’s decision to deny Local 15’s petition and remand this matter to the Board for a hearing on Local 15’s Contention 2.

## II. STANDING

In this enforcement proceeding, the threshold question that must be resolved relates both to standing and contention admissibility — whether the hearing request is within the scope of the proceeding as outlined in the Confirmatory Order.<sup>8</sup> The controlling precedent on requests to intervene in enforcement proceedings is *Bellotti v. NRC*, which affirmed the Commission’s authority under section 189a of the Atomic Energy Act to define the scope of an enforcement proceeding and to limit that scope to whether to sustain the order.<sup>9</sup> As the Commission has stated, “The rationale underlying *Bellotti* is that, when a licensee agrees to make positive changes or does not contest an order requiring remedial changes, it should not be at risk of being subjected to a wide-ranging hearing and further investigation.”<sup>10</sup> The Commission also has explained, “The upshot of the post-*Bellotti* cases is that

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<sup>4</sup> *Id.*

<sup>5</sup> Majority Decision at p. 155.

<sup>6</sup> See Memorandum from Christopher C. Hair, Counsel for the Staff, to the Commissioners (May 6, 2015), attaching Letter from Cynthia D. Pederson, Region III, NRC, to Bryan C. Hanson, Exelon Generation Company, LLC, and Exelon Nuclear, “Dresden Nuclear Power Station — Request for Relaxation of Confirmatory Order” (May 4, 2015) (ADAMS Accession No. ML15125A103).

<sup>7</sup> LBP-14-4, 79 NRC 319 (2014).

<sup>8</sup> *Alaska Department of Transportation and Public Facilities*, CLI-04-26, 60 NRC 399, 405, *reconsideration denied*, CLI-04-38, 60 NRC 652 (2004).

<sup>9</sup> *Bellotti v. NRC*, 725 F.2d 1380 (D.C. Cir. 1983).

<sup>10</sup> *Alaska DOT*, CLI-04-26, 60 NRC at 405.

a petitioner may obtain a hearing only if the measures to be taken under the order would in themselves harm the petitioner.”<sup>11</sup>

This case presents different factual circumstances than those analyzed in the Commission’s post-*Bellotti* cases to date, each of which found that the party that was not the direct subject of the order lacked standing. In each of those cases, the petitioners sought stronger enforcement orders or different penalties against the licensee. Here, Local 15 seeks to overturn the Confirmatory Order on the grounds that its members will be directly harmed by the order and that the order will negatively impact public health and safety.

In this case, the Board found that Local 15 did not demonstrate standing. As a general matter, the Commission looks to “contemporaneous judicial concepts of standing” in assessing whether a petitioner has standing to intervene.<sup>12</sup> To establish standing, a petitioner must demonstrate a “‘concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision,’ where the injury is ‘to an interest arguably within the zone of interests protected by the governing statute.’”<sup>13</sup>

The Board focused its inquiry on whether Local 15 has demonstrated that its asserted injury falls within the zone of interests arguably protected under the statute at issue and found that it did not. Given its holding on the zone-of-interests test, the Board did not focus on the core standing requirements. I would find that Local 15 has met the basic standing requirements of injury in fact, causation, and redressability and that Local 15 meets the zone-of-interests test.

Local 15 argues that its individual members will be directly harmed by this Confirmatory Order, which it asserts subjects its members “for the first time to observation and reporting obligations concerning observed off-duty and offsite conduct that are both intrusive and ill-defined and violations of which can form the basis for discipline and/or the denial of security access,” including possible termination of employment.<sup>14</sup> Local 15 also contends that the Confirmatory Order will adversely impact safety because it “will likely have introduced into the reporting requirements numerous ambiguities and inconsistencies and rendered employee compliance far more uncertain.”<sup>15</sup> The Staff and Exelon disagree, arguing that the Confirmatory Order provided more clarity than the regulation

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<sup>11</sup> *All Operating Boiling Water Reactor Licensees with Mark I and Mark II Containments: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents (Effective Immediately)*, CLI-13-2, 77 NRC 39, 45 (2013).

<sup>12</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 915 (2009).

<sup>13</sup> *Id.* at 915 (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 559-61 (1992)).

<sup>14</sup> Local 15 Petition at 7.

<sup>15</sup> *Id.* at 5; Local 15 Appeal Brief at 5, 19-20.

and therefore that it cannot cause an injury in fact.<sup>16</sup> But the question of whether the Confirmatory Order provided more specificity and clarity (as claimed by the Staff and Exelon) or caused confusion and reduced safety (as claimed by Local 15) is a dispute of fact. For standing purposes, we do not rule on disputes of fact but read the petition in the light most favorable to the petitioner.<sup>17</sup> It is undisputed that members of Local 15 will be affected by the order, and here, their representative has claimed with a supporting affidavit that these changes will harm those members and reduce safety. Consequently, Local 15 has pled a sufficient injury in fact to meet our standing requirements. Local 15 has met the causation requirement because the asserted injury is “fairly traceable” to the issuance of the Confirmatory Order. Similarly, the asserted harm can be redressed in this proceeding by a favorable decision — that is, the revocation of the Confirmatory Order. Therefore, Local 15 meets the basic standing requirements.

The next question is whether the asserted harm arguably falls within the zone of interests of the Atomic Energy Act.<sup>18</sup> To evaluate Local 15’s zone-of-interests claim, “we first discern the interests ‘arguably . . . to be protected’ by the statutory provision at issue; we then inquire whether the plaintiff’s interests affected by the agency action in question are among them.”<sup>19</sup> The Atomic Energy Act “concentrates on the licensing and regulation of nuclear materials for the purpose of protecting public health and safety and the common defense and security.”<sup>20</sup> In the enforcement context, one way in which an injury can fall within the zone of interests protected by the Atomic Energy Act is where it is “based on the premise that [the Order’s] terms, if carried out, would be affirmatively contrary to the public health and safety.”<sup>21</sup>

Local 15 asserts that its members’ conduct falls within the zone of interests

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<sup>16</sup> Exelon’s Answer Opposing Local Union No. 15, International Brotherhood of Electrical Workers, AFL-CIO’s Appeal of LBP-14-04 (June 6, 2014) at 19-20, 23-24 (Exelon Answer); NRC Staff’s Brief in Opposition to Appeal of LBP-14-04 by Local Union No. 15, International Brotherhood of Electrical Workers, AFL-CIO (June 6, 2014) at 9-13 (Staff Answer).

<sup>17</sup> See, e.g., *Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995).

<sup>18</sup> See *Quivira Mining Co.* (Ambrosia Lake Facility, Grants, New Mexico), CLI-98-11, 48 NRC 1, 8 (1998), *petition for review denied*, *Envirocare of Utah, Inc. v. NRC*, 194 F.3d 72 (D.C. Cir. 1999); *U.S. Enrichment Corp.* (Paducah, Kentucky Gaseous Diffusion Plant), CLI-01-23, 54 NRC 267, 272-73 (2001).

<sup>19</sup> *National Credit Union Administration v. First National Bank & Trust Co.*, 522 U.S. 479, 492 (1998) (omission in original); see also *USEC*, CLI-01-23, 54 NRC at 272-73; *Ambrosia Lake*, CLI-98-11, 48 NRC at 11.

<sup>20</sup> *Ambrosia Lake*, CLI-98-11, 48 NRC at 14; accord *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-82-43A, 15 NRC 1423, 1445 (1982).

<sup>21</sup> *Alaska DOT*, CLI-04-26, 60 NRC at 406 n.28 (quoting *Alaska Department of Transportation and Public Facilities*, LBP-04-16, 60 NRC 99, 122 n.4 (2004) (Bollwerk, J., dissenting in part)).

protected by the Atomic Energy Act.<sup>22</sup> The Supreme Court has traditionally construed the zone-of-interests test liberally, stating that it “is not meant to be especially demanding.”<sup>23</sup> The Court looks for “‘some indication’ that the petitioner’s interest is arguably among those interests protected by the relevant statute.”<sup>24</sup>

I would find that Local 15’s claims fall within the zone of interests of the AEA because Local 15 directly challenges the effectiveness of the order and asserts that the order will adversely impact public health and safety. Citing the Commission’s decision in *Alaska DOT*, the Board stated that the only way in which standing can be established in an enforcement proceeding is by demonstrating that issuance of the order will be contrary to the public health and safety.<sup>25</sup>

In *Alaska DOT*, the Commission found that the petitioner lacked standing because he was seeking to strengthen the order and add new requirements.<sup>26</sup> Unlike the petitioner in *Alaska DOT*, Local 15 does not seek to strengthen the Confirmatory Order or add new requirements. The Board relies on the following passage in *Alaska DOT*: “The critical inquiry under *Bellotti* in a proceeding on a confirmatory order is whether the order improves the licensee’s health and safety conditions. If it does not, no hearing is appropriate.”<sup>27</sup> But that statement was essentially *dicta* in *Alaska DOT* and must be read in context with the facts of that case.<sup>28</sup> The Board also cites *Alaska DOT* for the proposition that “a petitioner like Mr. Farmer is not adversely affected by a Confirmatory Order that improves the safety situation over what it was in the absence of the order.” But this language does not support the conclusion that Local 15 lacks standing.

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<sup>22</sup> Local 15 Appeal Brief at 23.

<sup>23</sup> LBP-14-4, 79 NRC at 355 (Karlin, J., dissenting) (quoting *Clarke v. Securities Industry Ass’n*, 479 U.S. 388, 399 (1987)).

<sup>24</sup> *Ambrosia Lake*, CLI-98-11, 48 NRC at 8 (citing *Nat’l Credit Union Admin.*, 522 U.S. at 494 n.7).

<sup>25</sup> LBP-14-4, 79 NRC at 329 (Majority Opinion).

<sup>26</sup> *Alaska DOT*, CLI-04-26, 60 NRC at 405. In *Alaska DOT*, the dispute centered on a confirmatory order and companion notice of violation that listed discriminatory actions the State of Alaska Department of Transportation and Public Facilities allegedly took against an individual, Mr. Farmer, who had been the Statewide Radiation Safety Officer, in retaliation for raising safety concerns about radiation exposures to Alaska DOT employees. The confirmatory order modified Alaska DOT’s materials license and required the agency to take a number of planning and training actions to ensure a safety-conscious work environment. Mr. Farmer sought rescission of the confirmatory order and requested that it be replaced or supplemented with civil penalties and enforcement actions against certain individuals. The Commission reversed the board’s decision granting Mr. Farmer a hearing.

<sup>27</sup> *Alaska DOT*, CLI-04-26, 60 NRC at 408.

<sup>28</sup> See *id.* at 406 (“And without any injury attributable to the Confirmatory Order, Farmer does not have standing in this proceeding.”); *id.* at 408 (“Our holding that Farmer does not have standing is dispositive of this case.”) The statement cited by the Board appears after this holding and was not part of the reasoning of the holding.

First, as Judge Karlin pointed out, Local 15 is not “a petitioner like Mr. Farmer” because it is seeking to overturn the order and is directly affected by it. Moreover, *Alaska DOT* cited the dissent in the underlying Board decision. The dissent observed that a challenge asserting that an order, “if carried out, would be affirmatively contrary to the public health and safety . . . would be one that seemingly would fall within the scope of a proceeding as envisioned under *Bellotti*.”<sup>29</sup> This passage applies *Bellotti* to the facts of the case in *Alaska DOT* and provides one example of the type of claim that could be admissible, as opposed to an exhaustive list of such claims. While an assertion that an order is contrary to the public health and safety is the typical scenario in which one could show standing, it does not follow that a reduction in public health and safety is the *only* way in which a third party can demonstrate standing in an enforcement proceeding. This interpretation would not change the fact that it likely will be rare for a third party to establish standing in an enforcement proceeding. Indeed, as Exelon states, “in over half a century of NRC adjudications, there appears to be only a single other reported case involving a challenge by a labor union to a confirmatory order.”<sup>30</sup>

In any event, I would find that Local 15 demonstrated standing even under the test spelled out by the Board. In its initial petition to intervene, Local 15 made several assertions that the order would diminish safety. For example, Local 15 argued that the “breadth, vagueness and ambiguity of the observation and reporting obligations casts a wide and indiscriminate net that simply is not carefully tailored to address legitimate concerns for public health and safety.”<sup>31</sup> Local 15 also argued that the problems that it ascribes to the order will confuse people trying to comply with its terms.<sup>32</sup> Local 15 further clarified these concerns in its reply brief, stating that the Confirmatory Order “has the cumulative effect of rendering Exelon’s operations less safe than they were before the order” because the revised Behavioral Observation Program could lead to uncertainty and confusion about behaviors to report that could “render[] the order ineffectual and the public less safe.”<sup>33</sup> Specifically, Local 15 argues that the order “is so broad and non-specific as to the types of conduct required to be reported and silent with regard to a nexus between such conduct and nuclear safety, it creates uncertainty

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<sup>29</sup> *Id.* at 408 n.28 (emphasis added) (quoting *Alaska DOT*, LBP-04-16, 60 NRC at 122 n.4 (Bollwerk, J., dissenting in part)).

<sup>30</sup> Exelon Brief in Response to the Commission’s June 11, 2015, Memorandum and Order (June 16, 2015) at 7.

<sup>31</sup> Local 15 Petition at 18.

<sup>32</sup> *Id.* at 5.

<sup>33</sup> Reply of Local Union No. 15, International Brotherhood of Electrical Workers, AFL-CIO to NRC Staff and Exelon Answers Opposing Local 15’s Petition to Intervene and Request for Hearing (Feb. 14, 2014) at 9, 11-12.

and confusion with regard to precisely what conduct is required to be reported.”<sup>34</sup> Local 15 concludes that “these deficiencies result in decreased public safety.”<sup>35</sup>

The Board did not find the Local’s safety concerns credible and as such did not find that they were sufficient to support standing. However, I would find that the Board in this instance strayed too far into the merits of the case and did not follow Commission precedent that hearing requests are to be construed in favor of the petitioner on issues of standing. At this stage of the proceeding, the concerns articulated by Local 15 were sufficient to demonstrate an injury in fact arguably within the zone of interests of the Atomic Energy Act. I would therefore reverse the Board’s standing decision.

### III. CONTENTION ADMISSIBILITY

As a separate ground for denying Local 15’s hearing request, the Board concluded that it failed to submit an admissible contention. While I agree with the Board’s ruling on Contentions 1 and 3, I would find that the portion of Contention 2 that asserts that implementation of the Confirmatory Order will diminish public health and safety is admissible.

In Contention 2, Local 15 asserted that the Confirmatory Order should not be sustained because it imposes on Exelon employees behavioral observation and reporting requirements “that are vague, over-broad and not carefully tailored” and improperly delegates to Exelon “the discretion to interpret and implement NRC standards” for behavioral observation.<sup>36</sup> The Board rejected Contention 2 as an inappropriate challenge to the NRC’s enforcement discretion, and for its failure to raise a genuine dispute with the Confirmatory Order.<sup>37</sup>

In my view, a portion of Contention 2 is admissible. Local 15 is correct that the Board may not prejudge the merits of the contention. The Board reviewed the Confirmatory Order together with Exelon’s revised Behavioral Observation Program to determine whether the documents on their face resulted in greater clarity as to the types of behaviors that Exelon employees must report. While the Commission has directed boards to review documents to ensure that they stand for the proposition for which they are cited, the Board delved too far into the merits here. Local 15 raised a question appropriate for hearing on whether the Confirmatory Order created confusion for the plant workers resulting in a reduction in safety. The Local specifically and repeatedly claimed that

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<sup>34</sup> *Id.* at 12.

<sup>35</sup> *Id.* at 2.

<sup>36</sup> Local 15 Petition at 18.

<sup>37</sup> LBP-14-4, 79 NRC at 335-37. Judge Karlin would have admitted the contention. *Id.* at 365-66 (Karlin, J., dissenting).



portions of the Confirmatory Order were “vague and over broad” and “will likely have introduced into the reporting requirements numerous ambiguities and inconsistencies and rendered employee compliance far more uncertain.” Contention 2 is supported by Mr. Specha’s affidavit. He asserts that the reporting requirements are unclear with respect to the scope of terms such as “‘unusual,’ ‘aberrant,’ and/or ‘illegal’ conduct” that describe the types of conduct he and other Local 15 members will be responsible for reporting.<sup>38</sup> Whether the Confirmatory Order has the effect of decreasing safety is appropriately within the scope of this proceeding.

In conclusion, I would reverse the Board’s decision regarding standing and the admissibility of Contention 2 and remand this matter to the Board for a hearing on Contention 2 on the question of whether the Confirmatory Order should not be sustained because it is improperly vague or over-broad, and thereby creates a potential risk to the public health and safety.

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<sup>38</sup> Affidavit of Dennis Specha (Dec. 11, 2013) ¶ 10 (Exhibit 1 to Local 15 Petition).



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**E. Roy Hawkens**, Chairman  
**Dr. Michael F. Kennedy**  
**Dr. William C. Burnett**

**In the Matter of**

**Docket Nos. 52-040-COL**  
**52-041-COL**  
**(ASLBP No. 10-903-02-COL-BD01)**

**FLORIDA POWER & LIGHT**  
**COMPANY**  
**(Turkey Point Nuclear Generating**  
**Plant, Units 6 and 7)**

**April 21, 2016**

Florida Power & Light Company (FPL) moves for summary disposition of Contention 2.1, which challenges (1) the accuracy and reliability of the estimated chemical concentrations for ethylbenzene, heptachlor, tetrachloroethylene, and toluene in FPL's wastewater, and (2) FPL's conclusion that these chemicals, inserted into the Boulder Zone of the Lower Floridan Aquifer by injection wells, will not migrate to the Upper Floridan Aquifer and degrade drinking water supplies. The Board grants FPL's motion for summary disposition as to the first part of Contention 2.1 because neither the Joint Intervenors nor the NRC Staff materially dispute the reliability and accuracy of the chemical concentrations. However, the Board denies summary disposition as to the second part because Joint Intervenors proffered an expert opinion that raised credible disagreements as to the confining nature of hydrogeologic formations above the Boulder Zone, the ability of the injection wells to timely identify and prevent leaks, and the efficacy of FPL's groundwater monitoring program.

**REGULATIONS: INTERPRETATION (10 C.F.R. §§ 2.710(d), 2.1205(c))**

Pursuant to NRC regulations, a motion for summary disposition may be granted if there is no genuine issue as to any material fact and the moving party is entitled to a decision as a matter of law. 10 C.F.R. § 2.710(d)(2). This standard also applies in Subpart L proceedings. *Id.* § 2.1205(c).

**RULES OF PRACTICE: SUMMARY DISPOSITION**

A material fact is one that “might affect the outcome of a [proceeding].” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).

**RULES OF PRACTICE: SUMMARY DISPOSITION**

The movant has the burden “to show ‘clearly and convincingly’ the absence of any genuine issues of material fact.” *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917, 930 (6th Cir. 2005).

**REGULATIONS: INTERPRETATION (10 C.F.R. § 2.710(a))**

The movant’s statement of undisputed material facts, if properly supported, is deemed to be admitted if it is not controverted by the nonmovant. 10 C.F.R. § 2.710(a), (b).

**RULES OF PRACTICE: SUMMARY DISPOSITION**

A properly supported summary disposition motion may be granted if the nonmovant’s evidence “is merely colorable or is not significantly probative.” *Anderson*, 477 U.S. at 249 (citation omitted).

**RULES OF PRACTICE: SUMMARY DISPOSITION**

Summary disposition is not appropriate if it would require a licensing board to engage in the making of “[c]redibility determinations, the weighing of evidence, [or] the drawing of legitimate inferences from the facts,” *Anderson*, 477 U.S. at 255, because the performance of such tasks signals the existence of a genuine issue of fact that must, in turn, be resolved at an evidentiary hearing. In determining whether a genuine issue of material fact exists, “[t]he evidence of the non-movant is to be believed, and all justifiable inferences are to be drawn in [the nonmovant’s] favor.” *Id.*

#### **RULES OF PRACTICE: SUMMARY DISPOSITION**

Case law counsels against granting summary disposition when the opposing party provides a viable expert opinion, because “competing expert opinions present the classic battle of experts and it [is] up to the jury to evaluate what weight and credibility each expert opinion deserves.” *Phillips v. Cohen*, 400 F.3d 388, 399 (6th Cir. 2005).

#### **RULES OF PRACTICE: ARGUMENTS RAISED FOR THE FIRST TIME AT ORAL ARGUMENT**

Arguments raised for the first time at oral argument are untimely. For a tribunal to consider such arguments would violate case law and implicate due process concerns. *See, e.g., United States v. Almaraz*, 306 F.3d 1031, 1041 (10th Cir. 2002).

#### **RULES OF PRACTICE: REPRESENTATIONS OF COUNSEL**

Movants seeking summary disposition may not rely on unsupported representations of counsel to satisfy their burden of showing the absence of any genuine issue of material fact. Questions of fact are “not susceptible of resolution . . . on the basis of nothing more than the generalized representations of counsel who are unequipped to attest on the basis of their own personal knowledge to the accuracy of the representations.” *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-735, 18 NRC 19, 23-24 (1983).

### **MEMORANDUM AND ORDER (Granting in Part and Denying in Part FPL’s Motion for Summary Disposition)**

Before this Board in this 10 C.F.R. Part 52 combined license (COL) proceeding is a motion for summary disposition of Contention 2.1 filed by Florida Power & Light Company (FPL).<sup>1</sup> Contention 2.1 contains two components in support of a claim that certain chemicals in the wastewater that FPL plans to discharge into the Boulder Zone of the Lower Floridan Aquifer will migrate to the Upper Floridan Aquifer and degrade drinking water supplies. First, the contention argues that the alleged concentrations of four particular chemicals in the wastewater are not

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<sup>1</sup> *See* [FPL’s] Motion for Summary Disposition of Joint Intervenors’ Amended Contention 2.1 (Dec. 15, 2015) [hereinafter FPL Motion].

accurate. Second, the contention argues that insufficient evidence supports the conclusion that these chemicals, inserted into the Boulder Zone by the proposed injection wells, will not migrate to the Upper Floridan Aquifer and adversely affect the groundwater.

For the reasons discussed below, we grant FPL's motion in part, concluding that there is no genuine issue of material fact regarding the first component of Contention 2.1. However, we deny FPL's motion with regard to the second component, concluding that an evidentiary hearing is required to resolve disputed issues of material fact regarding the possibility that injected wastewater could migrate to, and adversely impact, the groundwater in the Upper Floridan Aquifer.

## **I. BACKGROUND**

1. This proceeding concerns a challenge by Mark Oncavage, Dan Kipnis, Southern Alliance for Clean Energy, and National Parks Conservation Association (hereinafter "Joint Intervenors") to FPL's COL application for two new nuclear power reactors, Turkey Point Units 6 and 7, to be constructed at FPL's facility near Homestead, Florida.<sup>2</sup> In February 2011, this Board found that Joint Intervenors established standing to intervene in this proceeding and proffered one admissible contention, Contention 2.1. *See* LBP-11-6, 73 NRC 149, 190, 251-52 (2011). Joint Intervenors' Contention 2.1 is now the sole contention pending before the Board and reads as follows:<sup>3</sup>

The [Environmental Report (ER)] is deficient in concluding that the environmental impacts from FPL's proposed deep injection wells will be "small" because the chemical concentrations in ER Rev. 3 Table 3.6-2 for ethylbenzene, heptachlor, tetrachloroethylene, and toluene may be inaccurate and unreliable. Accurate and reliable calculations of the concentrations of those chemicals in the wastewater are necessary so it might reasonably be concluded that those chemicals will not adversely impact the groundwater should they migrate from the Boulder Zone to the Upper Floridan Aquifer.

LBP-15-19, 81 NRC 815, 822 (2015). Contention 2.1 thus challenges (1)

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<sup>2</sup> *See* [Joint Intervenors'] Petition for Intervention (Aug. 17, 2010); [FPL, COL] Application for the Turkey Point Units 6 & 7, Notice of Hearing, Opportunity to Petition for Leave to Intervene and Associated Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation, 75 Fed. Reg. 34,777 (June 18, 2010).

<sup>3</sup> In May 2012, we admitted an amended version of Contention 2.1, *see* LBP-12-9, 75 NRC 615, 629 (2012), and in August 2012, we reformulated it to eliminate an issue that had been rendered moot. *See* Licensing Board Memorandum and Order (Granting in Part and Denying in Part Motion for Summary Disposition of Amended Contention 2.1) (Aug. 30, 2012) at 10 (unpublished).

the accuracy and reliability of the chemical concentrations for ethylbenzene, heptachlor, tetrachloroethylene, and toluene found in ER Rev. 3 Table 3.6-2; and (2) FPL's conclusion that these chemicals, inserted into the 3000-foot-deep Boulder Zone by the proposed injection wells, will not migrate upward to the 1500-foot-deep Upper Floridan Aquifer and adversely affect the groundwater. *See* LBP-12-9, 75 NRC at 628-29 & nn.20-21; *infra* note 26 (discussing hydrogeology at the Turkey Point site).<sup>4</sup>

In February 2015, the NRC Staff published the Draft Environmental Impact Statement (DEIS) for Turkey Point Units 6 and 7.<sup>5</sup> The NRC Staff's "preliminary recommendation to the Commission related to the environmental aspects of [FPL's COL request] is that the COLs should be issued." DEIS at 10-27.

With respect to the challenged chemical concentrations in ER Rev. 3 Table 3.6-2, the DEIS incorporates the data from FPL's ER into DEIS Table 3-5. *See* DEIS, tbl. 3-5, at 3-38 to 3-39. As to the migration issue, the DEIS explains the relevant hydrogeology as follows:

The Floridan Aquifer system consists of three units which are, from shallowest to deepest[,] the Upper Floridan Aquifer, a less permeable formation known as the Middle Confining Unit (MCU),<sup>[6]</sup> and the Lower Floridan Aquifer. . . . Within the Lower Floridan Aquifer in southern Florida there is a cavernous, high-permeability geologic horizon called the Boulder Zone, which is the zone identified for deep-well injection of blowdown water from proposed Units 6 and 7.

*Id.* at 2-53. According to the DEIS, "the overlying [Middle Confining Unit] . . . separates the Boulder Zone from the [Underground Source of Drinking Water]"

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<sup>4</sup>Contention 2.1 contained these two components from the outset. When we admitted this contention in 2011, we stated that Joint Intervenors had asserted that these "specified chemicals might be in the wastewater discharged via deep injection wells into the Boulder Zone of the Lower Floridan Aquifer, and that the wastewater could possibly migrate into the Upper Floridan Aquifer, contaminating the groundwater (including potential drinking water) with these chemicals." LBP-11-6, 73 NRC at 191; *see also id.* at 193.

<sup>5</sup>*See* Division of New Reactor Licensing, Office of New Reactors, Environmental Impact Statement for [COLs] for Turkey Point Nuclear Plant Units 6 and 7 Draft Report for Comment, NUREG-2176 (Feb. 2015) (ADAMS Accession Nos. ML15055A103, ML 5055A109) [hereinafter DEIS].

<sup>6</sup>The NRC Staff notes that it uses different terminology than FPL to refer to the "assemblage of formations between the Upper Floridan Aquifer and Lower Floridan Aquifer." NRC Staff Answer to [FPL's] Motion for Summary Disposition of Joint Intervenors' Amended Contention 2.1 (Feb. 3, 2016) at 10 [hereinafter Staff Answer]. While FPL refers to this assemblage as both the Middle Floridan Aquifer and Middle Floridan Confining Unit, the NRC Staff refers to it as the Middle Confining Unit. *See id.*; FPL Motion at 13 n.64. In this decision, the Board will use the NRC Staff's terminology, referring to the assemblage of formations as the Middle Confining Unit.

<sup>7</sup>The DEIS defines the Underground Source of Drinking Water as "groundwater with less than 10,000 mg/L [total dissolved solids]." DEIS at 5-30.

zone within the Upper Floridan Aquifer.” *Id.* at 2-56. The DEIS goes on to note that “enhanced vertical flow through the confining units to the Upper Floridan Aquifer is extremely unlikely, and if leakage did occur it would be detected and mitigated as required by the [Florida Department of Environmental Protection Underground Injection Control Program].” *Id.* at 5-18. Consequently, the DEIS concludes that the environmental impacts of injecting up to 18.6 million gallons per day of wastewater into the Boulder Zone “would be SMALL.” *Id.* at 3-32, 5-29; *accord id.* at 5-87 to 5-89.

2. On December 15, 2015, FPL filed a motion requesting the Board to grant summary disposition of Contention 2.1. *See* FPL Motion at 1.<sup>8</sup> In its motion, which was accompanied by three expert opinions,<sup>9</sup> FPL claims that there is no genuine dispute that “the data disclosed in the DEIS in Table 3-5 for the Constituents<sup>[10]</sup> are conservative and reliable.” *Id.* at 7; *see also id.* at 7-12. FPL also asserts that “the concentrations of the Constituents are irrelevant to the potential impacts on drinking water,” *id.* at 4, because, as stated in the DEIS, it is “extremely unlikely,” DEIS at 5-18, that chemicals from FPL’s deep well injection will migrate out of the Boulder Zone due to its “hydrogeological confinement, the design of the injection wells, and the [Florida Department of Environmental Protection’s] regulations requiring monitoring and mitigation.” FPL Motion at 4; *see also id.* at 13-24. FPL thus maintains that there is no genuine factual dispute regarding the DEIS conclusion that the environmental impacts from FPL’s deep well injection will be small, *see id.* at 13, and accordingly, FPL claims it is entitled to summary disposition as a matter of law. *See id.* at 25.

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<sup>8</sup> *See also* FPL Motion, Attach. 2, [FPL’s] Statement of Material Facts as to Which No Genuine Issue Exists, in Support of [FPL’s] Motion for Summary Disposition of Joint Intervenor’s Amended Contention 2.1 (Dec. 15, 2015) [hereinafter FPL’s Statement of Undisputed Material Facts].

<sup>9</sup> The three expert opinions were provided by (1) the Quality Assurance and Quality Control Officer at FPL’s Central Laboratory, *see* FPL Motion, Attach. 3, Declaration of Thomas Helton, Jr. in Support of [FPL’s] Motion for Summary Disposition of Joint Intervenor’s Amended Contention 2.1 (Dec. 14, 2015) [hereinafter FPL Helton Declaration]; (2) the President of McNabb Hydrogeologic Consulting, Inc., who is a licensed professional geologist, *see* FPL Motion, Attach. 4, Declaration of David McNabb in Support of [FPL’s] Motion for Summary Disposition of Joint Intervenor’s Amended Contention 2.1 (Dec. 14, 2015) [hereinafter FPL McNabb Declaration]; and (3) the Principal Engineer at Environmental Consulting & Technology, Inc., who is a registered professional engineer, *see* FPL Motion, Attach. 5, Declaration of Richard J. Powell in Support of [FPL’s] Motion for Summary Disposition of Joint Intervenor’s Amended Contention 2.1 (Dec. 11, 2015) [hereinafter FPL Powell Declaration]; FPL Motion, Attach. 5, Expert Report of Richard J. Powell (Dec. 14, 2015) [hereinafter FPL Powell Report].

<sup>10</sup> In its motion, FPL refers to the four chemicals challenged in Contention 2.1 — i.e., ethylbenzene, heptachlor, tetrachloroethylene, and toluene — collectively as the “Constituents.” *See* FPL Motion at 2.



The NRC Staff agrees that FPL should be granted summary disposition, arguing that although several of FPL's statements of undisputed material facts require clarifications and qualifications, no genuine issue exists with regard to facts that are material to Contention 2.1. *See* Staff Answer at 8. Specifically, the NRC Staff asserts that there can be no reasonable dispute that (1) the concentrations in Table 3-5 of the DEIS for the four chemicals are "sufficiently accurate and reliable"; and (2) in light of the confinement provided by the Middle Confining Unit, it is "extremely unlikely" that wastewater will migrate from the Boulder Zone to the Upper Floridan Aquifer. *Id.* at 13, 14. The NRC Staff filed the opinion of an expert in geology and hydrology to support its arguments.<sup>11</sup>

Joint Intervenor's oppose summary disposition.<sup>12</sup> Notably, they do not dispute FPL's statement that "the Constituent concentrations appearing in the ER and DEIS are conservative and reliable." FPL's Statement of Undisputed Material Facts ¶ 41.<sup>13</sup> However, they rely on an affidavit from their expert, Mark Quarles, an environmental consultant and a licensed professional geologist, to dispute FPL's assertion that adequate confining layers exist to prevent vertical migration of wastewater from the Boulder Zone to the Upper Floridan Aquifer.<sup>14</sup> Mr. Quarles also disagrees with FPL's assertion that the highly regulated design and testing of the injection wells will prevent leakage of wastewater that could contaminate the Upper Floridan Aquifer. *See* Third Quarles Aff. ¶¶ 43-44. Finally, Mr. Quarles asserts that the proposed monitoring and mitigation programs are inadequate to prevent or remediate contaminated groundwater because the sampling occurs too infrequently to detect the upward migration of wastewater before it has a chance to spread. *See id.* ¶¶ 39-48.<sup>15</sup>

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<sup>11</sup> *See* Staff Answer, Attach. 1, Affidavit of Daniel O. Barnhurst Concerning Amended Contention NEPA 2.1 (Feb. 3, 2016) [hereinafter NRC Barnhurst Aff.].

<sup>12</sup> *See* Joint Intervenor's Answer to [FPL's] Motion for Summary Disposition of Joint Intervenor's Amended Contention 2.1 (Feb. 3, 2016) at 6-9 [hereinafter Joint Intervenor's Answer].

<sup>13</sup> *See* Joint Intervenor's Answer, Attach. 1, Joint Intervenor's Statement of Material Facts as to Which a Genuine Issue Exists, in Support of Joint Intervenor's Answer to FPL's Motion for Summary Disposition of Joint Intervenor's Amended Contention 2.1 ¶ 9 [hereinafter Joint Intervenor's Statement of Material Facts].

<sup>14</sup> *See* Joint Intervenor's Answer, attach. 2, Third Affidavit of Mark A. Quarles ¶¶ 22, 30-34, 37 (Feb. 2, 2016) [hereinafter Third Quarles Aff.].

<sup>15</sup> On February 15, 2016, Joint Intervenor's filed a response to the NRC Staff's Answer. *See* Joint Intervenor's Response to NRC Staff's Answer to [FPL's] Motion for Summary Disposition of Joint Intervenor's Amended Contention 2.1 (Feb. 15, 2016). On February 16, 2016, Joint Intervenor's filed a motion asking that this Board either (1) admit the February 15 response as a matter of right pursuant to 10 C.F.R. §§ 2.710(a) and 2.1205(c); or (2) admit the response as a matter of adjudicative discretion. *See* Joint Intervenor's Motion for Leave to File Response to NRC Staff's Answer to [FPL's] Motion for Summary Disposition of Joint Intervenor's Amended Contention 2.1 (Feb. 16, 2016). Although

(Continued)

On April 5, 2016, this Board held oral argument on FPL's motion.<sup>16</sup>

## II. APPLICABLE LEGAL STANDARD

Pursuant to NRC regulations, a motion for summary disposition may be granted if "there is no genuine issue as to any material fact and . . . the moving party is entitled to a decision as a matter of law." 10 C.F.R. § 2.710(d)(2); *see also id.* § 2.1205(c) (stating that the standards for summary adjudication set forth in section 2.710 apply to Subpart L proceedings). The NRC standards governing summary disposition "are based upon those the federal courts apply to motions for summary judgment under Rule 56 of the Federal Rules of Civil Procedure." *Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-10-11, 71 NRC 287, 297 (2010).<sup>17</sup> Hence, in ruling on a summary disposition motion, a licensing board's function is not to conduct a trial on the written record by weighing the evidence and endeavoring to determine the truth of the matter; rather, a board's role is to determine whether any genuine issue of material fact exists. *See Anderson v. Liberty Lobby*, 477 U.S. 242, 249 (1986); *see also Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917, 930 (6th Cir. 2005) ("The moving party's burden is to show 'clearly and convincingly' the absence of any genuine issues of material fact.").<sup>18</sup>

The movant's statement of undisputed material facts, if properly supported, is deemed to be admitted if it is not controverted by the nonmovant. *See* 10 C.F.R. § 2.710(a), (b). Further, a properly supported summary disposition motion may be granted if the nonmovant's evidence "is merely colorable or is not significantly probative." *Anderson*, 477 U.S. at 249 (citation omitted). In essence, the inquiry is whether the evidence "is so one-sided that [the movant] must prevail as a matter of law." *Id.* at 252.

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no written oppositions were filed, Joint Intervenors represent that FPL and the NRC Staff oppose the motion. *See id.* at 7-8. As a matter of discretion, we grant Joint Intervenors' motion and admit their response. We conclude, however, that it advances no facts or arguments that are material to our decision.

<sup>16</sup> *See* Transcript, [FPL] Turkey Point Units 6 and 7 at 414-93 (Apr. 5, 2016) [hereinafter Tr.]; *see also* Licensing Board Notice and Order (Scheduling and Providing Instructions for Oral Argument) (Mar. 1, 2016) (unpublished).

<sup>17</sup> Rule 56 states that "[t]he court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a).

<sup>18</sup> A material fact is one that "might affect the outcome of a [proceeding]." *Anderson*, 477 U.S. at 248. Thus, the "mere existence of *some* alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment; the requirement is that there be no *genuine* issue of *material* fact." *Id.* at 247-48.

But summary disposition is not appropriate if it would require a licensing board to engage in the making of “[c]redibility determinations, the weighing of evidence, [or] the drawing of legitimate inferences from the facts,” *Anderson*, 477 U.S. at 255, because the performance of such tasks signals the existence of a genuine issue of fact that must, in turn, be resolved at an evidentiary hearing. In determining whether a genuine issue of material fact exists, “[t]he evidence of the non-movant is to be believed, and all justifiable inferences are to be drawn in [the nonmovant’s] favor.” *Id.* at 255. “If ‘reasonable minds could differ as to the import of the evidence,’ summary disposition is not appropriate.” *Pilgrim Nuclear Power Station*, CLI-10-11, 71 NRC at 297-98 (quoting *Anderson*, 477 U.S. at 250-51).

Finally, case law counsels against granting summary disposition when the opposing party provides a viable expert opinion, because “competing expert opinions present the classic battle of the experts and it [is] up to a jury to evaluate what weight and credibility each expert opinion deserves.” *Phillips v. Cohen*, 400 F.3d 388, 399 (6th Cir. 2005) (internal quotation marks omitted); *accord Spirit Airlines, Inc.*, 431 F.3d at 931 (“Our precedents hold that if the opposing party’s expert provides a reliable and reasonable opinion with factual support, summary judgment is inappropriate.”); *cf. Robinson v. Pezzat*, 818 F.3d 1, 9 (D.C. Cir. 2016) (“[A nonmovant] may defeat a summary judgment granted to a [movant] if the parties’ sworn statements are materially different.”). As the Commission has stated, in a case with “numerous factual issues and competing expert declarations, proceeding to an evidentiary hearing where factual claims appropriately can be weighed, clarified, and resolved with merits findings may be more efficient for all parties [than granting summary disposition].” *Pilgrim Nuclear Power Station*, CLI-10-11, 71 NRC at 307.

### III. ANALYSIS

#### **A. Summary Disposition Is Granted for the First Component of Contention 2.1, Because No Genuine Issue of Material Fact Exists Regarding the Accuracy and Reliability of the Concentrations of the Four Challenged Chemicals in the Wastewater**

1. FPL urges us to grant summary disposition of the first component of Contention 2.1, arguing that there is no genuine dispute that “the Constituent concentrations appearing in the ER and DEIS are conservative and reliable.” FPL’s Statement of Undisputed Material Facts ¶41. According to FPL, the concentrations used in the ER, which were later included in the DEIS, are based on “the highest concentration of each of the Constituents found in [South

District Wastewater Treatment Plant] reports” from 2007 to 2011. *Id.* ¶¶ 12-13.<sup>19</sup> Additional testing by FPL in 2013 and 2014 found none of the four chemicals at detectable levels, *id.* ¶¶ 15-25, and FPL thus concluded that the “concentrations derived from the [South District Wastewater Treatment Plant] reports . . . are extremely conservative.” *Id.* ¶ 26.<sup>20</sup> FPL therefore argues that summary disposition should be granted because it cannot reasonably be disputed “that the Constituent concentrations set forth in the DEIS are conservative and reliable.” FPL Motion at 12. Joint Intervenors do *not* dispute this fact. *See* Joint Intervenors’ Statement of Material Facts ¶ 9; Tr. at 473-76.<sup>21</sup>

Joint Intervenors’ lack of dispute with FPL’s assertion that “the Constituent concentrations appearing in the ER and DEIS are conservative and reliable,” FPL’s Statement of Undisputed Material Facts ¶ 41, is significant, because in the context of a summary disposition motion, a movant’s properly supported statement of material facts is “considered to be admitted unless controverted . . . by the opposing party.” 10 C.F.R. § 2.710(a); *see also Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102-03 (1993) (“The opposing party must controvert any material fact properly set out in the statement of material facts that accompanies a summary disposition motion or that fact will be deemed admitted.”).

Before granting summary disposition on this aspect of Contention 2.1, however, we pause to consider a factual discrepancy raised by the NRC Staff, who state that the concentration selected by FPL as the maximum detected value for tetrachloroethylene (i.e., 1.1 µg/L) was not, in fact, the maximum concentration detected by the South District Wastewater Treatment Plant. *See* NRC Barnhurst Aff. ¶ 23. Rather, “a tetrachloroethylene concentration of 2.0 µg/L was detected

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<sup>19</sup> As explained in the DEIS, and as relevant here, “[r]eclaimed water from the Miami-Dade Water and Sewer Department . . . would supply makeup water for the circulating water system of [Turkey Point] Units 6 & 7.” DEIS at 3-9. The reclaimed water would be piped from the “South District Wastewater Treatment Plant to the reclaimed water-treatment facility at the Turkey Point site.” *Id.*; *see also id.* at 3-30 to 3-31.

<sup>20</sup> The additional testing that FPL conducted in 2013 and 2014 — which is discussed in detail in FPL’s pleadings and submissions, *see, e.g.*, FPL Helton Declaration ¶¶ 7-40; FPL Powell Declaration ¶¶ 2-3; Powell Report at 1-4, 8 — is not discussed in the DEIS. The NRC Staff acknowledges that it did “not perform[ ] a statistical analysis of the variation in these data,” Staff Answer at 3, but it agrees that this testing “provides additional insight into the concentrations of the chemicals identified in the contention that may be reasonable to expect in the wastewater used at Turkey Point Units 6 & 7.” *Id.*

<sup>21</sup> Although Joint Intervenors do not dispute FPL’s 2013 and 2014 testing techniques and results, they state that “the wastewater exhibits variability, as evidenced by the previously reported detections of toluene, ethylbenzene, tetrachloroethylene, and heptachlor in previously collected samples.” Joint Intervenors’ Answer at 13. This statement is true, but it is also quite beside the point in light of Joint Intervenors’ concession that the Constituent concentrations in the ER and the DEIS are conservative and reliable. *See* Joint Intervenors’ Statement of Material Facts ¶ 9; Tr. at 473-76.

[in the 2007 annual report, which] . . . would represent a new maximum detected value for tetrachloroethylene.” *Id.*<sup>22</sup>

The NRC Staff avers, however, that this factual discrepancy is not material to FPL’s Statement of Undisputed Material Facts ¶ 41, because “the maximum concentration value for tetrachloroethylene . . . remains very small in absolute terms . . . such that either value would be reasonable to use in evaluating the impacts of tetrachloroethylene in the injectate.” NRC Barnhurst Aff. ¶ 25. Moreover, and importantly, FPL explained that it selected the 1.1 µg/L value because the wastewater for that data set had received tertiary-level treatment and was therefore more representative of the wastewater that FPL expects to receive from the Miami-Dade Water and Sewage Department.<sup>23</sup> The NRC Staff accepted FPL’s justification for using the lower level of tetrachloroethylene. *See* Supp. NRC Barnhurst Aff. ¶ 6. Consequently, the NRC Staff agrees with FPL that the Constituent concentrations “could be considered ‘conservative’ in the sense that the [DEIS analysis] used concentration data that bound the results obtained . . . and the use of those data in the DEIS is reasonable.” NRC Barnhurst Aff. ¶ 12. Under these circumstances, we agree with the NRC Staff that the factual discrepancy it identified is not material.

In light of (1) FPL’s properly supported motion for summary disposition of the first component of Contention 2.1, (2) Joint Intervenors’ lack of dispute with FPL’s Statement of Undisputed Material Facts ¶ 41, *see* Joint Intervenors’ Statement of Material Facts ¶ 9, (3) the NRC Staff’s lack of material disagreement with FPL’s Statement of Undisputed Material Facts ¶ 41, *see* Staff Answer at 13-14, and (4) the absence of evidence negating a conclusion that the Constituent concentrations appearing in the ER and DEIS are conservative, reliable, and sufficiently accurate, we grant summary disposition to FPL as to the first component of Contention 2.1.

2. At oral argument, FPL and the NRC Staff argued for the first time that because there is no genuine dispute of fact that the Constituent concentrations in DEIS Table 3-5 are conservative and reliable, the Licensing Board should grant

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<sup>22</sup> The NRC Staff declares that it “verified that FPL did select the highest reported concentrations occurring between 2007 to 2011 as the maximum detected values . . . for [the other] three constituents: ethylbenzene, heptachlor, and toluene.” NRC Barnhurst Aff. ¶ 22.

<sup>23</sup> *See* Letter from Robert M. Weisman, Counsel for NRC Staff, to Licensing Board at 2 (Apr. 4, 2016). On the evening before oral argument on this summary disposition motion, the NRC Staff notified this Board of an error in its original filings. *See id.* at 1. Specifically, the NRC Staff advised that the Barnhurst Affidavit incorrectly stated that the Staff had “used the higher value [of tetrachloroethylene] in its analysis in the DEIS.” *Id.*; *see also* NRC Barnhurst Aff. ¶ 25. In its April 4 letter, the NRC Staff enclosed a supplemental affidavit from Mr. Barnhurst that corrected his mistake. *See* Supplemental Affidavit of Daniel O. Barnhurst (Apr. 4, 2016) [hereinafter Supp. NRC Barnhurst Aff.]. Neither Joint Intervenors nor FPL took issue with this eleventh-hour correction by the NRC Staff. *See* Tr. at 425-27, 476-77.

FPL's summary disposition motion in its entirety, without performing a summary disposition analysis on the second component of Contention 2.1. Counsel for FPL framed this new argument as follows: "[O]ur position is if those values are reasonably reliable and as low as they are, the second component is not material." Tr. at 435; *see also* Tr. at 448 (Counsel for the NRC Staff argues that "[i]f the concentrations are low enough, if the concentrations are reliable and accurate, it doesn't matter whether there's migration, right. The effect, the environmental effect of the injection would be small in any case.").

We reject this argument on the alternative grounds that (1) it is not timely; and (2) it is not adequately supported. First, this argument is not timely because FPL and the NRC Staff raised it for the first time at oral argument. To permit FPL and the NRC Staff to blindsides Joint Intervenors with this new argument would violate case law and implicate due process concerns. *See, e.g., United States v. Almaraz*, 306 F.3d 1031, 1041 (10th Cir. 2002) ("Raising the issue for the first time at oral argument affords the [opposing party] an inadequate opportunity to address it. It is unfair to lie in wait until oral argument to present issues material to the [case].").<sup>24</sup>

Second, this argument is not adequately supported. A movant seeking summary disposition has the burden to show "clearly and convincingly" the absence of any genuine issue of material fact. *Spirit Airlines*, 431 F.3d at 930. FPL and the NRC Staff seek to rely on unsupported representations of counsel to satisfy that burden; this they may not do. Questions of fact are "not susceptible of resolution . . . on the basis of nothing more than the generalized representations of counsel who are unequipped to attest on the basis of their own personal knowledge to the accuracy of the representations." *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-735, 18 NRC 19, 23-24 (1983). The material issues of fact embedded in the new argument involve complex, technical questions relating to the impact of introducing chemicals — some of which are known carcinogens, *see* Joint Intervenors' Answer at 13 — into Underground Sources of Drinking Water. Absent a supporting expert opinion from FPL or the NRC Staff, we are not prepared to conclude that FPL has shown clearly and convincingly that there is no genuine issue of fact that, simply by virtue of the low numerical values of the Constituent concentrations, the environmental impacts

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<sup>24</sup> This new argument is not reasonably discernible from any of the pleadings filed by FPL or the NRC Staff. *See supra* Part I.2. Moreover, FPL's motion can fairly be read to *exclude* this newly proffered argument, because FPL asserted that "the concentrations of the Constituents are irrelevant to the potential impacts on drinking water" due to the hydrogeological confinement, the design of the injection wells, and the monitoring and mitigation programs. FPL Motion at 4; *see also* FPL McNabb Declaration ¶¶ 10, 51.

would be small if the Constituent concentrations listed in DEIS Table 3-5 were released into the Upper Floridan Aquifer.<sup>25</sup>

We therefore proceed to consider whether summary disposition is warranted for the second component of Contention 2.1.

**B. Summary Disposition Is Denied for the Second Component of Contention 2.1, Because a Genuine Issue of Material Fact Exists Regarding the Possible Migration of Wastewater to the Upper Floridan Aquifer**

FPL also seeks summary disposition of the second component of Contention 2.1, arguing that the DEIS reasonably concluded that “the environmental impacts of injecting wastewater into the Boulder Zone using deep well injection . . . would be SMALL.” FPL Motion at 2. Specifically, FPL argues that it is highly unlikely that wastewater will migrate to the Underground Source of Drinking Water in the Upper Floridan Aquifer because there can be no reasonable dispute that “(1) the injectate will be confined within the Boulder Zone; (2) the injection wells’ design and testing are highly regulated to prevent leaks; and (3) the state of Florida requires that the injection wells be monitored to ensure they are functioning properly during operation.” FPL’s Statement of Undisputed Material Facts ¶ 42; *see also* FPL Motion at 2, 13-25.

The Board denies FPL’s motion for summary disposition on the second component of Contention 2.1. As discussed below, relying principally on the affidavit of Joint Intervenors’ environmental expert, Mark Quarles, we conclude that genuine disputes of material fact exist as to FPL’s assertion that it is highly unlikely that wastewater will migrate to and adversely impact the Underground Source of Drinking Water in the Upper Floridan Aquifer.<sup>26</sup>

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<sup>25</sup> That the Constituent concentrations listed in DEIS Table 3-5 are less than EPA standards for drinking water, *see* Tr. at 489, does not alter our conclusion. Because FPL and the NRC Staff failed to file expert opinions or documentation in support of their new argument, the record does not clearly and convincingly show the absence of a genuine factual issue as to whether the introduction of these Constituents into the Upper Floridan Aquifer — via migration or well malfunction — would have a small environmental impact. Moreover, the DEIS fails to discuss, much less support, the proposition underlying this new argument. *See* Tr. at 488 (counsel for the NRC Staff concedes that, to his knowledge, the DEIS nowhere provides that the environmental impacts would be small if the Constituent concentrations in Table 3-5 were released directly into the Upper Floridan Aquifer).

<sup>26</sup> By way of background, data collected by FPL at the Turkey Point site during construction of its Exploratory Well-1 (EW-1) indicated that — consistent with subsurface hydrogeology in the region as determined by other studies, *see* DEIS at 2-47 to 2-49, 2-53 to 2-54, 2-57 — the subsurface hydrogeology at EW-1 consists of the following three intervals: (1) the Biscayne Aquifer, which descends from the surface to about 140 feet; (2) the Intermediate Confining Unit, which has an upper

*(Continued)*

1. Joint Intervenors' expert, Mr. Quarles, explains why, in his opinion, the results from FPL's EW-1 well test do not support a conclusion that the Middle Confining Unit will prevent upward migration of wastewater out of the Boulder Zone. According to Mr. Quarles, FPL's conclusion that these tests showed no indication of enhanced vertical flow paths "is not supported by well-specific data — as indicated by the presence of voids in the bedrock that resulted in relatively high porosities, low bedrock core recoveries, and failed bedrock straddle packer test." Third Quarles Aff. ¶ 22. "The results of all three of those tests," states Mr. Quarles, "suggest significant fractures and substantial weathering that may not be capable of preventing substantial vertical and horizontal migration of injected wastewater." *Id.* Mr. Quarles' statements about the alleged flaws in the well test analyses are specific and thorough, *see id.* ¶¶ 13-24, and at this point in the proceeding, they must be accepted as true. *See Anderson*, 477 U.S. at 255; *Pilgrim Nuclear Power Station*, CLI-10-11, 71 NRC at 303.

Mr. Quarles provides further support for his position by pointing to a United States Geological Survey (USGS) regional study that concluded the degree of confinement provided by the Middle Confining Unit is "'uncertain' — thereby contradicting the degree of confidence shared by [FPL and the NRC Staff] that an adequate confining layer exists." Third Quarles Aff. ¶ 29.<sup>27</sup> Additionally, he maintains that the NRC Staff failed to consider a 2012 USGS study that "collected data very near the Turkey Point site" and concluded that "tectonic faults and karst collapse structures" provide structural pathways for the possible vertical flow of

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boundary of about 140 feet and a lower boundary of about 1010 feet; and (3) the Floridan Aquifer System, which is the lowest interval. *See* FPL McNabb Declaration ¶¶ 20, 26, 27; DEIS fig. 2-17, at 2-48. The Floridan Aquifer System, in turn, also is divided into three intervals, *see* DEIS at 2-53, which from shallowest to deepest are (1) the Upper Floridan Aquifer, which has an upper boundary of about 1010 feet and a lower boundary of about 1450 feet, *see id.* at 2-48; (2) the Middle Confining Unit, which has an upper boundary of about 1450 feet and a lower boundary of about 2915 feet, *see id.*; and (3) the Lower Floridan Aquifer, which has an upper boundary of about 2915 feet and extends below 3232 feet, *see id.* at 2-48, 2-57. Within the Lower Floridan Aquifer is the Boulder Zone, which is "a cavernous, high-permeability geologic horizon" beginning at a depth of about 3030 feet and extending below 3232 feet. *Id.* at 2-53. "Because of its isolation and high permeability, the Boulder Zone has been used for injection of municipal and industrial wastewater in Florida." *Id.* at 2-53 to 2-54 (citation omitted). The DEIS further states that "FPL identified the interval [in the Middle Confining Unit] from 1930 feet to 2915 feet as the primary confinement for injectate at the [Turkey Point] site" that will be pumped into the Boulder Zone. *Id.* at 2-54. The deepest Underground Source of Drinking Water is located in the Upper Floridan Aquifer at a depth of about 1505 feet. *See id.*; FPL McNabb Declaration ¶ 10.

<sup>27</sup> *See* Ronald Reese and Emily Richardson, Synthesis of the Hydrogeologic Framework of the Floridan Aquifer System and Delineation of the Major Avon Park Permeable Zone in Central and Southern Florida, [USGS] Scientific Investigations Report 2007-5207 (2008) (ADAMS Accession No. ML16034A497).



water through the Middle Confining Unit. *Id.* ¶¶ 30, 31.<sup>28</sup> The illustrations in the 2012 study, states Mr. Quarles, show the “location of these faults; how they breach previously assumed bedrock confining layers; and how wastewater that is injected deep into the bedrock can migrate upward to [Underground Sources of Drinking Water].” *Id.* ¶ 32; *see also id.* ¶ 33. Mr. Quarles declares that the 2012 study controverts the conclusion shared by FPL and the NRC Staff and embodied in the DEIS, *see* DEIS at 2-54 to 2-56, that “‘enhanced vertical flow’ of wastewater through confining units is ‘unlikely.’” Third Quarles Aff. ¶ 35.

Because Joint Intervenors provide a reliable and reasonable expert opinion with factual support as to the question of the likelihood of the upward migration of wastewater from the Boulder Zone to the Underground Source of Drinking Water in the Upper Floridan Aquifer, summary disposition is inappropriate. *See Spirit Airlines, Inc.*, 431 F.3d at 931.

Notably, Joint Intervenors are not alone in disputing FPL’s statement that the injected wastewater will be confined within the Boulder Zone. *See* FPL Statement of Undisputed Material Facts ¶ 42. The NRC Staff’s expert, Mr. Barnhurst, declares that wastewater could migrate upward out of the Boulder Zone, penetrating into the Middle Confining Unit by as much as 300 feet. *See* NRC Barnhurst Aff. ¶¶ 26-27; DEIS at 5-17. The NRC Staff argues, however, that the potential upwelling of wastewater out of the Boulder Zone “would not be expected to reach or adversely impact the Upper Floridan Aquifer” and, accordingly, this dispute is not material. NRC Staff Answer at 12. This argument ignores that a sharp conflict of expert opinion exists between FPL and Joint Intervenors as to the confining capacity of the Middle Confining Unit, and this critical issue is further muddled by the differing expert opinion provided by the NRC Staff. These “competing expert opinions present the classic battle of the experts” that requires an evidentiary hearing to “evaluate what weight and credibility each expert opinion deserves.” *Phillips*, 400 F.3d at 399.

2. In addition to the factual dispute over the confining capacity of the Middle Confining Unit, Mr. Quarles challenges FPL’s claim, *see* FPL McNabb Declaration ¶¶ 12, 46-50, that the highly regulated design and testing of the injection wells will prevent leakage of wastewater that could migrate to the Underground Source

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<sup>28</sup> *See* Kevin Cunningham et al., Near-Surface, Marine Seismic-Reflection Data Define Potential Hydrogeologic Confinement Bypass in the Carbonate Floridan Aquifer System, Southeastern Florida, Society of Exploration Geophysics Annual Meeting (2012) (ADAMS Accession No. ML16034A495). At oral argument, counsel for FPL stated that FPL’s Final Safety Analysis Report (FSAR) discusses the 2012 USGS study. *See* Tr. at 439-40. The discussion in the FSAR, however, was limited to the 2012 study’s seismic information and did not address the hydrogeological aspects of the study. *See* FPL Turkey Point Plant, Units 6 & 7 COL Application, [FSAR], pt. 2, at 2.5.1-32, 2.5.1-33, 2.5.1-131 to 2.5.1-132 (rev. 7 Dec. 28, 2015) (ADAMS Accession No. ML15301A304).

of Drinking Water. With regard to well design and construction, Mr. Quarles states that (1) a “formation pressure test [should have been] conducted to monitor for leakage between the concrete that is in contact with the bedrock formations and all outer steel casings,” Third Quarles Aff. ¶ 43; and (2) “[f]ormation pressure tests and cement bond logs of each well casing string . . . should have been completed to document cement coverage and seal.” *Id.* Declaring that the USGS “has concluded that wastewater injection wells can fail and result in vertical migration of wastewater,” *id.* ¶ 39, Mr. Quarles states that the Florida Department of Environmental Protection’s requirement to perform mechanical integrity tests on injection wells “a minimum every five (5) years fails to recognize that a well can fail at any time during that 5-year period. . . . due to the repeated stresses and strains from the high-pressure injections.” *Id.* ¶ 44. We conclude that Mr. Quarles’ expert opinion is sufficient to raise a genuine issue of fact regarding whether the design and testing of the injection wells will prevent leakage of wastewater that could contaminate the groundwater. *See Spirit Airlines, Inc.*, 431 F.3d at 931.

3. Finally, Mr. Quarles challenges the adequacy of FPL’s groundwater monitoring program to prevent wastewater from contaminating the Underground Source of Drinking Water.<sup>29</sup> Pointing to “18 documented instances” of deep-well injected wastewater contaminating an Underground Source of Drinking Water, Third Quarles Aff. ¶ 40, Mr. Quarles intimates that FPL’s tests would occur too infrequently to provide an “‘early warning’ for vertical migration of wastewater along vertical pathways such as faults, fractures, and well failures,” which, he states, “can occur in a matter of days.” *Id.* ¶ 42; *see also id.* ¶ 45 (specifying instances where monitoring failed to detect upward migration of wastewater that caused “widespread contamination”). He also notes that, “given [the] very close proximity [of the monitoring wells] to the injection well[s],” they would not detect groundwater contamination if the wastewater “first migrates horizontally within

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<sup>29</sup> FPL will construct six dual-zone monitoring wells, installing one between each pair of its twelve deep-injection wells. Each monitoring well will be positioned about 75 feet from the injection wells, *see* DEIS at 3-10, fig. 3-7 at 3-12, 5-28; Tr. at 492, and will monitor groundwater at two depths. The upper zone monitor will be near the base of the Underground Source of Drinking Water in the Upper Floridan Aquifer at a depth of about 1400 to 1420 feet. DEIS at 5-28. The lower zone monitor will be in the Middle Confining Unit at a depth of about 1850 to 1870 feet, *id.*, and it will “serve[] to act as an early warning system if fluid migration were to occur.” FPL McNabb Declaration ¶ 38. Groundwater samples will be collected and analyzed on a weekly basis during the first 6 months to 2 years of operation and monthly thereafter. *Id.* ¶ 39; *see* Fla. Admin. Code 62-528.450(3)(b)(5) (requiring written authorization for operational testing to include “[w]eekly ground water sampling of monitor wells”); *id.* 62-528.450(3)(d) (allowing reduction in sampling frequency “after a minimum of six months of operational testing if the data indicate that the parameter values have stabilized”).

the Boulder Zone and then migrates vertically.” *Id.* ¶ 47.<sup>30</sup> In our judgment, this information is sufficiently probative to demonstrate that there remains a genuine dispute of material fact concerning the ability of FPL’s monitoring program to detect upward migrations of wastewater and to ensure any environmental impact would be minor. *See Anderson*, 477 U.S. at 249.<sup>31</sup>

4. In sum, Joint Intervenors have proffered an expert opinion that raises credible disagreements with the following factual assertions advanced by FPL’s and the NRC Staff’s experts: (1) the wastewater will be confined in, or near, the Boulder Zone; (2) the injection wells’ design and testing will prevent leaks; and (3) if wastewater were to migrate from the Boulder Zone or leak from an injection well, it would be detected and its effects would be mitigated before reaching the Upper Floridan Aquifer and adversely impacting an Underground Source of Drinking Water. We cannot, at the summary disposition stage, choose a winner in this battle of experts. *See Pilgrim Nuclear Power Station*, CLI-10-11, 71 NRC at 297 (“At [the summary disposition] stage, ‘the judge’s function is not himself to weigh the evidence and determine the truth of the matter but to determine whether there is a genuine issue for [hearing].’”) (quoting *Anderson*, 477 U.S. at 249). Rather, our resolution of the second component of Contention 2.1 must await an evidentiary hearing, where we will have the first-hand opportunity to question the experts, assess their credibility, and weigh their testimony and the evidence.<sup>32</sup>

#### IV. ORDER

For the foregoing reasons, we *grant* FPL’s motion for summary disposition as to the first component of Contention 2.1, and we *deny* summary disposition as to

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<sup>30</sup> The NRC Staff agrees with Joint Intervenors on this point, acknowledging that the monitoring wells would only detect migration of wastewater “that occurred in their vicinity,” or “within the range in which they are capable of detecting upward fluid movement.” NRC Barnhurst Aff. ¶¶ 29, 30.

<sup>31</sup> Relatedly, Mr. Quarles also challenges the efficacy of FPL’s mitigation program in the event that wastewater contaminates an Underground Source of Drinking Water. In his view, before the DEIS can legitimately conclude that “the impacts of upward migration that could occur before detection would be minor,” DEIS at 5-29, it must discuss “sites [where wastewater has contaminated Underground Sources of Drinking Water], investigative responses, corrective measures, and all associated costs . . . to support their conclusions of minimal impact.” Third Quarles Aff. ¶ 46; *see also id.* ¶ 41 (“remedial strategies . . . should have been prominently evaluated in the . . . DEIS”).

<sup>32</sup> At an evidentiary hearing, FPL and the NRC Staff may also endeavor to show that the environmental impacts would be small if the Constituents, at concentrations listed in DEIS Table 3-5, were released into the Upper Floridan Aquifer. *See supra* Part III.A.2.

the second component. We thus reformulate Contention 2.1 to eliminate the issue of chemical concentrations,<sup>33</sup> so it now reads as follows:<sup>34</sup>

The DEIS is deficient in concluding that the environmental impacts from FPL's proposed deep injection wells will be "small." The chemicals ethylbenzene, heptachlor, tetrachloroethylene, and toluene in the wastewater injections at concentrations listed in DEIS Table 3-5 may adversely impact the groundwater should they migrate from the Boulder Zone to the Upper Floridan Aquifer.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

E. Roy Hawkens, Chairman  
ADMINISTRATIVE JUDGE

Dr. Michael F. Kennedy  
ADMINISTRATIVE JUDGE

Dr. William C. Burnett  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
April 21, 2016

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<sup>33</sup> See *Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 552 (2009) ("Our boards may reformulate contentions to 'eliminate extraneous issues or to consolidate issues for a more efficient proceeding.'").

<sup>34</sup> Although Contention 2.1 originally was filed based on the ER, the information in the DEIS is sufficiently similar to the information in the ER that the remaining aspect of Contention 2.1 constitutes a viable challenge to the adequacy of the DEIS. Our reformulation of the contention reflects that fact. See, e.g., *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 84 (1998).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Paul S. Ryerson**, Chairman  
**Dr. Gary S. Arnold**  
**Dr. Craig M. White**

**In the Matter of**

**Docket No. 52-043-ESP**  
**(ASLBP No. 15-943-01-ESP-BD01)**

**PSEG POWER, LLC, and PSEG**  
**NUCLEAR, LLC**  
**(Early Site Permit Application)**

**April 26, 2016**

In this Initial Decision, the Atomic Safety and Licensing Board (the Board) determines that the NRC Staff conducted an adequate review of PSEG Power, LLC's and PSEG Nuclear, LLC's (collectively PSEG) application for a 10 C.F.R. Part 52, Subpart A Early Site Permit (ESP). The Board was directed to conduct a mandatory hearing pursuant to section 189a(1)(A) of the Atomic Energy Act, which was conducted in several stages and allowed the Board to probe issues of concern throughout the proceeding. The Board concluded that the application and record contained sufficient information to support issuance of PSEG's requested ESP and that the Staff's review of the application was adequate to support its independent safety and environmental findings. The Board also independently considered the final balance among conflicting environmental costs and benefits and found the proposed action preferable. Thus, the Board authorizes the Director of the Office of New Reactors to issue to PSEG an ESP for the PSEG site for a duration of not more than 20 years and subject to the nine permit conditions set forth in the safety evaluation report.

## **ATOMIC ENERGY ACT**

ESP applications, as partial construction permit applications, are subject to the hearing requirement of section 189a(1)(A) of the Atomic Energy Act.

### **CONSTRUCTION PERMIT(S): EARLY SITE PERMIT(S)**

An ESP may issue if the Board finds that the requirements of 10 C.F.R. § 52.24(a), and the incorporated provisions of 10 C.F.R. § 51.105(a), are satisfied.

### **CONSTRUCTION PERMIT(S): EARLY SITE PERMIT(S)**

An ESP is a partial construction permit, and not an authorization to construct or operate a nuclear power plant. An ESP relates only to site suitability.

### **CONSTRUCTION PERMIT(S): EARLY SITE PERMIT(S)**

Pursuant to 10 C.F.R. Part 52, an applicant for an ESP is not required to select a specific unit design at the ESP stage. Rather, an applicant can refer to a plant parameter envelope or PPE as a surrogate for a nuclear power plant and its associated facilities.

## **MANDATORY HEARINGS**

Licensing boards have an important but limited role in mandatory hearings.

### **MANDATORY HEARINGS**

Licensing boards conducting mandatory hearings on uncontested issues must take an independent hard look at NRC Staff safety and environmental findings without replicating the NRC Staff's work.

### **MANDATORY HEARINGS**

Licensing boards conducting mandatory hearings should conduct a sufficiency review of uncontested issues, not a *de novo* review.

### **MANDATORY HEARINGS**

Licensing boards conducting mandatory hearings should not second-guess the underlying technical or factual findings by the NRC Staff.

**MANDATORY HEARINGS**

While safety issues are reviewed under the adequacy and sufficiency standard, licensing boards conducting mandatory hearings must independently consider the final balance among the conflicting costs and benefits when reviewing National Environmental Policy Act (NEPA) issues.

**MANDATORY HEARINGS**

The Atomic Energy Act does not prescribe a specific structure for mandatory hearings, and the Commission has granted licensing boards considerable flexibility to select the most appropriate approach in the circumstances of each individual case.

**MANDATORY HEARINGS**

Licensing boards should concentrate on a relatively thorough examination of selected issues of concern, rather than undertake a comparatively shallow analysis of all possible issues.

**EVIDENCE**

In an uncontested case, there is no reason to exclude opinion testimony or other evidence that might be objectionable in a jury trial in a court of law. Rather, in addressing the issues before it, the Board should consider all available facts — recognizing that some sources of information may be more reliable than others.

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## INITIAL DECISION

Before the Atomic Safety and Licensing Board (the Board) is an application from PSEG Power, LLC and PSEG Nuclear, LLC (collectively PSEG) for a 10 C.F.R. Part 52, Subpart A Early Site Permit (ESP).<sup>1</sup> In its ESP application, PSEG proposes a site for a potential nuclear power facility adjacent to two existing facilities in Salem County, New Jersey (the PSEG site).<sup>2</sup> An ESP is a “partial

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<sup>1</sup> See 75 Fed. Reg. 68,624, 68,624 (Nov. 8, 2010).

<sup>2</sup> The existing nuclear power facilities are Salem Generating Station Units 1 and 2 and Hope Creek Generating Station Unit 1. Ex. NRC003, at 1-1 (Safety Evaluation of the Early Site Permit Application in the Matter of PSEG Power, LLC and PSEG Nuclear, LLC for the PSEG Early Site Permit Site at 1-1 (Sept. 2015)).



construction permit.”<sup>3</sup> However, “an ESP is not an authorization to construct or operate a nuclear power plant. It relates only to site suitability.”<sup>4</sup>

Pursuant to Section 189a(1)(A) of the Atomic Energy Act (AEA), 42 U.S.C. § 2239(a)(1)(A), and 10 C.F.R. § 52.21, this Board was constituted to conduct a mandatory (uncontested) hearing concerning PSEG’s ESP application.<sup>5</sup> Licensing boards have an “important but limited role” in such proceedings, in which the only parties are the applicant and the NRC Staff.<sup>6</sup> The Commission expects “licensing boards conducting mandatory hearings on uncontested issues to take an independent ‘hard look’ at NRC Staff safety and environmental findings.”<sup>7</sup> However, licensing boards are “not to replicate NRC Staff work.”<sup>8</sup> The Commission has directed that licensing boards “should conduct a simple ‘sufficiency’ review of uncontested issues, not a *de novo* review.”<sup>9</sup>

After reviewing the Final Environmental Impact Statement (FEIS) and Safety Evaluation Report (SER) prepared by the NRC Staff (including the license conditions imposed by the Staff), the prefiled testimony and exhibits filed by the Staff and PSEG, the oral testimony heard over the course of a 1-day evidentiary hearing, and the complete record of this proceeding, the Board finds that the application and record of this proceeding contain sufficient information to support issuance of PSEG’s requested ESP and that the Staff’s review of the application has been adequate to support its independent safety and environmental findings. We have also independently considered the final balance among conflicting environmental and other factors with a view to determining the appropriate action to be taken, and determined that an ESP should be issued.

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<sup>3</sup> 10 C.F.R. § 52.1(a); *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-07-12, 65 NRC 203, 205 (2007).

<sup>4</sup> See *Clinton ESP Site*, CLI-07-12, 65 NRC at 205. “[I]f the applicant includes a satisfactory site redress plan, an ESP holder may conduct certain site preparation activities under a ‘limited work authorization’ granted under 10 C.F.R. § 50.10(e).” *Virginia Electric & Power Co.* (North Anna Power Station, Unit 3), LBP-08-15, 68 NRC 294, 307 n.58 (2008) (citing 10 C.F.R. § 52.25); see also 10 C.F.R. § 50.10(d)(3). PSEG’s ESP application did not request a limited work authorization.

<sup>5</sup> Establishment of Atomic Safety and Licensing Board (Sept. 25, 2015); see also 80 Fed. Reg. 58,793 (Sept. 30, 2015).

<sup>6</sup> *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 41 (2005).

<sup>7</sup> *Clinton ESP Site*, CLI-05-17, 62 NRC at 34.

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

<sup>9</sup> *Id.* at 39; see also *Nuclear Innovation North America LLC* (South Texas Project, Units 3 and 4), CLI-16-2, 83 NRC 13, 19 (2016).

## I. BACKGROUND

On May 25, 2010, PSEG submitted its initial ESP application to the NRC.<sup>10</sup> PSEG's proposed site is located on the southern part of Artificial Island in Lower Alloways Creek Township in New Jersey.<sup>11</sup> "Artificial Island was formed from dredge spoils produced as a result of maintenance dredging of the Delaware River navigation channel by the [U.S. Army Corps of Engineers (USACE)]."<sup>12</sup> The proposed site is also adjacent to three existing nuclear power units on Artificial Island — Salem Generating Station Units 1 and 2 and Hope Creek Generating Station Unit 1.<sup>13</sup>

Pursuant to 10 C.F.R. Part 52, PSEG was not required to select a specific unit design at the ESP stage.<sup>14</sup> Rather, PSEG's application referred to a plant parameter envelope (PPE) "as a surrogate for a nuclear power plant and its associated facilities."<sup>15</sup> As stated in the FEIS, "[a] PPE is a set of values of plant design parameters that an ESP applicant expects would bound the design characteristics of the reactor or reactors that might be constructed at a given site."<sup>16</sup> Accordingly, the PPE approach allows PSEG to "defer the selection of a reactor design until the construction permit (CP) or combined construction permit and operating license (combined license or COL) stage."<sup>17</sup>

The NRC Staff conducted a four-phase safety review of PSEG's application.<sup>18</sup> First, the NRC Staff identified several areas of concern and submitted requests for additional information to PSEG.<sup>19</sup> Second, the NRC Staff reviewed PSEG's responses to these requests and issued chapter-specific Advanced Safety Evalu-

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<sup>10</sup> See Letter from David P. Lewis, PSEG Nuclear Development Project Director, & Paul J. Davison, Vice President, PSEG Operations Support, to NRC (May 25, 2010) (ADAMS Accession No. ML101480484).

<sup>11</sup> Ex. NRC004A, 1 Environmental Impact Statement for an Early Site Permit (ESP) at the PSEG Site at 2-1 (Nov. 2015) [hereinafter Ex. NRC004A].

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

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

<sup>14</sup> See Ex. NRC004A, at 3-4 ("An applicant for an ESP need not provide a detailed design of a reactor or reactors and the associated facilities but should provide sufficient values for parameters for the reactor or reactors and the associated facilities so that an assessment of site suitability can be made."); see also *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), LBP-06-28, 64 NRC 460, 467-68 (2006), *permit issuance authorized*, CLI-07-12, 65 NRC 203 (2007).

<sup>15</sup> Ex. NRC004A, at 1-2, 3-5.

<sup>16</sup> *Id.* at 3-4 to 3-5.

<sup>17</sup> *Id.* at 3-5. PSEG utilized information from the following reactor designs in developing the PPE for its proposed site: (1) Single Unit U.S. Evolutionary Power Reactor; (2) Single Unit Advanced Boiling Water Reactor; (3) Single Unit U.S. Advanced Pressurized Water Reactor; and (4) Dual Unit Advanced Passive 1000. Ex. NRC003, at 1-3.

<sup>18</sup> Ex. NRC003, at xvii.

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

ations (ASEs).<sup>20</sup> Having resolved any outstanding concerns, there were no open items when the Staff completed the ASEs.<sup>21</sup> Next, the NRC Staff submitted the ASEs to the NRC Advisory Committee on Reactor Safeguards (ACRS).<sup>22</sup> The ACRS is an independent committee of technical experts who, pursuant to the Atomic Energy Act, “advise the Commission with regard to the hazards of proposed or existing reactor facilities and the adequacy of proposed reactor safety standards.”<sup>23</sup> At the conclusion of its independent review, the ACRS determined that the ESP should be issued.<sup>24</sup> Finally, on September 29, 2015, the NRC Staff issued the final SER on PSEG’s application.

The SER concludes that “one or two reactors, having characteristics that fall within the parameters for the site, and which meet the terms and conditions proposed by the staff in this SER, can be constructed and operated without undue risk to the health and safety of the public.”<sup>25</sup> The SER also specifies nine permit conditions.<sup>26</sup> For example, two of the permit conditions address geology, seismology, and geotechnical engineering.<sup>27</sup> One such condition requires that:

[a]n applicant for a COL or CP referencing this early site permit shall perform detailed geologic mapping of excavations for safety-related structures; examine and evaluate geologic features discovered in those excavations; and notify the Director of the Office of New Reactors . . . once excavations for safety-related structures are open for examination by NRC staff.<sup>28</sup>

Another permit condition requires that “[a]n applicant for a COL or CP [r]eferencing this early site permit shall remove and replace the soils directly above the Vincentown Formation for soils under or adjacent to Seismic Category I structures to minimize any liquefaction potential.”<sup>29</sup> Two other permit conditions address several issues with control over the proposed location’s exclusion area<sup>30</sup> and

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

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

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

<sup>23</sup> 42 U.S.C. § 2039; *see also id.* § 2232(b).

<sup>24</sup> Ex. NRC003, App. E, at E-2.

<sup>25</sup> *Id.* at 22-1.

<sup>26</sup> *Id.*, App. A, at A-2 to A-6.

<sup>27</sup> *Id.* at A-3.

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

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

<sup>30</sup> Section 100.3 of 10 C.F.R. defines exclusion area as the “area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area.”

planning regarding possible explosions associated with gasoline storage and delivery.<sup>31</sup> The remaining five permit conditions address emergency planning.<sup>32</sup>

The NRC Staff also performed an environmental review. On October 15, 2010, in accordance with 10 C.F.R. § 51.26, the NRC published a notice of intent to prepare an environmental impact statement.<sup>33</sup> Thereafter, the NRC Staff conducted two public meetings near the proposed site and considered fifty-one written and oral public comments submitted in response to these public meetings.<sup>34</sup> In conducting its environmental review, the NRC Staff also consulted with federal, state, and local authorities, including but not limited to the U.S. Fish and Wildlife Service, the New Jersey Department of Environmental Protection (NJDEP), and the State of Delaware Office of Historical and Cultural Affairs.<sup>35</sup> Further, “in support of its proposed action of issuing a Department of the Army permit, the U.S. Army Corps of Engineers . . . participated in the preparation of the EIS as a cooperating agency and as a collaborative member of the review team.”<sup>36</sup>

In August of 2014 the Staff published a Draft Environmental Impact Statement (DEIS).<sup>37</sup> After the DEIS was published, the NRC Staff held two public meetings: one in Carneys Point, New Jersey on October 1, 2014, and one in Middletown, Delaware on October 23, 2014.<sup>38</sup> Approximately 215 people attended these public meetings.<sup>39</sup> In addition to oral comments at the two public meetings, the NRC received forty-five letters and e-mails containing written comments.<sup>40</sup> On November 13, 2015, the NRC Staff posted the Final Environmental Impact Statement (FEIS) on the NRC public website.<sup>41</sup>

The Commission published a Notice of Hearing in the *Federal Register* on November 8, 2010.<sup>42</sup> No petitions to intervene under 10 C.F.R. § 2.309 or petitions to participate as an interested governmental entity under 10 C.F.R. § 2.315(c) were submitted.

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<sup>31</sup> *Id.*, App. A, at A-2 to A-3.

<sup>32</sup> *Id.* at A-4 to A-6.

<sup>33</sup> 75 Fed. Reg. 63,521, 63,521 (Oct. 15, 2010).

<sup>34</sup> See NRC Environmental Impact Statement Scoping Process Summary Report, PSEG [ESP] Application (Sept. 2011) at 3 (ADAMS Accession No. ML112150127).

<sup>35</sup> Ex. NRC004A, at xxiii.

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

<sup>37</sup> [DEIS] for an [ESP] at the PSEG Site (Aug. 2014) (ADAMS Accession No. ML14219A304).

<sup>38</sup> Ex. NRC004A, at xxiv.

<sup>39</sup> See *id.*

<sup>40</sup> Ex. NRC004C, Environmental Impact Statement for an Early Site Permit (ESP) at the PSEG Site, Vol. 3, App. E, at E-2 (Nov. 2015) [hereinafter Ex. NRC004C].

<sup>41</sup> Licensing Board Order (Initial Scheduling Order) (Nov. 16, 2015) at 4 (unpublished) [hereinafter Initial Scheduling Order].

<sup>42</sup> 75 Fed. Reg. at 68,625.

This Board was established on September 25, 2015.<sup>43</sup> On January 14, 2016, the parties responded to the Board's initial written questions regarding the SER.<sup>44</sup> On January 28, 2016, the parties responded to the Board's second set of written questions primarily concerning the FEIS.<sup>45</sup>

After reviewing the parties' answers to the Board's initial written questions, the Board concluded that many of the parties' answers resolved its concerns on a given issue and established an adequate record.<sup>46</sup> As contemplated by the Initial Scheduling Order,<sup>47</sup> the Board identified issues on which it still had questions and wished to review more detailed prefiled testimony and exhibits.<sup>48</sup> On February 25, 2016, the Staff and PSEG submitted their prefiled written testimony and exhibits as directed by the Board's orders.<sup>49</sup>

The Board conducted an evidentiary hearing on March 24, 2016.<sup>50</sup> Except as specifically excused prior to the hearing,<sup>51</sup> all twenty-two witnesses who submitted prefiled testimony were present and available to answer the Board's questions. The Board admitted without objection all prefiled exhibits submitted by either party.<sup>52</sup> On April 11, 2016, the Board accepted the parties' proposed transcript corrections and closed the evidentiary record.<sup>53</sup>

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<sup>43</sup> 80 Fed. Reg. at 58,793.

<sup>44</sup> PSEG Responses to Initial Board Questions (Jan. 14, 2016); NRC Staff Response to the Licensing Board's Initial Questions Issued December 15, 2015 (Jan. 14, 2016); *see also* Licensing Board Memorandum and Order (Initial Board Questions and Associated Administrative Directives) (Dec. 15, 2015) (unpublished) [hereinafter December 15, 2015 Questions Order].

<sup>45</sup> PSEG Responses to Second Set of Board Questions (Jan. 28, 2016); NRC Staff Response to the Licensing Board's Second Set of Questions Issued January 6, 2016 and Other Matters (Jan. 28, 2016); *see also* Licensing Board Memorandum and Order (Second Set of Board Questions and Associated Administrative Directives) (Jan. 6, 2016) (unpublished) [hereinafter January 6, 2016 Questions Order].

<sup>46</sup> Licensing Board Memorandum and Order (Identifying Areas for Prefiled Testimony) (Jan. 27, 2016) at 1-2 (unpublished) [hereinafter SER Prefiled Testimony Order]; Licensing Board Memorandum and Order (Identifying Additional Areas for Prefiled Testimony) (Feb. 8, 2016) at 1-2 (unpublished) [hereinafter FEIS Prefiled Testimony Order].

<sup>47</sup> Initial Scheduling Order at 3-4.

<sup>48</sup> SER Prefiled Testimony Order at 2-3; FEIS Prefiled Testimony Order at 2-3.

<sup>49</sup> *See* SER Prefiled Testimony Order at 3; FEIS Prefiled Testimony Order at 4.

<sup>50</sup> Tr. at 62-185. On February 8, 2016, the Board issued a Notice of Hearing pursuant to 10 C.F.R. § 2.104. Licensing Board Order (Notice of Hearing) (Feb. 8, 2016). The Notice of Hearing was published in the *Federal Register* on February 16, 2016. 81 Fed. Reg. 7835, 7835 (Feb. 16, 2016).

<sup>51</sup> Licensing Board Memorandum and Order (Identifying Resolved Topics) (Mar. 15, 2016) at 1 (unpublished).

<sup>52</sup> Tr. at 70-72.

<sup>53</sup> Licensing Board Order (Approving Joint Proposed Transcript Corrections) (Apr. 11, 2016) (unpublished).

## II. LEGAL STANDARDS

Pursuant to 42 U.S.C. § 2239, “[t]he Commission shall hold a hearing . . . on each application under section 2133 or 2134(b) of this title for a construction permit for a facility.”<sup>54</sup> ESP applications, as partial construction permit applications, are subject to the AEA hearing requirement, as well as “all procedural requirements in 10 C.F.R. part 2.”<sup>55</sup>

In a mandatory, uncontested hearing, this Board’s review is a limited one. The NRC Staff and PSEG agree that this Board must determine whether seven requirements are satisfied.<sup>56</sup> Pursuant to 10 C.F.R. § 52.24(a), an ESP may issue if the Board finds, among other things, that:

- (1) An application for an early site permit meets the applicable standards and requirements of the Act and the Commission’s regulations;
- (2) Notifications, if any, to other agencies or bodies have been duly made;
- (3) There is reasonable assurance that the site is in conformity with the provisions of the Act, and the Commission’s regulations;
- (4) The applicant is technically qualified to engage in any activities authorized;
- (5) The proposed inspections, tests, analyses and acceptance criteria, including any on emergency planning, are necessary and sufficient, within the scope of the early site permit, to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission’s regulations;
- (6) Issuance of the permit will not be inimical to the common defense and security or to the health and safety of the public; [and]
- . . . .
- (8) The findings required by subpart A of 10 CFR part 51 have been made.<sup>57</sup>

Pursuant to section 52.24(a)(8), the provisions of 10 C.F.R. § 51.105(a) further require the Board to:

- (1) Determine whether the requirements of Sections 102(2) (A), (C), and (E) of

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<sup>54</sup> 42 U.S.C. § 2239(a)(1)(A).

<sup>55</sup> 10 C.F.R. § 52.21; *see also System Energy Resources, Inc.* (Early Site Permit for Grand Gulf ESP Site), LBP-07-1, 65 NRC 27, 35, *permit issuance authorized*, CLI-07-14, 65 NRC 216 (2007).

<sup>56</sup> *See* Initial Scheduling Order at 2, Attach. A; Tr. at 14-15.

<sup>57</sup> 10 C.F.R. § 52.24(a)(1)-(6), (8). Section 52.24(a)(7) states that an ESP may issue if the Board finds that “[a]ny significant adverse environmental impact resulting from activities requested under § 52.17(c) can be redressed.” Section 52.17(c) allows an applicant to request a limited work authorization in conjunction with an ESP. Because PSEG has not requested a limited work authorization, this section does not apply. Additionally, 10 C.F.R. § 52.24(b) states that, if the Commission decides to authorize issuance of the ESP, the issued ESP “must specify the site characteristics, design parameters, and terms and conditions of the [ESP] the Commission deems appropriate.”

[the National Environmental Policy Act (NEPA)] and the regulations in this subpart have been met;

(2) Independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken;

(3) Determine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the construction permit or early site permit should be issued, denied, or appropriately conditioned to protect environmental values;<sup>58</sup> [and]

(4) Determine, in an uncontested proceeding, whether the NEPA review conducted by the NRC staff has been adequate . . . .<sup>59</sup>

When addressing these questions, licensing boards are not expected to conduct a *de novo* review of safety or environmental issues, but rather “a simple ‘sufficiency’ review of uncontested issues.”<sup>60</sup> Licensing boards must “take an independent ‘hard look’ at NRC Staff safety and environmental findings, but not . . . replicate NRC Staff work. Giving appropriate deference to NRC Staff technical expertise, boards are to probe the logic and evidence supporting NRC

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<sup>58</sup> Pursuant to 10 C.F.R. § 52.21, an applicant’s environmental report and the NRC Staff’s environmental impact statement for an ESP application are not required to address the benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP. *See* 10 C.F.R. § 52.21 (“An early site permit is subject to all procedural requirements in 10 CFR part 2 . . . provided that the designated sections may not be construed to require that the environmental report, or draft or final environmental impact statement include an assessment of the benefits of construction and operation of the reactor or reactors, or an analysis of alternative energy sources.”); *see also* Licenses, Certifications, and Approvals for Nuclear Power Plants, 72 Fed. Reg. 49,352, 49,434 (Aug. 28, 2007). However, where, as here, the applicant’s environmental report and the NRC Staff’s FEIS do evaluate energy alternatives and the need for power, *see* FEIS at 8-1, the Board must consider these issues in weighing the costs and benefits of the application. *See* 72 Fed. Reg. at 49,434 (“If the applicant has addressed all of the costs and benefits associated with construction and operation of the facility in its environmental report, the final balancing between costs and benefits needs to occur at the early site permit stage.”). Prior to the most recent amendments to 10 C.F.R. § 52.21 in 2007, several Commission and Board decisions took a contrary view. *See, e.g., Clinton ESP Site*, CLI-05-17, 62 NRC at 47; *Clinton ESP Site*, LBP-06-28, 64 NRC at 487, *permit issuance authorized*, CLI-07-12, 65 NRC 203 (2007); *Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), LBP-07-9, 65 NRC 539, 615, *permit issuance authorized*, CLI-07-27, 66 NRC 215 (2007).

<sup>59</sup> 10 C.F.R. § 51.105(a)(1)-(4). Because this is an uncontested proceeding, 10 C.F.R. § 51.105(a)(5), which concerns only contested cases, does not apply.

<sup>60</sup> *Clinton ESP Site*, CLI-05-17, 62 NRC at 39. The Commission has directed that:

[Licensing boards] should inquire whether the NRC Staff performed an adequate review and made findings with reasonable support in logic and fact. “An analogy is to the function of an appellate court, applying the ‘substantial evidence’ test, although it is imperfect because the ASLB looks not only to the information in the record, but also to the thoroughness of the review that the Staff . . . has given it.”

*Id.* (footnotes omitted).

Staff findings and decide whether those findings are sufficient to support license issuance.”<sup>61</sup>

Regarding NEPA findings, however, licensing boards are instructed to make independent environmental judgments,<sup>62</sup> although they “need not rethink or redo every aspect of the NRC Staff’s environmental findings or undertake their own fact-finding activities.”<sup>63</sup> A licensing board’s role is to “carefully probe [NRC Staff] findings by asking appropriate questions and by requiring supplemental information when necessary,”<sup>64</sup> but “the NRC Staff’s underlying technical and factual findings are not open to board reconsideration unless, after a review of the record, the board finds the NRC Staff review inadequate or its findings insufficient.”<sup>65</sup> In reaching our independent judgment regarding NEPA issues, licensing boards walk a fine line — our role is not to “second-guess underlying technical or factual findings by the NRC Staff,”<sup>66</sup> but to ensure that the demands of NEPA and our regulations are met through “independent environmental judgments by NRC licensing boards.”<sup>67</sup> Even a licensing board’s NEPA review “must not be so intrusive or detailed as to involve the board in ‘independent basic research’ or a ‘duplicat[ion of] the analysis previously performed by the staff.’”<sup>68</sup>

### III. APPROACH TO EVIDENTARY HEARING

To summarize the posture of this proceeding as it comes before this Licensing Board:

1. PSEG seeks merely an early site permit. If granted, the permit will resolve some important issues. However, PSEG has not yet even selected a reactor design or manufacturer.<sup>69</sup> To obtain permission to construct and operate

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<sup>61</sup> *Id.* at 34 (footnote omitted).

<sup>62</sup> After a licensing board in an uncontested proceeding determines the NRC Staff’s NEPA review is adequate, it must then “independently consider the final balance among conflicting factors that is struck in the Conditions recommendation.” *Calvert Cliffs’ Coordinating Committee, Inc. v. AEC*, 449 F.2d 1109, 1118 (D.C. Cir. 1971). The Commission has directed “boards to follow the approach spelled out in the D.C. Circuit’s seminal *Calvert Cliffs* decision.” *Clinton ESP Site*, CLI-05-17, 62 NRC at 44.

<sup>63</sup> *Clinton ESP Site*, CLI-05-17, 62 NRC at 44; *see also N. Anna ESP Site*, LBP-07-9, 65 NRC at 559-60.

<sup>64</sup> *Clinton ESP Site*, CLI-05-17, 62 NRC at 40.

<sup>65</sup> *Id.* at 39-40.

<sup>66</sup> *Id.* at 45.

<sup>67</sup> *Id.* at 44.

<sup>68</sup> *Id.* at 45 (footnote omitted).

<sup>69</sup> Ex. NRC004A, at 3-5.



a reactor on the site, PSEG would have to come back to the NRC and address additional issues.<sup>70</sup>

2. PSEG's proposal fundamentally requires the NRC merely to decide whether Artificial Island — an uninhabited island created out of dredge spoils that is home to three existing nuclear power reactors — might be an appropriate site for one or two additional nuclear power reactors.<sup>71</sup>

3. After reviewing both the safety aspects and environmental impact of PSEG's proposal, the NRC Staff recommended issuance of the permit subject to specified conditions.<sup>72</sup>

4. After being afforded the opportunity to seek a contested evidentiary hearing on PSEG's application, no member of the public or state or local government elected to do so.<sup>73</sup>

5. After reviewing PSEG's application, the NRC's independent ACRS recommended that the requested permit be issued.<sup>74</sup>

In these circumstances, some might suggest that a further independent hearing by this Board is redundant and unnecessary. The Atomic Energy Act, as interpreted by the Commission, provides otherwise. A hearing on an application for an early site permit is required by statute regardless of whether the application is opposed.<sup>75</sup> The Board's challenge and responsibility, therefore, has been to conduct this mandatory, uncontested proceeding so as to make a meaningful but efficient contribution to what has already been a lengthy and thorough review of PSEG's application.

The Atomic Energy Act does not prescribe a specific structure for a mandatory hearing, and the Commission has allowed licensing boards flexibility to select the most appropriate approach in the circumstances of each individual case.<sup>76</sup> As the Commission has explained:

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

<sup>71</sup> *See id.* at 2-1.

<sup>72</sup> *See* Ex. NRC003, at 22-1, App. A, at A-2 to A-6; Ex. NRC004B, Environmental Impact Statement for an Early Site Permit (ESP) at the PSEG Site, Vol. 2, at 10-33 (Nov. 2015) [hereinafter Ex. NRC004B].

<sup>73</sup> *See* Establishment of Atomic Safety and Licensing Board (Sept. 25, 2015); *see also* 80 Fed. Reg. 58,793 (Sept. 30, 2015).

<sup>74</sup> Ex. NRC003, App. E, at E-2.

<sup>75</sup> *See* Atomic Energy Act of 1954, §§ 185b, 189a, 42 U.S.C. §§ 2235(b), 2239(a); *Clinton ESP Site*, CLI-05-17, 62 NRC at 27-29 (explaining the history of the AEA's mandatory hearing requirement and its applicability to early site permit applications).

<sup>76</sup> *See Clinton ESP Site*, CLI-05-17, 62 NRC at 42-43.

As for the actual procedure to be followed at mandatory hearings, licensing boards have considerable flexibility. The AEA's mandatory hearing requirements in sections 189a and 193(b)(1) are phrased generally. "[T]he Act itself nowhere prescribes the content of a hearing or prescribes the manner in which this 'hearing' is to be run." The word "hearing" can refer to any of a number of events, including trial-type evidentiary hearings, "paper hearings," paper hearings accompanied by oral arguments, hearings employing a mixture of procedural rules, and legislative hearings. The AEA's hearing requirement does not demand a "one size fits all" approach. Thus, we do not dictate any particular procedure in the current cases, but we would expect the boards to select the most appropriate and expeditious approach given the specific circumstances of a case.<sup>77</sup>

In determining what structure may best serve the needs of this hearing, the Board heeded the Commission's advice to sharpen our focus by narrowing it:

A "mandatory hearing" board must narrow its inquiry to those topics or sections in Staff documents that it deems most important and should concentrate on portions of the documents that do not on their face adequately explain the logic, underlying facts, and applicable regulations and guidance. It serves no purpose for the Staff to produce volumes of documents and information supporting facts and conclusions that are of small importance and are beyond dispute. It likewise serves no purpose for the Staff to produce copies of every document used in its review when the Board cannot possibly read through every one, let alone scrutinize them.<sup>78</sup>

Therefore, rather than undertake a comparatively shallow analysis of all possible issues, the Board focused on a relatively thorough examination of selected issues of concern by instituting a multistep process that narrowed as the Staff and Applicant responded to the questions and concerns of the Board.

*First*, the Board members reviewed the SER and the FEIS.

*Second*, on December 15, 2015, and January 6, 2016, the Board set forth a total of ninety detailed written questions arising from the SER and the FEIS, to which it directed the parties to respond.<sup>79</sup> More specifically, we directed that "[t]he parties' written answers shall, for each question, identify the responding subject matter expert(s) or individuals(s), and shall be submitted in exhibit form, under oath, so that they are suitable for receipt into evidence without the necessity of the personal appearance of each expert or individual."<sup>80</sup> In other words, we

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<sup>77</sup> *Id.* (footnotes omitted).

<sup>78</sup> *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-06-20, 64 NRC 15, 21-22 (2006).

<sup>79</sup> January 6, 2016 Questions Order, Attach. A; December 15, 2015 Questions Order, Attach. A.

<sup>80</sup> Initial Scheduling Order at 4; *see also* January 6, 2016 Questions Order at 1; December 15, 2015 Questions Order at 1.

directed the parties to respond under oath to our initial written questions, so that the Board could accord the responses as much weight as we would give sworn testimony presented in person at an evidentiary hearing.

The parties responded to the Board's initial written questions on January 15 and 28, 2016.<sup>81</sup> Collectively, the parties' sworn responses totaled some 92 pages, exclusive of the supporting affidavits and resumes of the 36 responding individuals.<sup>82</sup> Because the parties provided substantial and, for the most part, directly responsive answers to the Board's initial questions, the need for written or oral testimony at the evidentiary hearing was reduced to the extent that the parties' sworn answers resolved many of the Board's concerns.

The following illustrate a few of the areas in which the Board's preliminary concerns were adequately addressed by the parties' responses to the Board's initial written questions:<sup>83</sup>

1. The Board was concerned about the extent to which the NRC Staff had independently confirmed PSEG's calculations.<sup>84</sup> The Staff responded that independent calculations were generally performed in significant safety areas and where there appeared to be meaningful uncertainty.<sup>85</sup> It specifically identified five areas in which significant verification calculations were performed (including meteorology, radiation protection, hydrology, vibratory ground motion, and external manmade hazards)<sup>86</sup> and established that responsible Staff members were appropriately qualified,<sup>87</sup> thereby satisfying our concerns.

2. Because the proposed PSEG site is adjacent to existing nuclear reactors, the Board was interested both in whether the NRC Staff was able to conserve resources during its review by relying on existing information regarding those facilities and in whether cumulative safety-related effects were adequately

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<sup>81</sup> PSEG Responses to Initial Board Questions (Jan. 14, 2016) [hereinafter PSEG Response to First Set of Board Questions]; NRC Staff Response to the Licensing Board's Initial Questions Issued December 15, 2015 (Jan. 14, 2016) [hereinafter NRC Staff Response to First Set of Board Questions].

<sup>82</sup> PSEG Response to First Set of Board Questions; NRC Staff Response to First Set of Board Questions; PSEG Response to Second Set of Board Questions (Jan. 28, 2016) [hereinafter PSEG Response to Second Set of Board Questions]; NRC Staff Response to the Licensing Board's Second Set of Questions Issued January 6, 2016 and Other Matters (Jan. 28, 2016) [hereinafter NRC Staff Response to Second Set of Board Questions].

<sup>83</sup> Additionally, as discussed in Section V, *infra*, in other instances the parties' initial responses — while not necessarily fully satisfactory by themselves — were adequate when considered together with subsequent written and oral testimony.

<sup>84</sup> December 15, 2015 Questions Order, Attach. A, ¶ 2.

<sup>85</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 1.

<sup>86</sup> *Id.* at 2-4.

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

considered.<sup>88</sup> First, the NRC Staff clarified that it reviewed the ESP application to determine whether it independently contained adequate information to support the ultimate decision.<sup>89</sup> Second, the NRC Staff described specific areas (including meteorology, radiation protection, hydrology, external manmade hazards, and emergency planning) where cumulative effects from existing units might arise, thus requiring that they be considered.<sup>90</sup> Based on the NRC Staff's responses, the Board's concerns regarding these issues were resolved.

3. The Board identified other concerns — arising from the potential interplay between a new power facility at the PSEG site and existing reactors — with respect to meteorology, flooding hazards, geology, and emergency planning.<sup>91</sup> The NRC Staff explained that its review of meteorology at the PSEG site did not consider the meteorological descriptions in safety documents for existing reactors, but that the Staff did review historical meteorological data collected at an onsite tower associated with the existing reactors.<sup>92</sup> Similarly, the NRC Staff explained that consideration of flooding hazards made use of related meteorological conditions for all units.<sup>93</sup> The NRC Staff stated that it also examined geologic information from the existing reactors' safety-related documents and confirmed that there are no significant differences regarding the PSEG site.<sup>94</sup> Likewise, the NRC Staff confirmed that the PSEG site emergency plan does not significantly differ from the plans for the existing reactors, except as required to incorporate the future selection of a reactor design.<sup>95</sup> Based on the parties' responses, the Board was satisfied that the NRC Staff had adequately considered the relationship between the PSEG site and the existing reactors on Artificial Island.

4. The Board was concerned about aspects of atmospheric stability and dispersion of radioactive material if a release were to occur.<sup>96</sup> The NRC Staff explained that, based on design height release assumptions — for a flat terrain like the PSEG site — a ground-level release is generally conservative, which is consistent with NRC guidance.<sup>97</sup> Because the atmosphere is less dispersive at lower levels, and because less dispersion results in greater exposure to

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<sup>88</sup> December 15, 2015 Questions Order, Attach. A, ¶¶ 4-5.

<sup>89</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 4.

<sup>90</sup> *Id.* at 4-5.

<sup>91</sup> December 15, 2015 Questions Order, Attach. A, ¶¶ 13, 19, 42, 52.

<sup>92</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 8.

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

<sup>94</sup> *Id.* at 25.

<sup>95</sup> *Id.* at 30.

<sup>96</sup> December 15, 2015 Questions Order, Attach. A, ¶¶ 14-16.

<sup>97</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 8-9.

those in the plume pathway, assuming a ground-level release results in greater exposure and is therefore conservative.<sup>98</sup> Additionally, the Staff explained, it is conservative to disregard building wakes because they are dispersive in nature.<sup>99</sup> Regarding the possible rise of a hot plume from above ground level, the NRC Staff acknowledged this possibility, but noted that the higher altitude of the rise would result in greater dispersion and lower exposures.<sup>100</sup> Hence, not accounting for this possibility represented a conservative approach.<sup>101</sup> Lastly, the NRC Staff explained that assessing dispersion of airborne radioactive material in the reactor control room was not a necessary future action item, because this issue will necessarily be reviewed if and when PSEG applies for a COL.<sup>102</sup> Based on these responses, the Board was satisfied that the dispersion of radioactive material was adequately reviewed and subject to conservative assumptions.

5. The Board identified several concerns regarding the NRC Staff's review of PSEG's evaluation of the probable maximum surge and seiche flooding at the PSEG site.<sup>103</sup> The Board questioned the sensitivity of surface water elevation to the radius of maximum winds (radius value) for a hurricane, and why the assumption of 28 nautical miles for that radius value is conservative.<sup>104</sup> The NRC Staff responded that "[i]n general, keeping all other storm surge parameters constant, hurricane central pressure and resultant storm intensity decreases as [radius value] (storm size) increases."<sup>105</sup> As a result, a lower radius value yields a higher storm surge.<sup>106</sup> Furthermore, the NRC Staff stated that the largest storm surge recorded in the United States resulted from Hurricane Katrina, which had a radius value of 30 nautical miles.<sup>107</sup> Therefore, the NRC Staff considered a radius value of 28 nautical miles to be conservative.<sup>108</sup> The Board also raised concerns regarding PSEG's evaluation of the maximum surge and seiche flooding using the SLOSH and ADCIRC+SWAN models.<sup>109</sup> The NRC Staff explained that, in one instance, PSEG had misapplied the SLOSH

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<sup>98</sup> See *id.* at 9.

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

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

<sup>101</sup> See *id.*; see also PSEG Response to First Set of Board Questions, Attach. A, at 9.

<sup>102</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 10.

<sup>103</sup> December 15, 2015 Questions Order, Attach. A, ¶¶ 21-25.

<sup>104</sup> *Id.* ¶ 21.

<sup>105</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 12.

<sup>106</sup> See *id.*

<sup>107</sup> *Id.*

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

<sup>109</sup> December 15, 2015 Questions Order, Attach. A, ¶ 22.

model in a context outside of its range of applicability.<sup>110</sup> After reperforming the analysis using the ADCIRC+SWAN model, the NRC Staff relied on those figures in making its safety findings.<sup>111</sup> Based on the NRC Staff's responses (together with the Board's own analysis of information in the SER), the Board's concerns regarding maximum surge and seiche flooding were resolved.

6. The Board raised concerns regarding several aspects of the NRC Staff's tsunami evaluation.<sup>112</sup> For example, the Board directed the Staff to support the conservatism of the probable maximum tsunami by considering historical information regarding a landslide in the Grand Banks resulting in a large tsunami along the coast of Newfoundland.<sup>113</sup> The NRC Staff replied that events similar to those in the Newfoundland example could occur; however, the landslide used for the safety evaluation was larger than that in Newfoundland and resulted in a tsunami of essentially the same height.<sup>114</sup> Moreover, the modeled event would not pose a hazard to the PSEG site because the height of the tsunami would be substantially reduced as it traveled up the Delaware Bay — unlike conditions along the coast of Newfoundland.<sup>115</sup>

The Board also directed the NRC Staff to consider an “earthquake located along a northeast trending seismic zone off the eastern coast of the United States” as a tsunami source.<sup>116</sup> The Staff explained that, because of the small motion in the vertical direction, such a source could not result in a large tsunami.<sup>117</sup> The Board further inquired as to whether the detailed geologic mapping to be performed in response to Permit Condition Number 3 would be used for further identification of paleotsunami deposits.<sup>118</sup> The NRC Staff replied that, due to the location and depth of future geologic mapping, if such deposits are present “these deposits would represent paleo-geologic and paleo-hydrologic conditions from so long ago they would not be informative relative to the characteristics of potential future tsunamis at the PSEG site.”<sup>119</sup> Lastly, the Board requested further information regarding inclusive boring logs;<sup>120</sup> more recent models for landslide-sourced tsunami waves along the East Coast

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<sup>110</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 13.

<sup>111</sup> *Id.*

<sup>112</sup> December 15, 2015 Questions Order, Attach. A, ¶¶ 26-33, 41.

<sup>113</sup> *Id.* ¶ 27.

<sup>114</sup> *See* NRC Staff Response to First Set of Board Questions, Attach. A, at 16.

<sup>115</sup> *See id.*

<sup>116</sup> December 15, 2015 Questions Order, Attach. A, ¶ 28.

<sup>117</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 17.

<sup>118</sup> December 15, 2015 Questions Order, Attach. A, ¶ 41.

<sup>119</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 25.

<sup>120</sup> December 15, 2015 Questions Order, Attach. A, ¶ 29.

of the United States;<sup>121</sup> the conservatisms of the tsunami evaluation;<sup>122</sup> and the large attenuation of tsunami wave height within bays.<sup>123</sup> In each instance, the NRC Staff responded by providing recent publications and studies regarding these issues.<sup>124</sup> Based on the NRC Staff's responses and identification of additional publications and studies, the Board's concerns regarding tsunami issues were resolved.

7. The Board also identified various concerns associated with geology and seismology in the PSEG site area.<sup>125</sup> For example, the Board identified a situation in which PSEG defined the region surrounding the proposed site by applying regulatory guidance rather than a specific regulation addressing seismic requirements.<sup>126</sup> In response, both the NRC Staff and PSEG described why compliance with the regulatory guidance was an acceptable approach to satisfying analogous regulatory requirements.<sup>127</sup> In another example, the Board required the NRC Staff to identify those portions of the seismic evaluation that would eventually become design-basis information should a COL or CP application be submitted.<sup>128</sup> The NRC Staff responded that, for a plant that does not have a design certification, the ground motion response spectrum (GMRS) developed for the ESP would be used to develop the safe shutdown earthquake spectra.<sup>129</sup> By contrast, for a certified unit, the certified seismic design response spectra (CSDRS) would be compared to the GMRS and either the CSDRS or a modified form of it would be a part of the design basis.<sup>130</sup> Lastly, the Board sought clarification regarding the methods used to identify liquefaction features in the marshland around the PSEG site.<sup>131</sup> The NRC Staff responded that PSEG had performed aerial and field reconnaissance in areas other than the tidal marsh area and identified no evidence of Quaternary seismic deformation.<sup>132</sup> Because the NRC Staff found PSEG's evaluation of surface tectonic deformation adequate, the Staff did not find it necessary for

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<sup>121</sup> *Id.* ¶ 31.

<sup>122</sup> *Id.* ¶ 32.

<sup>123</sup> *Id.* ¶ 33.

<sup>124</sup> See NRC Staff Response to First Set of Board Questions, Attach. A, at 19-20.

<sup>125</sup> December 15, 2015 Questions Order, Attach. A, ¶¶ 37-40.

<sup>126</sup> *Id.* ¶ 37.

<sup>127</sup> See NRC Staff Response to First Set of Board Questions, Attach. A, at 21-22; PSEG Response to First Set of Board Questions, Attach. A, at 18.

<sup>128</sup> December 15, 2015 Questions Order, Attach. A, ¶ 38.

<sup>129</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 22-23.

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

<sup>131</sup> December 15, 2015 Questions Order, Attach. A, ¶ 40.

<sup>132</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 24.

PSEG to conduct any additional tests in the tidal marsh area.<sup>133</sup> Based in part on these responses, the Board was satisfied that the geology and seismology of the PSEG site were adequately reviewed.

8. The Board questioned whether the risks from aircraft hazards should be considered on an airport-by-airport basis or in the aggregate.<sup>134</sup> The NRC Staff responded that, for the PSEG site, each nearby airport had been screened out for further consideration because each posed a risk less than  $10^{-7}$ /yr of a crash at the site.<sup>135</sup> However, even if the airports were considered in the aggregate, the sum of risks for all airports in the area would be less than  $10^{-6}$ /yr, which is the upper limit provided under NRC guidance.<sup>136</sup> The NRC Staff's response resolved the Board's concerns regarding this issue.

9. The Board questioned why the calculated radiation doses to the nearest resident (due to normal operations) approached the allowable limit.<sup>137</sup> The NRC Staff responded that it conservatively disregarded the decay during radionuclide transport, which resulted in the calculated dose being conservatively high.<sup>138</sup> The NRC Staff's response resolved the Board's concerns regarding this issue.

10. To provide additional access road capacity to the site, PSEG proposes a three-lane, elevated causeway through coastal wetlands.<sup>139</sup> The Board therefore questioned whether the parties had evaluated whether improvements to an existing access road might provide additional capacity with fewer adverse environmental impacts.<sup>140</sup> In response, PSEG and the NRC Staff explained that, for operational and security reasons, two distinct traffic paths were needed for existing operations and construction activities.<sup>141</sup> Additionally, PSEG stated that eight alternative routes were considered, including widening the existing access road.<sup>142</sup> Because widening the access road would require wetland and floodplain fill, its adverse environmental impacts were greater

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

<sup>134</sup> December 15, 2015 Questions Order, Attach. A, ¶45.

<sup>135</sup> NRC Staff Response to First Set of Board Questions, Attach. A, at 26-27.

<sup>136</sup> *Id.* at 27.

<sup>137</sup> December 15, 2015 Questions Order, Attach. A, ¶50.

<sup>138</sup> *See* NRC Staff Response to First Set of Board Questions, Attach. A, at 29.

<sup>139</sup> Ex. NRC004A, at 2-18.

<sup>140</sup> January 6, 2016 Questions Order, Attach. A, ¶6.

<sup>141</sup> NRC Staff Response to Second Set of Board Questions, Attach. A, at 6; PSEG Response to Second Set of Board Questions, Attach. A, at 3.

<sup>142</sup> PSEG Response to Second Set of Board Questions, Attach. A, at 3.



than the proposed causeway.<sup>143</sup> On this basis, the Board was satisfied that this issue had been adequately reviewed.

11. The most recent unemployment data evaluated in the FEIS were from 2011.<sup>144</sup> Concerned that 2011 data might represent relatively depressed economic conditions, the Board asked whether consideration was given to updating an FEIS table that relies on this information.<sup>145</sup> The NRC Staff stated that the most recent economic data available at the time the FEIS was prepared were published by the Bureau of Labor Statistics in 2014, and represented data from 2012 — only a year after that referenced in the FEIS.<sup>146</sup> The NRC Staff explained that it compared the 2011 and 2012 data and identified only marginal differences, which did not affect the conclusions reached in the FEIS.<sup>147</sup> The Staff also gave assurances that, if a COL or construction permit application is later submitted, this issue will be reevaluated when preparing a supplement to the FEIS.<sup>148</sup> Therefore, the Board's concerns in this area were resolved.

12. Construction on the proposed site would occur mostly within areas dominated by common reed (*Phragmites australis*), an invasive, nonnative plant species.<sup>149</sup> The Board questioned whether construction activities in these areas could facilitate the spread of this species to nearby wetlands, displacing more desirable plant species.<sup>150</sup> PSEG explained that many wetland impacts would occur within existing self-contained areas operated by the USACE and PSEG, thereby eliminating any potential increase in the spread of this species, in part because this species primarily depends on rhizome disruption and displacement for expansion.<sup>151</sup> PSEG stated that elevations within the route for the proposed causeway are sufficient to counter invasion of this species through tidal flooding effects.<sup>152</sup> Furthermore, PSEG assured the Board that the spread of this species would be monitored during construction and, if necessary, managed.<sup>153</sup> On the basis of PSEG's response, the Board was satisfied that the spread of this species would not increase to any appreciable degree as a result of potential construction activities.

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

<sup>144</sup> Ex. NRC004A, tbl. 2-21, at 2-125.

<sup>145</sup> January 6, 2016 Questions Order, Attach. A, ¶ 11.

<sup>146</sup> NRC Staff Response to Second Set of Board Questions, Attach. A, at 8.

<sup>147</sup> *Id.* at 8.

<sup>148</sup> *Id.* at 8-9.

<sup>149</sup> Ex. NRC004A at 4-28.

<sup>150</sup> January 6, 2016 Questions Order, Attach. A, ¶ 14.

<sup>151</sup> PSEG Response to Second Set of Board Questions, Attach. A, at 7.

<sup>152</sup> *Id.* at 8.

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

13. The Board had various other wetland resources concerns related to post-construction recovery of these areas and the USACE's role in permitting and identifying mitigation requirements for activities impacting wetlands resources.<sup>154</sup> Both the NRC Staff and PSEG indicated that any construction activities in wetland areas would be subject to planning, permitting, and mitigation requirements imposed by appropriate federal, state, and local agencies, including the USACE and NJDEP.<sup>155</sup> For example, PSEG will likely be subject to mitigation requirements to address unavoidable impacts, and any failure to comply with permit conditions could result in enforcement actions and/or suspension or revocation of any permits.<sup>156</sup> Furthermore, as noted by the NRC Staff, the NRC's regulatory authority is limited to NRC-regulated construction activities, thus limiting the NRC's review to NEPA and verification of the PSEG's compliance with the requirements of other agencies.<sup>157</sup> For these reasons, the Board was satisfied that a regulatory framework exists to ensure that wetlands are restored to predisturbance conditions or enhanced beyond existing conditions.<sup>158</sup>

14. The Board was concerned about elevated nighttime noise levels at two onsite monitoring locations that were higher than daytime levels observed at the same locations.<sup>159</sup> The NRC Staff responded that in one location higher noise levels were associated with an employee shift change during predawn hours.<sup>160</sup> In the second location, the NRC Staff concluded that any building or operation noise levels would dissipate to ambient levels within a short distance.<sup>161</sup> The NRC Staff's response resolved the Board's concern regarding this issue.

15. The Board was also concerned about an apparent inconsistency in dose rate calculations regarding radiation exposure during the transport of new fuel.<sup>162</sup> The NRC Staff clarified that different computer codes, with different

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<sup>154</sup> January 6, 2016 Questions Order, Attach. A, ¶¶ 15, 17-19.

<sup>155</sup> See NRC Staff Response to Second Set of Board Questions, Attach. A, at 10; PSEG Response to Second Set of Board Questions, Attach. A, at 8.

<sup>156</sup> NRC Staff FEIS Responses, Attach. A, at 10-11.

<sup>157</sup> See *id.* at 12.

<sup>158</sup> See PSEG Response to Second Set of Board Questions, Attach. A, at 8 ("Any restoration of temporary fill areas will be monitored by regulatory agencies, including the USACE and the NJDEP. PSEG expects that permits issued by both agencies will have strict compliance and monitoring requirements for restoration of temporarily disturbed wetlands to assure they are restored to pre-disturbance conditions or enhanced beyond existing conditions.").

<sup>159</sup> January 6, 2016 Questions Order, Attach. A, ¶ 24.

<sup>160</sup> NRC Staff Response to Second Set of Board Questions, Attach. A, at 15.

<sup>161</sup> *Id.*

<sup>162</sup> January 6, 2016 Questions Order, Attach. A, ¶ 28.

assumptions, were used to model doses for two distinct groups: (1) populations and transportation workers, such as inspectors, during routine operations; and (2) potentially maximally exposed individuals (e.g., persons stuck in traffic) and to the population during routine transportation.<sup>163</sup> The NRC Staff's response satisfied the Board's concerns.

*Third*, after reviewing the parties' responses to its initial questions, the Board nonetheless determined that it still wished to receive more detailed and integrated sworn prefiled testimony and exhibits concerning certain topics. Specifically, on January 27, 2016, the Board requested prefiled written testimony and exhibits concerning six matters pertaining to the SER,<sup>164</sup> which are set forth in Section IV, *infra*. Thereafter, on February 8, 2016, the Board requested prefiled written testimony and exhibits concerning eight matters pertaining to the FEIS,<sup>165</sup> which are set forth in Section IV, *infra*.

Again, we directed the parties to provide written testimony under oath, so that the Board could accord sworn prefiled testimony as much weight as we would give sworn testimony presented in person at the evidentiary hearing, without having to engage in the formality of asking witnesses at the hearing to "adopt" their prior written testimony.<sup>166</sup> In accordance with the Board's suggestion that the parties coordinate their testimony as to avoid repetition,<sup>167</sup> PSEG did not submit prefiled testimony on every topic. Collectively, however, PSEG and the NRC Staff submitted approximately 200 pages of prefiled written testimony from twenty-two witnesses, as well as associated exhibits.<sup>168</sup>

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<sup>163</sup> NRC Staff Response to Second Set of Board Questions, Attach. A, at 17.

<sup>164</sup> SER Prefiled Testimony Order at 2-3.

<sup>165</sup> FEIS Prefiled Testimony Order at 2-3.

<sup>166</sup> SER Prefiled Testimony Order at 3; FEIS Prefiled Testimony Order at 4.

<sup>167</sup> See SER Prefiled Testimony Order at 3; FEIS Prefiled Testimony Order at 4.

<sup>168</sup> Ex. PSEG001, Testimony of James Mallon and David Robillard on SER Topic 1 [hereinafter PSEG SER Topic 1 Testimony]; Ex. PSEG007, Testimony of James Mallon and David Robillard on SER Topic 2 [hereinafter PSEG SER Topic 2 Testimony]; Ex. PSEG011, Testimony of James Mallon on SER Topic 3 [hereinafter PSEG SER Topic 3 Testimony]; Ex. PSEG012, Testimony of James Mallon on SER Topic 6 [hereinafter PSEG SER Topic 6 Testimony]; Ex. PSEG013, Testimony of James Mallon on FEIS Topic 3 [hereinafter PSEG FEIS Topic 3 Testimony]; Ex. PSEG016, Testimony of James Mallon on FEIS Topic 6 [hereinafter PSEG FEIS Topic 6 Testimony]; Ex. NRC001-R, Testimony of Prosanta Chowdhury, Allen Fetter, and Bruce J. Musico on SER Topic 1 [hereinafter NRC SER Topic 1 Testimony]; Ex. NRC006-R, Testimony of Prosanta Chowdhury, Seshagiri Tammara, Gerry Lewis Stirewalt, Frankie G. Vega, and Bruce J. Musico on SER Topic 2 [hereinafter NRC SER Topic 2 Testimony]; Ex. NRC008-R, Testimony of Joseph F. Giacinto and Henry Jones on SER Topic 3 [hereinafter NRC SER Topic 3 Testimony]; Ex. NRC009, Testimony of Kevin R. Quinlan and Henry Jones on SER Topic 4 [hereinafter NRC SER Topic 4 Testimony]; Ex. NRC010-R, Testimony of Prosanta Chowdhury, Joseph F. Giacinto, Henry Jones, Dogan Seber, (Continued)

*Fourth*, at a one-day evidentiary hearing, the Board members had the opportunity to question in person specific witnesses who submitted prefiled written testimony.<sup>169</sup> All prefiled testimony and exhibits were admitted into evidence without objection.<sup>170</sup>

In other words, the Board's process was a continuing one, which allowed consideration of various kinds of information at various times. The sworn oral testimony at the evidentiary hearing constituted only a portion of the sworn testimony available to the Board — which included both prefiled testimony and responses under oath to the Board's initial written questions — and addressed only a portion of all the information (including the application itself) that we began to examine as soon as the Board was constituted. Also, absent objection in an uncontested case such as this, the Board saw no reason to exclude opinion testimony or other evidence that might be objectionable in a jury trial in a court of law.<sup>171</sup> Rather, in addressing the issues before it, the Board considered all

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Stephanie Devlin-Gill, Donald Palmrose, and Bruce J. Musico on SER Topic 5 [hereinafter NRC SER Topic 5 Testimony]; Ex. NRC011, Testimony of Kevin R. Quinlan and Stephen E. Williams on SER Topic 6 [hereinafter NRC SER Topic 6 Testimony]; Ex. NRC012, Testimony of Michael Willingham and Neil Giffen on FEIS Topic 1 [hereinafter NRC FEIS Topic 1 Testimony]; Ex. NRC013, Testimony of Michael Willingham and Neil Giffen on FEIS Topic 2 [hereinafter NRC FEIS Topic 2 Testimony]; Ex. NRC014, Testimony of Philip Meyer and Mohammad Haque on FEIS Topic 3 [hereinafter NRC FEIS Topic 3 Testimony]; Ex. NRC015, Testimony of Michael Willingham and Neil Giffen on FEIS Topic 4 [hereinafter NRC FEIS Topic 4 Testimony]; Ex. NRC017, Testimony of Michael Willingham and Neil Giffen on FEIS Topic 5 [hereinafter NRC FEIS Topic 5 Testimony]; Ex. NRC018, Testimony of Allen Fetter, Jack Cushing, Jennifer Davis, and Andrew Kugler on FEIS Topic 6 [hereinafter NRC FEIS Topic 6 Testimony]; Ex. NRC019, Testimony of Allen Fetter, Jack Cushing, Jennifer Davis, and Andrew Kugler on FEIS Topic 7 [hereinafter NRC FEIS Topic 7 Testimony].

<sup>169</sup>Mindful of the policies underlying Rule 615 of the Federal Rules of Evidence, the Board considered whether to exclude witnesses from the hearing room during the testimony of other witnesses testifying on the same issues, but ultimately determined that would not be necessary in this particular case. Rule 615 provides (subject to limited exceptions) that at the request of any party a court “must” order witnesses excluded so that they cannot hear other witnesses’ testimony. Fed. R. Evid. 615. Alternatively, Rule 615 provides, “the court may do so on its own.” *Id.* In contrast to the practice followed by many licensing boards, courts therefore routinely exclude witnesses prior to their testimony. They do so, as the Supreme Court has recognized, not only to discourage or expose outright fabrication, but also to exercise a restraint on the natural tendency of witnesses to “tailor” their testimony to that of earlier witnesses. *Geders v. United States*, 425 U.S. 80, 87 (1976); *see also GE-Hitachi Global Laser Enrichment LLC* (GLE Commercial Facility), LBP-12-21, 76 NRC 218, 249-50 (2012).

<sup>170</sup>Tr. at 70-72.

<sup>171</sup>NRC regulations provide that “strict rules of evidence do not apply to written submissions,” 10 C.F.R. § 2.319(d), and rarely is it productive for licensing boards to devote time and resources to trying to separate “inadmissible” evidence from the merely unpersuasive. The bedrock principle underlying much of the law of evidence is set forth in Fed. R. Evid. 403: “The court may exclude relevant evidence if its probative value is substantially outweighed by a danger of one or more of the

(Continued)

available facts — recognizing that some sources of information may be more reliable than others.<sup>172</sup>

#### IV. SUMMARY OF TESTIMONY

##### A. SER Topic 1

SER Topic 1 stated:

Pursuant to 10 C.F.R. § 52.24(a), in order to authorize issuance of an ESP the Licensing Board must make the following safety findings:

- (1) An application for an early site permit meets the applicable standards and requirements of the [AEA] and the Commission's regulations;
- (2) Notifications, if any, to other agencies or bodies have been duly made;
- (3) There is reasonable assurance that the site is in conformity with the provisions of the Act, and the Commission's regulations;
- (4) The applicant is technically qualified to engage in any activities authorized;
- (5) The proposed inspections, tests, analyses and acceptance criteria, including any on emergency planning, are necessary and sufficient, within the scope of the early site permit, to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's regulations; [and]
- (6) Issuance of the permit will not be inimical to the common defense and security or to the health and safety of the public . . . .

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following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence.” In NRC licensing cases, however, excluding evidence will seldom achieve these objectives. Written prefiled testimony and exhibits are typically submitted well in advance of the evidentiary hearing, and, in our most common types of hearings, the licensing boards themselves — not the parties — orally examine the witnesses. 10 C.F.R. § 2.1207. Therefore, rulings excluding evidence have, as a practical matter, little effect in eliminating delay, waste of time, or the needless presentation of cumulative evidence in the record. If a licensing board deems prefiled evidence to be of little or no value, it simply need not ask about it at the evidentiary hearing, and is free to accord such evidence little or no weight. Likewise, because the members of the licensing boards themselves must read challenged testimony to determine whether its probative value is substantially outweighed by the danger of unfair prejudice or confusion of the issues, excluding evidence on this ground also seems to have little practical effect. *See GLE Commercial Facility*, LBP-12-21, 76 NRC at 248 n.171.

<sup>172</sup>The Board also received written limited appearance statements from interested members of the public. In accordance with 10 C.F.R. § 2.315(a), however, such statements were not considered as evidence.

Staff shall briefly summarize those portions of its review that support each of these findings.<sup>173</sup>

Five witnesses testified on SER Topic 1:

### ***1. PSEG Witnesses***

*James Mallon.* Mr. Mallon is the Nuclear Development Manager for the Nuclear Development Department at PSEG.<sup>174</sup> He has a B.A. in physics from Franklin and Marshall College and has completed graduate business courses toward an M.B.A. at the University of Southern Maine.<sup>175</sup> He also holds a Senior Reactor Operator certification.<sup>176</sup>

Mr. Mallon has 34 years of experience in the nuclear industry.<sup>177</sup> At PSEG, he was the Early Site Permit Manager during the initial phases of the proposed project.<sup>178</sup> In 2011, he became the Manager of Nuclear Development, in which capacity he oversees both the ESP project and other activities related to small modular reactors and advanced nuclear technology.<sup>179</sup>

In his written testimony on SER Topic 1, Mr. Mallon testified as follows:

Although SER Topic 1 was primarily addressed to the NRC Staff, PSEG has also considered the findings that must be made to issue the ESP.<sup>180</sup> PSEG concludes that its application, the NRC's review, and the NRC's documentation all support making these findings.<sup>181</sup>

PSEG has not yet selected a particular reactor design to be constructed at the site.<sup>182</sup> However, to provide sufficient information to enable the NRC to determine whether the site is suitable for a new plant, PSEG's application sets forth a surrogate design with a set of bounding parameters.<sup>183</sup>

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<sup>173</sup> December 15, 2015 Questions Order, Attach. A, at 1. SER Topic 1 originated as SER Question No. 1 in the Board's Order of December 15, 2015. As allowed by the Board, the NRC Staff elected to defer its response until it submitted prefiled written testimony. Although SER Question No. 1 was specifically addressed to the NRC Staff, PSEG also responded, both in its answers to our December 15, 2015 Order and in its prefiled written testimony and exhibits. PSEG Response to First Set of Board Questions, Attach. A, at 1-5; PSEG SER Topic 1 Testimony.

<sup>174</sup> PSEG SER Topic 1 Testimony at 1.

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

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*

<sup>178</sup> *Id.* at 2.

<sup>179</sup> *Id.*

<sup>180</sup> *Id.* at 4.

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

<sup>182</sup> *Id.* at 5.

<sup>183</sup> *Id.*

PSEG's application contains the information required by 10 C.F.R. § 52.17.<sup>184</sup> The structure and content of the application are based on relevant NRC guidance, including NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition; RS-002, Processing Applications for Early Site Permits; NRC Regulatory Guide 1.70, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants; NRC Regulatory Guide 1.206, Combined License Applications for Nuclear Power Plants (LWR Edition); and NUREG-1555, Standard Review Plans for Environmental Reviews for Nuclear Power Plants.<sup>185</sup>

The NRC Staff appropriately reviewed PSEG's application, concluded all applicable standards for issuance of the ESP had been met, and determined that an ESP should be issued.<sup>186</sup> The NRC's independent ACRS reviewed both PSEG's application and the Staff's analysis, determined that "[t]he staff has done a thorough review of the early site permit application," and likewise concluded that the early site permit should be issued.<sup>187</sup>

The Board did not require oral testimony from Mr. Mallon on SER Topic 1.

*David Robillard.* Mr. Robillard is the Licensing Lead and Quality Assurance Specialist for the ESP project.<sup>188</sup> In this role, he has been responsible for the quality and accuracy of all submittals to the NRC.<sup>189</sup> Mr. Robillard has both an A.S. degree in Nuclear Technology and a B.S. degree in Business Administration from Excelsior College.<sup>190</sup> He has 46 years of experience working on a variety of nuclear activities.<sup>191</sup>

Mr. Robillard's written testimony on SER Topic 1 was substantively identical to portions of the written testimony of Mr. Mallon. In his oral testimony on SER Topic 1, Mr. Robillard testified as follows:

PSEG considered all of the applicable safety and environmental standards in the NRC regulations by reviewing the NRC's standard review plans.<sup>192</sup> PSEG considered the NRC Staff's environmental and safety reviews to be thorough given that the NRC Staff conducted a number of site audits, reached out to local members of the surrounding community, conducted an independent need-for-

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<sup>184</sup> *Id.* at 6.

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

<sup>186</sup> *Id.* at 8.

<sup>187</sup> *Id.* (quoting Ex. NRC003, App. E, at E-2).

<sup>188</sup> *Id.* at 2.

<sup>189</sup> *Id.*

<sup>190</sup> *Id.*

<sup>191</sup> *Id.*

<sup>192</sup> Tr. at 104-05.

power analysis, and made several requests for additional information regarding PSEG's safety and environmental analyses.<sup>193</sup>

## 2. NRC Staff Witnesses

*Prosanta Chowdhury.* Mr. Chowdhury is a Project Manager in the NRC's Division of New Reactor Licensing.<sup>194</sup> He has an M.S. in Nuclear Engineering from Louisiana State University and an M.S. in Electrical Engineering from Moscow Power Engineering Institute.<sup>195</sup> Mr. Chowdhury has about 8 years of experience as a project manager at the NRC.<sup>196</sup> He coordinated all aspects of the NRC Staff's review of PSEG's ESP application.<sup>197</sup>

In his written testimony on SER Topic 1, Mr. Chowdhury testified as follows:

The NRC Staff conducted the safety review of PSEG's ESP application against the applicable regulations in Title 10 of the *Code of Federal Regulations*, Parts 20, 50, 52, 73, and 100.<sup>198</sup> The Staff performed its safety review and evaluation using applicable portions of the Standard Review Plan (NUREG-0800), Interim Staff Guidance documents, Regulatory Guides, bulletins, generic letters, and other applicable NUREGs.<sup>199</sup> On the basis of its evaluation and its independent analyses as discussed in the SER,<sup>200</sup> the NRC Staff concluded that PSEG's ESP application satisfies all applicable statutory and regulatory standards and requirements.<sup>201</sup>

No notifications to other agencies or bodies were required within the scope of the ESP safety review.<sup>202</sup> As described by other NRC Staff witnesses, the NRC did publish the required availability, docketing, and hearing notices for the ESP application.<sup>203</sup>

When necessary after reviewing the application, the NRC Staff issued requests for additional information, conducted audits of PSEG's records, and performed its own confirmatory calculations.<sup>204</sup> The Staff also proposed certain permit

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<sup>193</sup> Tr. at 106-07.

<sup>194</sup> NRC SER Topic 1 Testimony at 1.

<sup>195</sup> Ex. NRC002, Statements of Professional Qualifications for NRC Staff Witnesses, at 1 [hereinafter NRC Staff Statements of Professional Qualifications].

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

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

<sup>198</sup> NRC SER Topic 1 Testimony at 2.

<sup>199</sup> *Id.*

<sup>200</sup> See generally Ex. NRC003.

<sup>201</sup> NRC SER Topic 1 Testimony at 2.

<sup>202</sup> *Id.*

<sup>203</sup> *Id.*

<sup>204</sup> *Id.* at 3-4.



conditions.<sup>205</sup> On this basis, the Staff was able to find reasonable assurance that the proposed PSEG site is in conformity with the provisions of the Atomic Energy Act and NRC regulations.<sup>206</sup>

Because PSEG did not request a limited work authorization, no technical qualifications to undertake construction activities had to be demonstrated at the ESP stage; rather, PSEG's technical qualifications to engage in NRC-authorized activities would be evaluated at later stages of the licensing process.<sup>207</sup> PSEG has extensive experience as a nuclear plant owner and operator, including the existing facilities on Artificial Island, and is technically qualified to receive an ESP.<sup>208</sup>

In the case of an ESP application that does not seek a limited work authorization, the only inspections, tests, analyses, and acceptance criteria (ITAAC) are those that pertain to emergency planning.<sup>209</sup> PSEG submitted a complete and integrated emergency plan and associated ITAAC,<sup>210</sup> which the Staff found necessary and sufficient to provide reasonable assurance that the facility that references the ESP will be constructed and operated in conformity with the license, the Atomic Energy Act, and NRC regulations.<sup>211</sup>

Based on its overall review of PSEG's application, the NRC Staff concluded that PSEG complied with all applicable regulatory requirements and that issuance of an ESP for the PSEG site will not be inimical to public health and safety or the common defense and security.<sup>212</sup>

In his oral testimony on SER Topic 1, Mr. Chowdhury testified as follows:

PSEG did not select a specific reactor design and instead utilized a PPE.<sup>213</sup> If PSEG selected a design outside these parameters at the COL stage, its application would be a deviation from the ESP.<sup>214</sup> However, in such circumstances, PSEG could request a variance, whereupon the NRC Staff would evaluate the significance of the differences between the ESP and the requested COL.<sup>215</sup>

The NRC Staff followed the NRC Standard Review Plan, NUREG-0800, to ensure that PSEG met all the applicable regulatory requirements and standards.<sup>216</sup>

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<sup>205</sup> *Id.* at 4.

<sup>206</sup> *Id.*

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

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

<sup>209</sup> *Id.*

<sup>210</sup> See Ex. PSEG004AC, PSEG Site ESP Application, Part 5 Emergency Plan, Rev. 4 (Apr. 15, 2015).

<sup>211</sup> NRC SER Topic 1 Testimony at 4-5.

<sup>212</sup> *Id.* at 5.

<sup>213</sup> Tr. at 93.

<sup>214</sup> *Id.*

<sup>215</sup> Tr. at 94.

<sup>216</sup> Tr. at 95, 98.

PSEG's compliance with these regulatory requirements allowed the NRC Staff to conclude that issuance of the ESP would not be inimical to the common defense, as defined by the Atomic Energy Act.<sup>217</sup>

*Allen Fetter.* Dr. Fetter is a Senior Project Manager in the Environmental Projects Branch of the NRC's Division of New Reactor Licensing.<sup>218</sup> He has a Ph.D. in Geology from the University of Kansas, an M.S. in Geology from the University of North Carolina, and a B.A. in Geology from Guilford College.<sup>219</sup> Dr. Fetter has about 7 years of experience as a project manager at the NRC.<sup>220</sup> He planned and coordinated most aspects of the NRC Staff's environmental review of PSEG's ESP application.<sup>221</sup>

In his written testimony on SER Topic 1, Dr. Fetter testified that adequate announcement, notification, and distribution of the FEIS had occurred.<sup>222</sup> In his oral testimony on SER Topic 1, Dr. Fetter testified that the NRC Staff was able to ensure that all of the required notifications were made to members of the public and other federal, state, and local regulatory bodies through *Federal Register* notices, site audits, press releases regarding public meetings, and meetings with local agencies.<sup>223</sup>

*Bruce J. Musico.* Mr. Musico is a Senior Emergency Preparedness Specialist in the New Reactor Licensing Branch within the NRC's Office of Nuclear Security and Incident Response.<sup>224</sup> He has a J.D. from Franklin Pierce Law Center and a B.S. in Nuclear Engineering from the University of Michigan.<sup>225</sup> He has over 30 years of experience in commercial nuclear power and related industries, including approximately 25 years relating to nuclear reactor emergency planning.<sup>226</sup>

Mr. Musico's written testimony on SER Topic 1 was substantively identical to portions of the written testimony of Mr. Chowdhury. The Board did not require oral testimony from Mr. Musico on SER Topic 1.

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<sup>217</sup> Tr. at 99-100.

<sup>218</sup> NRC Staff Statements of Professional Qualifications at 3.

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

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

<sup>221</sup> *Id.*

<sup>222</sup> NRC SER Topic 1 Testimony at 3, 5-6.

<sup>223</sup> Tr. at 96-97.

<sup>224</sup> NRC SER Topic 1 Testimony at 1.

<sup>225</sup> NRC Staff Statements of Professional Qualifications at 5.

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

## B. SER Topic 2

SER Topic 2 stated:

The Staff's response to SER Question No. 9 acknowledges that each of the nine permit conditions the Staff proposes in the SER (at pp. A-2 through A-6) must be "precisely drawn so that the verification of compliance becomes a largely ministerial . . . act." Yet some of the proposed permit conditions arguably include subjective requirements, such as the direction that a future applicant must examine and adequately "evaluate" geologic features (No. 3) and develop emergency action plans that contain "few or no deviations or differences" from NRC-endorsed standards (No. 9). The Staff shall address in detail how verification of compliance with each proposed permit condition can be accomplished by "largely ministerial" action and, if and where appropriate, propose alternative language that might set forth a more objective standard.<sup>227</sup>

Seven witnesses testified on SER Topic 2:

### 1. PSEG Witnesses

*James Mallon.* Mr. Mallon's background and qualifications have been previously summarized in relation to his testimony on SER Topic 1. In his written testimony on SER Topic 2, Mr. Mallon testified as follows:

The Commission has ruled that, when the NRC imposes license conditions, the conditions must be precisely drawn so that verification becomes largely ministerial.<sup>228</sup> Verification should not require overly complex judgments or be subject to meaningful debate.<sup>229</sup>

At the same time, the Commission has clarified, "[t]his is not to say that the Staff is allowed no room to exercise professional judgment in conducting post-licensing verification activities."<sup>230</sup> Verification of compliance need only be a "largely" ministerial act and possible without having to make "overly" complex judgments.<sup>231</sup>

All nine proposed permit conditions meet this standard.<sup>232</sup> Moreover, seven of

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<sup>227</sup> SER Prefiled Testimony Order at 2.

<sup>228</sup> PSEG SER Topic 2 Testimony at 6.

<sup>229</sup> *Id.*

<sup>230</sup> *Id.* at 5 (quoting *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-00-13, 52 NRC 23, 34 (2000)).

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

<sup>232</sup> *Id.* at 3-4.

the nine proposed permit conditions are nearly identical to those that have been approved by the Commission in other proceedings.<sup>233</sup>

The Board did not require oral testimony from Mr. Mallon on SER Topic 2.

*David Robillard.* Mr. Robillard's background and qualifications have been previously summarized in relation to his testimony on SER Topic 1.

Mr. Robillard's written testimony on SER Topic 2 was substantively identical to the written testimony of Mr. Mallon. In his oral testimony on SER Topic 2, Mr. Robillard testified as follows:

PSEG did not find analogous Commission decisions approving permit conditions similar to PSEG Permit Condition 1 and Permit Condition 2 because those conditions are very site specific.<sup>234</sup> For example, Permit Condition 1 requires PSEG to obtain a land exchange with the USACE for approximately 85 acres north of the existing Hope Creek reactor site.<sup>235</sup> By contrast, other past ESP applicants had larger sites and already had control over their exclusionary boundary.<sup>236</sup> Thus, these past applications did not need a land exchange.<sup>237</sup>

## 2. NRC Staff Witnesses

*Prosanta Chowdhury.* Mr. Chowdhury's background and qualifications have been previously summarized in relation to his testimony on SER Topic 1.

In his written testimony on SER Topic 2, Mr. Chowdhury testified as follows:

The NRC Staff included sufficiently prescriptive detail in its proposed permit conditions to ensure that its post-permitting compliance review will not require complex factual or legal judgments going beyond ministerial verification that the required actions have been completed.<sup>238</sup> For example, the Staff used widely accepted industry standards and terminology, the interpretation of which would not be subject to reasonable dispute; incorporated as requirements prescriptive methodologies and standards from particular guidance documents; and established prescriptive compliance steps to the extent those steps were not already incorporated from other sources referenced in the conditions.<sup>239</sup>

The Board did not require oral testimony from Mr. Chowdhury on SER Topic 2.

*Seshagiri Tammara.* Mr. Tammara is a Physical Scientist in the Radiation

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<sup>233</sup> See *id.* at 9-21.

<sup>234</sup> Tr. at 110.

<sup>235</sup> Tr. at 109.

<sup>236</sup> *Id.*

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

<sup>238</sup> NRC SER Topic 2 Testimony at 2.

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

Protection and Accident Branch of the NRC's Division of Site Safety and Environmental Analysis.<sup>240</sup> He has an M.S. in Chemical Engineering from Osmania University, an M.S. in Chemical Engineering and Nuclear Engineering from the University of Maryland, and an M.S. in Environmental Engineering from the University of Maryland.<sup>241</sup> He has over 40 years of experience as a technical analyst and physical scientist.<sup>242</sup>

In his written testimony on SER Topic 2, Mr. Tammara addressed the process the NRC Staff anticipates it will use to verify compliance with Permit Conditions 1 and 2.<sup>243</sup> In his oral testimony on SER Topic 2, Mr. Tammara testified as follows:

Permit Condition 2 requires PSEG to perform certain calculations to ensure that the overpressure due to an explosion at a relocated gasoline storage tank will not exceed 1 psi.<sup>244</sup> PSEG complies with this permit condition by performing the requisite calculations, as prescribed in Regulatory Guide 1.19 and 1.78.<sup>245</sup> Whether PSEG performed these calculations correctly would be addressed in the NRC's review of any COL application.<sup>246</sup>

*Gerry Lewis Stirewalt.* Dr. Stirewalt is a Senior Geologist in the Geoscience and Geotechnical Engineering Branch of the NRC's Division of Site Safety and Environmental Analysis.<sup>247</sup> He has a Ph.D. in Structural Geology from the University of North Carolina and a B.A. in Geology and Mathematics from Catawba College.<sup>248</sup> Dr. Stirewalt has more than 43 years of national and international experience in geoscience, including both practical experience and university teaching.<sup>249</sup>

In his written testimony on SER Topic 2, Dr. Stirewalt addressed the process the NRC Staff anticipates it will use to verify compliance with Permit Condition 3.<sup>250</sup> In his oral testimony on SER Topic 2, Dr. Stirewalt testified as follows:

Permit Condition 3 requires PSEG to perform detailed geologic mapping of its planned excavation for safety-related structures.<sup>251</sup> Although Dr. Stirewalt's

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<sup>240</sup> *Id.* at 1.

<sup>241</sup> NRC Staff Statements of Professional Qualifications at 7.

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

<sup>243</sup> NRC SER Topic 2 Testimony at 3-5.

<sup>244</sup> *See* Tr. at 111-12; *see also* Ex. NRC003, App. A, at A-3.

<sup>245</sup> Tr. at 113-14.

<sup>246</sup> Tr. at 114.

<sup>247</sup> NRC SER Topic 2 Testimony at 1.

<sup>248</sup> NRC Staff Statements of Professional Qualifications at 8.

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

<sup>250</sup> NRC SER Topic 2 Testimony at 5-7.

<sup>251</sup> *See* Tr. at 116-17; *see also* NRC003, App. A, at A-3.

written testimony referenced Regulatory Guide 1.132, Regulatory Guide 1.208 provides greater detail as to how the excavations should be mapped.<sup>252</sup> The NRC Staff did not explicitly reference these Regulatory Guides in the permit condition in the event that the guidance documents change at a future date.<sup>253</sup>

In addition, if PSEG were to find some kind of tectonic structure in the Vincentown formation in conducting its excavations, such a discovery would trigger a more extensive NRC Staff reevaluation of the PSEG site's geologic structure.<sup>254</sup> However, any review of PSEG's excavations would be undertaken as part of the NRC Staff's construction inspections rather than through satisfaction of Permit Condition 3.<sup>255</sup> This distinction is to ensure that the requirements of Permit Condition 3 remain ministerial.<sup>256</sup> Accordingly, Permit Condition 3 would be satisfied when PSEG notifies the NRC Staff that the excavations are ready for the NRC Staff's examination.<sup>257</sup>

*Frankie G. Vega.* Mr. Vega is a Project Manager in the Hazard Management Branch of the Japan Lessons Learned Division within the NRC's Office of Nuclear Reactor Regulation.<sup>258</sup> He has an M.E. in Civil Engineering from the University of Maryland and a B.S. in Civil Engineering from the University of Puerto Rico, and possesses 9 years of experience as an engineer and project manager.<sup>259</sup>

In his written testimony on SER Topic 2, Mr. Vega addressed the process the NRC Staff anticipates it will use to verify compliance with Permit Condition 4.<sup>260</sup> The Board did not require oral testimony from Mr. Vega on SER Topic 2.

*Bruce J. Musico.* Mr. Musico's background and qualifications have been previously summarized in relation to his testimony on SER Topic 1.

In his written testimony on SER Topic 2, Mr. Musico addressed the process the NRC Staff anticipates it will use to verify compliance with Permit Conditions 5-9.<sup>261</sup> The Board did not require oral testimony from Mr. Musico on SER Topic 2.

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<sup>252</sup> Tr. at 116-17.

<sup>253</sup> Tr. at 117-18.

<sup>254</sup> Tr. at 121-22.

<sup>255</sup> Tr. at 122.

<sup>256</sup> *Id.*; see also *Private Fuel Storage*, CLI-00-13, 52 NRC at 34 ("[W]e must insist that the condition be precisely drawn so that the verification of compliance becomes a largely ministerial rather than an adjudicatory act.").

<sup>257</sup> Tr. at 122.

<sup>258</sup> NRC SER Topic 2 Testimony at 1.

<sup>259</sup> NRC Staff Statements of Professional Qualifications at 10.

<sup>260</sup> NRC SER Topic 2 Testimony at 7-8.

<sup>261</sup> *Id.* at 8-13.

### C. SER Topic 3

SER Topic 3 stated:

In response to SER Question No. 20 the Staff stated as follows:

While the Staff recognizes that increasing the resolution of the overall watershed basin model could improve the precision of the Applicant's river flooding model results, the Staff determined *on the basis of experience with hydraulic modeling* that such improvements could not change the conclusion that storm surge is the bounding flood hazard for the PSEG ESP site and additional analyses were not necessary.

To what extent is the "experience with hydraulic modeling" upon which this decision was based documented? If experience based knowledge is used in the Staff's decision-making process generally, how is this experience documented?<sup>262</sup>

Three witnesses testified on SER Topic 3:

#### 1. PSEG Witness

*James Mallon.* Mr. Mallon's background and qualifications have been previously summarized with regard to his testimony on SER Topic 1.

In his written testimony on SER Topic 3, Mr. Mallon testified as follows:

The SER correctly concluded that the probable maximum hurricane is the bounding flood hazard for the PSEG site.<sup>263</sup> The potential causes of flooding at the PSEG site include: (1) the probable maximum flood (PMF) on rivers and streams, (2) dam failures, (3) a storm surge due to the probable maximum hurricane (PMH), (4) tsunamis, and (5) ice effects.<sup>264</sup> Each is summarized in the following chart:<sup>265</sup>

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<sup>262</sup> SER Prefiled Testimony Order at 2.

<sup>263</sup> PSEG SER Topic 3 Testimony at 2.

<sup>264</sup> *Id.* at 4.

<sup>265</sup> *Id.* at 7.

		Primary Flood- Causing Mechanism	Combined Effects				
SSAR	Description	Flood Height (ft. NAVD)	Tide (ft.)	Waves (ft.)	Other <sup>(a)</sup> (ft.)	Total (ft.)	SSAR Reference
2.4.3	PMF	2.1	4.5	3.1	11.3	21.0	Table 2.4.3-4
2.4.4	Dam Break	0.3	4.5	2.6	2.0	9.4	Table 2.4.4-5
2.4.5	PMH	20.2	4.5	7.4	N/A	32.1	Table 2.4.5-4, Run #2
2.4.6	Tsunami	1.15	4.5	N/A	N/A	5.65	Table 2.4.4-6
2.4.7	Ice Jam Flooding	0.1	4.5	2.8	0.7	8.1	Table 2.4.7-3

(a) PMF is combined with the worst regional hurricane flood level.

Dam Break is combined with the 500-year flood.

Ice Jam Flooding includes spring base flow effects on water level.

Because the PMH event resulted in the highest total water surface elevation (WSEL), it represents PSEG's design-basis flood.<sup>266</sup>

Although increasing the resolution of the overall watershed basin model could affect the primary flood-causing mechanism for the PMF event, "increasing the resolution would not necessarily increase the resulting WSEL, but could result in a decrease in water level."<sup>267</sup> Moreover, an increased resolution for the overall watershed basin model would only potentially impact the primary flood-cause mechanism for the PMF event, and "[a]side from the PMH event, the primary flood-causing mechanism associated with each flood hazard represents a small portion of the associated WSEL."<sup>268</sup> Thus, even if the increased resolution did slightly increase the resulting WSEL for the PMF event, there was such a significant margin between the total WSEL for the PMF event (21 feet North American Vertical Datum (NAVD)) and the PMH event (32.1 feet NAVD) that the PMH event would still serve as the design-basis flood event.<sup>269</sup>

In his oral testimony on SER Topic 3, Mr. Mallon testified as follows:

Regulatory Guide 1.59 and American National Standards Institute Standard 2.8 set forth standards for performing a PMH analysis.<sup>270</sup> These standards require an applicant to conduct its analysis to approximate the roughly one in a million

<sup>266</sup> *Id.* at 7-10.

<sup>267</sup> *Id.* at 8.

<sup>268</sup> *Id.* at 9.

<sup>269</sup> *Id.* at 7, 9.

<sup>270</sup> Tr. at 124.



flood risk.<sup>271</sup> Both PSEG and the NRC Staff determined that Run No. 2 in Table 2.4.5-4 of PSEG's Site Safety Analysis Report, which represents PSEG's design-basis flood of 32.1 feet NAVD,<sup>272</sup> also represents the water level expected in the requisite one in a million flood risk.<sup>273</sup>

## 2. NRC Staff Witnesses

*Henry Jones.* Dr. Jones is a Hydrologist in the Office of New Reactors, Division of Site and Environmental Analysis, Hydrology and Meteorology Branch.<sup>274</sup> He has a diploma in Strategic Studies from the Naval War College, a B.S. in Oceanography from the United States Naval Academy, an M.A. in International Relations from Salve Regina University, an M.S. in Systems Management (Information Systems) from the University of Southern California, an M.S. in Meteorology and Physical Oceanography from the Naval Postgraduate School, and a Ph.D. in Physical Oceanography from the Naval Postgraduate School.<sup>275</sup> Upon retiring from the United States Navy in 2007, Dr. Jones joined the NRC, where he serves as the surge, seiche, and tsunami hazard technical reviewer for all COL and ESP applications.<sup>276</sup>

In his written testimony on SER Topic 3, Dr. Jones testified as follows:

The NRC Staff has experience with the river flood model used by PSEG to calculate the probable maximum flood (PMF) event.<sup>277</sup> The following chart provides a summary of the component contributions to the maximum water level for the PMF event:<sup>278</sup>

Component	PMF Maximum Water Level Contribution (ft)
Riverine flooding	2.1
10 percent exceedance high tide	4.5
Historical storm surge	11.3
Wave runup	3.1

<sup>271</sup> Tr. at 125.

<sup>272</sup> See PSEG SER Topic 3 Testimony at 6; Ex. PSEG004B, PSEG Site ESP Application Part 2, Site Safety Analysis Report, tbl. 2.4.5-4, at 2.4-93.

<sup>273</sup> Tr. at 125.

<sup>274</sup> NRC Staff Statements of Professional Qualifications at 12.

<sup>275</sup> *Id.*

<sup>276</sup> *Id.* at 12-13.

<sup>277</sup> NRC SER Topic 3 Testimony at 1.

<sup>278</sup> *Id.* at 3.

Thus, as stated in PSEG's written testimony, the total PMF maximum water level is 21 feet.<sup>279</sup>

The river flood model used by PSEG employs a one-dimensional numerical method that results in river flood level estimates that are conservatively high.<sup>280</sup> The model's estimates are conservative because it includes limited lateral dispersal of energy when, "[i]n reality, river channels are rarely straight and flow energy disperses laterally traveling downstream which would tend to reduce the water level height resulting from [one-dimensional] model calculations."<sup>281</sup> Further, although the riverine flooding component is most likely conservatively high based on the one-dimensional model calculations, it remains a small portion of the PMF maximum water level since it contributes only about 2.1 feet to the total maximum water level of 21 feet.<sup>282</sup>

As a general matter, the NRC Staff documents its experience-based decision-making in NRC Staff guidance.<sup>283</sup> However, the NRC Staff's experience-based knowledge as to the relevant river model is documented in SER § 2.4 as well as in the NRC Staff's numerous requests for additional information.<sup>284</sup>

The Board did not require oral testimony from Dr. Jones on SER Topic 3.

*Joseph F. Giacinto.* Mr. Giacinto is a Hydrologist in the NRC's Office of New Reactors, Division of Site and Environmental Analysis, Hydrology Branch.<sup>285</sup> He received his B.S. in Geology (Geophysics) from San Diego State University, and his M.S. in Hydrology from the University of Arizona.<sup>286</sup> Mr. Giacinto has 8 years of experience working as a hydrologist at the NRC.<sup>287</sup> During his time at the NRC, Mr. Giacinto has provided technical support in the areas of hydrology and geology for the NRC Staff's review of multiple COL and ESP applications.<sup>288</sup>

Mr. Giacinto's written testimony on SER Topic 3 was substantively identical to Dr. Jones' written testimony on this topic. In his oral testimony on SER Topic 3, Mr. Giacinto testified as follows:

The Delaware River Basin is very large at approximately 14,000 square miles.<sup>289</sup> Due to the basin's size, the river basin model's "coarse" resolution was

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<sup>279</sup> *Id.*; see also PSEG SER Topic 3 Testimony at 4.

<sup>280</sup> *Id.* at 3.

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

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

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

<sup>284</sup> *Id.* at 4.

<sup>285</sup> NRC Staff Statements of Professional Qualifications at 11.

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

<sup>287</sup> *Id.*

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

<sup>289</sup> Tr. at 128.

still sufficient.<sup>290</sup> A professional who routinely evaluates these types of river basin models would recognize that the nodalization was adequate.<sup>291</sup>

#### **D. SER Topic 4**

SER Topic 4 stated:

The [U.S. Global Change Research Program (USGCRP)] report cited in the FSER section 2.3.1.4.10 noted that the power and frequency of tropical storms has “increased substantially in recent decades,” and many reports, including the USGCRP report, have predicted that this trend will continue in the coming decades. Expanding on their discussion in section 2.3.1.4.10, Staff shall explain how they addressed the issue of climate change induced increases in the power and frequency of hurricanes. In particular, Staff will explain how the models used to establish the PMH at the PSEG ESP site accommodate predicted increases in the power and frequency of storms.<sup>292</sup>

Two NRC Staff witnesses testified on SER Topic 4:

*Kevin R. Quinlan.* Mr. Quinlan is a Physical Scientist (Meteorologist) in the NRC’s Office of New Reactors, Division of Site and Environmental Analysis, Hydrology and Meteorology Branch.<sup>293</sup> Mr. Quinlan has a B.S. in Meteorology from Millersville University of Pennsylvania and an M.S. in Atmospheric Science from the University of Alabama in Huntsville.<sup>294</sup> He has been employed with the Office of New Reactors since July 2008.<sup>295</sup> His work primarily includes the analysis of regional and local climatology to determine the most severe weather that may impact a potential reactor site or design.<sup>296</sup>

In his written testimony on SER Topic 4, Mr. Quinlan testified as follows:

The hurricane site characteristic wind speed at the PSEG site was reviewed pursuant to NRC Regulatory Guide 1.221, which provides the design-basis hurricane wind speeds with an exceedance frequency of  $10^{-7}$  per year.<sup>297</sup> This is a conservative exceedance frequency that represents a hurricane wind speed that is expected to occur once every 10 million years.<sup>298</sup>

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<sup>290</sup> Tr. at 129-30.

<sup>291</sup> Tr. at 131.

<sup>292</sup> SER Prefiled Testimony Order at 2-3.

<sup>293</sup> NRC SER Topic 4 Testimony at 1.

<sup>294</sup> NRC Statements of Professional Qualifications at 14.

<sup>295</sup> *Id.*

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

<sup>297</sup> NRC SER Topic 4 Testimony at 2.

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

Regulatory Guide 1.221 derived Design-Basis Hurricane Wind Speed values from NUREG/CR-7005, which uses a sensitivity analysis to assess the possible effects of increased hurricane frequency in the future.<sup>299</sup> NUREG/CR-7005 addresses a potential doubling in hurricane frequency on the exceedance frequency of  $10^{-7}$  per year.<sup>300</sup> The sensitivity analysis suggested that a factor of two increase in hurricane frequency would result in less than a 2% increase in wind speed.<sup>301</sup> A 2% increase in a wind speed of 159 mph (3-second gust), which Regulatory Guide 1.221 indicates is applicable to the PSEG site, results in a 3-mph increase to the site characteristic.<sup>302</sup> The NRC Staff found this to be appropriately conservative to account for potential climate change-related increases in hurricane power and frequency, particularly given that climate change increases are still uncertain.<sup>303</sup> Moreover, if long-term climatic change becomes an issue, a COL holder has a continuing obligation to ensure that the plant stays within the licensing basis.<sup>304</sup>

In his oral testimony on SER Topic 4, Mr. Quinlan testified as follows:

To account for the variability associated with climate change, the NRC Staff analyzed hurricane wind speeds based on a doubling of the frequency of hurricanes in the Atlantic and Gulf Coasts.<sup>305</sup> The result was a 2% increase in maximum hurricane wind speeds.<sup>306</sup> At the ESP site this resulted in an approximately 3-mile per hour increase in wind speed.<sup>307</sup> Prospectively, the NRC Staff would be obligated to update regulatory guidance to address evolving site conditions associated with climate change and a license holder would be obligated to ensure that their site remained safe to operate.<sup>308</sup>

*Henry Jones.* Dr. Jones' background and qualifications were previously summarized with regard to his testimony on SER Topic 3. In his written testimony on SER Topic 4, Dr. Jones testified as follows:

The Probable Maximum Hurricane (PMH) models used to establish the PMH for the PSEG site are conservative in view of climate change predications.<sup>309</sup> The

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

<sup>300</sup> *Id.*

<sup>301</sup> *Id.*

<sup>302</sup> *Id.* at 2-3.

<sup>303</sup> *Id.* at 3.

<sup>304</sup> *Id.*

<sup>305</sup> Tr. at 135.

<sup>306</sup> *Id.*

<sup>307</sup> *Id.*

<sup>308</sup> See Tr. at 144-45. Legal counsel for the NRC Staff stated at the hearing that regulations exist, including 10 C.F.R. § 50.54(f), to ensure that licensees maintain adequate protection as a condition of licensing. See Tr. at 145.

<sup>309</sup> NRC SER Topic 4 Testimony at 1.

PMH includes meteorological factors such as radius of maximum winds, central pressure, latitude, forward speed, track direction, peripheral pressure, inflow angle, location of landfall, among others.<sup>310</sup> Hurricane intensity is influenced by all of these factors, but is mostly determined by the oceanographic parameter of sea surface temperature.<sup>311</sup> The PMH is used to calculate the probable maximum storm surge (PMSS).<sup>312</sup>

Basic climate change theory indicates that atmospheric warming will lead to warmer sea surface temperatures, which will fuel stronger storms.<sup>313</sup> However, studies exist that show that warming can lead to more El Niño events, which hinder hurricane development along the northern Atlantic seaboard.<sup>314</sup> Additional factors, including the divergence of the Gulfstream offshore north of Cape Hatteras, result in hurricanes losing energy as they approach the mid-Atlantic Coast, which includes the PSEG site location.<sup>315</sup> This feature of the Gulfstream is likely to be present irrespective of near-term climate change.<sup>316</sup>

Only three Category 3 storms have made landfall along the northern Atlantic seaboard since 1869, with no storms stronger than Category 3.<sup>317</sup> In the PMSS calculation, margin for climate change was provided at the PSEG site by using a Category 4 PMH.<sup>318</sup> Additional conservatism was built into the analysis by assuming steady-state winds, no decay in intensity prior to landfall, and no deviation in track speed or direction.<sup>319</sup> More generally, the influence of land and associated frontal systems results in the environment near the PSEG site not being optimal for intense hurricanes.<sup>320</sup>

In his oral testimony on SER Topic 4, Dr. Jones testified as follows:

Sea level rise is the only factor that the NRC Staff requires to account for climate change, because the analysis contains so many conservatisms that the climate change factor is “swamp[ed]” after analyzing storm surge with a 10% exceedance high tide.<sup>321</sup> More generally, if the intensity of a tropical storm increases, then

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<sup>310</sup> *Id.* at 3.

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

<sup>312</sup> *Id.* at 3-4.

<sup>313</sup> *Id.* at 4.

<sup>314</sup> *Id.*

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

<sup>316</sup> *Id.*

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

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

<sup>319</sup> *Id.*

<sup>320</sup> *Id.* at 5.

<sup>321</sup> Tr. at 134. Dr. Jones also stated that storm surge is subject to deterministic modeling; whereas, wind speed is subject to probabilistic modeling. Tr. at 133-34, 136.

central pressure lowers.<sup>322</sup> This results in an increased pressure gradient and higher wind velocities, which drive storm surge.<sup>323</sup> At the ESP site, however, an approaching tropical storm would be confronted with the ameliorating effect of traveling over colder water above Cape Hatteras and exposure to dry continental air.<sup>324</sup> The result would be a decrease in storm intensity and relatively lower storm surge.<sup>325</sup>

#### **E. SER Topic 5**

SER Topic 5 stated:

In what ways has the PSEG ESP application and review differed from previous ESPs due to events at Fukushima and subsequent evaluations and recommendations?<sup>326</sup>

Seven NRC Staff witnesses testified on SER Topic 5:

*Prosanta Chowdhury.* Mr. Chowdhury's background and qualifications have been previously summarized with regard to his testimony on SER Topic 1.

In his written testimony on SER Topic 5, Mr. Chowdhury testified as follows:

Following the events at Fukushima resulting from the March 11, 2011 Great Tohoku earthquake and tsunami in Japan, the NRC established the Fukushima Near-Term Task Force (NTTF) to review NRC regulations and make recommendations.<sup>327</sup> The NRC Staff then adopted specific actions to address NTTF's Recommendations as modified by input from the Commission.<sup>328</sup>

As part of its review of PSEG's ESP application, the NRC Staff considered whether the following Tier 1 recommendations from the NTTF were applicable:

- Recommendation 2.1: Seismic and Flood Hazard Reevaluations

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<sup>322</sup> Tr. at 137.

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

<sup>324</sup> Tr. at 139-41.

<sup>325</sup> See Tr. at 140-42.

<sup>326</sup> SER Prefiled Testimony Order at 3.

<sup>327</sup> NRC SER Topic 5 Testimony at 2.

<sup>328</sup> *Id.* at 2-3; see SECY-12-0025, Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami (Feb. 17, 2012) (ADAMS Accession No. ML12039A103); SECY-11-0137, Prioritization of Recommended Actions to Be Taken in Response to Fukushima Lessons Learned (Oct. 3, 2011) (ADAMS Accession No. ML11269A204); SECY-11-0124, Recommended Actions to Be Taken Without Delay from the [NTTF] Report (Sept. 9, 2011) (ADAMS Accession No. ML11245A144); SECY-11-0093, Near-Term Report and Recommendations for Agency Actions Following the Events in Japan (July 12, 2011) (ADAMS Accession No. ML11186A950).

- Recommendation 2.3: Seismic and Flood Walkdowns
- Recommendation 4.1: Station Blackout Regulatory Actions
- Recommendation 4.2: Equipment Covered Under 10 C.F.R. § 50.54(hh)(2)
- Recommendation 5.1: Reliable Hardened Vents for Mark I and Mark II Containments
- Recommendation 7.1: Spent Fuel Pool Instrumentation
- Recommendation 8: Strengthening and Integration of Emergency Operating Procedures, Severe Accidents Management Guidelines, and Extensive Damage Mitigation Guidelines
- Recommendation 9.3: Emergency Preparedness Regulatory Actions (staffing and communications)<sup>329</sup>

The NRC Staff ultimately determined that only Recommendations 2.1 and 9.3 are applicable to PSEG's ESP application.<sup>330</sup> The other recommendations are applicable to design certification and COL applications.<sup>331</sup> Although the NRC Staff applied these two NTTF Recommendations to the PSEG review, the NRC Staff's underlying review methodologies and guidance did not differ from previous ESP application reviews.<sup>332</sup>

In his oral testimony on SER Topic 5, Mr. Chowdhury testified as follows:

The NRC Staff considered NTTF Recommendation 9.3 to be applicable because PSEG submitted a complete and integrated emergency plan with its ESP application.<sup>333</sup> This integrated emergency plan is equivalent to what would be submitted with a COL application.<sup>334</sup> However, because PSEG did not select a reactor technology, PSEG could not submit all the required information for Recommendation 9.3.<sup>335</sup> Accordingly, the NRC Staff identified two permit conditions to ensure that the entirety of Recommendation 9.3 is addressed at the COL stage.<sup>336</sup>

*Dogan Seber.* Dr. Seber is a senior Geophysicist in the Office of New Reactor's Division of Site Safety and Environmental Analysis, Geosciences and

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<sup>329</sup> NRC SER Topic 5 Testimony at 3.

<sup>330</sup> *Id.*

<sup>331</sup> *Id.* at 4.

<sup>332</sup> *Id.* at 5-6.

<sup>333</sup> Tr. at 151.

<sup>334</sup> *Id.*

<sup>335</sup> *Id.*

<sup>336</sup> *See id.*

Geotechnical Engineering Branch.<sup>337</sup> He has a B.S. in Geophysical Engineering from Istanbul Technical University, an M.Sc. in Geophysics from St. Louis University, and a Ph.D. in Seismology from Cornell University.<sup>338</sup> Dr. Seber has 30 years of professional work experience in geophysics.<sup>339</sup> As a senior geophysicist at the NRC, Dr. Seber has worked on the reassessment of seismic hazards of the operating nuclear power plants following the NTTF Fukushima recommendations.<sup>340</sup>

In his written testimony on SER Topic 5, Dr. Seber testified that, with respect to Recommendation 2.1, “[t]he Staff determined that [PSEG’s] use of the most recent seismic source model, i.e., CEUS-SSC, for its site specific seismic hazard calculations fully and adequately addressed the reevaluation of seismic hazards aspect of NTTF Recommendation 2.1.”<sup>341</sup> The Board did not require oral testimony from Dr. Seber on SER Topic 5.

*Stephanie Devlin-Gill.* Dr. Devlin-Gill is a Project Scientist in the Office of New Reactors’ Division of Site Safety and Environmental Analysis.<sup>342</sup> She received her B.A. in Physics with a Computer Science minor from Rutgers University, and her Ph.D. in Geophysics from Cornell University.<sup>343</sup> During her 7 years at the NRC, Dr. Devlin-Gill has reviewed numerous existing reactor site seismic hazard reevaluations associated with the NTTF seismic Recommendation 2.1.<sup>344</sup> In addition, Dr. Devlin-Gill was the lead geophysicist on the 2014 update of two sections of the Standard Review Plans.<sup>345</sup>

Dr. Devlin-Gill’s written testimony on SER Topic 5 was substantively similar to Dr. Seber’s. The Board did not require oral testimony from Dr. Devlin-Gill on SER Topic 5.

*Henry Jones.* Dr. Jones’ background and qualifications have been previously summarized with regard to his testimony on SER Topic 3.

In his written testimony on SER Topic 5, Dr. Jones testified as follows:

Another aspect of Recommendation 2.1 included a flooding hazard reevaluation and the NRC Staff determined that PSEG’s use of Regulatory Guide 1.56

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<sup>337</sup> NRC Staff Statements of Professional Qualifications at 15.

<sup>338</sup> *Id.*

<sup>339</sup> *Id.*

<sup>340</sup> *Id.*

<sup>341</sup> NRC SER Topic 5 Testimony at 4.

<sup>342</sup> NRC Staff Statements of Professional Qualifications at 17.

<sup>343</sup> *Id.*

<sup>344</sup> *Id.*

<sup>345</sup> *Id.*



“fully and adequately addressed” this aspect of Recommendation 2.1.<sup>346</sup> The NRC Staff then concluded that there were “no additional requirements left to be addressed in Recommendation 2.1 for flooding reevaluations applicable to the PSEG Site ESP application review.”<sup>347</sup> The Board did not require oral testimony from Dr. Jones on SER Topic 5.

*Joseph F. Giacinto.* Mr. Giacinto’s background and qualifications have been previously summarized with regard to his testimony on SER Topic 3. His written testimony on SER Topic 5 was substantively identical to Dr. Jones’ written testimony. The Board did not require oral testimony from Mr. Giacinto on SER Topic 5.

*Bruce J. Musico.* Mr. Musico’s background and qualifications have been previously summarized with regard to his testimony on SER Topic 1.

In his written testimony on SER Topic 5, Mr. Musico testified as follows:

Recommendation 9.3 “identifies the need for: (i) determining and implementing the required staffing for responding to a multi-unit event, and (ii) providing means to power communications equipment needed to communicate onsite and offsite during a prolonged station blackout.”<sup>348</sup> Because PSEG had not selected a reactor design, “detailed designs on onsite and offsite communication systems and emergency staffing plan are not yet complete.”<sup>349</sup> Consequently, the NRC Staff included Permit Conditions 5 and 6, which require PSEG to address the communication and staffing aspects of Recommendation 9.3 at the COL stage.<sup>350</sup>

The Board did not require oral testimony from Mr. Musico on SER Topic 5.

*Donald Palmrose.* Dr. Palmrose is a Senior Reactor Engineer in the Office of New Reactors’ Division of Site Safety and Environmental Analysis, Radiation Protection and Accident Consequences Branch.<sup>351</sup> He received his B.S. in Nuclear Engineering from Oregon State University, his M.S. in Nuclear Engineering from Texas A&M University, and his Ph.D. in Nuclear Engineering from Texas A&M University.<sup>352</sup> He has over 30 years of experience in the nuclear engineering profession.<sup>353</sup> As a Senior Reactor Engineer for the NRC, Dr. Palmrose performs and coordinates the environmental reviews for standard design certifications,

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<sup>346</sup> NRC SER Topic 5 Testimony at 4.

<sup>347</sup> *Id.*

<sup>348</sup> *Id.*

<sup>349</sup> *Id.*

<sup>350</sup> *Id.*

<sup>351</sup> NRC Staff Statements of Professional Qualifications at 19.

<sup>352</sup> *Id.*

<sup>353</sup> *Id.*

COL, and ESP applications in the areas of environmental radiological dose analyses, nuclear power plant severe accident risks, and the evaluations of the transportation of radioactive materials.<sup>354</sup>

In his written testimony on SER Topic 5, Dr. Palmrose testified as follows:

The NTTF Recommendations applicable to PSEG's application were addressed in the NRC Staff's safety review.<sup>355</sup> Therefore, although all previous ESPs were issued prior to the events at Fukushima, the NRC Staff determined that the PSEG environmental review "did not require application of different review methodologies, or guidance compared to those applied in previous ESP application reviews."<sup>356</sup>

The Board did not require oral testimony from Dr. Palmrose on SER Topic 5.

## **F. SER Topic 6**

SER Topic 6 stated:

Explain, for the non-expert, how the Applicant calculated the long-term atmospheric dispersion for routine releases. What was the extent of Staff's review? Details of the calculations of the GASPARE code are not required.<sup>357</sup>

Three witnesses testified on SER Topic 6:

### **1. PSEG Witness**

*James Mallon.* Mr. Mallon's background and qualifications have been previously summarized with regard to his testimony on SER Topic 1.

In his written testimony on SER Topic 6, Mr. Mallon testified as follows concerning the first portion of Topic 6, namely how PSEG calculated the long-term atmospheric dispersion for routine releases.<sup>358</sup>

To confirm that a proposed nuclear power plant meets NRC's regulatory standards for radiation dose limits, applicants evaluate the short-term release of radionuclides following a design-basis accident and the long-term release of radionuclides as part of routine releases.<sup>359</sup> Because the radionuclides that may be in the gaseous effluents at a plant are dispersed by wind after being

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<sup>354</sup> *Id.*

<sup>355</sup> NRC SER Topic 5 Testimony at 5.

<sup>356</sup> *Id.*

<sup>357</sup> SER Prefiled Testimony Order at 3.

<sup>358</sup> PSEG SER Topic 6 Testimony at 3-6.

<sup>359</sup> *Id.*

released, applicants use atmospheric dispersion modeling to predict the extent of a release.<sup>360</sup>

The concentration of radionuclides in the air is represented by the long-term diffusion estimates expressed in  $\chi/Q$  values.<sup>361</sup> These values are determined at “receptors of interest,” such as a nearby residence, and at locations where an individual may receive the maximum allowable individual exposure outside of the plant site boundary.<sup>362</sup> These points of maximum individual exposure “are evaluated using a radial grid of sixteen 22 1/2-degree sectors extending to 50 miles (mi.) from the new plant.”<sup>363</sup>

PSEG estimated the applicable  $\chi/Q$  values using the NRC-sponsored XOQDOQ computer program.<sup>364</sup> This computer program incorporates assumptions outlined in Regulatory Guide 1.111, including that the effluents will travel in a straight-line trajectory from the release point to all receptors.<sup>365</sup> To calculate the  $\chi/Q$  values, the primary inputs in the XOQDOQ computer program are wind speed and wind direction.<sup>366</sup> For its calculations, PSEG used wind speed and wind direction inputs based on onsite meteorological data from January 1, 2006, through December 31, 2008.<sup>367</sup>

The results of the XOQDOQ modeling are summarized in PSEG’s Site Safety Analysis Report Table 2.3-24,<sup>368</sup> and the complete set of  $\chi/Q$  values for routine releases is provided in Table 2.3-37.<sup>369</sup> Ultimately, PSEG determined that the largest  $\chi/Q$  value for the site boundary is 1.6E-01 s/m<sup>3</sup> in the South direction.<sup>370</sup> However, PSEG disregarded the limiting values for sectors SE to NW (clockwise direction) because in those sectors the site boundary borders the Delaware River.<sup>371</sup> “Therefore, the only sectors that are used to obtain the limiting  $\chi/Q$  value for the site boundary are between the NNW and ESE directions (clockwise direction).”<sup>372</sup>

In his oral testimony on SER Topic 6, Mr. Mallon testified as follows:

Differential heating rates of land versus water affect wind direction.<sup>373</sup> Thus the

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<sup>360</sup> *See id.*

<sup>361</sup> *Id.* at 4.

<sup>362</sup> *Id.*

<sup>363</sup> *Id.*

<sup>364</sup> *Id.* at 5.

<sup>365</sup> *Id.*

<sup>366</sup> *Id.*

<sup>367</sup> *Id.*

<sup>368</sup> *Id.*; *see* Ex. PSEG004B, tbl. 2.3-34, at 2.3-96.

<sup>369</sup> PSEG SER Topic 6 Testimony at 6; *see* Ex. PSEG004B, tbl. 2.3-34, at 2.3-109.

<sup>370</sup> PSEG SER Topic 6 Testimony at 6.

<sup>371</sup> *Id.* at 6-7.

<sup>372</sup> *Id.* at 7.

<sup>373</sup> Tr. at 159.

XOQDOQ computer model accounts for the different heating rates by using a joint frequency distribution of meteorological data.<sup>374</sup> In addition, PSEG's maximum  $\chi/Q$  values for routine releases adequately account for the range of half-lives of the nuclides in a release for purposes of calculating long-term, chronic exposure.<sup>375</sup> By contrast, "a short-lived code and accident-type analysis where you might have short-lived noble gases or iodine-131 would be different."<sup>376</sup>

## 2. NRC Staff Witnesses

*Kevin R. Quinlan.* Mr. Quinlan's background and qualifications have been previously summarized with regard to his testimony on SER Topic 4.

In his written testimony on SER Topic 6, Mr. Quinlan testified as follows:

Mr. Quinlan's testimony as to how PSEG calculated the long-term atmospheric dispersion for routine releases was substantially similar to Mr. Mallon's testimony.<sup>377</sup> However, Mr. Quinlan added that, because PSEG disregarded the limiting values for sector SE to NW (clockwise direction), the NRC Staff included COL Action Item 2.3-1.<sup>378</sup> This action item requires an applicant at the COL stage to verify "receptors of interest" to ensure that the applicant identifies any receptor changes in sector SE to NW (clockwise direction) and, if necessary, to consider the  $\chi/Q$  values for that previously disregarded sector.<sup>379</sup>

As to the extent of the NRC Staff's review of PSEG's calculations, the NRC Staff completed a quality assurance review of the 3-year onsite meteorological data that PSEG used as the basis for its primary inputs in the XOQDOQ computer model.<sup>380</sup> The NRC Staff also independently created its own inputs of wind speed, wind direction, and atmospheric stability based on the same dataset.<sup>381</sup> After running this confirmatory analysis, the NRC Staff obtained results that were within approximately 1% of PSEG's values.<sup>382</sup> Thus, the NRC Staff concluded that PSEG's long-term atmospheric dispersion estimates were acceptable.<sup>383</sup>

In his oral testimony on SER Topic 6, Mr. Quinlan testified as follows:

PSEG used a joint frequency distribution of wind speed, wind direction, and

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<sup>374</sup> *Id.*

<sup>375</sup> Tr. at 161; *see also* PSEG SER Topic 6 Testimony at 6.

<sup>376</sup> Tr. at 161.

<sup>377</sup> *See* NRC SER Topic 6 Testimony at 2-3; *see also* PSEG SER Topic 6 Testimony at 3-6.

<sup>378</sup> NRC SER Topic 6 Testimony at 3.

<sup>379</sup> *Id.*

<sup>380</sup> *Id.* at 4.

<sup>381</sup> *Id.*

<sup>382</sup> *Id.*

<sup>383</sup> *Id.*

atmospheric stability as an input to the XOQDOQ computer model.<sup>384</sup> “A joint frequency distribution is a way of summarizing multiple years of meteorological data.”<sup>385</sup> PSEG’s dataset for the joint frequency distribution was for a 3-year period.<sup>386</sup> The NRC Staff conducted a rigorous quality assurance review of PSEG’s dataset to ensure that each year within the 3-year period was a reasonable representation of metrological conditions.<sup>387</sup> Further, while certain topographical features such as a nearby mountain range or large body of water could preclude the use of the XOQDOQ model, the PSEG site has no such topographical features.<sup>388</sup> More specifically, although some bodies of water are near the PSEG site, these are not large enough to preclude the use of the XOQDOQ model.<sup>389</sup>

*Stephen E. Williams.* Mr. Williams is a Health Physicist in the Office of New Reactors’ Division of Site and Environmental Analysis, Radiation Protection Accident Consequences Branch.<sup>390</sup> He received his B.S. in Radiological Health from Duquesne University and his M.S. in Environmental Pollution Control from Penn State University.<sup>391</sup> Mr. Williams has 40 years of experience in various disciplines in Health Physics, including 8 years of experience at the NRC.<sup>392</sup> As a Health Physicist within the Office of New Reactors, Mr. Williams has participated in the technical review of three COL applications, four design certification documents, and three ESP applications.<sup>393</sup>

In his written testimony on SER Topic 6, Mr. Williams testified as follows:

To estimate the gaseous effluent doses and effluent concentrations to the public, PSEG combined its long-term atmospheric dispersion estimates with “routine gaseous effluent release parameters.”<sup>394</sup> These parameters “include volumes, flow rates, filtration factors, radiation monitor estimated readings, estimated duration of each release, and radiological sample results.”<sup>395</sup> PSEG’s methodology conformed to the NRC guidance in Regulatory Guide 1.112 and Regulatory Guide 1.109.<sup>396</sup> The NRC Staff also evaluated PSEG’s methodology by independently calculating

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<sup>384</sup> See Tr. at 153; *see also* NRC SER Topic 6 Testimony at 3.

<sup>385</sup> Tr. at 153.

<sup>386</sup> *Id.*

<sup>387</sup> Tr. at 154-55.

<sup>388</sup> Tr. at 155-56.

<sup>389</sup> Tr. at 156.

<sup>390</sup> NRC Staff Statements of Professional Qualifications at 20.

<sup>391</sup> *Id.*

<sup>392</sup> *Id.*

<sup>393</sup> *Id.*

<sup>394</sup> NRC SER Topic 6 Testimony at 4.

<sup>395</sup> *Id.*

<sup>396</sup> *Id.*

the applicable doses and effluent concentrations.<sup>397</sup> The NRC Staff's confirmatory calculations were within regulatory limits and similar to the values obtained by PSEG.<sup>398</sup>

The Board did not require oral testimony from Mr. Williams on SER Topic 6.

## **G. FEIS Topic 1**

FEIS Topic 1 stated:

In its response to FEIS Question 8, PSEG implies that there was never evidence of the Bog Turtle on Artificial Island. Does the NRC Staff agree? If so, should FEIS subsection 2.4.1.3, which states that the Bog Turtle was recorded historically "for Artificial Island and vicinity," be revised to assert merely that there is historical evidence of the Bog Turtle in the "vicinity" of Artificial Island?<sup>399</sup>

Two NRC Staff witnesses submitted prefiled written testimony on FEIS Topic 1.<sup>400</sup>

*Michael Willingham.* Mr. Willingham is a Project Manager in the NRC's Office of New Reactors, Division of Site Safety and Environmental Reviews, Hydrology and Meteorology Branch 2.<sup>401</sup> Mr. Willingham has a B.S. in Environmental Science from Texas A&M University, Corpus Christi and an M.S. in Environmental Engineering and Science from Johns Hopkins University.<sup>402</sup> He has over 9 years of experience managing and participating in multidisciplinary environmental and safety-related projects for the NRC, including NEPA reviews, preparation of environmental impact statements, and preapplication activities related to environmental reviews of new reactors.<sup>403</sup>

In his written testimony on FEIS Topic 1, Mr. Willingham testified as follows:

Mr. Willingham is the technical reviewer for terrestrial ecology and land use for the environmental review associated with the ESP application submitted by PSEG.<sup>404</sup> As the ESP application reviewer for terrestrial ecology and land use,

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<sup>397</sup> *Id.* at 5.

<sup>398</sup> *Id.*

<sup>399</sup> FEIS Prefiled Testimony Order at 2.

<sup>400</sup> The Board did not require oral testimony concerning FEIS Topic 1. *See* Licensing Board Order (Identifying Resolved Topics) (Mar. 15, 2016) at 1 (unpublished) [hereinafter Resolved Topics Order].

<sup>401</sup> NRC FEIS Topic 1 Testimony at 1.

<sup>402</sup> NRC Staff Statements of Professional Qualifications at 21.

<sup>403</sup> *Id.*

<sup>404</sup> NRC FEIS Topic 1 Testimony at 1.

he was responsible for preparing the terrestrial and wetlands ecology portions of sections 2.4, 4.3, 5.3, 7.3, and 9.3 of the FEIS.<sup>405</sup>

A 1980 study of the terrestrial ecology of Artificial Island and vicinity identified that the Bog Turtle was present within the study area, including Delaware.<sup>406</sup> The Bog Turtle, however, was not observed during a 2009-2010 survey of the proposed ESP site and its vicinity.<sup>407</sup> The preferred habitat for the Bog Turtle does not exist in the quantity needed to support the species on Artificial Island.<sup>408</sup>

Furthermore, the FEIS was intended to reflect that the 1980 study merely “encompassed” both the Artificial Island and vicinity.<sup>409</sup> “[T]he historical evidence does not indicate direct observations of the bog turtle on Artificial Island.”<sup>410</sup> That the Bog Turtle was not historically present on the Artificial Island is a conclusion that is implicit in the FEIS.<sup>411</sup> A formal revision of the FEIS that “[t]he bog turtle was recorded historically for Artificial Island and vicinity” is therefore not required.<sup>412</sup>

*Neil Giffen.* Mr. Giffen is a Natural Resources Manager of the Facilities and Operations Directorate at the Oak Ridge National Laboratory (ORNL).<sup>413</sup> He is employed by UT-Battelle, LLC, a not-for-profit organization that manages and operates the ORNL for the U.S. Department of Energy.<sup>414</sup> Mr. Giffen has a B.A. in Environmental Science from State University of New York and an M.S. in Wildlife Science from the University of Maryland.<sup>415</sup> He has over 25 years of experience conducting environmental assessments, including environmental impact analysis for proposed development projects and reviews of numerous environmental assessments and impact statements.<sup>416</sup>

Mr. Giffen assisted the NRC Staff in its environmental review of PSEG’s ESP application associated with the areas of terrestrial and wetlands ecology.<sup>417</sup> In his

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<sup>405</sup> *Id.*

<sup>406</sup> *Id.* at 2.

<sup>407</sup> *Id.*

<sup>408</sup> *Id.* at 2-3.

<sup>409</sup> *Id.* at 3.

<sup>410</sup> *Id.*

<sup>411</sup> *Id.*

<sup>412</sup> *See id.*; *see also* Ex. NRC004A, at 2-6B.

<sup>413</sup> NRC FEIS Topic 1 Testimony at 1.

<sup>414</sup> *Id.*

<sup>415</sup> NRC Staff Statements of Professional Qualifications at 23.

<sup>416</sup> *Id.*

<sup>417</sup> NRC FEIS Topic 1 Testimony at 1.

written testimony on FEIS Topic 1, Mr. Giffen concurred with Mr. Willingham's statements regarding this issue.<sup>418</sup>

## H. FEIS Topic 2

FEIS Topic 2 stated:

In its response to FEIS Question 9, PSEG implies that there was never evidence of the Eastern Tiger Salamander on Artificial Island. Does the NRC Staff agree? If so, should FEIS subsection 2.4.1.3, which asserts that the Eastern Tiger Salamander was recorded "during an ecological survey conducted on Artificial Island from 1972 through 1978," be revised to assert that the cited survey examined a study area within a 16 kilometer radius of southern Artificial Island and concluded merely that the Eastern Tiger Salamander was found in southern New Castle County, Delaware "just outside the study area and may occur within it"?<sup>419</sup>

Two NRC Staff witnesses submitted prefiled written testimony on FEIS Topic 2.<sup>420</sup>

*Michael Willingham.* Mr. Willingham's background and qualifications were previously summarized with regard to his testimony on FEIS Topic 1. In his written testimony on FEIS Topic 2, Mr. Willingham testified as follows:

A 1980 study of the terrestrial ecology of Artificial Island found that the Eastern Tiger Salamander was present just outside the study area, including a portion of Delaware, and may occur within the study area.<sup>421</sup> The Eastern Tiger Salamander was not observed during a 2009-2010 survey of the proposed ESP site and its vicinity.<sup>422</sup> Artificial Island does not contain the habitat resources needed to support the Eastern Tiger Salamander.<sup>423</sup>

The Eastern Tiger Salamander was not recorded on Artificial Island during the 1972 to 1978 survey, but was reported in Salem County, New Jersey, in the 1980 study.<sup>424</sup> The FEIS need not be revised to clarify that the 1980 study examined an area within a 16-kilometer radius of Artificial Island and concluded that the Eastern Tiger Salamander was found just outside of the study area and may occur

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<sup>418</sup> *Id.* at 1-3.

<sup>419</sup> FEIS Prefiled Testimony Order at 2.

<sup>420</sup> The Board did not require oral testimony concerning FEIS Topic 2. Resolved Topics Order at 1.

<sup>421</sup> NRC FEIS Topic 2 Testimony at 2.

<sup>422</sup> *Id.*

<sup>423</sup> *Id.*

<sup>424</sup> *Id.* at 3.



within that area.<sup>425</sup> The FEIS was merely intended to reflect that the 1980 survey “encompassed” Artificial Island, but that the Eastern Tiger Salamander was not recorded on Artificial Island in that survey.<sup>426</sup>

*Neil Giffen.* Mr. Giffen’s background and qualifications were previously summarized with regard to his testimony on FEIS Topic 1. In his written testimony on FEIS Topic 2, Mr. Giffen concurred with Mr. Willingham’s statements regarding this issue.<sup>427</sup>

### **I. FEIS Topic 3**

FEIS Topic 3 stated:

In its response to FEIS Question 21, PSEG clarifies that flow augmentation from Merrill Creek is not for the purposes of safety or non-safety cooling system operability. PSEG acknowledges, however, that such flow augmentation may be necessary to allow power generation to continue, in certain conditions, so as to avoid impacting the salt line in the Delaware River. Should PSEG apply for a construction permit or COL, will the NRC Staff examine at that time PSEG’s ability to obtain adequate water supplies from the Merrill Creek Reservoir?<sup>428</sup>

Three witnesses testified on FEIS Topic 3:

#### **1. PSEG Witness**

*James Mallon.* Mr. Mallon’s background and qualifications were previously summarized with regard to his testimony on SER Topic 1. In his written testimony on FEIS Topic 3, Mr. Mallon testified as follows:

The Merrill Creek Reservoir (MCR) would not be required for safety-related cooling in connection with a potential new plant at the PSEG site.<sup>429</sup> Furthermore, if additional water rights are required in the future, then PSEG considers it likely that it could transfer water rights from another PSEG-owned facility or it could obtain the water rights from a third party.<sup>430</sup> Finally, if PSEG proceeds with a

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<sup>425</sup> *Id.*

<sup>426</sup> *Id.*

<sup>427</sup> *Id.* at 1-3.

<sup>428</sup> FEIS Prefiled Testimony Order at 2.

<sup>429</sup> PSEG FEIS Topic 3 Testimony at 3.

<sup>430</sup> *Id.*

COL application that references this ESP, then the MCR water rights issue would be subject to NRC Staff review.<sup>431</sup>

The MCR is used for low-flow augmentation of the Delaware River during times of drought.<sup>432</sup> Specifically, the MCR allows certain power plants to continue to withdraw water from the Delaware River for power generation during declared drought warnings or emergencies.<sup>433</sup> The MCR is not required for any safety cooling purposes because the tidal flow in the Delaware River at the PSEG site is much greater than the flow required by an intake structure for a potential new plant.<sup>434</sup>

Flow augmentation from the MCR is initiated when flows in the Delaware River fall below 3000 cubic feet per second at Trenton, New Jersey, which is 80 miles north of the PSEG site.<sup>435</sup> Flow augmentation occurs during declared drought conditions to protect the salt line in the Delaware River, so that Philadelphia-area freshwater intakes are not adversely affected.<sup>436</sup> Since the MCR was placed into service in 1988, it has been used for drought-related flow augmentation only four times.<sup>437</sup>

Storage allocation for the MCR is determined for each power plant or “designated unit” with ownership rights in the MCR.<sup>438</sup> Currently, thirty-six generating stations are listed as designated units for purposes of the MCR.<sup>439</sup> Storage allocation in the MCR is based on the geographic location of a power plant along the Delaware River.<sup>440</sup> Power plants further north along the Delaware River have the highest allocations due to their higher freshwater consumptive uses relative to existing plants at the PSEG site that are located along a portion of the Delaware River that is considered brackish.<sup>441</sup>

If PSEG required additional water allocation rights in the MCR at the PSEG site, then it could potentially transfer rights from other PSEG-owned facilities, like Mercer Generating Station, or enter into negotiations with a third-party designated unit.<sup>442</sup> If allocation rights were obtained from a third party, then any agreement would be submitted to the Delaware River Basin Commission (DRBC)

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<sup>431</sup> *Id.*

<sup>432</sup> *Id.* at 4.

<sup>433</sup> *Id.*

<sup>434</sup> *Id.* at 5.

<sup>435</sup> *Id.* at 6.

<sup>436</sup> *Id.*

<sup>437</sup> *Id.* at 7.

<sup>438</sup> *Id.* at 4, 7.

<sup>439</sup> *Id.* at 8.

<sup>440</sup> *Id.* at 7.

<sup>441</sup> *Id.*

<sup>442</sup> *Id.* at 8-9.

for approval.<sup>443</sup> Based on the existence of designated units with lengthy operation histories, it is likely that allocation rights would be available for acquisition as those plants ceased operations.<sup>444</sup>

Any new power plant at the PSEG site would require PSEG to submit an application to the DRBC, with specific plant values for water use.<sup>445</sup> The DRBC would then review the application, hold a public hearing, and issue a docket for surface water withdrawal with appropriate conditions.<sup>446</sup> As a part of this process, PSEG would be required to either hold the specific required MCR water allocation, or would be required to commit to an operating plan that would be in effect during declared droughts.<sup>447</sup> Regarding the latter, PSEG could commit to an operating plan that included power generation limits at the PSEG site or other PSEG-owned facilities.<sup>448</sup>

Finally, pursuant to 10 C.F.R. § 51.50(c)(1)(iii), an applicant for a COL that references an ESP must provide “[a]ny new and significant information for issues related to the impacts of construction and operation of the facility that were resolved in the early site permit proceeding.”<sup>449</sup> Any identification and evaluation of new and significant information would include consideration of adequate water supplies from the MCR.<sup>450</sup> For this reason, PSEG anticipated that the NRC Staff will review the water allocation associated with any potential COL application associated with the PSEG site as a part of the process of preparing any supplement to the FEIS.<sup>451</sup>

In his oral testimony on FEIS Topic 3, Mr. Mallon testified as follows:

The purpose of the Merrill Creek Reservoir is to control the salt line of the Delaware River during a period of drought.<sup>452</sup> The PSEG site is south of the salt line and, therefore, any proposed plant at that site would be cooling with brackish water.<sup>453</sup> Nonetheless, the DRBC wanted PSEG to have a fresh water allocation so they assumed that eighteen percent of PSEG’s cooling water would be freshwater.<sup>454</sup> Downpowering the proposed new plant at the PSEG site would

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<sup>443</sup> *Id.* at 9.

<sup>444</sup> *Id.*

<sup>445</sup> *Id.*

<sup>446</sup> *Id.*

<sup>447</sup> *Id.*

<sup>448</sup> *Id.* at 9-10.

<sup>449</sup> *Id.* at 11; *see also* 10 C.F.R. § 51.50(c)(1)(iii).

<sup>450</sup> PSEG FEIS Topic 3 Testimony at 11.

<sup>451</sup> *Id.*

<sup>452</sup> Tr. at 163.

<sup>453</sup> Tr. at 167.

<sup>454</sup> Tr. at 164.

not have an impact on the salt line.<sup>455</sup> However, PSEG would downpower the plant if ordered to do so by the DRBC.<sup>456</sup>

## **2. NRC Staff Witnesses**

*Philip Meyer.* Dr. Meyer is a Senior Research Engineer in the Hydrology Group of the Energy and Environment Directorate at the Pacific Northwest National Laboratory.<sup>457</sup> He has supported the NRC Office of New Reactors since 2007, including serving as principal author and technical analyst for the groundwater sections of safety evaluations for the North Anna Unit 3 COL, Calvert Cliffs Unit 3 COL, and Vogtle Units 3 and 4 COL.<sup>458</sup> Dr. Meyer has a B.A. in Physics from Cornell University and an M.S. and a Ph.D in Civil Engineering from the University of Illinois.<sup>459</sup>

In his written testimony on FEIS Topic 3, Dr. Meyer testified as follows:

Dr. Meyer, along with Mohammad Haque, served as the NRC Staff technical reviewers for the water-related aspects of the ESP application.<sup>460</sup> They were responsible for the hydrology, water use, and water quality technical content of the FEIS, and for the preparation of sections 2.3, 4.2, 5.2, and 7.2 of the FEIS.<sup>461</sup>

The NRC Staff would necessarily evaluate the adequacy of the MCR for low-flow augmentation to the Delaware River as part of the environmental review of any CP or COL application that references an ESP for the proposed site.<sup>462</sup> In preparing a supplemental EIS for a CP or COL application that references the PSEG ESP, the NRC Staff would determine whether there is new and significant information related to the plant's water use.<sup>463</sup> More specifically, any supplemental ESP review would be in accordance with the NRC's regulations under 10 C.F.R. Part 51.<sup>464</sup>

The NRC Staff would look at changes to the list of designated units and changes in the allocation of MCR storage.<sup>465</sup> Additionally, the NRC Staff would consider, as appropriate, other related information including changes in the DRBC's requirements, new development that increases consumptive water use

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<sup>455</sup> Tr. at 166.

<sup>456</sup> Tr. at 164-65.

<sup>457</sup> NRC FEIS Topic 3 Testimony at 1.

<sup>458</sup> NRC Staff Statements of Professional Qualifications at 27.

<sup>459</sup> *Id.*

<sup>460</sup> NRC FEIS Topic 3 Testimony at 1.

<sup>461</sup> *Id.*

<sup>462</sup> *Id.*

<sup>463</sup> *Id.* at 2.

<sup>464</sup> *Id.*

<sup>465</sup> *Id.*

in the Delaware River basin, and changes in the climate of the region that could impact water resources.<sup>466</sup> In performing a review of any new or significant information associated with a CP or COL application, the NRC Staff would reexamine the potential environmental impacts associated with the MCR, which would inform the NRC's ultimate licensing decision.<sup>467</sup>

The Board did not require oral testimony from Dr. Meyer on FEIS Topic 3.

*Mohammad Haque.* Mr. Haque is a Senior Hydrologist in the NRC's Office of New Reactors, Division of Site Safety and Environmental Analysis, Environmental Technical Support Branch.<sup>468</sup> Mr. Haque has a B.S. in Civil Engineering and an M.S. in Civil Engineering from the University of Texas at Arlington.<sup>469</sup> He has over 40 years of experience in environmental and water resources engineering in the private and public sectors, including approximately 18 years at the NRC.<sup>470</sup> Mr. Haque's NRC experience includes approximately 7 years in the Division of Site Safety and Environmental Analysis, including serving as a project manager and as a technical expert reviewing hydrologic aspects of safety analysis and environmental reports for various ESP and COL applications.<sup>471</sup>

In his written testimony on FEIS Topic 3, Mr. Haque concurred with Dr. Meyer's statements regarding this issue.<sup>472</sup> In his oral testimony on FEIS Topic 3, Mr. Haque testified as follows:

In evaluating the potential environmental impacts that would be associated with release of the MCR water for low-flow augmentation, the NRC Staff would consider the equivalent freshwater consumptive water use of a new plant at the PSEG site.<sup>473</sup> Specifically, "[t]he DRBC requires that the consumptive use by a utility should be compensated for low flow augmentation and . . . they have an equivalent factor of 0.18 that has been established . . . to compute [the] equivalent amount for the brackish water."<sup>474</sup> This equivalency factor is the same for the Salem and Hope Creek power plants.<sup>475</sup>

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<sup>466</sup> *Id.*

<sup>467</sup> *Id.*

<sup>468</sup> NRC FEIS Topic 3 Testimony at 1.

<sup>469</sup> NRC Staff Statements of Professional Qualifications at 26.

<sup>470</sup> *Id.*

<sup>471</sup> *Id.*

<sup>472</sup> NRC FEIS Topic 3 Testimony at 1-2.

<sup>473</sup> *See* Tr. at 169; *see also* NRC FEIS Topic 3 Testimony at 2.

<sup>474</sup> Tr. at 169.

<sup>475</sup> Tr. at 170.

## J. FEIS Topic 4

FEIS Topic 4 stated:

Following the discussion in FEIS subsection 5.3.1.1 and the NRC Staff responses to FEIS Questions 22 and 23, the Staff shall provide additional detail about the potential impact of salt drift on freshwater wetlands in the vicinity of the ESP site. Specifically, the Staff noted in their response that “vegetation in the area has already adapted to naturally occurring levels of salt deposition” and that “cumulative impacts of salt deposition on the site and the vicinity would be minimal”; however, does this generalization apply to all of the potentially affected wetlands and could an incremental increase in salt drift adversely affect threatened or endangered plant or animal species?<sup>476</sup>

Two NRC Staff witnesses submitted prefiled written testimony on FEIS Topic 4.<sup>477</sup>

*Michael Willingham.* Mr. Willingham’s background and qualifications were previously summarized with regard to his testimony on FEIS Topic 1. In his written testimony on FEIS Topic 4, Mr. Willingham testified as follows:

Cumulative maximum salt deposition from the Hope Creek Generating Station natural draft cooling tower (NDCT), proposed linear mechanical draft cooling towers (LMDCTs), and natural salt deposition would result in a cumulative salt deposition rate of 3.74 kg/ha/mo.<sup>478</sup> The salt deposition rate for the proposed LMDCTs is 1.31 kg/ha/mo, and the rate for the existing NDCT is 1.13 kg/ha/mo.<sup>479</sup> The natural salt deposition rate for the area is 1.3 kg/ha/mo.<sup>480</sup> The salt deposition rates do not entirely overlap; therefore, the numerical values from the cooling towers are not directly additive.<sup>481</sup> Rather, the maximum salt drift deposition from the proposed LMDCTs would occur within 700 meters to the east, while the deposition from the existing NDCT occurs within 400 meters to the southeast.<sup>482</sup> As a result, the cumulative salt deposition rate of 3.74 kg/ha/mo is a conservative maximum bounding limit, and actual rates are expected to be lower.<sup>483</sup>

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<sup>476</sup> FEIS Prefiled Testimony Order at 2-3.

<sup>477</sup> The Board did not require oral testimony concerning FEIS Topic 4. *See* Resolved Topics Order at 1.

<sup>478</sup> NRC FEIS Topic 4 Testimony at 2.

<sup>479</sup> *Id.*

<sup>480</sup> *Id.*

<sup>481</sup> *Id.*

<sup>482</sup> *Id.*

<sup>483</sup> *Id.*

Additionally, the dominant habitat type 700 meters to the east and southeast of the proposed location of the LMDCTs is *Phragmites*-dominated coastal wetlands.<sup>484</sup> Existing land use types that could potentially be affected by salt drift deposition from the proposed LMDCTs include disturbed wetlands, *Phragmites*-dominated interior wetlands, and developed land uses.<sup>485</sup> Furthermore, all of the land uses and habitats within 400 meters of the east and northeast of the existing NDCT are urban/developed land uses and *Phragmites*-dominated coastal wetlands.<sup>486</sup>

Of the existing PSEG site, 155.6 acres are *Phragmites*-dominated coastal wetlands, which is tidally influenced and can have salinity ranges from 1 to 9 ppt.<sup>487</sup> Therefore, the vegetation species in this habitat would be expected to have a higher level of salinity tolerance, resulting in minimal cumulative impacts of salt deposition on the site and vicinity.<sup>488</sup>

The extent of vegetation damaged by salt drift is related to the climatic conditions, stage of life cycle, and tolerance to salt.<sup>489</sup> For example, salt drift is more likely to damage (1) vegetation in more arid environments, (2) less salt-tolerant species, and (3) plants during their growing season.<sup>490</sup> At the PSEG site, mean annual rainfall would be expected to prevent soil salinization that could damage vegetation, relative to more arid environments.<sup>491</sup> Additionally, the cumulative maximum salt deposition rate of 3.74 kg/ha/mo would occur during the winter.<sup>492</sup> This cumulative rate is less than that expected to cause acute injury to the most sensitive species list in NUREG-1437 and would not occur during the growing season of plants on and in the vicinity of the PSEG site.<sup>493</sup> Moreover, the coastal location of the site results in vegetation that is generally expected to have a high level of salinity tolerance; therefore, salt deposition is expected to have a minimal impact on plant species.<sup>494</sup>

Lastly, there are no known federally listed endangered or threatened vegetation or animal species that occur within the areas affected by salt drift.<sup>495</sup> In addition, although various state-listed species occur within wetlands affected by salt drift,

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<sup>484</sup> *Id.*

<sup>485</sup> *Id.*

<sup>486</sup> *Id.*

<sup>487</sup> *Id.*

<sup>488</sup> *Id.*

<sup>489</sup> *See id.* at 3.

<sup>490</sup> *Id.*

<sup>491</sup> *Id.*

<sup>492</sup> *Id.*

<sup>493</sup> *Id.*

<sup>494</sup> *Id.*

<sup>495</sup> *Id.*

including various wading birds and the northern harrier, these species commonly frequent coastal wetland habitats and are acclimated to saline environments.<sup>496</sup> As a result, the incremental increase in salt deposition rates resulting from a new cooling tower would not be expected to impact these bird species.<sup>497</sup>

*Neil Giffen.* Mr. Giffen's background and qualifications were previously summarized with regard to his testimony on FEIS Topic 1. In his written testimony on FEIS Topic 4, Mr. Giffen concurred with Mr. Willingham's statements regarding this issue.<sup>498</sup>

#### **K. FEIS Topic 5**

FEIS Topic 5 stated:

In its response to FEIS Question 29, the NRC Staff asserts that it does not expect that the potential new nuclear units "and associated infrastructure" would adversely affect either the Bog Turtle or the Eastern Tiger Salamander. Has the Staff confirmed that, in the most recent surveys, neither the Bog Turtle nor the Eastern Tiger Salamander were identified in the areas proposed for a new causeway, transmission lines, or related infrastructure?<sup>499</sup>

Two NRC Staff witnesses submitted prefiled written testimony on FEIS Topic 5.<sup>500</sup>

*Michael Willingham.* Mr. Willingham's background and qualifications were previously summarized with regard to his testimony on FEIS Topic 1. In his written testimony on FEIS Topic 5, Mr. Willingham testified as follows:

In preparing the FEIS, the NRC Staff reviewed relevant information and conducted site visits regarding the presence of the Bog Turtle and the Eastern Tiger Salamander in the areas proposed for a new causeway, transmission lines, or related infrastructure.<sup>501</sup> The 2009-2010 survey — referenced in his testimony regarding FEIS Topics 1 and 2 — included the proposed causeway, transmission lines, and related infrastructure.<sup>502</sup> As previously noted, the Bog Turtle and Eastern

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<sup>496</sup> *Id.*

<sup>497</sup> *Id.*

<sup>498</sup> *Id.* at 1-4.

<sup>499</sup> FEIS Prefiled Testimony Order at 3.

<sup>500</sup> The Board did not require oral testimony concerning FEIS Topic 5. *See* Resolved Topics Order at 1.

<sup>501</sup> NRC FEIS Topic 5 Testimony at 2.

<sup>502</sup> *Id.* at 3.



Tiger Salamander were not observed during the 2009-2010 survey.<sup>503</sup> Reports by the Conserve Wildlife Foundation of New Jersey and the NJDEP indicate that Bog Turtles are primarily restricted to several counties in New Jersey, including northeastern portions of Salem County.<sup>504</sup> Eastern Tiger Salamanders are limited to the far eastern portions of Salem County, and Cumberland and Atlantic Counties in New Jersey.<sup>505</sup>

The NRC Staff also conducted several site visits to the proposed ESP site and vicinity and confirmed that the habitat observed was consistent with the information provided to the NRC, which did not indicate the presence of the preferred habitat for either species.<sup>506</sup> Neither species was observed during NRC Staff site visits.<sup>507</sup>

*Neil Giffen.* Mr. Giffen's background and qualifications were previously summarized with regard to his testimony on FEIS Topic 1. In his written testimony on FEIS Topic 5, Mr. Giffen concurred with Mr. Willingham's statements regarding this issue.<sup>508</sup>

#### **L. FEIS Topic 6**

FEIS Topic 6 stated:

In its response to FEIS Question 33, the NRC Staff states that, "[w]ith the exception of the mitigation activities associated with the PSEG traffic study, all of the activities listed in Table 10-1 in the FEIS are associated with expected permit requirements of other Federal, State, and local agencies." For each of these expected permit requirements, the Staff shall either confirm that the expected permit requirement is essentially certain, or if not essentially certain, provide an estimate of the unavoidable impact if the respective requirement is not made. Likewise, in Table 10-2 of the FEIS, listing unavoidable impacts of operation, the Staff makes use of similar mitigation acts based upon expected permit requirements. The Staff shall make similar confirmations for this table as well.<sup>509</sup>

Five witnesses submitted prefiled written testimony on FEIS Topic 6:<sup>510</sup>

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<sup>503</sup> *Id.*

<sup>504</sup> *Id.*

<sup>505</sup> *Id.*

<sup>506</sup> *Id.*

<sup>507</sup> *Id.*

<sup>508</sup> *Id.* at 2-4.

<sup>509</sup> FEIS Prefiled Testimony Order at 3.

<sup>510</sup> The Board did not require oral testimony concerning FEIS Topic 6. Tr. at 72-73.

## **1. PSEG Witness**

*James Mallon.* Mr. Mallon's background and qualifications have been previously summarized with regard to his testimony on SER Topic 1.

In his written testimony on FEIS Topic 6, Mr. Mallon testified as follows:

The mitigation activities listed in Table 10-1 of the FEIS will likely be included in the various permit requirements of other federal, state, and local agencies.<sup>511</sup> Specifically, Appendix H of the FEIS identifies the numerous authorizations, permits, and certifications that may be required for the operation of a new nuclear power plant at the PSEG site.<sup>512</sup> Although PSEG has not yet received or applied for many of the necessary approvals, based on PSEG's 40 years of site experience and knowledge of the relevant agencies, it is likely that the required mitigation measures will be "comprehensive and complete."<sup>513</sup> Further, at the COL stage, PSEG will be required to identify any new and significant information, including changes to the mitigation actions.<sup>514</sup>

For example, with respect to construction mitigation measures, the required land use approvals include, but are not limited to, a federal USACE Section 10 and Section 404 Permit, a NJDEP Coastal Area Facility Review Act/Waterfront Development permit, as well as various zoning and construction approvals from the local Lower Alloways Creek Township.<sup>515</sup> "Based on PSEG's experience with other large construction projects, combined with the anticipated conditions of the NJDEP and USACE land use construction approvals, specific monitoring conditions and mitigation activities will be included."<sup>516</sup>

## **2. NRC Staff Witnesses**

*Allen Fetter.* Mr. Fetter's background and qualifications have been previously summarized with regard to his testimony on SER Topic 1.

In his written testimony on FEIS Topic 6, Mr. Fetter testified as follows:

Under NEPA, the NRC Staff is required to consider mitigation measures that are reasonably foreseeable.<sup>517</sup> NRC Staff guidance regarding mitigation measures states that a mitigation measure is reasonably foreseeable if (1) it is required by the NRC as a license condition, (2) the mitigation measure is required or likely to be required by another regulatory agency, or (3) the applicant stated in its

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<sup>511</sup> PSEG FEIS Topic 6 Testimony at 2-3.

<sup>512</sup> *Id.* at 4; *see* Ex. NRC004C, App. H, at H-1 to H-7.

<sup>513</sup> PSEG FEIS Topic 6 Testimony at 8-9.

<sup>514</sup> *Id.* at 7.

<sup>515</sup> *Id.* at 9.

<sup>516</sup> *Id.*

<sup>517</sup> NRC FEIS Topic 6 Testimony at 2.

communications with the NRC that it will perform the mitigation measure.<sup>518</sup> Mr. Fetter and the other NRC Staff witnesses on this topic included a chart in their written testimony that describes the NRC Staff's bases for concluding that the mitigation measures identified in Tables 10-1 and 10-2 of the FEIS are reasonably foreseeable.<sup>519</sup>

For example, in terms of impacts to aquatic resources, the NRC Staff concluded that its identified migration measures are reasonably foreseeable because PSEG will be required to acquire a Department of Army permit under section 10 of the Rivers and Harbors Act of 1899 and section 404 of the Clean Water Act.<sup>520</sup> PSEG will also be required to obtain a Clean Water Act § 401 water quality certification from NJDEP.<sup>521</sup> According to the NRC Staff, these permits will contain "special conditions, including [best management practices], to minimize impacts to aquatic resources and habitats."<sup>522</sup> In addition, prior to the issuance of the Department of Army permit, PSEG will be required to develop "a detailed compensatory mitigation plan to address unavoidable impacts to aquatic resources."<sup>523</sup>

*Jack Cushing.* Mr. Cushing is a Senior Project Manager, in the Office of New Reactors' Division of Site Safety and Environmental Analysis, Environmental Technical Support Branch.<sup>524</sup> He received his B.S. in Marine Engineering from the Massachusetts Maritime Academy.<sup>525</sup> Mr. Cushing has 33 years of experience in the nuclear power field, including 17 years with the NRC.<sup>526</sup> As part of the NRC Staff's review of PSEG's ESP application, Mr. Cushing provided technical oversight for the historic and cultural resource review.<sup>527</sup>

Mr. Cushing's written testimony on FEIS Topic 6 was substantively identical to Mr. Fetter's written testimony on this topic.

*Jennifer Davis.* Ms. Davis is a Senior Project Manager, in the Office of New Reactors' Division of Site Safety and Environmental Analysis, Environmental Technical Support Branch.<sup>528</sup> She received a B.A. in Historic Preser-

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<sup>518</sup> *Id.*; see Environmental Issues Associated with New Reactors, Interim Staff Guidance (Aug. 2014), at 4 (ADAMS Accession No. ML14092A402).

<sup>519</sup> NRC FEIS Topic 6 Testimony, Tbl. 10-1, at 4-28.

<sup>520</sup> *Id.* at 8.

<sup>521</sup> *Id.*

<sup>522</sup> *Id.*

<sup>523</sup> *Id.*

<sup>524</sup> NRC Staff Statements of Professional Qualifications at 24.

<sup>525</sup> *Id.*

<sup>526</sup> *Id.*

<sup>527</sup> *Id.*

<sup>528</sup> *Id.* at 29.

vation/Classical Civilization from Mary Washington College.<sup>529</sup> Ms. Davis has approximately 14 years of experience managing environmental projects at the NRC.<sup>530</sup> During the PSEG review, Ms. Davis was the NRC's technical lead for the NEPA evaluation of impacts to cultural and historic resources.<sup>531</sup>

Ms. Davis' written testimony on FEIS Topic 6 was substantively identical to Mr. Fetter's written testimony on that topic.

*Andrew Kugler.* Mr. Kugler is a Senior Environmental Project Manager, in the Office of New Reactors' Division of Site Safety and Environmental Analysis, Environmental Technical Support Branch.<sup>532</sup> He received a B.S. in Mechanical Engineering from Cooper Union, and an M.S. in Technical Management from Johns Hopkins University.<sup>533</sup> Mr. Kugler has 15 years of experience managing environmental projects for the NRC.<sup>534</sup> During his time at the NRC, Mr. Kugler has managed or participated in review of over ten license renewal applications and several ESP applications.<sup>535</sup>

Mr. Kugler's written testimony on FEIS Topic 6 was substantively identical to Mr. Fetter's written testimony on this topic.

## **M. FEIS Topic 7**

FEIS Topic 7 stated:

Related to the NRC Staff's response to FEIS Question 34, on page 10-5 of the FEIS, Table 10-1 lists the unavoidable adverse environmental impacts of construction on the PSEG site. The third column of this table lists the actions that can be taken to mitigate the impacts. However, FEIS section 10.2, Unavoidable Adverse Environmental Impacts, defines unavoidable adverse impacts as: "Unavoidable adverse environmental impacts are those potential impacts of the NRC action and the USACE action that cannot be avoided and *for which no practical means of mitigation are available.*" The Staff shall confirm that the mitigation actions listed will not reduce impacts to less than the impacts listed in the second column of Table 10-1, but rather are actions required to limit impacts to those listed in the second column.<sup>536</sup>

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<sup>529</sup> *Id.*

<sup>530</sup> *Id.*

<sup>531</sup> *Id.* at 30.

<sup>532</sup> *Id.* at 31.

<sup>533</sup> *Id.*

<sup>534</sup> *Id.*

<sup>535</sup> *Id.*

<sup>536</sup> FEIS Prefiled Testimony Order at 3.

Four NRC Staff witnesses submitted prefiled written testimony on FEIS Topic 7.<sup>537</sup>

*Allen Fetter.* Dr. Fetter's background and qualifications have been previously summarized with regard to his testimony on SER Topic 1. In his written testimony on FEIS Topic 7, Dr. Fetter testified as follows:

The NRC Staff classified unavoidable adverse impacts and mitigation actions in Table 10-1 of the FEIS.<sup>538</sup> Specifically, Table 10-1 lists the potential mitigation measures for various impacts in the third column.<sup>539</sup> In the fourth column, the table lists any remaining unavoidable adverse impacts after the mitigation measures are applied.<sup>540</sup> Thus, the mitigation measures identified in the third column of Table 10-1 will not alter the impact level on each resource area (i.e., whether the adverse impact will be small, moderate, or large).<sup>541</sup>

*Jack Cushing.* Mr. Cushing's background and qualifications have been previously summarized with regard to his testimony on FEIS Topic 6. Mr. Cushing's written testimony on FEIS Topic 7 was substantively identical to Mr. Fetter's testimony on this topic.

*Jennifer Davis.* Ms. Davis' background and qualifications have been previously summarized with regard to her testimony on FEIS Topic 6. Ms. Davis' written testimony on FEIS Topic 7 was substantively identical to Mr. Fetter's testimony on this topic.

*Andrew Kugler.* Mr. Kugler's background and qualifications have been previously summarized with regard to his testimony on FEIS Topic 6. Mr. Kugler's written testimony on FEIS Topic 7 was substantively identical to Mr. Fetter's testimony on this topic.

## **N. FEIS Topic 8**

FEIS Topic 8 stated:

The NRC Staff shall ensure the presence at the evidentiary hearing of one or more witnesses capable of making brief presentations identifying the most significant

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<sup>537</sup> The Board did not require oral testimony concerning FEIS Topic 7. *See* Resolved Topics Order at 1.

<sup>538</sup> NRC FEIS Topic 7 Testimony at 2.

<sup>539</sup> *Id.*; *see* Ex. NRC004B, tbl. 10-1, at 10-5 to 10-9.

<sup>540</sup> NRC FEIS Topic 7 Testimony at 2; *see* Ex. NRC004B, tbl. 10-1, at 10-5 to 10-9.

<sup>541</sup> NRC FEIS Topic 7 Testimony at 2.

parts of the cumulative impact assessment and assessment of alternative sites, and responding to the Board's questions thereon.<sup>542</sup>

Although the parties were not required to submit prefiled written testimony on FEIS Topic 8, two witnesses testified orally:

*Andrew Kugler.* Mr. Kugler's background and qualifications have been previously summarized with regard to his testimony on FEIS Topic 6. At the hearing, Mr. Kugler testified regarding the value of the alternative site analysis generally.<sup>543</sup> Although none of the alternative sites considered in the NRC Staff's environmental review of PSEG's application were obviously superior to the PSEG site, "there have been other application[s] in which a nearby existing nuclear power plant site has not been chosen over a different site that had other advantages."<sup>544</sup>

*Jack Cushing.* Mr. Cushing's background and qualifications have been previously summarized with regard to his testimony on FEIS Topic 6. At the hearing, Mr. Cushing testified that the cumulative impact assessment ensures that NRC Staff considers the full impact of action that may be minor in isolation, but collectively significant.<sup>545</sup> Therefore, the cumulative impact analysis examines the "tipping point on the resource" to analyze whether an individually minor action becomes the "straw [that] breaks the camel's back."<sup>546</sup>

## V. DISCUSSION

In SER Topic 1, the Board asked the NRC Staff to summarize those portions of its review that supported each of the six safety-related findings necessary for issuance of an ESP.<sup>547</sup> The Staff confirmed that, based on its review of PSEG's application, PSEG complied with all applicable regulatory requirements.<sup>548</sup> The Staff also proposed certain permit conditions.<sup>549</sup>

Because PSEG did not request a limited work authorization, the scope of the Staff's review was limited. The Board is satisfied that the NRC will review

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<sup>542</sup> FEIS Prefiled Testimony Order at 3.

<sup>543</sup> Tr. at 174-75.

<sup>544</sup> Tr. at 174.

<sup>545</sup> Tr. at 180.

<sup>546</sup> *Id.*

<sup>547</sup> In fact, both the Staff and PSEG responded, and each went beyond the Board's request and addressed environmental findings as well. NRC SER Topic 1 Testimony at 5-7; PSEG SER Topic 1 Testimony at 18-29.

<sup>548</sup> NRC SER Topic 1 Testimony at 5.

<sup>549</sup> *Id.* at 4.

PSEG's qualifications to engage in NRC-authorized activities at later stages in the licensing process.<sup>550</sup> For example, even though PSEG has extensive experience as a nuclear power plant owner and operator, it was not actually required to demonstrate its technical qualifications to undertake construction activities at this stage.<sup>551</sup> For the same reason, the only applicable ITAAC at this stage are those that pertain to emergency planning, and the Staff correctly determined that PSEG had submitted a satisfactory emergency plan and associated ITAAC.<sup>552</sup>

Similarly, although PSEG has not yet selected a specific reactor design, its application utilized a plant parameter envelope.<sup>553</sup> The Board is satisfied that, if PSEG were to select a design outside these parameters at the COL stage, the NRC would have an appropriate opportunity to evaluate the significance of the differences in the context of the variance request that would be required in such circumstances.<sup>554</sup>

In SER Topic 2, the Board sought to determine whether each of the NRC Staff's nine proposed permit conditions was drawn with sufficient precision, such that verification of compliance would be largely a ministerial act. The NRC Staff explained how each permit condition included sufficiently prescriptive detail and used widely accepted industry standards and terminology.<sup>555</sup> The Board also finds persuasive the fact that seven of the nine conditions are nearly identical to conditions the Commission has approved in other proceedings,<sup>556</sup> and that the other two are very site specific.<sup>557</sup>

In SER Topic 3, the Board specifically asked about the extent of the Staff's experience in hydraulic modeling and how it is documented. Both PSEG and the Staff provided considerably more detail concerning PSEG's flooding model and the Staff's review of it.<sup>558</sup> The Board is satisfied that the NRC Staff possesses appropriate experience, and that it is documented in SER § 2.4.

In SER Topic 4, the Board asked the NRC Staff to explain how it had addressed the possible influence of climate change on the power and frequency of hurricanes. As the Staff explained, design-basis wind speeds were based on a doubling of the frequency of hurricanes in the Atlantic and Gulf Coasts, and the PMH used to calculate maximum water elevation was sufficiently conservative

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<sup>550</sup> *Id.*

<sup>551</sup> *See id.*

<sup>552</sup> *Id.* at 4-5.

<sup>553</sup> Tr. at 93.

<sup>554</sup> Tr. at 93-94.

<sup>555</sup> NRC SER Topic 2 Testimony at 3-13.

<sup>556</sup> PSEG SER Topic 2 Testimony at 9-21.

<sup>557</sup> Tr. at 110.

<sup>558</sup> *See* NRC SER Topic 3 Testimony at 2-3; PSEG SER Topic 3 Testimony at 4-7.

to account for potential increases in power.<sup>559</sup> Overall, the Board agrees with the Staff's conclusion that its analysis is appropriately conservative, especially given uncertainties related to the ameliorating effect of colder water on tropical storms approaching the mid-Atlantic coast.<sup>560</sup> Additionally, the NRC Staff would be required to update regulatory guidance as necessary to address evolving site conditions, and PSEG would be obligated to ensure that its site remains safe to operate.<sup>561</sup>

In SER Topic 5, the Board asked what, if any, impact the Fukushima events in Japan had on the NRC Staff's review of PSEG's application. The Board is satisfied that, while the Staff considered numerous recommendations that arose out of the Fukushima incident,<sup>562</sup> the Staff properly concluded that only a few recommendations applied to the PSEG site at the ESP stage, and that none substantively altered the scope or nature of the Staff's review of PSEG's application.<sup>563</sup>

In SER Topic 6, the Board asked about PSEG's calculations of the long-term atmospheric dispersion of routine releases of radionuclides, and about the extent of the NRC Staff's review. The Board agrees with the Staff's conclusion that PSEG's long-term atmospheric dispersion estimates are acceptable.<sup>564</sup> Among other things, the NRC Staff undertook a quality assurance review of the onsite meteorological data that PSEG used as the basis for its primary inputs to the atmospheric dispersion model.<sup>565</sup> The Staff then created its own inputs, based on the same dataset, and ran a confirmatory analysis that produced results very similar to PSEG's values.<sup>566</sup> Further, the Staff created COL Action Item 2.3-1, which will require PSEG at the COL stage to verify and, if necessary, adjust receptors of interest.<sup>567</sup>

In FEIS Topic 1, the Board sought and received confirmation that the preferred habitat for the Bog Turtle does not exist in the quantity needed to support the species on Artificial Island,<sup>568</sup> and that the historical evidence does not indicate direct observations of the Bog Turtle on Artificial Island at any time.<sup>569</sup>

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<sup>559</sup> NRC SER Topic 4 Testimony at 2-3.

<sup>560</sup> *Id.* at 3.

<sup>561</sup> *See* NRC SER Topic 5 Testimony at 4-5; Tr. at 144-45.

<sup>562</sup> NRC SER Topic 5 Testimony at 3.

<sup>563</sup> *See id.* at 4-5; Tr. at 151-52.

<sup>564</sup> NRC SER Topic 6 Testimony at 4.

<sup>565</sup> *Id.*

<sup>566</sup> *Id.*

<sup>567</sup> *Id.*

<sup>568</sup> NRC FEIS Topic 1 Testimony at 2-3.

<sup>569</sup> *Id.* at 3.



In FEIS Topic 2, the Board sought and received confirmation that Artificial Island does not contain the habitat resources needed to support the Eastern Tiger Salamander,<sup>570</sup> and that the Eastern Tiger Salamander was not observed during a 2009-2010 survey of the ESP Site and its vicinity.<sup>571</sup>

In FEIS Topic 3, the Board was concerned about PSEG's ability to obtain flow augmentation from the MCR if and when necessary. The Board is satisfied that (1) the MCR would not be required for safety-related cooling of a potential new plant at the PSEG site;<sup>572</sup> (2) if additional water rights are required in the future, PSEG considers it likely that it could transfer water rights from another PSEG-owned facility or could obtain them from a third party;<sup>573</sup> and (3) if PSEG proceeds with a COL application, the MCR water rights issue would be subject to NRC Staff review at that time.<sup>574</sup>

In FEIS Topic 4, the Board was concerned whether an incremental increase in salt drift on freshwater wetlands in the vicinity of the ESP site could adversely affect threatened plant or animal species. The Board is persuaded that any such impact would be minimal, in part because (1) the coastal location of the site results in vegetation that is generally expected to have a high salinity tolerance;<sup>575</sup> and (2) no known federally listed endangered or threatened vegetation or animal species occur within the areas affected by salt drift.<sup>576</sup> Additionally, although various wading birds and other state-listed species occur within wetlands affected by salt drift, these species commonly frequent coastal wetland habitats and are acclimated to saline environments.<sup>577</sup>

In FEIS Topic 5, the Board requested and received confirmation that neither the Bog Turtle nor the Eastern Tiger Salamander is present in the areas proposed for a new causeway, transmission lines, or related infrastructure.<sup>578</sup>

In FEIS Topic 6, the Board was concerned about the extent to which environmental mitigation activities over which the NRC does not exercise direct control will actually take place. The NRC Staff explained that, under NEPA, the NRC is required to consider mitigation measures that are reasonably foreseeable, even if some such measures arise from expected permits from other state and federal agencies that may not yet exist at the ESP stage.<sup>579</sup> NRC Staff guidance provides

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<sup>570</sup> NRC FEIS Topic 2 Testimony at 2.

<sup>571</sup> *Id.*

<sup>572</sup> PSEG FEIS Topic 3 Testimony at 3.

<sup>573</sup> *Id.*

<sup>574</sup> *Id.*

<sup>575</sup> NRC FEIS Topic 4 Testimony at 3.

<sup>576</sup> *Id.*

<sup>577</sup> *Id.*

<sup>578</sup> NRC FEIS Topic 5 Testimony at 2-3.

<sup>579</sup> NRC FEIS Topic 6 Testimony at 2.

that a mitigation measure is reasonably foreseeable if (1) it is required by the NRC as a license condition, (2) it is required *or likely to be required* by another regulatory agency, or (3) an applicant has stated in communications with the NRC that it will perform the measure.<sup>580</sup> Several NRC Staff witnesses included a chart in their written testimony describing the Staff's grounds for concluding the mitigation measures identified in the FEIS are reasonably foreseeable.<sup>581</sup> On this basis, the Board's concerns are satisfied.

In FEIS Topic 7, the Board expressed concern about the relationship between mitigation measures and the Staff's characterization in the FEIS of the size of the anticipated impact level on each resource. The Board's concern has been addressed by the Staff's explanation that the mitigation measures would not alter the impact levels as set forth in the FEIS.<sup>582</sup>

In FEIS Topic 8, the Board did not express a specific concern, but directed the presence at the evidentiary hearing of NRC Staff witnesses capable of responding to the Board's questions regarding the cumulative impact assessment and assessment of alternative sites in the FEIS. The testimony of the Staff's witnesses<sup>583</sup> adequately addressed the Board's questions in these areas.

Based on the written and oral testimony, the Board's concerns regarding all fourteen issues identified for the evidentiary hearing were resolved. The Board sees no reason to impose permit conditions beyond the nine already proposed by the NRC Staff.<sup>584</sup>

## VI. FINDINGS

For the foregoing reasons, the Board makes the following determinations as required by 10 C.F.R. § 52.24(a) and 10 C.F.R. § 51.105(a):

1. In accordance with 10 C.F.R. § 52.24(a)(1), the applicable standards and requirements of the AEA and the NRC regulations have been met.
2. In accordance with 10 C.F.R. § 52.24(a)(2), all required notifications to other agencies or bodies have been made.
3. In accordance with 10 C.F.R. § 52.24(a)(3), there is reasonable assurance that the facility will be constructed and operated in conformity with the licenses, the provisions of the AEA, and the NRC's regulations.

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<sup>580</sup> *Id.*

<sup>581</sup> *Id.* at 4-28, tbls.10-1 & 10-2.

<sup>582</sup> NRC FEIS Topic 7 Testimony at 2.

<sup>583</sup> Tr. at 173-81.

<sup>584</sup> Ex. NRC003, App. A, at A-2 to A-6.

4. In accordance with 10 C.F.R. § 52.24(a)(4), PSEG is technically qualified to engage in the activities authorized.

5. In accordance with 10 C.F.R. § 52.24(a)(5), the proposed inspections, tests, analyses, and acceptance criteria, including any on emergency planning, are necessary and sufficient, within the scope of the ESP, to provide reasonable assurance that the facility will be constructed and will be operated in conformity with the license, the provisions of the Act, and the Commission's regulations.

6. In accordance with 10 C.F.R. § 52.24(a)(6), issuance of the licenses will not be inimical to the common defense and security or to the health and safety of the public.

7. In accordance with Subpart A of 10 C.F.R. Part 51, the requirements of sections 102(2)(A), (C), and (E) of NEPA and Subpart A of 10 C.F.R. Part 51 have been complied with in the proceeding.

8. The Board determines, without conducting a *de novo* evaluation of the application, that the review conducted by the NRC Staff pursuant to 10 C.F.R. Part 51 has been adequate.

9. In accordance with Subpart A of 10 C.F.R. Part 51, the Board has independently considered the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken.

10. In accordance with Subpart A of 10 C.F.R. Part 51, the Board determines, after weighing the environmental, economic, technical, and other benefits against the environmental and other costs, and considering reasonable alternatives, that an ESP should be issued.

## VII. ORDER

The Director of the Office of New Reactors is *authorized* to issue to PSEG an ESP for the PSEG site for a duration of not more than twenty (20) years, consistent with the AEA, the Commission's regulations, and this Initial Decision. The ESP shall be subject to the nine permit conditions set forth in the SER.<sup>585</sup>

Pursuant to 10 C.F.R. § 2.341(a)(2), this Initial Decision will constitute a final decision of the Commission 120 days from the date of issuance, unless a petition for review is filed in accordance with 10 C.F.R. § 2.341(b) or the Commission directs otherwise. Any party wishing to file a petition for review on the grounds

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<sup>585</sup> Ex. NRC003, App. A, at A-2 to A-6.

specified in section 2.341(b) must do so within 25 days after service of this Initial Decision.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Paul S. Ryerson, Chairman  
ADMINISTRATIVE JUDGE

Dr. Gary S. Arnold  
ADMINISTRATIVE JUDGE

Dr. Craig M. White  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
April 26, 2016

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Ronald M. Spritzer**, Chairman  
**Nicholas G. Trikouros**  
**Dr. James F. Jackson**

**In the Matter of**

**Docket Nos. 52-025**

**52-026**

**(ASLBP No. 16-944-01-LA-BD01)**

**SOUTHERN NUCLEAR OPERATING  
COMPANY, INC.**

**(Vogtle Electric Generating Plant,  
Units 3 and 4)**

**April 29, 2016**

In this Order, the Atomic Safety and Licensing Board (the Board) concluded that the Blue Ridge Environmental Defense League and its chapter Concerned Citizens of Shell Bluff (collectively BREDL) have standing to intervene, but have not pled an admissible contention regarding the license amendment request (LAR) of Southern Nuclear Operating Company, Inc. (Southern Nuclear). In the LAR, Southern Nuclear sought to revise wall thickness tolerances associated with four containment internal structural wall modules of the nuclear island at Vogtle Electric Generating Plant, Units 3 and 4. The Board denied BREDL's petition to intervene and request for a hearing.

**ATOMIC ENERGY ACT: STANDING TO INTERVENE**

A petitioner's participation in a licensing proceeding requires a demonstration of standing. This requirement is derived from section 189a of the Atomic Energy

Act of 1954 (AEA), which instructs the NRC to provide a hearing “upon the request of any person whose interest may be affected by the proceeding.”

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

When assessing whether an individual or organization has set forth a sufficient interest, the Commission has applied contemporaneous judicial concepts of standing, under which the petitioner must allege a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision.

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

In certain circumstances, the Commission has adopted a proximity presumption that allows a petitioner living, having frequent contacts, or having a significant property interest within 50 miles of a nuclear power reactor to establish standing without the need to make an individualized showing of injury, causation, and redressability.

#### **RULES OF PRACTICE: STANDING (REPRESENTATIONAL)**

When an organization seeks to establish representational standing, it must demonstrate that at least one of its members would be affected by the proceeding and identify that member. Moreover, the organization must show that the identified members would have standing to intervene in their own right, and that they have authorized the organization to request a hearing on their behalf.

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

For the proximity presumption to apply in license amendment proceedings, the proposed amendment must obviously entail an increased potential for offsite consequences. The petitioner has the burden to show that the presumption should apply. To satisfy its burden, it is generally sufficient if the petitioner provides plausible factual allegations that satisfy each element of standing. When evaluating whether a petitioner has established standing, a licensing board is to construe the intervention petition in favor of the petitioner.

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

In deciding whether the petitioner established standing, we do not decide the admissibility or merits of its contentions. The Commission has identified a clear

distinction between standing and the ultimate merits of a proposed contention, concluding that a full-blown factual inquiry is not required for the threshold legal question of standing.

#### **RULES OF PRACTICE: *PRO SE* PETITIONER**

It is the Commission's longstanding policy that pleadings submitted by *pro se* petitioners are afforded greater leniency than petitions drafted with the assistance of counsel.

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

There are limits to proximity standing when there are no changes to the physical plant itself, its operating procedures, design-basis accident analysis, management, or personnel. The Commission has rejected proximity standing for license transfers, license amendments associated with shutdown and defueled reactors, and certain changes to worker-protection requirements.

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

The Commission has stated that "[i]n ruling on claims of proximity standing, we decide the appropriate radius on a case-by-case basis."

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

The Commission has ruled that once a party demonstrates that it has standing to intervene on its own accord, that party may then raise any contention that, if proved, will afford the party relief from the injury it relies upon for standing.

#### **RULES OF PRACTICE: INTERVENTION**

To participate as a party in this proceeding, a petitioner for intervention must not only establish standing, but also proffer at least one admissible contention that meets the requirements of 10 C.F.R. § 2.309(f).

#### **LICENSE AMENDMENT: SCOPE OF REVIEW**

NRC regulations define the scope of review of a license amendment application broadly: In determining whether an amendment to a license, construction permit, or early site permit will be issued to the applicant, the Commission will be guided

by the considerations which govern the issuance of initial licenses, construction permits, or early site permits to the extent applicable and appropriate.

**TECHNICAL ISSUE(S) DISCUSSED: CONCRETE INDUSTRY CODE TOLERANCES**

Concrete industry code tolerances are not absolute requirements and may be subject to modification through a license amendment.

**RULES OF PRACTICE: CONTENTION OF OMISSION**

A contention of omission alleges that the application fails to contain information on a relevant matter as required by law and provides the supporting reasons for the petitioner's belief. Thus, the contention of omission must describe the information that should have been included and provide the legal basis that requires the omitted information to be included.

**RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)**

Pursuant to section 2.309(f)(1)(vi), the Petition must provide sufficient information "to show that a genuine dispute exists with the . . . licensee on a material issue of law or fact." A petitioner is not required to prove its case at the contention admissibility stage, but an allegation that some aspect of a license application is inadequate or unacceptable does not give rise to a genuine dispute unless it is supported by facts and a reasoned statement of why the application is unacceptable in some material respect.

**TECHNICAL ISSUE(S) DISCUSSED: CONCRETE TOLERANCE MARGINS**

Petitioner's observation that concrete reinforcement margins may differ from those under the original license tolerances alone fails to establish a genuine dispute of material fact, given the absence of any requirement to exceed the reinforcement requirements of specific construction codes.

**RULES OF PRACTICE: CONTENTIONS (SUPPORTING INFORMATION OR EXPERT OPINION)**

Under section 2.309(f)(1)(v), the Petition must "[p]rovide a concise statement of the alleged facts or expert opinions which support the . . . petitioner's position



on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the . . . petitioner intends to rely to support its position on the issue.” This requirement generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons.

**RULES OF PRACTICE: CONTENTIONS (SUPPORTING INFORMATION OR EXPERT OPINION)**

Providing any material or document as a basis for a contention, without setting forth an explanation of its significance, is inadequate to support the admission of the contention.

**RULES OF PRACTICE: CONTENTIONS (GENERALIZED GRIEVANCE)**

To the extent a proposed contention asserts a generalized grievance regarding NRC policy, it is outside the scope of a proceeding before a licensing board.

**NEPA: ENVIRONMENTAL JUSTICE**

As a component of NEPA, Environmental Justice per se is not a litigable issue in NRC proceedings. The NRC’s obligation is to assess the proposed action for significant impacts to the physical or human environment. Thus, admissible contentions in this area are those which allege, with the requisite documentary basis and support as required by 10 C.F.R. Part 2, that the proposed action will have significant adverse impacts on the physical or human environment that were not considered because the impacts to the community were not adequately evaluated.

**NEPA: CATEGORICAL EXCLUSION**

Pursuant to 10 C.F.R. § 51.22(b), an environmental impact statement or environmental assessment is not required if a categorical exclusion applies. A categorical exclusion applies to a license amendment provided that: (i) The amendment or exemption involves no significant hazards consideration; (ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite; and (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

**ORDER**  
**(Ruling on Petition to Intervene and Request for a Hearing)**

Before the Board is a petition to intervene and request for a hearing (Petition) filed by Blue Ridge Environmental Defense League and its chapter Concerned Citizens of Shell Bluff (collectively BREDL or Petitioner).<sup>1</sup> The Petition challenges the License Amendment Request (LAR) of Southern Nuclear Operating Company, Inc. (Southern Nuclear) to amend its combined licenses (COLs) for the construction and operation of Vogtle Electric Generating Plant (Vogtle) Units 3 and 4, located in Burke County, Georgia. We conclude that BREDL has representational standing but has not proffered an admissible contention under the Commission's stringent rules governing contention admissibility. We therefore deny the request for a hearing and dismiss the Petition.

**I. BACKGROUND**

On February 10, 2012, the NRC issued COLs NPF-91 and NPF-92 to Southern Nuclear for the construction and operation of Vogtle Units 3 and 4.<sup>2</sup> Both new units are currently under construction. During construction, Southern Nuclear concluded it needed a license amendment because four containment internal structural wall modules (CIS wall modules) of the nuclear island<sup>3</sup> failed to comply with the thickness tolerances specified in Appendix C to the COLs.<sup>4</sup> The LAR explains that “[t]he need for [the] proposed change was identified during a survey performed of installed modules where it was identified that the tolerance specified in COL Appendix C was not met in a portion of one wall and there were possible inconsistencies with the underlying design construction tolerances.”<sup>5</sup> Southern Nuclear submitted the LAR on September 18, 2015, stating that “[d]elayed approval of this licensing request could result in delay

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<sup>1</sup> Corrected Petition for Leave to Intervene and Request for Hearing by the Blue Ridge Environmental Defense League and its Chapter Concerned Citizens of Shell Bluff (Dec. 23, 2015) [hereinafter Petition].

<sup>2</sup> Southern Nuclear Operating Company's Answer Opposing Petition to Intervene and Request for Hearing (Jan. 4, 2016) at 2 [hereinafter Southern Nuclear Answer].

<sup>3</sup> The “nuclear island” includes all equipment, systems, and other relevant hardware within the reactor and reactor auxiliary buildings of the nuclear power plant. The nuclear island includes various structures, including the containment vessel, containment internal structures, shield building, and auxiliary building. Vogtle Electric Generating Plant Units 3 and 4 Request for License Amendment and Exemption: CA04 Structural Module ITAAC Dimensions Change (LAR-15-015) (Sept. 18, 2015), Encl. 1, at 3 (ADAMS Accession No. ML15261A757) [hereinafter LAR].

<sup>4</sup> See Southern Nuclear Answer at 2.

<sup>5</sup> LAR, Encl. 1, at 3.

of the associated construction activity and subsequent dependent construction activities.”<sup>6</sup>

In the LAR, Southern Nuclear proposes to revise COL Appendix C and the associated plant-specific Design Control Document (DCD) Tier 1 Table 3.3-1, “Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building,” to increase the concrete wall thickness tolerances of four CIS wall modules from  $\pm 1$  inch to  $\pm 1 \frac{5}{8}$  inches.<sup>7</sup> As explained in the LAR,

[t]his proposed change refers to the tolerance for the concrete wall thicknesses for the containment internal structural modules CA04, CA01, and CB65. The CA04 module forms the reactor vessel cavity, and the walls of the CA01 module comprise the central walls of the containment internal structures including the two steam generator compartments and the refueling canal. Finally, the CB65 module is used in creating the walls of the reactor coolant drain tank room (termed the RCDT Room).<sup>8</sup>

On October 8, 2015, the NRC published a notice of the receipt of the LAR in the *Federal Register*.<sup>9</sup> In this notice, the NRC proposed that the LAR involved no significant hazards consideration and sought public comment on that proposed determination.<sup>10</sup> The notice also provided an opportunity to request a hearing.<sup>11</sup>

On November 9, 2015, BREDL submitted comments on the LAR.<sup>12</sup> In summarizing its concerns, BREDL stated:

The American Concrete Institute standards for nuclear power plants would be undermined by the granting of Southern Nuclear’s License Amendment Request. The standards are in need of updating; further departures from ACI-349 and other standards should not be approved by the Nuclear Regulatory Commission. Finally, the entire license amendment is being rushed. Southern Company has filed a preliminary amendment request which would allow the preemptory alteration of the license before a full public review as permitted by federal regulations. We oppose the granting of the Preliminary Amendment Request PAR-15-015 and the License

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<sup>6</sup> *Id.* at 2.

<sup>7</sup> *Id.*, Encl. 1, at 3. Because the proposed tolerance change requires a departure from Tier 1 information in the Westinghouse Advanced Passive 1000 DCD, Southern Nuclear also requested an exemption from the requirements of the Generic DCD Tier 1. *Id.*, Encl. 2, at 2. BREDL has not challenged the exemption request.

<sup>8</sup> *Id.*, Encl. 1, at 4.

<sup>9</sup> Vogtle Electric Generating Plant, Units 3 and 4, 80 Fed. Reg. 60,937 (Oct. 8, 2015).

<sup>10</sup> *Id.* at 60,938-39.

<sup>11</sup> *Id.* at 60,939.

<sup>12</sup> Comment from Blue Ridge Environmental Defense League on Vogtle Electric Generating Station, Units 3 and 4 (Nov. 9, 2015) (ADAMS Accession No. ML15320A016).

Amendment. Our principal interests are the health and safety of our members living near the plant and the general public.<sup>13</sup>

BREDL filed its Petition to Intervene on December 7, 2015. The Petition includes three contentions. In its first contention, BREDL argues that to protect the health and safety of its members, Southern Nuclear should not be permitted to deviate from industry standards developed by the American Concrete Institute (ACI), specifically ACI 117 (“Specifications for Tolerances for Concrete Construction and Materials”) and ACI 349-01 (“Code Requirements for Nuclear Safety Related Concrete Structures”).<sup>14</sup> In its second contention, BREDL argues that the proposed weakening of the tolerance standards could result in plant workers being exposed to levels of radiation in excess of the “as low as is reasonably achievable”<sup>15</sup> (ALARA) standard.<sup>16</sup> BREDL’s third contention alleges that the approval of the license amendment would result in a disproportionate impact on residents of the Shell Bluff area, including low-income and minority populations, by subjecting them to greater risk from ionizing radiation.<sup>17</sup> BREDL maintains that Executive Order 12898 requires the NRC to “take steps to avoid disproportionate, adverse environmental impacts on low income and minority populations,” but the NRC has consistently failed to comply with that obligation.<sup>18</sup>

On December 11, 2015, this Atomic Safety and Licensing Board was established to preside over the proceeding.<sup>19</sup> The NRC issued the requested amendment and exemption 5 days later.<sup>20</sup> BREDL filed a Corrected Petition on December 23.<sup>21</sup> On January 4, 2016, the NRC Staff (Staff) and Southern Nuclear filed answers opposing the Petition. On March 15, 2016, the Board heard oral argument on standing and contention admissibility in Augusta, Georgia.<sup>22</sup>

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<sup>13</sup> *Id.* at 3.

<sup>14</sup> Petition at 7-10.

<sup>15</sup> 10 C.F.R. § 20.1003.

<sup>16</sup> Petition at 10-11.

<sup>17</sup> *Id.* at 11-12.

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

<sup>19</sup> Establishment of Atomic Safety and Licensing Board (Dec. 11, 2015); *see also* 80 Fed. Reg. 79,104 (Dec. 18, 2015).

<sup>20</sup> Issuance of License Amendment No. 42 and Exemption for Vogtle Units 3 & 4 (LAR 15-015) (Dec. 16, 2015) (ADAMS Accession No. ML15302A398).

<sup>21</sup> The Corrected Petition deleted text from one sentence within Contention One. Petition at 8.

<sup>22</sup> Tr. at 1-131.

## II. PETITIONER'S STANDING

### A. General Requirements for Standing

A petitioner's participation in a licensing proceeding requires a demonstration of standing. This requirement is derived from section 189a of the Atomic Energy Act of 1954 (AEA),<sup>23</sup> which instructs the NRC to provide a hearing "upon the request of any person whose interest may be affected by the proceeding."<sup>24</sup> The Commission's regulation implementing the standing requirement, 10 C.F.R. § 2.309(d), directs a licensing board to consider (1) the nature of the petitioner's right under the AEA or the National Environmental Policy Act (NEPA) 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 may be issued in the proceeding on the petitioner's interest.<sup>25</sup> When assessing whether an individual or organization has set forth a sufficient interest, the Commission has applied contemporaneous judicial concepts of standing, under which the petitioner must allege "a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision."<sup>26</sup>

In certain circumstances, however, the Commission has adopted a proximity presumption that allows a petitioner living,<sup>27</sup> having frequent contacts,<sup>28</sup> or having a significant property interest<sup>29</sup> within 50 miles of a nuclear power reactor to establish standing without the need to make an individualized showing of injury, causation, and redressability.<sup>30</sup> "The presumption rests on our finding, in construction permit and operating license cases, that persons living within the roughly 50-mile radius of the facility 'face a realistic threat of harm' if a release

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<sup>23</sup> 42 U.S.C. § 2011 *et seq.* (1954).

<sup>24</sup> *Id.* § 2239(a)(1)(A); *see also* 10 C.F.R. § 2.105(a)(4) (providing an opportunity for a hearing for "[a]n amendment to an operating license, combined license, or manufacturing license").

<sup>25</sup> 10 C.F.R. § 2.309(d)(1)(ii)-(iv).

<sup>26</sup> *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 92 (1993) (citations omitted); *see also Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995).

<sup>27</sup> *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Units 1 and 2), CLI-89-21, 30 NRC 325, 329 (1989) ("[L]iving within a specific distance from the plant is enough to confer standing on an individual or group in proceedings for construction permits, operating licenses, or significant amendments thereto . . .").

<sup>28</sup> *Sequoyah Fuels Corp. and General Atomics* (Gore, Oklahoma Site), CLI-94-12, 40 NRC 64, 75 (1994) (stating that the proximity presumption also applies to "persons who have frequent contacts in the area near a nuclear power plant").

<sup>29</sup> *USEC Inc.* (American Centrifuge Plant), CLI-05-11, 61 NRC 309, 314 (2005).

<sup>30</sup> *Exelon Generation Co., LLC* (Peach Bottom Atomic Power Station, Units 2 and 3), CLI-05-26, 62 NRC 577, 581 (2005).

from the facility of radioactive material were to occur.”<sup>31</sup> Although this threat can be assumed in construction permit and operating license proceedings for power reactors,<sup>32</sup> for the proximity presumption to apply in license amendment proceedings, the proposed amendment must “‘obvious[ly]’ entail[ ] an increased potential for offsite consequences.”<sup>33</sup>

Also, when, as here, an organization petitions to intervene in a proceeding, it must demonstrate either organizational or representational standing.<sup>34</sup> To demonstrate organizational standing, the petitioner must show “injury-in-fact” to the interests of the organization itself.<sup>35</sup> When an organization seeks to establish representational standing, it must demonstrate that at least one of its members would be affected by the proceeding and identify that member.<sup>36</sup> Moreover, the organization must show that the identified members would have standing to intervene in their own right, and that they have authorized the organization to request a hearing on their behalf.<sup>37</sup>

## B. Board Ruling on Standing

BREDL relies on representational standing and the proximity presumption. It has submitted a list of sixty-two members of BREDL and Concerned Citizens of Shell Bluff whose interests it represents in this proceeding.<sup>38</sup> Each of the members

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<sup>31</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 917 (2009) (quoting *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-09-4, 69 NRC 170, 183 (2009)).

<sup>32</sup> *Id.* at 915.

<sup>33</sup> *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-08-18, 68 NRC 533, 539 (2008) (first modification in original) (quoting *Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-99-4, 49 NRC 185, 191 (1999)); see also *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 148 (2001) (“[T]he rule laid down in *St. Lucie* is intended to be applied across the board to all proceedings regardless of type because the rationale underlying the proximity presumption is not based on the type of proceeding per se but on whether ‘the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences.’” (quoting *Ga. Tech.*, CLI-95-12, 42 NRC at 116)).

<sup>34</sup> *Shaw AREVA MOX Services* (Mixed Oxide Fuel Fabrication Facility), LBP-07-14, 66 NRC 169, 183 (2007).

<sup>35</sup> See *id.*

<sup>36</sup> See *id.*

<sup>37</sup> See *Sequoyah Fuels*, CLI-94-12, 40 NRC at 72 (“An organization seeking representational standing on behalf of its members may meet the ‘injury-in-fact’ requirement by demonstrating that at least one of its members, who has authorized the organization to represent his or her interest, will be injured by the possible outcome of the proceeding.” (citation omitted)).

<sup>38</sup> Petition at 4-5. One declaration was filed by an individual that lives within 50 miles of Vogtle  
(Continued)

has filed a declaration stating that he or she lives within 50 miles of Vogtle Units 3 and 4.<sup>39</sup> Each member further states that he or she believes the license amendment “would increase the risk to my health and safety” and is “concerned about releases of radioactive substances to the air and water, an accident involving the release of radioactive materials, and my ability to protect myself and my family if a radioactive accident were to occur.”<sup>40</sup> BREDL maintains that its members “have presumptive standing by virtue of their proximity to the two nuclear plants now under construction on the site.”<sup>41</sup>

The Staff and Southern Nuclear challenge BREDL’s claim of standing. They assert that the “proximity presumption” does not apply here because BREDL has not shown “a clear potential for offsite consequences.”<sup>42</sup> And they argue that BREDL has failed to make the showing of injury, causation, and redressability that is necessary to establish standing in the absence of the proximity presumption.<sup>43</sup>

### ***1. The Proximity Presumption Applies***

For the proximity presumption to apply, the proposed license amendment must obviously entail an increased potential for offsite consequences.<sup>44</sup> The petitioner has the burden to show that the presumption should apply.<sup>45</sup> To satisfy its burden, “it is generally sufficient if the petitioner provides plausible factual allegations that satisfy each element of standing.”<sup>46</sup> “[W]hen evaluating whether a petitioner has established standing, a licensing board is to ‘construe the [intervention] petition in favor of the petitioner.’”<sup>47</sup>

In deciding whether BREDL has established standing, we do not decide the admissibility or merits of its contentions. The Commission has identified a clear distinction between standing and the ultimate merits of a proposed contention, concluding that a “full-blown factual inquiry” is not required for the “threshold

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Units 3 and 4 but did not claim membership in BREDL or Concerned Citizens of Shell Bluff. BREDL Standing Declarations (Dec. 7, 2015) [hereinafter Standing Declarations].

<sup>39</sup> Standing Declarations.

<sup>40</sup> *Id.*

<sup>41</sup> Petition at 5.

<sup>42</sup> NRC Staff Answer to “Petition for Leave to Intervene and Request [for] a Hearing by the Blue Ridge Environmental Defense League and Its Chapter Concerned Citizens of Shell Bluff” (Jan. 4, 2016) at 7-8 [hereinafter NRC Staff Answer]; *see also* Southern Nuclear Answer at 6.

<sup>43</sup> *See* NRC Staff Answer at 8-9.

<sup>44</sup> *See* cases cited *supra* note 33.

<sup>45</sup> *Peach Bottom*, CLI-05-26, 62 NRC at 581.

<sup>46</sup> *U.S. Army Installation Command* (Schofield Barracks, Oahu, Hawaii, and Pohakuloa Training Area, Island of Hawaii, Hawaii), LBP-10-4, 71 NRC 216, 229-30 (2010) (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992)).

<sup>47</sup> *Id.* at 230 (quoting *Ga. Tech*, CLI-95-12, 42 NRC at 115).

legal question” of standing.<sup>48</sup> The Commission has adopted the “often-repeated admonition to avoid the familiar trap of confusing the standing determination with the assessment of petitioner’s case on the merits.”<sup>49</sup> It follows “the fundamental principle that the ultimate merits of the case have no bearing on the threshold question of standing.”<sup>50</sup>

On the issue of offsite consequences, the Commission previously rejected an appeal that sought to disturb a standing determination in a case where a research reactor licensee argued that the hypothetical scenarios underlying the proximity presumption were “incredible,” because they would “first require three independent safety systems to fail.”<sup>51</sup> In the *Perry Nuclear Plant* proceeding, the Commission held that the Petitioners had standing based on the proximity presumption without reviewing the merits at all, stating that its ruling did “not signify any opinion on the admissibility or the merits of the Petitioners’ contention” and remanding those issues to the licensing board.<sup>52</sup> Similarly, licensing boards have found standing in cases where the proximity presumption was based on “unlikely” but plausible risk scenarios.<sup>53</sup> Therefore, whether the petitioner is ultimately correct on the merits is generally a distinct issue from the threshold question of standing for purposes of the proximity presumption.<sup>54</sup>

Applying these principles, we conclude that BREDL’s allegations are suffi-

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<sup>48</sup> *Sequoyah Fuels Corp.* (Gore, Oklahoma Site Decommissioning), CLI-01-2, 53 NRC 9, 15 (2001) (quotation omitted); see also *Shaw AREVA*, LBP-07-14, 66 NRC at 188 (“Petitioners are not required to demonstrate their asserted injury with ‘certainty,’ nor to ‘provide extensive technical studies’ in support of their standing argument. . . . Resolving standing questions is an entirely different matter than adjudicating the ultimate merits of a contention.” (quotation omitted)).

<sup>49</sup> *Sequoyah Fuels*, CLI-01-2, 53 NRC at 15 (quoting *Sequoyah Fuels Corp.* (Gore, Oklahoma Site Decontamination and Decommissioning Funding), LBP-94-5, 39 NRC 54, 68 (1994), *aff’d*, CLI-94-12, 40 NRC 64 (1994)).

<sup>50</sup> *Id.* (quoting *Campbell v. Minneapolis Public Housing Authority*, 168 F.3d 1069, 1074 (8th Cir. 1999)); see also *Blackhawk Heating & Plumbing Co. v. Driver*, 433 F.2d 1137, 1140 (D.C. Cir. 1970) (“[T]he question of standing is a preliminary matter which does not go to the merits of the case.”). Thus, “[a]t the pleading stage, ‘general factual allegations of injury resulting from the defendant’s conduct may suffice,’ and the court ‘presum[es] that general allegations embrace the specific facts that are necessary to support the claim.’” *Sierra Club v. Environmental Protection Agency*, 292 F.3d 895, 898-99 (D.C. Cir. 2002) (quoting *Lujan*, 504 U.S. at 561).

<sup>51</sup> See *Ga. Tech.*, CLI-95-12, 42 NRC at 117 (addressing renewal of research reactor license).

<sup>52</sup> *Perry*, CLI-93-21, 38 NRC at 96.

<sup>53</sup> See *Shaw AREVA*, LBP-07-14, 66 NRC at 187-88 (concluding based on “the Application and the Board’s own technical expertise” that nuclear criticality was a “legitimate concern” in the context of license to operate a mixed oxide fuel fabrication facility); *CFC Logistics, Inc.*, LBP-03-20, 58 NRC 311, 320 (2003) (identifying an “unlikely, yet plausible, scenario in which an accident of some sort could damage the armored pool containing the cobalt-60 at the [food processing irradiator] facility”).

<sup>54</sup> See also *International Uranium (USA) Corp.* (White Mesa Uranium Mill), CLI-02-10, 55 NRC 251, 255-56 (2002).



cient to show that the LAR obviously entails an increased potential for offsite consequences. BREDL states that the changes proposed in the LAR “would alter the construction standards” for Vogtle Units 3 and 4 and that those changes would “alter the reactors’ critical internal structural components.”<sup>55</sup> That much appears to be undisputed. The LAR itself states that “the containment internal structures are those concrete and steel structures inside, but not a part of, the containment pressure boundary that support the reactor coolant system components and related piping systems and equipment. The concrete and steel structures also provide radiation shielding.”<sup>56</sup> The LAR further explains:

The nuclear island structures provide protection for the safety-related equipment from the consequences of either a postulated internal or external event. The nuclear island structures are designed to withstand the effects of natural phenomena such as hurricanes, floods, tornados, tsunamis, and earthquakes without loss of capability to perform safety functions. The nuclear island structures are designed to withstand the effects of postulated internal events such as fires and flooding without loss of capability to perform safety functions.<sup>57</sup>

Thus, if the CIS wall modules are structurally inadequate to perform their protective function during one or more of the postulated internal or external events, safety-related equipment inside the nuclear island would be at risk, creating an obvious potential for offsite consequences. As Southern Nuclear acknowledged at oral argument, “[i]f the wall[s] structurally weren’t adequate, there potentially could be an off-site consequence.”<sup>58</sup> But, it argued, “in this case, that has not even been alleged.”<sup>59</sup> According to Southern Nuclear and the Staff, BREDL has alleged only harm resulting from the operation of additional reactors at Vogtle, not from the license amendment itself.<sup>60</sup>

We disagree. It is true that in its standing argument BREDL claimed that its members have “presumptive standing by virtue of their proximity to the two nuclear plants now under construction on the site.”<sup>61</sup> By itself, this argument is insufficient to uphold BREDL’s standing because it incorrectly assumes that proximity to an operating nuclear reactor alone establishes standing in a license amendment proceeding. But BREDL’s apparent misunderstanding of the law does

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<sup>55</sup> Petition at 1.

<sup>56</sup> LAR, Encl. 1, at 3-4.

<sup>57</sup> *Id.* at 3.

<sup>58</sup> Tr. at 29.

<sup>59</sup> *Id.*

<sup>60</sup> See Southern Nuclear Answer at 8; NRC Staff Answer at 7-8.

<sup>61</sup> Petition at 5.

not necessarily mean that it lacks standing.<sup>62</sup> The Board may review BREDL's standing declarations, its Petition, and relevant documents cited by the participants to decide whether standing requirements have been met.<sup>63</sup> Having done so, we conclude that BREDL has set forth sufficient allegations to demonstrate an obvious potential for offsite consequences from the license amendment itself, not just from the operation of the additional Vogtle reactors.

First, BREDL's declarants have alleged an increased risk of harm resulting from the license amendment. Each of BREDL's members states that he or she believes that Vogtle Units 3 and 4 "are inherently dangerous and *the proposed amendment* would increase the risk to my health and safety."<sup>64</sup> Moreover, in Contention One, BREDL makes several specific arguments supporting a plausible or obvious increased potential for offsite consequences resulting from the license amendment, not just from the operation of Vogtle Units 3 and 4. BREDL states that "[t]he License Amendment Request fails to conform to certain construction industry standards required for nuclear power plants."<sup>65</sup> As BREDL explains, the "fundamental construction standards [for Vogtle Units 3 and 4] are based on conformance with industry codes developed by the American Concrete Institute."<sup>66</sup> BREDL notes that Updated Final Safety Analysis Report (UFSAR) § 3.8.3.2 specifies the code requirements for containment internal structures.<sup>67</sup> That section cites

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<sup>62</sup> BREDL is a *pro se* petitioner, and it is the Commission's longstanding policy that pleadings submitted by *pro se* petitioners are afforded greater leniency than petitions drafted with the assistance of counsel. See *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 45 n.246 (2010) (declining to reject argument on procedural grounds given practice of "treating *pro se* litigants more leniently than litigants with counsel"); *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 15 (2001) ("Given that Mr. Oncavage is a *pro se* intervenor, however, the Commission has made a special effort to review the contentions he made in his Amended Petition before the Board."); *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-146, 6 AEC 631, 633 & n.4 (1973) (recognizing that *pro se* petitioner is not held to the same standards of clarity and precision as a lawyer). It is therefore particularly appropriate in this case for the Board to review BREDL's declarations, its Petition, and other cited parts of the record to determine whether the proximity presumption should apply, rather than dismissing the Petition solely because BREDL misunderstood the law.

<sup>63</sup> See *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-98-13, 48 NRC 26, 32 (1998) (Board did not misapply the facts or the law when it "reviewed the entire record and reached the reasonable conclusion that Ms. Reed's contacts with Skull Valley reservation are enough for standing under prevailing judicial and Commission precedent"). See also 10 C.F.R. § 2.309(d)(2) (The Board ruling on a request for a hearing or petition to intervene "must determine, among other things, whether the petitioner has an interest affected by the proceeding considering the factors enumerated in paragraph (d)(1) of this section.").

<sup>64</sup> See Standing Declarations (emphasis added).

<sup>65</sup> Petition at 7.

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

<sup>67</sup> See *id.*

both ACI 117 and ACI 349-01. BREDL further states that “UFSAR Subsection 3.8.3.6.1 requires that the tolerances for fabrication, assembly, and installation of structural modules CA04, CA01, and CB65 conform to the requirements of ACI-117, and UFSAR Subsection 3.8.4.4.1 requires that the procedures conform with ACI 349-01.”<sup>68</sup> BREDL emphasizes that the amended tolerances for those CIS wall modules do not conform to the tolerance requirements of ACI 117 and 349-01.<sup>69</sup>

BREDL asserts that the significance of the requested tolerance deviations cannot be fully evaluated because the reinforcement margins<sup>70</sup> of safety under the original tolerances have not been provided for comparison with the stated margins of safety resulting from the amendment.<sup>71</sup> To further support its position that deviation from the ACI tolerances should not be permitted, BREDL quotes two documents identifying concerns with ACI 349 raised by the Nuclear Energy Standards Coordination Collaborative (NESCC).<sup>72</sup> The first suggests that ACI 349 does not adequately account for “Design Basis Environmental Loads,” including a “Design Basis Accident such as high energy component or system

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<sup>68</sup> *Id.* The Board also notes that UFSAR § 3.8.3.2 incorporates the requirements of ACI 117 and 349-01 for purposes of “the design, materials, fabrication, construction, inspection, or testing of the containment internal structures.” Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Updated Final Safety Analysis Report, Revision 3, Chapter 3, Section 3.8, Design of Category I Structures (May 15, 2014) § 3.8.3.2 (ADAMS Accession No. ML14183B226) [hereinafter UFSAR]. In turn, NUREG-0800 § 3.8.3 includes ACI 349 as an applicable code for purposes of acceptance criteria and NRC Staff evaluation. *See* Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition, Chapter 3.8.3, Concrete and Steel Internal Structures of Steel or Concrete Containments, NUREG-0800, at 3.8.3-16 to -21, -25, -35 (Rev. 4 Sept. 2013) (ADAMS Accession No. ML13198A250); *see also* 10 C.F.R. Part 52, App. D.VIII.B.6.c(4) (requiring compliance with ACI 349); Tr. at 81-87 (referencing Part 52, Appendix D and NUREG-0800 as critical documents in the Staff’s review of the license amendment).

<sup>69</sup> Petition at 8.

<sup>70</sup> By “margins,” we understand BREDL to mean the extent to which the calculated reinforcement exceeds the minimum requirements under ACI 349-01.

<sup>71</sup> Petition at 8. BREDL also asserts that the need for a license amendment occurred after the CIS wall modules were constructed and inspected. *See id.* at 10. The legal relevance of this observation, if any, was not revealed during this proceeding.

<sup>72</sup> *Id.* at 9. The Staff explains that the NESCC is

a joint initiative of the American National Standards Institute and the National Institute for Standards and Technology; it is a joint forum open to various stakeholders, including industry, academia, governmental organizations, and other interested parties. One mission of the NESCC is to review subject areas of interest to determine if new or revised consensus standards might be beneficial. NESCC Task Groups perform a general review of the state of technology and the related standards and regulatory requirements in a particular subject area, and their reports offer recommendations for improvements. However, the reports and recommendations developed by the NESCC are not, themselves, “industry standards.”

Staff Answer at 13.

failure.”<sup>73</sup> The second appears to urge consideration of radiation impacts on concrete durability.<sup>74</sup> In summarizing its disagreement with the LAR, BREDL argues that “[t]he granting of the Company’s License Amendment Request would not comply with UFSAR technical bases at Plant Vogtle”; that “[t]he American Concrete Institute standards for nuclear power plants should be adhered to”; and that, because the standards are in need of strengthening, “further departures from ACI-349 and other standards should not be approved by the Nuclear Regulatory Commission.”<sup>75</sup>

Thus, according to BREDL, Southern Nuclear’s failure to comply with the ACI codes establishing minimum tolerances for concrete thickness puts into doubt the strength and durability of the CIS wall modules.<sup>76</sup> BREDL’s allegations, coupled with the acknowledged possibility of offsite consequences if the CIS wall modules are structurally inadequate, satisfy the requirement that BREDL show “a ‘plausible chain of causation’ explaining how the amendment itself would result in a ‘distinct new harm or threat’ beyond that posed by the licensed facility itself.”<sup>77</sup>

As we have explained, our decision on standing is not a ruling on the admissibility or merits of BREDL’s contentions. Thus, our ruling does not mean that BREDL has pled an admissible contention.<sup>78</sup> It means only that BREDL has satisfied standing requirements and we may consider the admissibility of its contentions.<sup>79</sup> Although Southern Nuclear and the Staff dispute BREDL’s arguments that deviation from the ACI tolerances should not be permitted, the standing determination is not the place to decide those disputes.

We recognize that there are limits to proximity standing when there are no changes to “the physical plant itself, its operating procedures, design basis accident analysis, management, or personnel.”<sup>80</sup> Thus, the Commission has rejected

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<sup>73</sup> Petition at 9 (quotation omitted). The Board notes that in attempting to locate the material referenced by BREDL as the 2010 NESCC presentation, it could not locate a version of the document that included all of the text quoted by BREDL. See Chiara Ferraris, Concrete Codes and Standards for Nuclear Power Plants (CTG), NESCC, [http://concretesdc.org/meetings/Past\\_Meeting&Sessions/Session28/N-1.pdf](http://concretesdc.org/meetings/Past_Meeting&Sessions/Session28/N-1.pdf). Without a link to the source cited in the Petition, the Board assumes that BREDL added the words “such as high energy component or system failure (i.e. rotating equipment rupture, pipe break, tank failure causing interior building flooding, heavy load drop, etc.).”

<sup>74</sup> Petition at 9.

<sup>75</sup> *Id.* at 12.

<sup>76</sup> *Id.* at 7-9.

<sup>77</sup> Southern Nuclear Answer at 5 (citing *Zion*, CLI-99-4, 49 NRC at 192).

<sup>78</sup> *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 2), LBP-03-12, 58 NRC 75, 93 (2003) (concluding that an “obvious potential for offsite consequences” is not in itself sufficient to support an admissible contention).

<sup>79</sup> See *infra* Section III.

<sup>80</sup> See *Peach Bottom*, CLI-05-26, 62 NRC at 582 (stating that the license transfer did not implicate these concerns).

proximity standing for license transfers,<sup>81</sup> license amendments associated with shutdown and defueled reactors,<sup>82</sup> and certain changes to worker-protection requirements.<sup>83</sup> Here, however, the challenged LAR does request changes to the design of the physical plant, authorizing CIS wall modules in Vogtle Units 3 and 4 that protect safety-related equipment to deviate from ACI tolerances identified in COL Appendix C.

In the *Perry Nuclear Plant* proceeding, petitioners challenged a license amendment that deleted the material specimen withdrawal schedule from the plant's technical specifications, which precluded the petitioners from requesting a hearing in the event of future changes to the schedule.<sup>84</sup> The Commission held that the petitioners had standing under the proximity presumption, observing that the purpose of the surveillance schedule is to ensure the structural integrity of the reactor vessel and that "[t]he material condition of the plant's reactor vessel obviously bears on the health and safety of those members of the public who reside in the plant's vicinity."<sup>85</sup> Similarly, in this proceeding the tolerances from which Southern Nuclear seeks to deviate are related to the structural integrity of the CIS wall modules, and the material condition of those walls also "bears on the health and safety of those members of the public who reside in the plant's vicinity."<sup>86</sup> We may therefore appropriately apply the proximity presumption and evaluate the admissibility of BREDL's contentions that "departures from ACI-349 and other standards should not be approved by the [NRC]."<sup>87</sup>

One issue remains. The Commission has stated that "[i]n ruling on claims of 'proximity standing,' we decide the appropriate radius on a case-by-case basis."<sup>88</sup> In their declarations, BREDL's members state that they live within 50 miles of the site of Vogtle Units 3 and 4, without further elaboration as to the specific distance. In its reply, however, BREDL stated that many of its members "live within just 7 miles of Plant Vogtle."<sup>89</sup> BREDL further notes that, in a case involving an application for a power uprate, representational standing was granted to an

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<sup>81</sup> *Id.* at 581.

<sup>82</sup> *Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), LBP-98-27, 48 NRC 271, 276 (1998), *aff'd*, CLI-99-4, 49 NRC 185, 191 (1999).

<sup>83</sup> *St. Lucie*, CLI-89-21, 30 NRC at 329-30.

<sup>84</sup> *Perry*, CLI-93-21, 38 NRC at 90-92.

<sup>85</sup> *Id.* at 95-96.

<sup>86</sup> *Id.* at 96.

<sup>87</sup> Petition at 12.

<sup>88</sup> *Peach Bottom*, CLI-05-26, 62 NRC at 580.

<sup>89</sup> Reply of the Blue Ridge Environmental Defense League and Its Chapter Concerned Citizens of Shell Bluff to Answers Filed by Southern Nuclear Operating Company and Nuclear Regulatory Commission Staff (Jan. 11, 2016) at 2.

organization with members who lived within 15 miles of the plant.<sup>90</sup> Neither Southern Nuclear nor the Staff has argued that BREDL's members live beyond the appropriate radius from the Vogtle plant. We therefore conclude that BREDL has satisfied the requirements for representational standing based on the proximity presumption.

Because the proximity presumption applies, the Staff and Southern Nuclear's remaining standing arguments are moot.<sup>91</sup>

## ***2. Petitioner's Standing to Allege Potential Harm to Plant Employees***

Although not raised by the parties, Contention Two presents a separate standing issue because BREDL alleges that the LAR implicates worker safety, rather than harm to its members. As far as we can determine, none of the individuals that signed a standing declaration works at the Vogtle facility or plans to do so. Therefore, if the impact of the amendment on worker safety was BREDL's sole allegation, we would dismiss the Petition for lack of standing.<sup>92</sup>

BREDL has, however, established standing based on the potential impact of the license amendment on its members who live near Vogtle Units 3 and 4. The Commission has ruled that "once a party demonstrates that it has standing to intervene on its own accord, that party may then raise any contention that, if proved, will afford the party relief from the injury it relies upon for standing."<sup>93</sup> Thus, BREDL may allege an adverse impact to worker safety if success on that contention would afford relief to BREDL's members from the risk of harm they allege as the basis of their standing. That test is met here. As noted above, BREDL's declarants state that they will be injured as the result of the license amendment by releases of radioactive material that may harm their health and welfare and the environment where they live. All of their contentions, including Contention Two, will afford relief from the asserted injuries if upheld

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<sup>90</sup> *Id.* (citing *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-04-28, 60 NRC 548, 553-54 (2004)).

<sup>91</sup> *Peach Bottom*, CLI-05-26, 62 NRC at 580 (stating that if "proximity standing" applies, "a petitioner need not expressly 'establish the [traditional] standing elements of injury, causation or redressability'" (quotation omitted)).

<sup>92</sup> *See St. Lucie*, CLI-89-21, 30 NRC at 329 ("[T]he exemption at issue deals with the protection of workers in the plant, not protection of the general public. In other words, those individuals affected will be workers in the plant, not members of the general public. The Petitioner is not a worker at the plant and has not alleged an 'injury in fact.'").

<sup>93</sup> *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-1, 43 NRC 1, 6 (1996); *see also Strata Energy, Inc.* (Ross In Situ Recovery Uranium Project), LBP-12-3, 75 NRC 164, 190 n.28 (2012) (citing cases), *aff'd*, CLI-12-12, 75 NRC 603 (2012); *Crow Butte Resources, Inc.* (North Trend Expansion Project), LBP-09-1, 69 NRC 11, 16-25 (2009), *aff'd in part, rev'd in part*, CLI-09-12, 69 NRC 535 (2009).

on the merits, because the license amendment would be invalid and construction of Vogtle Units 3 and 4 could proceed only in accordance with the original tolerances. Thus, all of BREDL's contentions, if proved, will afford relief from the injuries asserted as the basis of its members' standing.

### **III. ADMISSIBILITY OF PETITIONER'S CONTENTIONS**

#### **A. General Pleading Requirements**

To participate as a party in this proceeding, a petitioner for intervention must not only establish standing, but also proffer at least one admissible contention that meets the requirements of 10 C.F.R. § 2.309(f).<sup>94</sup> An admissible contention must: (i) provide a specific statement of the legal or factual issue sought 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, including references to specific sources and documents, that support the petitioner's position and upon which the petitioner intends to rely at the hearing; and (vi) provide sufficient information to show that a genuine dispute exists in regard to a material issue of law or fact, including references to specific portions of the application that the petitioner disputes, or, in the case where the application is alleged to be deficient, the identification of such deficiencies and supporting reasons for this belief.<sup>95</sup>

#### **B. Scope of Review of License Amendments**

NRC regulations define the Commission's scope of review of a license amendment application broadly: "In determining whether an amendment to a license, construction permit, or early site permit will be issued to the applicant, the Commission will be guided by the considerations which govern the issuance of initial licenses, construction permits, or early site permits to the extent applicable and appropriate."<sup>96</sup> As summarized by Southern Nuclear, the "applicant must satisfy the requirements of 10 C.F.R. § 50.90 and demonstrate that the requested amendment meets all applicable regulatory requirements and acceptance criteria

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<sup>94</sup> See 10 C.F.R. § 2.309(a).

<sup>95</sup> *Id.* § 2.309(f)(1)(i)-(vi).

<sup>96</sup> *Id.* § 50.92(a).

and does not otherwise harm the public health and safety or the common defense and security.”<sup>97</sup>

### C. BREDL Contention One

In Contention One, which we have previously summarized,<sup>98</sup> BREDL argues that the tolerance deviations proposed in the LAR should be rejected because (1) they fail to conform to construction industry standards required for nuclear power plants; (2) they cannot be adequately evaluated without the reinforcement margins of safety under the original tolerances; and (3) the ACI standards are in need of strengthening, for reasons given in the NESCC documents, and therefore departures from those standards should not be permitted.<sup>99</sup> In response, the Staff and Southern Nuclear do not dispute that the amended tolerances are greater than the tolerances permitted under ACI 117 and 349-01.<sup>100</sup> The Staff and Southern Nuclear contend, however, that the amended tolerances have been assessed pursuant to the reinforcement requirements of ACI 349-01 and provide an adequate margin of safety.<sup>101</sup> Furthermore, the Staff and Southern Nuclear contend that the magnitude of margin to ACI 349-01 is not relevant as long as reinforcement margin exists.<sup>102</sup> Finally, they contend that the NESCC documents fail to provide the necessary factual or expert support for an admissible contention.<sup>103</sup> We address each of these disputes in turn.

#### 1. Tolerance Deviations

UFSAR § 3.8.3.6.1 directs that “[t]olerances for fabrication, assembly and

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<sup>97</sup> Southern Nuclear Answer at 14 n.43 (quoting *Tennessee Valley Authority* (Sequoyah Nuclear Plant, Units 1 and 2; Watts Bar Nuclear Plant, Unit 1), LBP-02-14, 56 NRC 15, 35 (2002)).

<sup>98</sup> See *supra* pp. 272-74.

<sup>99</sup> Petition at 7-9, 12.

<sup>100</sup> See Southern Nuclear Answer at 11; NRC Staff Answer at 11.

<sup>101</sup> See Southern Nuclear Answer at 14; NRC Staff Answer at 11; see also Safety Evaluation by the Office of New Reactors Related to Exemption and Amendment No. 42 to the Combined License Nos. NPF-91 and NPF-92 (Dec. 16, 2015) at 8 (ADAMS Accession No. ML15302A473) [hereinafter Safety Evaluation] (defining “margin of safety” as the “ratio of the reinforcement required by the Code to the reinforcement provided by the design”). The Board believes that the appropriate definition of margin of safety was provided by the Staff during oral argument when it stated that it “is the ratio of the reinforcement required by the design and the reinforcement required by the code.” Tr. at 70. *But see id.* at 73 (restating margin of safety as “code over design”). Whether or not the ratio is inverted in the Safety Evaluation is not material to this proceeding.

<sup>102</sup> See Tr. at 97; see also UFSAR § 3.8.4.8 (“The minimum required reinforcement . . . represent[s] the minimum value[ ] to meet the design basis loads.”).

<sup>103</sup> Southern Nuclear Answer at 16-17; Staff Answer at 13-14.



erection of the structural modules conform [in part] to the requirements of section 4 of ACI-117.”<sup>104</sup> The LAR identifies section 4.5 of ACI 117, “Deviation from Cross-Sectional Dimensions,” as the applicable tolerance provision.<sup>105</sup> Under section 4.5.1 of ACI 117-10, walls thicker than 36 inches are subject to a tolerance of plus 1 inch or minus  $\frac{3}{4}$  inch.<sup>106</sup>

However, UFSAR § 3.8, “Design of Category I Structures,” and ACI 117 indicate that deviation from identified tolerance requirements is permissible when an adequate justification is provided. For example, under UFSAR § 3.8.3.5.7,<sup>107</sup>

[d]eviations from the design due to as-procured or as-built conditions are acceptable based on an evaluation . . . [and fulfillment of specified] acceptance criteria . . . . Depending on the extent of the deviations, the evaluation may range from documentation of an engineering judgement to performance of a revised analysis and design.

More generally, section 1.2.5 of ACI 117-10 states that if a tolerance is exceeded, the structure may be accepted “if it meets one of the following criteria: a) Exceeding the tolerances does not affect the structural integrity, legal boundaries, or architectural requirements of the element; or b) The element or total erected assembly can be modified to meet all structural and architectural

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<sup>104</sup> Unlike ACI 349-01, the parties did not identify a specific version of ACI 117 by year of adoption. However, the tolerance requirements are the same under an earlier version of ACI 117. *See* Standard Specifications for Tolerances for Concrete Construction and Materials (ACI 117-90) (2002) § 4.4.1.

<sup>105</sup> LAR, Encl. 1, at 5.

<sup>106</sup> *Id.*; *see also* Specification for Tolerances for Concrete Construction and Materials (ACI 117-10) and Commentary (ACI 117R-10) (2015) § 4.5.1 [hereinafter ACI 117]. In contrast, section 7.5.2.1 of ACI 349-01 states that a plus or minus 1-inch tolerance is applicable for purposes of reinforcement. LAR, Encl. 1, at 6; *see also* Code Requirements for Nuclear Safety Related Concrete Structures (ACI 349-01) (2001) § 7.5.2.1 [hereinafter ACI 349-01]. Furthermore, as stated in the Safety Evaluation, the ACI 117 tolerance is “inconsist[ent]” with the tolerance requirement identified in the UFSAR and the COLs, which require a plus or minus 1-inch tolerance for the four structures at issue. *See* Safety Evaluation at 3-4; *see also* Combined License Vogtle Electric Generating Plant Unit 3, App. C (Feb. 10, 2012), tbl. 3.3-1 (ADAMS Accession No. ML112991102); Combined License Vogtle Electric Generating Plant Unit 4, App. C (Feb. 10, 2012), tbl. 3.3-1 (ADAMS Accession No. ML113060437); UFSAR, tbl. 3.3-1. In turn, Southern Nuclear describes this discrepancy as ACI 117 requiring a “tighter” tolerance than that contained in the COLs. LAR, Encl. 1, at 5. Semantics aside, the tolerance discrepancy between UFSAR § 3.8.3.6.1 and note 2 of Table 3.3-1 of the COLs and UFSAR indicates that the tolerance requirements of ACI 117 are not absolute limits for purposes of licensing the structures at issue in this proceeding.

<sup>107</sup> *See also* UFSAR § 3.8.4.5.3 (setting forth analogous requirement regarding deviations).

requirements.”<sup>108</sup> Tolerance deviation may be acceptable, subject to regulatory approval, in part because of the general purpose tolerances serve:

Tolerances are a means to establish permissible variation in dimension and location . . . . They are the means by which the designer conveys to the contractor the performance expectations upon which the design is based or that the project requires. Such specified tolerances should reflect design assumptions and project needs, being neither overly restrictive nor lenient.<sup>109</sup>

Thus, tolerances are not absolute requirements. Accordingly, BREDL cannot rely on the undisputed deviations from the ACI tolerances as sole support for an admissible contention. It must provide a material and adequately supported argument challenging the basis of the LAR.

## **2. *Failure to Identify the Original Margins***

BREDL contends that the original margins are required to evaluate the significance of the reinforcement margins for vertical reinforcement, horizontal reinforcement, and shear provided in the LAR.<sup>110</sup> BREDL hypothesizes that if, for example, the original margins were approximately 250%, while only approximately 50% margins exist under the license amendment, then the tolerance deviation would be significant from a safety standpoint.<sup>111</sup>

On this issue, BREDL has pled what amounts to a contention of omission. Such a contention alleges that “the application fails to contain information on a relevant matter as required by law . . . [and provides] the supporting reasons for the petitioner’s belief.”<sup>112</sup> Thus, the contention of omission must describe

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<sup>108</sup> As noted by Southern Nuclear, ACI 349-01 allows for design deviations if NRC regulations are satisfied. Southern Nuclear Answer at 12 n.39; *see also* ACI 349-01 § 1.4 (“Sponsors of any system of design or construction within the scope of this Code, the adequacy of which has been shown by successful use or by analysis or test, but which does not conform to or is not covered by this Code, shall have the right to present the data on which their design is based to the Regulatory Authority for review and approval. The Regulatory Authority may investigate the data so submitted, and may require tests and formulate rules governing the design and construction of such systems to meet the intent of this Code.”).

<sup>109</sup> ACI 117, Intro., at 3.

<sup>110</sup> *See* Petition at 8.

<sup>111</sup> *Id.* BREDL does not address the adequacy of the volume decrease analysis associated with the thicker CIS wall modules covered by the license amendment. The thicker CIS wall modules, which were designed as mass concrete structures, were not subject to reinforcement margin analysis for purposes of the license amendment. *See* LAR, Encl. 1, at 7; Safety Evaluation at 8. Because BREDL did not address this distinction, it was not considered by the Board.

<sup>112</sup> 10 C.F.R. § 2.309(f)(1)(vi).

the information that should have been included and provide the legal basis that requires the omitted information to be included.<sup>113</sup>

The Staff and Southern Nuclear contend that BREDL has failed to raise a material issue. They argue that the legally significant fact is that adequate reinforcement margins exist after the tolerance amendment, not whether the effect of the amendment is to reduce the margins.<sup>114</sup> This concept of margin, they maintain, is implicit in the proposed amendment to UFSAR § 3.8.3.6.1, which states:

In walls around the reactor vessel cavity, where the concrete is placed between portions of unconnected modules or between a module and a left-in-place form, the tolerance for the wall thickness may be increased over those in ACI 117. These walls have been evaluated against ACI 349-01 reinforcement design requirements and demonstrated sufficient margin to accommodate the increased tolerance.<sup>115</sup>

Stated differently, the structures at issue have design functions — including structural integrity and radiation protection — that are developed in response to various factors, including design loads.<sup>116</sup> In turn, the design function is subject to various parameters, including the margins defined in ACI 349-01,<sup>117</sup> which are adopted in the generic AP1000 DCD and incorporated in the plant’s licensing design basis.<sup>118</sup>

Pursuant to section 2.309(f)(1)(vi), the Petition must provide sufficient information “to show that a genuine dispute exists with the . . . licensee on a material issue of law or fact.” A petitioner is not required to prove its case at the contention admissibility stage,<sup>119</sup> but “[a]n allegation that some aspect of a license application is ‘inadequate’ or ‘unacceptable’ does not give rise to a genuine dispute unless it is support[ed] by facts and a reasoned statement of why the application is unacceptable in some material respect.”<sup>120</sup> Stated differently, “a protestant does not become entitled to an evidentiary hearing merely on request, or on a bald or conclusory allegation that . . . a dispute exists. The protestant must make a

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<sup>113</sup> *Id.*

<sup>114</sup> See Southern Nuclear Answer at 13-15; NRC Staff Answer at 11-12.

<sup>115</sup> LAR, Encl. 3, at 3.

<sup>116</sup> See Safety Evaluation at 4-5.

<sup>117</sup> UFSAR § 3.8.4.5.

<sup>118</sup> See Safety Evaluation at 4-5.

<sup>119</sup> See *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 249 (1996).

<sup>120</sup> *Nuclear Management Co., LLC* (Palisades Nuclear Plant), LBP-06-10, 63 NRC 314, 341, *aff’d*, CLI-06-17, 63 NRC 727 (2006).

minimal showing that material facts are in dispute, thereby demonstrating that an ‘inquiry in depth’ is appropriate.”<sup>121</sup>

BREDL fails to adequately explain why disclosure of the original magnitudes of margin to ACI 349-01 is legally or technically necessary. Southern Nuclear stated in the LAR that after assessing the effect of the tolerance deviation it concluded “that the minimum margin for vertical reinforcement is 47.9%, for horizontal reinforcement 54.8%[,] and for shear 61.3%.”<sup>122</sup> BREDL does not challenge the accuracy of these calculations. BREDL also does not argue that the UFSAR — or any other technical or legal standard — requires a specific degree of reinforcement margin in excess of the requirements of ACI 349-01.<sup>123</sup> As previously discussed, BREDL implies that if the original margins were significantly higher than the approximately 50% margins that exist as a result of the tolerance deviation, then the license amendment may significantly reduce the margin of safety.<sup>124</sup> This observation alone, however, fails to establish a genuine dispute of material fact, given the absence of any requirement to exceed the reinforcement requirements of ACI 349-01.

Nor has BREDL provided any expert or factual support for its theory that the LAR must disclose the original margins and compare them to the margins under the license amendment. Under section 2.309(f)(1)(v), the Petition must “[p]rovide a concise statement of the alleged facts or expert opinions which support the . . . petitioner’s position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the . . . petitioner intends to rely to support its position on the issue.” This requirement “generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons.”<sup>125</sup>

BREDL does not provide any expert opinion or factual support for its argument that the original margins should have been included in the LAR. BREDL acknowledged that it lacked expert support and stated that no expert would appear on its behalf in this proceeding.<sup>126</sup> Without any expert opinion or factual support explaining the need for the omitted information, BREDL’s position lacks sufficient support to justify an evidentiary hearing.

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<sup>121</sup> Rules of Practice for Domestic Licensing Proceedings — Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,171 (Aug. 11, 1989) (quoting *Connecticut Bankers Ass’n v. Board of Governors*, 627 F.2d 245, 251 (D.C. Cir. 1980)).

<sup>122</sup> LAR, Encl. 1, at 7.

<sup>123</sup> BREDL has also not addressed the concept that ACI 349-01 is “robust” and includes “safety factors that account for the uncertainties that exist in structural design.” Safety Evaluation at 8.

<sup>124</sup> See Petition at 8.

<sup>125</sup> 54 Fed. Reg. at 33,170 (quotation omitted).

<sup>126</sup> Tr. at 52.

For these reasons, the Board concludes that BREDL has failed to satisfy the contention admissibility requirements of section 2.309(f)(1)(v) and (vi).<sup>127</sup>

### 3. NESCC Document Excerpts

As previously noted, Contention One includes excerpts from two NESCC documents.<sup>128</sup> As we understand the Petition, BREDL offers these excerpts to support its argument that the ACI “standards are in need of strengthening,” and that accordingly “further departures from ACI-349 and other standards should not be approved by the Nuclear Regulatory Commission.”<sup>129</sup>

The first excerpt is from a 2010 presentation by the NESCC Concrete Task Group recommending that certain types of accidents, including “rotating equipment rupture, pipe break, tank failure causing interior building flooding, [or] heavy load drop,” be incorporated into ACI 349.<sup>130</sup> BREDL does not explain how this NESCC excerpt undermines the justification for the changed tolerances proposed in the LAR. As we have explained, the LAR shows that even with the tolerance deviations, the CIS wall modules will be able to withstand various structural loads, including, but not limited to, “dead, live, thermal, pressure, safe shutdown earthquake, and loads due to postulated pipe breaks.”<sup>131</sup> Without additional information, the Board is unable to determine whether those conclusions are undermined by BREDL’s excerpt from the 2010 NESCC presentation. “[P]roviding any material or document as a basis for a contention, without setting forth an explanation of its significance, is inadequate to support the admission of the contention.”<sup>132</sup>

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<sup>127</sup> See *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-08-17, 68 NRC 231, 233 (2008) (“Threshold contention standards are imposed to avoid circumstances the NRC regularly encountered prior to the 1989 contention rule revision, when licensing boards admitted contentions based on little more than speculation, creating serious delays of months and even years, ‘as licensing boards . . . sifted through poorly defined or supported contentions,’ and admitted intervenors who ‘often had negligible knowledge of nuclear power issues.’”); *Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003) (“A petitioner’s issue will be ruled inadmissible if the petitioner ‘has offered no tangible information, no experts, no substantive affidavits,’ but instead only ‘bare assertions and speculation.’” (citation omitted)).

<sup>128</sup> Petition at 9.

<sup>129</sup> *Id.* at 12.

<sup>130</sup> *Id.* at 9 (quotation omitted). The Board notes its earlier statement that it was unable to locate the 2010 NESCC document containing this quoted material. See *supra* note 73.

<sup>131</sup> UFSAR § 3.8.3.5.3; see also *id.* tbl. 3.8.4-2 (setting forth “Load Combinations and Load Factors for Seismic Category I Concrete Structures,” including, but not limited to, “Design Pressure,” “Safe shutdown earthquake,” “Accident pipe reactions,” and “Pipe impact”).

<sup>132</sup> *USEC Inc.* (American Centrifuge Plant), LBP-05-28, 62 NRC 585, 597 (2005) (citing *Fansteel, Inc.*, CLI-03-13, 58 NRC at 205).

We have the same problem with BREDL's excerpt from the 2011 NESCC report, which refers generally to the need to consider concrete durability in the design of nuclear power plants. While the excerpt suggests that nuclear power plant designs should consider alkali silica reaction (ASR) cracking, it also states that this concern is present "regardless of element thickness."<sup>133</sup> BREDL does not explain how Southern Nuclear's requested change in wall thickness tolerances would have any implication for the CIS wall modules' susceptibility to ASR, given that ASR cracking is a concern regardless of the thickness of a wall or other structure. Thus, it is unclear why ASR cracking would be relevant to the tolerance deviation at issue in this proceeding. As with the 2010 NESCC excerpt, BREDL fails to provide a sufficient explanation connecting the 2011 excerpt to the justification for the LAR.

The Board therefore concludes, after examining all of BREDL's arguments in support of Contention One, that we may not admit the contention.

#### **D. BREDL Contention Two**

BREDL asserts that "[t]he License Amendment Request does not demonstrate that it meets standards for nuclear plant worker radiation exposure limits," which require that radiation exposure be "as low as [is] reasonably achievable."<sup>134</sup> BREDL notes, for example, that the minimum wall thickness under the original tolerances for the 36-inch wall — the thinnest of the four CIS wall modules at issue — was 35 inches.<sup>135</sup> Under the license amendment, the revised tolerances allow a minimum thickness of 34<sup>3</sup>/<sub>8</sub> inches.<sup>136</sup> BREDL states generally that "[t]hickness affects the radiation shielding ability of a concrete wall," without providing further explanation or analysis about the significance of the <sup>5</sup>/<sub>8</sub>-inch reduction in margin.<sup>137</sup> The implication, however, is that potentially thinner CIS wall modules result in increased occupational radiation exposures to plant workers.

The Staff and Southern Nuclear contend that Contention Two fails to satisfy the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1)(v) and (vi).<sup>138</sup> They assert that BREDL has failed to challenge the license amendment analysis regarding this issue or provided any factual or expert opinion in support of its claims.<sup>139</sup> For the following reasons, the Board agrees.

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<sup>133</sup> Petition at 9.

<sup>134</sup> *Id.* at 10.

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

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

<sup>137</sup> *Id.* at 11.

<sup>138</sup> Southern Nuclear Answer at 19; NRC Staff Answer at 16.

<sup>139</sup> Southern Nuclear Answer at 19-20; NRC Staff Answer at 16.

Pursuant to the license amendment, the variation in fabrication tolerances that necessitated the tolerance deviation resulted, in part, from a localized variation in approximately 60 square inches of the 36-inch CIS wall module.<sup>140</sup> In preparing the license amendment, Southern Nuclear stated that

[t]he impact to the walls' effectiveness in providing radiation shielding was also examined, and there were no adverse effects because the radiation source terms were conservatively selected to envelope [sic] plant operating conditions. Consequently, this method accounts for tolerances and small perturbations in the as-built configuration of the plant [and] are not expected to impact the bounding conclusions of the radiation analysis.<sup>141</sup>

Additionally,

Plant radiation zones (as described in UFSAR Section 12.3), controls under 10 CFR Part 20, and expected amounts and types of radioactive materials are not affected by the proposed changes. The increased wall tolerance was also examined with respect to the walls' effectiveness in providing radiation shielding, and no adverse impacts were identified. Therefore, individual and cumulative radiation exposures do not change.<sup>142</sup>

In performing a safety evaluation of the license amendment, the Staff concluded that the CIS wall modules

are all within the Radiation Controlled Area (RCA) of the Vogtle plant. As discussed in Section 12.5.4, "Controlling Access and Stay Time," of the AP1000 DCD, entrance to the RCA area is normally through the access control area at the health physics area entry/exit location in the annex building. High and very high radiation areas are segregated and identified in accordance with the applicable requirements of 10 CFR Part 20. The entrances to high and very high radiation areas are locked or barricaded and equipped with audible and/or visible alarms, as required.<sup>143</sup>

The Staff concluded that the tolerance deviations were acceptable, in part, because the amendment affected remote and restricted areas within containment that would not result in an increase in the designated plant radiation zones for adjacent areas.<sup>144</sup>

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<sup>140</sup> LAR, Encl. 1, at 6.

<sup>141</sup> *Id.* at 8.

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

<sup>143</sup> Safety Evaluation at 9-10.

<sup>144</sup> *Id.* at 10.

BREDL does not challenge the specific conclusions reached in the license amendment that (1) the CIS wall modules at issue were designed subject to conservatisms that would account for variations in the as-built configuration of the walls; and (2) radiation protection controls limiting worker access to high-radiation areas associated with the CIS wall modules negate any potential radiation exposure issues associated with the tolerance deviation. Rather than identifying specific areas of dispute with the license amendment, BREDL mentions only the undisputed fact that the tolerance deviation could result in four CIS wall modules that are up to  $\frac{5}{8}$  of an inch thinner than originally designed.

BREDL has failed to provide any factual or expert opinion to support further consideration of whether the tolerance deviation at issue represents a potential radiation exposure risk to plant workers. For these reasons, BREDL has not satisfied the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1)(v) and (vi) for Contention Two.

#### **E. BREDL Contention Three**

In Contention Three, BREDL asserts that the NRC has failed to take steps to avoid disproportionate impacts to the low income and minority populations who live in the Shell Bluff area, which is near the Vogtle Plant.<sup>145</sup> BREDL contends that the license amendment “would put residents of [that] community at greater risk from ionizing radiation exposure.”<sup>146</sup> BREDL also cites a 2009 nuclear power siting study that “suggests that there is a ‘reactor-related environmental injustice’ at Plant Vogtle.”<sup>147</sup> More generally, BREDL argues that the NRC has failed to implement Executive Order 12898, thus failing to satisfy its environmental justice responsibilities.<sup>148</sup> BREDL notes that it has brought this issue to the NRC previously, but alleges that it has not received any response.<sup>149</sup>

Southern Nuclear responds that this contention “is inadmissible because it fails to raise any legal or factual issues relevant to this proceeding and instead challenges the NRC’s environmental justice policy and seeks to relitigate issues addressed during the [Vogtle] Early Site Permit . . . and [combined construction permit and operating license] proceedings.”<sup>150</sup> Thus, according to Southern Nuclear, Contention Three fails to satisfy the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1)(iii)-(vi).<sup>151</sup> The Staff argues that Contention Three “fails

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<sup>145</sup> Petition at 11-12.

<sup>146</sup> *Id.* at 11.

<sup>147</sup> *Id.* at 12.

<sup>148</sup> *Id.* at 11-12.

<sup>149</sup> *Id.* at 12.

<sup>150</sup> Southern Nuclear Answer at 23.

<sup>151</sup> *Id.* at 23-29.



to demonstrate that the issue raised is within the scope of the proceeding, fails to identify relevant supporting facts or expert opinion, and fails to articulate a genuine dispute with the Application regarding a material issue of law or fact, contrary to the requirements of 10 C.F.R. § 2.309(f)(1)(iii), (v), and (vi).”<sup>152</sup>

We conclude that Contention Three is inadmissible. To the extent it asserts a generalized grievance regarding NRC policy, it is outside the scope of this proceeding.<sup>153</sup> This proceeding is not BREDL’s first attempt to litigate environmental justice issues associated with the Vogtle facility. Previously, in the Vogtle early site permit proceeding,<sup>154</sup> BREDL challenged environmental justice aspects of Southern Nuclear’s Environmental Report, including “the area’s heightened cancer rates, the evacuation methods used in the event of an emergency, and the effects of eating cesium (Cs)-137-laden fish caught by minority and low-income community residents engaged in subsistence fishing.”<sup>155</sup> Following an extensive discussion of these issues, the licensing board in the early site permit proceeding concluded that BREDL’s proposed environmental justice contention could not be admitted under 10 C.F.R. § 2.309(f)(1).<sup>156</sup>

Thereafter, in an attempt to reopen the closed Vogtle COL proceeding,<sup>157</sup> BREDL sought to admit a new contention based on environmental concerns associated with the NRC’s Fukushima Task Force Report and associated “environmental justice issues.”<sup>158</sup> Focusing primarily on Fukushima-related issues, the licensing board rejected BREDL’s attempt to reopen the COL proceeding as premature, because of the NRC’s ongoing attempts to evaluate regulatory actions post-Fukushima.<sup>159</sup>

The licensing board in the COL reopening proceeding also stated that,

BREDL . . . supplie[d] the declaration of Rev. Charles N. Utley as “a highly qualified expert in environmental justice.” BREDL would have it that Rev. Utley’s

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<sup>152</sup> NRC Staff Answer at 19.

<sup>153</sup> 10 C.F.R. § 2.309(f)(1)(iii); *see also Palisades Nuclear*, LBP-06-10, 63 NRC at 338 (“Contentions are necessarily limited to issues that are germane to the application pending before the Board, and are not cognizable unless they are material to matters that fall within the scope of the proceeding for which the licensing board has been delegated jurisdiction as set forth in the Commission’s notice of opportunity for hearing.” (footnotes omitted)).

<sup>154</sup> *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-07-3, 65 NRC 237 (2007).

<sup>155</sup> *Id.* at 262.

<sup>156</sup> *Id.* at 262-67.

<sup>157</sup> *PPL Bell Bend* (Bell Bend Nuclear Power Plant), LBP-11-27, 74 NRC 591 (2011), *petition denied*, *Luminant Generation Co., LLC* (Comanche Peak Nuclear Power Plant, Units 3 and 4), CLI-12-7, 75 NRC 379 (2012).

<sup>158</sup> *Id.* at 596.

<sup>159</sup> *See id.* at 601-02.

declaration “confirms the need for NRC to implement the Interim Task Force recommendations on emergency preparedness and public education and to comply with Executive Order 12898.” BREDL maintains that “[s]ubsequent to the Vogtle COLA and ESP-FEIS, a nuclear power siting study was published which suggests that there is ‘reactor-related environmental injustice’ at Plant Vogtle.”<sup>160</sup>

In this license amendment proceeding, BREDL has filed a similar declaration by Rev. Charles N. Utley that contains an analogous reference to the 2009 nuclear power siting study and generalized environmental justice concerns regarding siting of the Vogtle facility.<sup>161</sup>

In Contention Three, BREDL seems to be primarily interested in revisiting the issue of whether the NRC has failed to comply with the environmental justice requirements of Executive Order 12898 as it relates to disproportionate and adverse impacts from Vogtle Units 3 and 4 on low-income and minority populations. Executive Order 12898 directed federal agencies to identify and address “disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.”<sup>162</sup> Under the language of Executive Order 12898,<sup>163</sup> “the NRC, as an independent agency, was not bound by the Executive Order, [but voluntarily] committed to undertake environmental justice reviews.”<sup>164</sup>

“Executive Order 12898 did not, in itself, create new substantive authority for federal agencies; therefore, the NRC determined at the time that it would endeavor to carry out these environmental justice principles as part of the agency’s responsibilities under NEPA.”<sup>165</sup> In a 2004 policy statement,<sup>166</sup> the NRC reiterated

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<sup>160</sup> *Id.* at 599 (footnotes omitted).

<sup>161</sup> *Compare* Petition, Attach. 1, Decl. of Rev. Charles N. Utley at 3-4 [hereinafter Utley Decl.], with Motion to Reopen the Record and Admit Contention Regarding the Safety and Environmental Implications of the Nuclear Regulatory Commission Task Force Report on the Fukushima Dai-Ichi Accident, *S. Nuclear Operating Co.* (Vogtle Electric Generating Plant, Units 3 & 4), Nos. 52-025-COL/52-026-COL (Aug. 11, 2011), Decl. of Rev. Charles N. Utley, at 4.

<sup>162</sup> *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 369 (2015) (quoting Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994) [hereinafter Executive Order 12898]).

<sup>163</sup> Executive Order 12898 § 6-604 (“Independent agencies are requested to comply with the provisions of this order.”). Section 6-604 differs from the mandate that “each Federal agency shall” comply with Executive Order 12898. *Id.* § 1-101.

<sup>164</sup> *Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), CLI-07-27, 66 NRC 215, 238 (2007); Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 69 Fed. Reg. 52,040, 52,041 (Aug. 24, 2004).

<sup>165</sup> *Indian Point*, CLI-15-6, 81 NRC at 369.

<sup>166</sup> *N. Anna*, CLI-07-27, 66 NRC at 240 (“A general statement of policy . . . does not establish a  
(Continued)

the agency's "commitment to consider, in NEPA reviews, factors 'peculiar' to minority and low-income populations (environmental justice populations) and to 'identify significant impacts, if any, that will fall disproportionately on minority and low-income communities' due to these factors."<sup>167</sup> The harm suffered by an environmental justice population must be "disproportionate to that suffered by the general population."<sup>168</sup>

As a component of NEPA,

[Environmental Justice] *per se* is not a litigable issue in NRC proceedings. The NRC's obligation is to assess the proposed action for significant impacts to the physical or human environment. Thus, admissible contentions in this area are those which allege, with the requisite documentary basis and support as required by 10 CFR Part 2, that the proposed action will have significant adverse impacts on the physical or human environment that were not considered because the impacts to the community were not adequately evaluated.<sup>169</sup>

Stated differently, "[b]ecause [Executive Order] 12898 does not create any new rights, it cannot provide a legal basis for contentions to be litigated in NRC licensing proceedings."<sup>170</sup>

BREDL asserts that the NRC has "side-stepped Executive Order 12898."<sup>171</sup> Beyond constituting a subjective and otherwise unsupported interpretation of the NRC's actions regarding voluntary implementation of Executive Order 12898, this claim represents a "generalized grievance" regarding an NRC policy.<sup>172</sup> Pursuant to Commission precedent, this generalized grievance is outside the scope of this

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'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." (quoting *Pacific Gas and Electric Co. v. Federal Power Commission*, 506 F.2d 33, 38 (D.C. Cir. 1974)).

<sup>167</sup> *Indian Point*, CLI-15-06, 81 NRC at 369-70 (quoting 69 Fed. Reg. at 52,048); see also *System Energy Resources, Inc.* (Early Site Permit for Grand Gulf ESP Site), CLI-05-4, 61 NRC 10, 13 (2005). "The NRC Staff developed its own guidance, using the Council on Environmental Quality's guidelines for implementing environmental justice as a reference." *Indian Point*, CLI-15-06, 81 NRC at 370.

<sup>168</sup> *Grand Gulf*, CLI-05-4, 61 NRC at 13; 69 Fed. Reg. at 52,047 ("The focus of any '[Environmental Justice]' review should be on identifying and weighing disproportionately significant and adverse environmental impacts on minority and low-income populations that may be different from the impacts on the general population.").

<sup>169</sup> 69 Fed. Reg. at 52,047.

<sup>170</sup> *Id.* at 52,044.

<sup>171</sup> Petition at 11.

<sup>172</sup> See *Millstone Nuclear*, CLI-08-17, 68 NRC at 233.

license amendment proceeding and cannot serve as a basis for identifying an admissible contention.<sup>173</sup>

BREDL also reasserts siting concerns regarding the Vogtle facility.<sup>174</sup> Those concerns were resolved in earlier licensing proceedings and do not implicate the license amendment currently before this Board. They are therefore outside the scope of this proceeding.

The one element of Contention Three that might fall within the scope of this proceeding is BREDL's assertion that the license amendment "would put residents of the surrounding community at greater risk from ionizing radiation exposure."<sup>175</sup> This claim, if adequately supported, could identify a genuine dispute with Southern Nuclear's conclusion that the license amendment falls within the categorical exclusion from NEPA review in 10 C.F.R. § 51.22(c)(9).<sup>176</sup> Pursuant to 10 C.F.R. § 51.22(b), an environmental impact statement or environmental assessment is not required if a categorical exclusion applies. A categorical exclusion applies to,

Issuance of an amendment to a permit or license for a reactor under part 50 or part 52 of this chapter that changes a requirement or issuance of an exemption from a requirement, with respect to installation or use of a facility component located within the restricted area, as defined in part 20 of this chapter; . . . provided that:

- (i) The amendment or exemption involves no significant hazards consideration;
- (ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite; and
- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.<sup>177</sup>

BREDL seems to be alleging that either subsection (ii) or (iii) applies. But BREDL has not provided any facts or expert opinion to support its claim that the license amendment "would put residents of the surrounding community at greater risk from ionizing radiation exposure."<sup>178</sup> We therefore may not admit Contention

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<sup>173</sup> *Id.* BREDL also asserts that the NRC has "ignored" the Obama Administration's August 4, 2011 Memorandum of Understanding addressing Executive Order 12898. Petition at 11. However, BREDL fails to identify what legal responsibility the NRC has to become a signatory to this Memorandum of Understanding. *See* Utley Decl. at 2 (identifying the agencies and cabinet departments that have signed the Memorandum of Understanding). Regardless, BREDL's assertion represents a generalized policy grievance that is outside the scope of this proceeding.

<sup>174</sup> Petition at 12.

<sup>175</sup> *Id.* at 11.

<sup>176</sup> Southern Nuclear Answer at 26; NRC Staff Answer at 21-22.

<sup>177</sup> 10 C.F.R. § 51.22(c)(9)(i)-(iii).

<sup>178</sup> Petition at 11.

Three to the extent it alleges, in substance, that the license amendment fails to qualify for a categorical exclusion from NEPA review.

For these reasons, BREDL has failed to satisfy the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1)(iii) and (v).

#### **IV. CONCLUSION**

Although BREDL has standing to intervene, it has not pled an admissible contention. Therefore, the petition to intervene and request for a hearing is *denied*. Petitioner may appeal this decision to the Commission pursuant to 10 C.F.R. § 2.311(c), within 25 days of service of this Order.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

Nicholas G. Trikouros  
ADMINISTRATIVE JUDGE

Dr. James F. Jackson  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
April 29, 2016



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket Nos. 50-247-LR  
50-286-LR**

**ENTERGY NUCLEAR  
OPERATIONS, INC.  
(Indian Point, Units 2 and 3)**

**May 4, 2016**

The Commission reverses an Atomic Safety and Licensing Board's decision to the extent that it relates to particular computer code modeling inputs used in a Severe Accident Mitigation Alternatives (SAMA) analysis. The Commission directs the Staff to run sensitivity analyses for the specific inputs.

**SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

A SAMA analysis is a mitigation analysis performed pursuant to the National Environmental Policy Act (NEPA). NRC environmental regulations for license renewal require a site-specific severe accident mitigation alternatives analysis if one was not previously performed. *See* 10 C.F.R. § 51.53(c)(3)(ii)(L). A SAMA analysis seeks to identify additional measures — hardware or procedures or both — that could be installed or implemented to reduce severe accident risk.

**SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

None of the mitigation measures evaluated in the SAMA analysis are measures the NRC deems necessary for safety. The NEPA SAMA analysis conducted for

license renewal helps to identify additional measures that may further reduce plant risk beyond that necessary for adequate protection of public health and safety.

#### **APPELLATE REVIEW**

The Commission cannot make determinations based on items never introduced for review into the case record or otherwise confirmed.

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

An Environmental Impact Statement (EIS) is not a research document reflecting the frontiers of scientific methodology, studies, and data. For an EIS, NEPA does not require the NRC to stop and wait for internationally based research and potential computer code modifications that could take years to complete. Otherwise the NEPA process would effectively never end, particularly given the NRC's frequent long-term research to improve severe accident consequence modeling. NEPA requires only a "reasonably complete" mitigation analysis. *See Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 206 (D.C. Cir. 1991).

#### **SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

The NRC has never represented that the SAMA analysis encompasses all environmental impacts that could realistically be associated with a severe reactor accident. As a mitigation analysis, the SAMA cost-benefit analysis need not include every potential impact and cost conceivable. NEPA requirements are tempered by a practical rule of reason.

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

The SAMA analysis may identify potential *alternatives* for consideration to further reduce severe accident risk. NEPA does not require that a "mitigation plan actually be formulated and adopted." *See Robertson v. Methow Valley*, 490 U.S. 332, 352 (1989). NEPA seeks to guarantee process, not particular results.

### **MEMORANDUM AND ORDER**

This proceeding concerns the application of Entergy Nuclear Operations, Inc. to renew the operating licenses for the Indian Point Nuclear Generating Units 2 and 3. Following an evidentiary hearing, the Atomic Safety and Licensing



Board issued Partial Initial Decision LBP-13-13, resolving nine contentions.<sup>1</sup> The State of New York petitioned for review of LBP-13-13 to the extent that the decision resolved contention NYS-12C, an environmental contention.<sup>2</sup> New York also petitioned for review of a subsequent Board order that declined to reconsider LBP-13-13 or reopen the hearing record on NYS-12C.<sup>3</sup> Earlier this year, we granted review of New York's petitions for review and, given the complex technical arguments involving NYS-12C, we directed the parties to provide further briefing on several questions.<sup>4</sup> Our decision today is focused on the Board's resolution of NYS-12C.<sup>5</sup> As discussed below, we reverse LBP-13-13 as it relates to NYS-12C and direct the Staff to supplement the Indian Point Severe Accident Mitigation Alternatives (SAMA) analysis with sensitivity analyses.

## I. BACKGROUND

Below we describe briefly the purpose and nature of the SAMA analysis, New York's arguments challenging the analysis, and the Board's decision.

### A. The Severe Accident Mitigation Alternatives Analysis

In NYS-12C, New York challenged the SAMA analysis for the Indian Point license renewal application. A SAMA analysis is a mitigation analysis performed pursuant to the National Environmental Policy Act (NEPA). NRC environmental regulations for license renewal require a site-specific severe accident mitigation alternatives analysis if one was not previously performed.<sup>6</sup>

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<sup>1</sup> LBP-13-13, 78 NRC 246 (2013).

<sup>2</sup> State of New York Petition for Review of Atomic Safety and Licensing Board Decision LBP-13-13 with Respect to Consolidated Contention NYS-12C (Feb. 14, 2014) (Petition).

<sup>3</sup> State of New York Petition for Review of Atomic Safety and Licensing Board's April 1, 2014 Decision Denying the State's Motion to Reopen the Record and for Reconsideration of the Board's November 27, 2013 Partial Initial Decision Concerning Consolidated Contention NYS-12C (Apr. 28, 2014) (Petition for Review of April 1, 2014 Board Decision).

<sup>4</sup> See CLI-15-2, 81 NRC 213 (2015).

<sup>5</sup> We likewise took review of LBP-11-17 and LBP-10-13, both of which addressed Contention NYS-35/36; we will address those appeals in a separate decision. We also received petitions for review of LBP-13-13 insofar as the decision resolved two other contentions, NYS-8 (regarding transformers) and CW-EC-3A (regarding environmental justice). Our decision in CLI-15-6 addressed those contentions. See CLI-15-6, 81 NRC 340 (2015).

<sup>6</sup> See 10 C.F.R. § 51.53(c)(3)(ii)(L). The NRC's Generic Environmental Impact Statement (GEIS) for license renewal contains a generic analysis of the environmental impacts of severe accidents. The GEIS analysis is bounding for all reactors, and therefore license renewal applicants need not provide a site-specific analysis of severe accident environmental impacts. The complete GEIS is included in

(Continued)

A SAMA analysis seeks to identify additional measures — hardware or procedures — that could be installed or implemented to reduce severe accident risk. The Staff’s practice to date has been to conduct this NEPA mitigation analysis in the form of a quantitative cost-benefit analysis, comparing the benefits (e.g., averted accident risks) of specific mitigation measures against their implementation costs. The Staff’s practice also has been to conduct the analysis as a probabilistic risk assessment, where the probabilities of different accident scenarios are taken into account. The SAMA analysis, therefore, is a probability-weighted assessment of the benefits of mitigation alternatives that may reduce risk by reducing the probability or consequences (or both) of potential severe accidents. These probability-weighted benefits are then compared with the implementation costs of the mitigation alternatives.

Of note, none of the mitigation alternatives evaluated in the SAMA analysis are measures the agency has deemed necessary for safety. They are supplemental to mitigation capabilities our safety regulations already require. As an ongoing matter, the NRC oversees the safety of reactor operations pursuant to the Atomic Energy Act of 1954, as amended, and may require licensees to implement new mitigation measures whenever warranted to assure adequate protection of public health and safety. The NEPA mitigation analysis conducted for license renewal helps to identify additional measures that may further reduce plant risk beyond that necessary for adequate protection of public health and safety.

Probabilistic risk assessment (PRA) is used in the SAMA analysis to calculate the probabilities and consequences of severe reactor accidents. PRA is carried out at three levels. The first is a probabilistic risk assessment of accident sequences that may lead to reactor core damage (Level 1 PRA). The second takes the output of the Level 1 PRA and examines accident progression leading to failure of the containment and release of radionuclides to the environment (Level 2 PRA). The third takes the results of the Level 2 PRA and goes on to estimate the potential offsite consequences (Level 3 PRA).

For the Level 3 portion of the SAMA analysis, the Staff has long used the MACCS2 computer code to calculate estimated offsite consequences (population doses and economic losses) for a spectrum of hypothetical severe reactor accidents modeled in the Level 1 and Level 2 PRA. In the case of Indian Point, for example, eight different categories of accidents or “bins” were modeled in the offsite consequence portion of the SAMA analysis, each representing a particular mix,

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the record as Exs. NYS00131A-I, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” NUREG-1437 (May 1996). The generic severe accident impacts analysis appears at *id.*, Vol. 1, Main Report, Final Report, at 5-12 to 5-116. The NRC issued a revised GEIS in June 2013, after the evidentiary hearing.

amount, and timing of source term release.<sup>7</sup> For each designated accident category, the code models how the released radioactive material would be transported and dispersed in hypothetical severe reactor accidents occurring at any time over a year of potential weather scenarios (based on site-specific weather data for a representative year).

Typically, the SAMA analysis follows NRC cost-benefit analysis guidance documents.<sup>8</sup> Consequences are evaluated over a 50-mile-radius area surrounding the nuclear power plant, divided into sixteen compass wind directions, and further divided into sequential rings reflecting incremental distances from the plant. For each accident scenario run, the MACCS2 code calculates the estimated concentration of the radioactive isotopes that would be deposited in each sector or “grid element” of the 50-mile-radius map.<sup>9</sup> This mapping is run for all of the potential hourly weather that might occur over the course of a year. A representative year of site-specific hourly weather data (e.g., wind velocity and direction, atmospheric stability category, and precipitation intensity) are entered as inputs.

Data inputs for the offsite consequence analysis also include the population data for the 50-mile-radius region (projected for the year 2035 for Indian Point), reactor core radionuclide inventory data, source term and release characteristics, and a large number of economic input data, including average county-wide farm wealth and nonfarm wealth, population evacuation and relocation costs, depreciation costs for interdicted property, losses from banned agricultural products, and decontamination costs. Applying the population data, economic cost data, and other relevant inputs to the results of the plume modeling, the code calculates the estimated offsite costs (population dose and economic consequences) for the spectrum of accident scenarios evaluated. Population dose is converted to a monetary value through use of an NRC-recommended monetary conversion value (currently \$2,000 per person/rem). All accident costs estimated in the analysis are probability-weighted, and therefore the frequencies of the various accident scenarios occurring (e.g., the particular combination of accident scenario, source term release, and weather) are factored into the analysis results.

We have emphasized that the SAMA analysis results are not based on either best-case or worst-case accident scenarios, but on “mean accident consequence values, averaged over the many hypothetical severe accident scenarios (with

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<sup>7</sup> See Environmental Report, attached as Appendix E to License Application (Exs. ENT00015A-B), at E.1-93, E.3-87) (accident categories modeled with MACCS2 code ranged from NCF (no containment failure) to EARLY HIGH (early and high release)).

<sup>8</sup> See NUREG/BR-0058, Rev. 4, “Regulatory Analysis Guidelines” (Sept. 2004) (ADAMS Accession No. ML042820192); NUREG/BR-0184, “Regulatory Analysis Technical Evaluation Handbook” (Jan. 1997) (ADAMS Accession No. ML050190193).

<sup>9</sup> See, e.g., Tr. at 1929-31.

an additional uncertainty analysis also performed).”<sup>10</sup> More specifically, for each accident category evaluated, the SAMA analysis takes the mean annual consequences (mean total offsite dose and mean total offsite economic costs) over the examined 50-mile radius and multiplies these by the estimated frequency of the accident scenario occurring to obtain the population dose risk (PDR) and offsite economic cost risk (OECR), which the Board appropriately identified as the “key risk values of interest for determining potentially cost-beneficial SAMAs.”<sup>11</sup> To identify those mitigation measures that may be cost-beneficial to implement, the SAMA cost-benefit analysis compares the cost of implementing a new mitigation measure with its assessed potential to reduce severe accident risk.

## **B. Decontamination Modeling**

Of particular interest in the Indian Point SAMA litigation are two inputs to the MACCS2 code: TIMDEC and CDNFRM. The TIMDEC input value defines the time required for completing decontamination to a specified degree or level. The longer the TIMDEC, the longer evacuated residents would remain away from their homes pending decontamination efforts and the more dose decontamination workers would receive, both of which entail costs assessed in the SAMA analysis. The CDNFRM input parameter defines the cost (on a per person basis) of decontaminating nonfarmland to a specified level. To obtain the cost of decontaminating nonfarmland areas, the code multiplies the specified CDNFRM parameter by the population residing in the areas (“grid elements”) requiring decontamination.<sup>12</sup>

Both decontamination time and decontamination cost are used in conjunction with specified levels of decontamination called dose reduction factors (DSR-FCT).<sup>13</sup> Decontamination levels specify the effectiveness of the decontamination effort. A dose reduction factor of 3, for example, means the population dose will be reduced by a factor of 3 (approximately 66%) compared to the radiological dose before cleanup. Similarly, a dose reduction factor of 15 reflects a reduction in population dose by a factor of 15 (approximately 93%) compared to the dose

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<sup>10</sup> See, e.g., *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 708 & n.12 (2012).

<sup>11</sup> See LBP-13-13, 78 NRC at 461; *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 53-54 (2012).

<sup>12</sup> See Ex. NYS000243, “Code Manual for MACCS2, User’s Guide,” NUREG/CR-6613, Vol. 1 (May 1998), at 7-9 to 7-11 (MACCS2 User’s Guide). The decontamination costs relating to farmland are assessed on a per hectare basis and were not challenged in this proceeding.

<sup>13</sup> *Id.* at 7-9. Decontamination levels sometimes are referred to as decontamination factors (DF). See *id.* at 7-3. In this case, the Staff and New York often referred to the decontamination levels as decontamination factors.

before cleanup.<sup>14</sup> As the MACCS2 code User's Guide describes, the "objective of decontamination is to reduce projected doses below the long-term dose criterion in a cost-effective manner."<sup>15</sup> Each decontamination level modeled in the code "represents an alternative strategy" for reducing population dose.<sup>16</sup>

The more heavily contaminated an area, the greater the decontamination effectiveness will need to be to reduce the projected radiological doses to a habitable level. Areas that are less contaminated may only require decontamination to achieve a DSRFCT of 3 to reduce population doses enough for the population to return, while more heavily contaminated areas may require decontamination to a DSRFCT of 15 or more to reduce doses sufficiently to achieve the specified habitability criterion. Several factors may bear on the effectiveness of decontamination, including the radionuclides to be removed, the type of material being cleaned, the methods used, and weather conditions.

In the code modeling, each decontamination effectiveness level is assigned an associated decontamination time and an associated cost. Higher decontamination levels typically are assigned a higher decontamination cost, under the assumption that it will cost more to achieve a greater degree of cleanup. The code user can specify up to three decontamination levels (ranging from 1 to 100) for each accident category analyzed. The Indian Point analysis used two decontamination levels (dose reduction factors): 3 and 15, for all of the accident categories analyzed, as has been the Staff's practice for SAMA analyses. We assume those levels below.

In a nutshell, the modeling of decontamination costs involves the following steps. The code — by its atmospheric transport and dispersion module — will first model the deposition of radionuclides over the 50-mile-radius map, depicting concentrations of the different isotopes. Based on the radionuclide concentrations shown, the modeling will show which grid sectors, if any, may be uninhabitable following the particular kinds of accidents analyzed.<sup>17</sup> If there are uninhabitable sectors, a progressive series of events are modeled. The code will next model, for example, what areas if any would be habitable after the lighter decontamination effort of 3 has reduced population dose by approximately 66%. If the lightest decontamination effort is insufficient, the code will go on to model what areas would be habitable following the next decontamination level — here level 15, where 93% of the dose is reduced.

Where even the heaviest decontamination effort specified would be insufficient to reduce doses enough to allow residents to return, the code can model an

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<sup>14</sup> *Id.* at 7-11.

<sup>15</sup> *Id.* at 7-9.

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

<sup>17</sup> The code user specifies the habitability criterion (e.g., the Environmental Protection Agency's standard of 2 rem the first year, 0.5 rem for years 2 through 5).

interdiction period, during which residents and businesses remain gone and the processes of decay and weathering act to reduce dose. If modeling shows that property in an area would not return to a habitable dose level even within a maximum interdiction period of 30 years, or, if decontamination and interdiction would be more expensive than outright property condemnation, then the code will assume that the property is condemned and will assess a cost for the total loss of the property.

### **C. Decontamination Time and Cost Inputs Used in the Indian Point SAMA Analysis**

The Indian Point SAMA analysis assumes that to clean up a nonfarmland area to a decontamination level of 3 will require an average of 60 days at a per person cost of \$5184.<sup>18</sup> To achieve the higher decontamination level of 15, the analysis assumes an average decontamination time of 120 days at a per person cost of \$13,824.<sup>19</sup> It is undisputed that these time and cost values were consistent with values used in the NRC-sponsored severe accident study NUREG-1150, “Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants,” published in 1990.<sup>20</sup> NUREG-1150 assessed the risks of severe accidents at nuclear power plants by performing probabilistic risk analyses for five plants of varying reactor and containment designs (Surry, Zion, Sequoyah, Peach Bottom, and Grand Gulf).

NUREG-1150 assumed the decontamination times of 60 and 120 days, respectively, for the lighter (DSRFCT of 3) and heavier (DSRFCT of 15) decontamination efforts modeled. For nonfarmland decontamination cost, NUREG-1150 assumed values of \$3000 per person and \$8000 per person, respectively, to achieve a DSRFCT of 3 and a DSRFCT of 15. For the SAMA analysis, Entergy adjusted these decontamination cost values to account for changes in the Consumer Price Index (CPI) from 1986 (during the time of NUREG-1150’s drafting) to 2005, when Entergy prepared its Environmental Report.<sup>21</sup>

### **D. New York’s Challenge to Decontamination-Related Inputs**

The Board’s decision in LBP-13-13 outlines the procedural history of NYS-12C, which we do not repeat here.<sup>22</sup> As litigated, NYS-12C read as follows:

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<sup>18</sup> See LBP-13-13, 78 NRC at 459-60.

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

<sup>20</sup> See, e.g., *id.* at 460, 463, 469; Tr. at 1951; Ex. NYS00252A-C, “Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants,” NUREG-1150 (Dec. 1990) (NUREG-1150).

<sup>21</sup> See LBP-13-13, 78 NRC at 463; Tr. at 1951.

<sup>22</sup> See LBP-13-13, 78 NRC at 450-51. The Board’s decision also provides a detailed summary of key hearing exhibits and witness testimony. See *id.* at 454-65.

Entergy's severe accident mitigation alternatives (SAMA) for Indian Point 2 and . . . 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>23</sup>

New York argued that the Indian Point SAMA analysis underestimated the economic costs of a severe reactor accident at Indian Point by underestimating the costs of decontamination. New York presented one expert witness, Dr. François Lemay. Dr. Lemay argued that the SAMA analysis inappropriately used generic input values taken from a Sample Problem in the MACCS2 Code User's Guide. He stated that the User's Guide contains fourteen sample problems intended for testing whether the code is properly installed, and that the Indian Point SAMA analysis adopts "all but three of the MACCS2 input values related to decontamination" from Sample Problem A, only adjusting "those inputs for inflation" from 1986-based dollars to 2005-based dollars.<sup>24</sup> He stated — and no party disputes — that Sample Problem A "incorporates site-specific data for the Surry" reactor site in Virginia, data that were used in the NUREG-1150 severe accident study.<sup>25</sup>

Dr. Lemay testified that the generic values adopted from NUREG-1150 were unrealistic, "given current known decontamination data and the complexities of an urban to hyper-urban area such as that surrounding" Indian Point.<sup>26</sup> He pointed to the accidents at Chernobyl and Fukushima as examples of the complex and time-consuming nature of large-scale decontamination following a severe reactor accident.<sup>27</sup> Dr. Lemay claimed that the decontamination times assumed in the Indian Point SAMA analysis are "unreasonable and have not been justified with supportive evidence."<sup>28</sup> He further argued that the underlying factual basis for the nonfarm decontamination cost parameters used in NUREG-1150 and adopted for the Indian Point SAMA analysis comes from a document that "does not appear

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<sup>23</sup> *Id.* at 450.

<sup>24</sup> See Ex. NYS000241, Pre-Filed Written Testimony of Dr. François J. Lemay Regarding Consolidated NYS-12C (Dec. 21, 2011) at 21-22 (New York Testimony).

<sup>25</sup> *Id.* As Entergy's experts described, "Entergy relied on Sample Problem A [input] values insofar as those values are based on, and coincide with, the relevant values in NUREG-1150"; Entergy "updated those input values using the CPI ratio for 1986 to 2005." Ex. ENT000450, Testimony of Entergy Witnesses Lori Potts, Kevin O'Kula, and Grant Teagarden on Consolidated Contention NYS-12C (Mar. 30, 2012), at 59-60 (Entergy Testimony).

<sup>26</sup> See LBP-13-13, 78 NRC at 462.

<sup>27</sup> *Id.*; Ex. NYS000241, New York Testimony, at 52-54.

<sup>28</sup> Ex. NYS000241, New York Testimony, at 54.

to exist in a published form” and is unavailable for review, and therefore is “not a reliable source upon which experts . . . would base any findings.”<sup>29</sup>

Dr. Lemay stated that International Safety Research, Inc. (ISR) performed a sensitivity analysis to determine the MACCS2 code offsite consequence inputs most likely to have an impact on the Indian Point SAMA analysis’s offsite economic cost risk.<sup>30</sup> Based on ISR’s analysis, Dr. Lemay testified that “decontamination costs are the dominant factor in the . . . remediation costs following a severe accident,” and that the “most sensitive input parameters related to decontamination costs include [the] decontamination factor, nonfarm decontamination cost, and decontamination time.”<sup>31</sup> Dr. Lemay claimed that the SAMA analysis underestimates the total economic costs of a severe accident at Indian Point “largely due to Entergy’s use of costs and times for decontamination” that are unrealistic for the site.<sup>32</sup>

Dr. Lemay also claimed that where “there is very little data on actual severe reactor accidents in a hyper-urban area such as NYC, research must be done” to determine an appropriate range of input values.<sup>33</sup> He stated that ISR developed a methodology and used four different approaches to calculate a reasonable range of input values for the Indian Point analysis “by extrapolating data from other types of nuclear accidents, field radiological decontamination work, and actual decontamination experiments.”<sup>34</sup> Dr. Lemay claimed that the ISR report’s alternative ranges of input values were not “intended to be an alternative SAMA analysis” for Indian Point, but reflected a comparative “benchmarking” exercise to assess the reasonableness of the decontamination cost inputs used in the SAMA analysis by comparing them to “values calculated from data produced by other analysts in the field.”<sup>35</sup> Dr. Lemay stated that under all four methodology approaches the results showed much higher per person decontamination cost values than those used in the Indian Point analysis.<sup>36</sup>

As to decontamination time, Dr. Lemay testified that based on decontamination plans and reports from Fukushima, a “minimum TIMDEC of 1 year is justifiable by the recent reports” for light decontamination, and a “minimum TIMDEC

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<sup>29</sup> Ex. NYS000420, Pre-Filed Written Rebuttal Testimony of Dr. François J. Lemay Regarding Consolidated Contention NYS-12C (June 29, 2012), at 24 (New York Rebuttal Testimony).

<sup>30</sup> Ex. NYS000241, New York Testimony, at 23-27; LBP-13-13, 78 NRC at 462 n.1504. Dr. Lemay is a Vice President of ISR.

<sup>31</sup> Ex. NYS000241, New York Testimony, at 27.

<sup>32</sup> *Id.* at 9-10.

<sup>33</sup> *Id.* at 20.

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

<sup>35</sup> Ex. NYS000420, New York Rebuttal Testimony, at 5-6.

<sup>36</sup> See Ex. NYS000241, New York Testimony, at 31-51; Ex. NYS000430, “Revisions to Tables in ISR Report 13014-01-01” (June 29, 2012), Table 13 (New York Revised Tables).



of 2 years for heavy decontamination is also reasonable,” while upper bound maximum decontamination times for light and heavy decontamination could be 15 years and 30 years, respectively.<sup>37</sup> Dr. Lemay claimed that an “average” time value for severe accident decontamination would fall “somewhere between” these proposed minimum and maximum time values.<sup>38</sup>

In response to New York, Staff experts testified that NYS-12C did not raise any “valid issues that would materially impact the Indian Point” SAMA analysis.<sup>39</sup> Dr. Nathan Bixler of Sandia National Laboratories claimed that Dr. Lemay’s methodology and estimated decontamination costs for Indian Point “tend to be biased toward the worst accident scenarios and for the worst environmental conditions.”<sup>40</sup> The Staff and Entergy criticized as over-conservative or otherwise inappropriate assumptions made in all four of the modeling approaches used in the ISR report to estimate decontamination cost values for the Indian Point area.<sup>41</sup> The Staff’s experts stated that “Dr. Lemay’s suggested clean-up times are skewed to the worst case severe accident scenarios under some of the worst case conditions for implementing a clean-up and cannot represent the multitude of clean-up scenarios modeled in a SAMA analysis.”<sup>42</sup>

The Staff and Entergy explained that they chose the same decontamination time parameters and same (unescalated) nonfarm decontamination cost parameters that had been used in the NUREG-1150 severe accident study.<sup>43</sup> Entergy described NUREG-1150 as a seminal study that “greatly enhanced the understanding of risk at nuclear power plants,” was used to support the NRC’s Generic Environmental Impact Statement for license renewal, and along with its supporting technical documentation in NUREG/CR-4551, “continue[s] to be used as appropriate benchmarks today for PRA in the U.S. commercial power reactor industry.”<sup>44</sup>

Entergy also highlighted the “peer review quality of the work” involved with the NUREG-1150 study.<sup>45</sup> Entergy called the “use of the NUREG-1150/Sample Problem A values at issue here . . . standard for Level 3 PRA studies (including SAMA analyses) performed in the U.S.”<sup>46</sup> In short, Entergy claimed that these

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<sup>37</sup> See Ex. NYS000420, New York Rebuttal Testimony, at 48-51.

<sup>38</sup> *Id.* at 51.

<sup>39</sup> See Ex. NRC000041, 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), at 12-14 (Staff Testimony).

<sup>40</sup> *Id.* at 31.

<sup>41</sup> See *id.* at 69-88.

<sup>42</sup> *Id.* at 90.

<sup>43</sup> See Tr. at 2241, 2247, 2249, 2250.

<sup>44</sup> See Ex. ENT000450, Entergy Testimony, at 22.

<sup>45</sup> See Tr. at 2034; 2369-71; Ex. ENT000450, Entergy Testimony, at 13.

<sup>46</sup> Ex. ENT000450, Entergy Testimony, at 61.

are “values with a well-established technical pedigree that is widely recognized and accepted by the PRA community” and that “warrants their continued use in NRC-related PRA/SAMA analysis applications.”<sup>47</sup>

#### **E. Board’s Decision in LBP-13-13**

The Board’s decision focused on the TIMDEC and CDNFRM input parameters because Dr. Lemay had stressed that they were the most significant of the challenged inputs and indeed were the “crux of the matter.”<sup>48</sup> The Board found the TIMDEC and CDNFRM values “reasonable and appropriate for Indian Point,” satisfying the requirements of NEPA.<sup>49</sup> The Board also found the SAMA analysis reasonably site-specific, given that the nonfarm decontamination cost parameter is applied on a per capita basis, an approach the Board found reasonably accounted for the “site-specific high population density of New York City and the correspondingly high density of buildings.”<sup>50</sup>

In addressing the reasonableness of the decontamination time inputs, the Board traced the “genesis” of the 60-day and 120-day decontamination time values to a 1984 report, NUREG/CR-3673, “Economic Risks of Nuclear Power Reactor Accidents,” issued by Sandia National Laboratories.<sup>51</sup> As the Board described, NUREG/CR-3673 estimated that it would take an average of “90 days with approximately 46,000 workers” to “restore habitability to an area after the most severe type of reactor accident.”<sup>52</sup> The Board went on to explain that, based on this 90-day estimate, the NUREG-1150 study “adopted 60 days and 120 days . . . 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>53</sup>

Concluding that “the NRC has examined decontamination times for more than 37 years” and “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 accident scenarios,” the Board found

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<sup>47</sup> *Id.* at 13, 61.

<sup>48</sup> Tr. at 2054-55; LBP-13-13, 78 NRC at 459, 462 n.1504.

<sup>49</sup> LBP-13-13, 78 NRC at 465.

<sup>50</sup> *Id.* at 467.

<sup>51</sup> *Id.* at 469; *see also* Tr. at 2241-46; Ex. NRC000058, “Economic Risks of Nuclear Power Reactor Accidents,” Sandia National Laboratories, NUREG/CR-3673 (May 1984).

<sup>52</sup> LBP-13-13, 78 NRC at 469; *see also* Ex. NRC000058, NUREG/CR-3673, at 6-25. The category of accident referenced was an “SST1” accident, described as a “severe core-melt accident which results in a rapid, large release of radioactive material to the environment,” and a “release of approximately 100% of the reactor core inventory of noble gases and ~50% of the volatile radionuclides in a very short time period.” *See* Ex. NRC000058, NUREG/CR-3673, at 2-7.

<sup>53</sup> LBP-13-13, 78 NRC at 469.

it appropriate for the SAMA analysis to have used the “60-day and 120-day average decontamination time values from NUREG-1150.”<sup>54</sup> The Board stressed that the SAMA analysis is not intended to “model a single radiological release event under specific conditions at a single moment in time,” but to “estimate annual average impacts for the entire 50-mile radius study area.”<sup>55</sup> Citing to Staff testimony, the Board found the time values reasonable “given the need to develop a decontamination time representative of all possible severe accident scenarios.”<sup>56</sup> The Board did not address New York’s arguments on decontamination times at Fukushima, but it found inappropriate New York’s example of decontamination times from the Chernobyl accident because Chernobyl represented “a single scenario of an extreme case,” and “[i]f it were possible to use it along with case/scenario-specific [decontamination times], its inclusion in the SAMA analysis would require weighting it by its low probability of occurrence.”<sup>57</sup>

The Board also found reasonable the nonfarm decontamination cost (CD-NFRM) parameters, although the underlying “source” of those values was unavailable for review.<sup>58</sup> The Board described how the CDNFRM values used in NUREG-1150 (\$3000/person for decontamination level of 3 and \$8000/person for decontamination level of 15) stem from decontamination cost estimates provided in NUREG/CR-3673, the same 1984 economic risk study referenced in support of the decontamination time inputs.<sup>59</sup> In turn, NUREG/CR-3673’s cost estimates were “taken from a detailed review of decontamination effectiveness and costs performed at Sandia National Laboratories.”<sup>60</sup> The Board specified that this review was an “unpublished report by Robert Ostmeyer and Gene Runkle” (Os84 or the Ostmeyer Report).<sup>61</sup> None of the parties were able to locate Os84.

Citing to Staff and Entergy expert testimony, the Board stated that the CD-NFRM parameters used in NUREG-1150 are “standard for SAMA analyses,” “all prior NRC license renewal applicants have used these same values (as appropriately escalated) in their SAMA analyses,” and “the key economic inputs were vetted before their inclusion in NUREG-1150.”<sup>62</sup> The Board concluded that the

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<sup>54</sup> *Id.* at 469-70.

<sup>55</sup> *Id.* at 470 (quotation omitted).

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* at 469.

<sup>58</sup> *Id.* at 471.

<sup>59</sup> *Id.* at 472; *see also* Ex. NRC000058, NUREG/CR-3673, at 4-15, 4-17 to 4-19.

<sup>60</sup> LBP-13-13, 78 NRC at 472 (quoting Ex. NRC000058, NUREG/CR-3673, at 4-15).

<sup>61</sup> *Id.* The full citation to the review is “Ostmeyer, 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* Ex. NRC000058, NUREG/CR-3673, at 8-8 (referencing “Os84”).

<sup>62</sup> LBP-13-13, 78 NRC at 471.

economic input parameters were “reviewed and a best estimate was recommended during the NUREG-1150 peer review process,” and the Staff was “justified in relying on the secondary peer reviews of the economic cost variables.”<sup>63</sup> The Board moreover stressed that Entergy and Staff witnesses had testified that they also specifically had considered and deemed appropriate use of the NUREG-1150 values in the Indian Point SAMA analysis.<sup>64</sup> Noting that not “all uncertainties” needed to be resolved in a NEPA analysis, and highlighting the “level of review of NUREG-1150 and its predecessor documents,” the Board found the CDNFRM values reasonable.<sup>65</sup>

## II. ANALYSIS

In CLI-15-2, we granted review of the Board’s decision as to NYS-12C, and directed the parties to provide additional briefing on specific questions.<sup>66</sup> While typically we decline to second-guess the Board on its fact-specific conclusions, here the decision contains obvious material factual errors and could be misleading, warranting clarification.<sup>67</sup> We find that the SAMA analysis and the Board’s decision insufficiently address uncertainty in the Indian Point CDNFRM and TIMDEC inputs — uncertainty shown by New York to have a potential to affect the SAMA analysis cost-benefit conclusions. We conclude, as a NEPA matter, that the analysis should be buttressed by additional sensitivity analysis.

This decision involved a balancing of considerations. As the Board noted, not all uncertainties need be resolved. Further, there is no requirement in NEPA or our SAMA rule for the Staff to perform a detailed three-level PRA analysis for the license renewal SAMA analysis, although that is how the Staff by longstanding practice and guidance has conducted the analysis. Having performed such an analysis, however, the Staff’s choice of input values is subject to challenge under NEPA standards.

We long have emphasized that the SAMA analysis computer modeling involves thousands of code inputs, and that it will always “be possible to conceive of yet another” alternative input “that could have been used, and in fact “many different

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<sup>63</sup> *Id.* at 471-72.

<sup>64</sup> *Id.* at 473.

<sup>65</sup> *Id.* at 474.

<sup>66</sup> We also allowed the State of Connecticut to file an *amicus* brief in response to our questions, which it did. Connecticut’s Response to the Commission’s Memorandum and Order of February 18, 2015 (CLI-15-2), Regarding Contention NYS-12C (Mar. 30, 2015). We have reviewed Connecticut’s brief. Those claims that fell within the scope of this proceeding are encompassed by our decision. *See also* Amicus Brief of the Attorney General of Connecticut (Feb. 14, 2014).

<sup>67</sup> *See, e.g., Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-02-22, 56 NRC 213, 222 (2002); *see also* 10 C.F.R. § 2.341(b)(4).

inputs and approaches may all be reasonable choices” for the analysis.<sup>68</sup> That the analysis can be performed with more conservative inputs, therefore, does not render it deficient. NEPA is satisfied so long as the analysis that *was* done is reasonable. “[W]here appropriate, full disclosures of any known shortcomings in available methodology, disclosure of any incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these . . . considerations credibly could or would alter” the SAMA analysis conclusions should be provided.<sup>69</sup>

Although we are mindful of and reiterate our frequent admonition against needless agency effort merely to “fine-tune a NEPA mitigation analysis,”<sup>70</sup> here we conclude that NEPA’s information-disclosure purpose was not satisfied. New York’s concerns about the TIMDEC and CDNFRM input values were not meaningfully addressed in the final supplemental environmental impact statement (FSEIS) or the Board’s decision. Our conclusions follow.

#### **A. Input Values and the Spectrum of Modeled Releases**

First, on the issue of decontamination time (the TIMDEC input), the Board erroneously refers to an “*input requirement* of the MACCS2 code for a single average decontamination time as an input value” — a single time “which is representative of all possible severe accident scenarios.”<sup>71</sup> The Board incorrectly emphasized a need for the “selected TIMDEC values” to “represent all the modeled severe accidents including ones that require little decontamination.”<sup>72</sup> Yet as we earlier described, the MACCS2 code by design permits a user to select up to three different decontamination times — linked to up to three different decontamination effectiveness levels — for each of the modeled accident releases or “bins.”

Simply put, there is no code requirement to use the same decontamination times for the entire spectrum of modeled accident categories, from least to most severe. The Staff’s longstanding practice has been to use the same two decontamination levels (3 and 15) with the same two respective decontamination times (60 days and 120 days) and apply these inputs to all of the modeled accident scenarios, but the option exists to select longer decontamination times (up to 365 days) for the accident categories that depict higher source term releases. Decontamination times longer than the 60-day and 120-day values — up to 1 year — readily

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<sup>68</sup> *Pilgrim*, CLI-12-1, 75 NRC at 57.

<sup>69</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208-09 (2010).

<sup>70</sup> *See Pilgrim*, CLI-12-1, 75 NRC at 57.

<sup>71</sup> *See LBP-13-13*, 78 NRC at 470 (emphasis added).

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

could have been applied to the larger accident categories modeled.<sup>73</sup> In short, the Board erred in concluding that the decontamination time inputs had to represent an “average over all the modeled severe accidents.”<sup>74</sup>

Much of the testimony in this case indeed revolves around the subject of “averages” and “averaging,” a topic warranting clarification. SAMA analysis results necessarily will reflect an averaging of sorts because for each modeled accident category the analysis estimates the mean consequences over the 50-mile-radius area and multiplies those consequences by the mean estimated frequency of the accident scenario occurring to calculate the accident risk.<sup>75</sup> This frequency-weighting is performed *after* the calculation of consequences (population doses and economic costs). The frequency-weighted results for the separate modeled accident categories are then added together to compute the total risk. By this process the analysis will take into account and appropriately weight the very low probabilities of the most severe categories. Choosing larger TIMDEC or CDNFRM values (where appropriate) for the larger releases does not improperly skew the analysis to more extreme scenarios because the lower frequencies of the large releases will be factored in, as Dr. Lemay testified.<sup>76</sup>

Decontamination time and cost inputs, therefore, should reflect reasonable estimates for the level of decontamination effectiveness specified and for the releases that are modeled. There is no requirement for the Staff to use a “universal set of average” TIMDEC and CDNFRM inputs for modeled scenarios ranging from no containment failure to scenarios involving radiological releases comparable to or exceeding that of the Fukushima accident.<sup>77</sup> Instead, the appropriate consideration is whether the value used with each modeled release reflects a reasonable estimate of the average decontamination time or cost that would be associated *with that release* (and decontamination level).

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<sup>73</sup> The code as designed allows the user to select TIMDEC values up to 365 days. See Ex. NYS000243, MACCS2 User’s Guide, at 7-10. Values longer than a year would require code revision.

<sup>74</sup> LBP-13-13, 78 NRC at 470.

<sup>75</sup> Accident frequency for each release scenario modeled is determined in the earlier Level 1 and Level 2 PRA analyses, whose results feed into the Level 3 offsite consequence portion of the analysis. See Tr. at 2194.

<sup>76</sup> See *id.* at 1937 (inputs “should be best estimate appropriate for the release category we’re trying to simulate”), 2178-79, 2186 (“decontamination time ideally should change with the release category to make sure that we use reasonable assumptions”).

<sup>77</sup> See NRC Staff’s Response to the Commission’s Memorandum and Order of February 18, 2015 (CLI-15-2), Regarding Contention NYS-12 (Mar. 30, 2015) at 29 (Staff Response to Commission Questions). Judge McDade posed an appropriate question: “At one . . . end of the spectrum say you have a Three Mile Island-type of severe accident, at the other end of the spectrum you have a Chernobyl-type severe accident, and how, if at all, are the differences between those factored into these numbers, or into the SAMA analysis generally.” See Tr. at 1978 (McDade, J.). The answer, as we discuss here, is that different input values can be applied to the different accident categories modeled.

Further, New York presented evidence that while the most severe releases modeled in the Indian Point analysis have the lowest probabilities of occurring, the estimated consequences from these releases drive most of the overall offsite economic cost risk calculated in the Indian Point analysis. In other words, while the estimated frequencies of these most severe releases are quite low, the cost and time inputs assigned to them have a potential to affect the analysis results because it is the large economic consequences of the larger release categories that contribute the most to the offsite economic cost risk portion of the analysis.<sup>78</sup>

The Staff argues that because the Indian Point SAMA analysis “modeled severe accidents with *larger* releases than Fukushima,” New York’s “actual complaint appears to be that severe accidents should have been accorded greater weight in the SAMA analysis.”<sup>79</sup> But New York did not challenge the frequency-weighting of the large releases. It challenged the choice of the inputs (i.e., the 120-day TIMDEC for heavy decontamination) applied to those larger, low-probability releases. New York argued that unless the TIMDEC (and CDNFRM) inputs used with the larger releases reflect reasonable estimates *for those release scenarios* the overall calculated consequences may be skewed too low.<sup>80</sup> The Board’s decision did not reach this claim because the Board incorrectly assumed that only one set of inputs must be used with all modeled releases.

Whether using larger TIMDEC (and CDNFRM) values with the larger releases modeled actually would affect the results of the Indian Point analysis and if so, to what degree, cannot be discerned from the current case record. The Staff suggests that there would be no “substantial differences” once the low frequencies of such releases are factored in.<sup>81</sup> We find, however, that New York provided sufficient evidence of a potential for a material effect on the Indian Point cost-benefit results if larger values were used for the larger releases.

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<sup>78</sup> See, e.g., Petition at 28-29; Tr. at 2179-80, 2196.

<sup>79</sup> See NRC Staff’s Answer to “State of New York Petition for Review of Atomic Safety and Licensing Board Decision LBP-13-13 with Respect to Consolidated Contention NYS-12C” (Apr. 28, 2014) at 20 (Staff Answer to New York Petition).

<sup>80</sup> See Tr. at 2196 (“we can’t average the time it takes to decontaminate a trivial or benign accident with the time it takes to decontaminate these more severe accidents”); Ex. NYS000420, New York Rebuttal Testimony, at 15-16 (“[t]he suggestion by NRC Staff that is acceptable to average input parameters over all release categories is wrong.”); Petition at 30 (citing Tr. at 2179-80); State of New York Reply in Support of Petition for Review of Atomic Safety and Licensing Board’s November 27, 2013 Partial Initial Decision Concerning Consolidated Contention NYS-12C (May 22, 2014) at 10 (New York Reply in Support of Petition) (“[u]sing a small TIMDEC value for the severe accident scenarios involving larger releases artificially minimizes the accident costs flowing from those scenarios”).

<sup>81</sup> See Staff Response to Commission Questions at 30.

## B. Evidence on the Input Values

We turn next to the evidence on the TIMDEC inputs used in the analysis: 60 days for light decontamination (effectiveness level 3) and 120 days for heavy decontamination (effectiveness level 15). Both were used in the NUREG-1150 severe accident study. As the Board described, Staff witnesses testified that these inputs are based on a 90-day “mean” decontamination time estimate described in the 1984 report on economic risks of reactor accidents, NUREG/CR-3673.<sup>82</sup> That report estimated consequences from an “SST1 accident,” a category of severe accident defined as resulting in a “release of approximately 100% of the reactor core inventory of noble gases and ~50% of the volatile radionuclides in a very short time period.”<sup>83</sup> The relevant passage from NUREG/CR-3673 reads as follows:

A total of ~11,000 man-years of effort is involved in the decontamination program to reduce population exposure from the accident. Based on a mean time to completion of 90 days for the decontamination efforts, this program would require a work force of ~46,000 men . . . . However, manpower limitations may force an extended period for completion of the offsite decontamination program after large releases of radioactive material.<sup>84</sup>

Stressing that the “origin of the 90-day decontamination time” is “known and reviewable” and “based upon an average over a wide spectrum of severe accident scenarios,” the Board found it “reasonable for Entergy to have adopted the 60-day and 120-day average decontamination time values from NUREG-1150 for dose reduction factors of 3 and 15, respectively.”<sup>85</sup> But NUREG/CR-3673 does not identify the underlying data and reasoning — the factual underpinning — for this key 90-day estimate.<sup>86</sup> Nor did the Staff or Entergy describe the basis of the 90-day time estimate. Contrary to the Board’s conclusion, the actual origin of the 90-day estimate was never presented or explained.

Citing to Staff testimony, the Board went on to stress that a “1990 report (i.e., NUREG/CR-4551),” which was a companion document to the NUREG-

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<sup>82</sup> LBP-13-13, 78 NRC at 469.

<sup>83</sup> See Ex. NRC000058, NUREG/CR-3673, at 2-7.

<sup>84</sup> *Id.* at 6-25.

<sup>85</sup> LBP-13-13, 78 NRC at 469-70. Entergy’s experts testified that the 60-day and 120-day periods selected for NUREG-1150 essentially reflected lower and upper bound sensitivity cases for the 90-day average decontamination period described in NUREG/CR-3673. See, e.g., Ex. ENT000450, Entergy Testimony, at 85-86; Tr. at 2242-43.

<sup>86</sup> The source of the 90-day estimate may be the earlier-referenced Ostmeier Report, given that NUREG/CR-3673 also contains estimates of decontamination labor costs and manpower needs that were taken from the Ostmeier Report, and these labor and manpower estimates bear a relationship to decontamination time. See Ex. NRC000058, NUREG/CR-3673, at 4-19.



1150 study, “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>87</sup> But the Board failed to identify any part of NUREG/CR-4551 that describes a confirmation of the 90-day decontamination estimate or that reviewed the *TIMDEC* inputs used in NUREG-1150.

NUREG/CR-4551’s introduction states that it contains a review of “*most* input parameters” used in the offsite consequence analysis of NUREG-1150, and further, that for “each parameter reviewed, a best estimate value and an uncertainty range were estimated.”<sup>88</sup> Neither the Staff nor Entergy, however, identified any section of NUREG/CR-4551 that reviews or explains the *TIMDEC* (or *CDNFRM*) values. We also could not locate any such review. Apparently, NUREG/CR-4551 merely lists NUREG/CR-3673 among its references.<sup>89</sup> And Dr. Lemay stressed that he had found “no description” in NUREG/CR-4551 of how the *TIMDEC* or *CDNFRM* values were derived.<sup>90</sup> We therefore agree with New York that it was a factual error for the Board to have relied on NUREG/CR-4551 as support for the *TIMDEC* values.<sup>91</sup>

Regarding the nonfarmland decontamination cost values (*CDNFRM*), the Board similarly found that the Staff was “justified in relying on the secondary peer reviews of the economic cost variables.”<sup>92</sup> The Board again relied on NUREG/CR-4551, quoting its introduction as evidence that the *CDNFRM* values specifically were “reviewed and a best estimate was recommended during the NUREG-1150 peer review process.”<sup>93</sup> Again, however, while NUREG/CR-4551 explains most of the MACCS input parameters selected for the NUREG-1150 study, no evidence was presented of a review or vetting of the *CDNFRM* inputs.

We know from the case record that the challenged *CDNFRM* and *TIMDEC* input values were taken from NUREG-1150, and that in turn the NUREG-1150 values were based on estimates reported in the earlier study, NUREG/CR-3673. Yet none of the parties were able to describe the underlying foundation for these values. The difficulty here is not only that old documents such as the referenced Ostmeyer Report were never located, but that no witness could provide the

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<sup>87</sup> LBP-13-13, 78 NRC at 470 (emphasis added); Ex. NYS000248, “Evaluation of Severe Accident Risks: Quantification of Major Input Parameters,” NUREG/CR-4551, SAND86-1309, Vol. 2, Rev. 1, Part 7 (Dec. 1990) (NUREG/CR-4551).

<sup>88</sup> Ex. NYS000248, NUREG/CR-4551, at 1-1 (emphasis added).

<sup>89</sup> See *id.* at 5-9 to 5-10.

<sup>90</sup> See Tr. at 2005; see also Ex. NYS000420, New York Rebuttal Testimony, at 21.

<sup>91</sup> See Petition at 20.

<sup>92</sup> LBP-13-13, 78 NRC at 472.

<sup>93</sup> *Id.*

technical basis — e.g., the assumptions made and data considered — for key economic inputs selected for this cost-benefit analysis.<sup>94</sup>

Repeatedly, the Staff and Entergy rely on the estimates and related reasoning contained in NUREG/CR-3673.<sup>95</sup> That reliance is why the missing underlying assumptions for NUREG/CR-3673 are relevant. In support of the CDNFRM values, for example, Mr. O’Kula testified that the NUREG/CR-3673 decontamination cost estimates incorporated a “multitude of possible [decontamination] methods . . . and have been weighted to account for residential, commercial and industrial and public use land areas [based] on national average statistics.”<sup>96</sup> But as Judge Kennedy remarked, this “open[s] up the question” of “what type of land use was used in this study.”<sup>97</sup> The Staff and Entergy experts did not describe what “average statistics” were used, what decontamination methods were considered, or how the weighting was done. In short, we do not know how the specific per person cost parameters were derived, although these are the parameter values (only adjusted for inflation) that were multiplied by the Indian Point area’s site-specific population to obtain decontamination cost estimates for the SAMA analysis.

Moreover, quite apart from the fact that NUREG/CR-3673 relies on a study (Os84) that has not been located, NUREG/CR-3673 itself highlights the uncertainty in its conclusions:

The cost and effectiveness estimates for decontamination contain large uncertainties, and results of future experimentation with decontamination techniques should be used to update models for decontamination.<sup>98</sup>

Large uncertainties were said to exist because the decontamination cost conclusions were based on experimental data and “little data” were considered “directly

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<sup>94</sup> The Board stated that NUREG/CR-3673 was not “necessarily an unreliable source,” given that the authors “had access to the Ostmeyer report when they prepared” it and that “Dr. Ostmeyer provided technical assistance and advice during the preparation of NUREG/CR-3673.” See LBP-13-13, 78 NRC at 472-73. But this tells us only that the NUREG/CR-3673 authors understood the Ostmeyer Report conclusions. It does not shed light on the basis for those conclusions or their continued applicability to the Indian Point analysis today.

<sup>95</sup> See, e.g., Ex. ENT000450, Entergy Testimony, at 57, 84-85, 87-88; Ex. NRC000041, Staff Testimony, at 90; Tr. at 2014.

<sup>96</sup> See Tr. at 2244 (referencing Ex. NRC000058, NUREG/CR-3673, at 4-17).

<sup>97</sup> Tr. at 2245 (Kennedy, J.). As New York states, the “geographic location . . . or [the] size of the area” considered are not known. See State of New York Response to Commission Order CLI-15-2 Requesting Further Briefing on Contention NYS-12C Concerning Site-Specific Severe Accident Mitigation Alternatives (Mar. 30, 2015) at 7 n.27 (New York Response to Commission Questions).

<sup>98</sup> Ex. NRC000059, NUREG/CR-3673, at 4-15.

applicable” to the “small particle sizes” and “soluble materials which are anticipated in releases from most severe [light-water reactor] accidents.”<sup>99</sup>

Nonetheless, Staff and Entergy experts — who include MACCS2 code modeling experts — offered their professional opinion that the challenged inputs are reasonable for this analysis.<sup>100</sup> Much of their testimony is rooted in confidence in NUREG-1150 and peer reviews of that study. For example, Mr. O’Kula asserted confidence in the “nature and breadth and depth of the work that was done” for NUREG-1150, and what he described as an “unprecedented” level of review of the study.<sup>101</sup> Entergy experts also testified that the input values had been “judged appropriate” and “sufficiently applicable to each of the [five] sites” evaluated in NUREG-1150, which included a site located near a large urban city — the (now decommissioned) Zion plant, located approximately 37 miles from Chicago.<sup>102</sup> The Staff stated that it has been examining decontamination times for 37 years.<sup>103</sup> And Entergy repeatedly referred to the “well-established pedigree” of these inputs.<sup>104</sup>

While we do not discount their expertise, neither Staff nor Entergy experts provided any documented review or analysis (independent or internal), from the time of NUREG-1150 or more recently, that examines, reassesses, or otherwise explains the underlying basis for these parameters. It is possible that the NUREG-1150 peer reviews or other secondary reviews may have thoroughly vetted the TIMDEC and CDNFRM inputs, but we lack record evidence of such vetting.<sup>105</sup> Neither the Staff nor Entergy put into evidence any portions of the NUREG-1150 peer reviews or other reviews of NUREG-1150 that they referenced.<sup>106</sup> We cannot

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

<sup>100</sup> *See* Tr. at 2037, 2039, 2274.

<sup>101</sup> *See id.* at 2371-72, 2034.

<sup>102</sup> *See id.* at 1951-53, 2246.

<sup>103</sup> *See, e.g.*, Ex. NRC000041, Staff Testimony, at 89.

<sup>104</sup> *See, e.g.*, Ex. ENT000450, Entergy Testimony, at 13, 72; *see also* Tr. at 2054, 2286.

<sup>105</sup> NEPA does not require peer-reviewed analyses, but here it is the Staff and Entergy that reference the NUREG-1150 peer reviews as a basis for their confidence in the challenged values. The limited information presented in the record directly pertaining to reviews of the decontamination costs portion of NUREG-1150 were comments critical of a draft version of the study. *See, e.g.*, Petition at 37; Tr. at 2024-26.

<sup>106</sup> Tr. at 2375-76 (Board inquiring whether any reviews were submitted as exhibits). We do not mean to minimize the significance of the NUREG-1150 study and its continued relevance to PRA-based analyses today. Our focus is only on two inputs, as specifically challenged in this proceeding, taken from the offsite consequence portion of NUREG-1150, an extensive three-level PRA study involving thousands of inputs.

make factual determinations based on items never introduced for review into the case record or otherwise confirmed.<sup>107</sup>

Moreover, NUREG-1150's final version did not discuss economic losses due to severe accidents and was not a cost-benefit analysis.<sup>108</sup> NUREG-1150's overall focus was on doses and health effects of severe accidents to determine whether the plants studied met the NRC's safety goals. Economic costs were calculated in the individual plant studies to determine whether individuals could return to their homes or would stay relocated (and their property condemned) — factors relevant to assessing long-term population doses and health risks for comparison to the NRC's safety goals. In contrast to NUREG-1150, the Indian Point SAMA analysis is a cost-benefit analysis, where a primary focus is economic costs given the need to compare the avoided costs of accidents with the implementation costs of risk reduction strategies.

The Staff and Entergy also cite to the NRC's SOARCA (State-of-the-Art Reactor Consequence Analysis) study, published in 2012, as evidence and confirmation that the TIMDEC and CDNFRM values are reasonable for the SAMA analysis.<sup>109</sup> Mr. O'Kula explained that while the SOARCA study was not a SAMA analysis or a PRA analysis, the "model had to be set up and run as if it [were] a SAMA-type analysis" to show "when to bring populations back onsite to their residences in terms of cleanup criteria."<sup>110</sup> SOARCA analysts adopted the NUREG-1150 decontamination times (60 and 120 days) and base decontamination costs (\$3000/person and \$8000/person) for decontamination levels of 3 and 15, respectively.<sup>111</sup>

But a recent report describing the SOARCA study's parameter selection makes clear that these decontamination-related parameters "were not reviewed for SOARCA because SOARCA did not calculate economic consequences."<sup>112</sup> As was the case with NUREG-1150, the SOARCA "cost decisions were only used to

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<sup>107</sup> Because the derivation of the values was not explained in NUREG-1150 or its companion document, NUREG/CR-4551, Dr. Lemay suggested that the challenged values are "a very specific part of the economic cost assessment" that "was not peer reviewed." *See, e.g., Tr.* at 2175.

<sup>108</sup> *See, e.g., id.* at 2035.

<sup>109</sup> *See, e.g.,* Applicant's Answer Opposing the State of New York's Petition for Review of the Board's Partial Initial Decision (LBP-13-13) (Apr. 28, 2014) at 37-38 & n.213 (Entergy Answer to New York Petition); *Tr.* at 2241, 2274, 2374-75.

<sup>110</sup> *See Tr.* at 2373.

<sup>111</sup> *See id.*

<sup>112</sup> *See* Bixler, N., Jones, J., Osborn, D., Weber, S., "MACCS Best Practices as Applied in the State-of-the-Art Reactor Consequence Analyses (SOARCA) Project," NUREG/CR-7009, Sandia National Laboratories, § 4.7, at 4-43 (Aug. 2014) (ADAMS Accession No. ML14234A148). NUREG/CR-7009 is publicly available but postdates the Board's decision. The document was not material to our decision, but helps to make clear the limited purposes behind the use of the decontamination cost-related values in the SOARCA study.

support the habitability decisions in the model.”<sup>113</sup> MACCS code users therefore are directed to “review the basis and applicability of the decontamination and cost parameters for site-specific analyses.”<sup>114</sup> As New York claims, SOARCA’s limited use of the TIMDEC and CDNFRM values “does not represent a vetting of those values.”<sup>115</sup>

The Board also refers to evidence of “Entergy technical reviewers [who] considered the applicability of the NUREG-1150 values and concluded that they were reasonable values” for the Indian Point analysis specifically.<sup>116</sup> The Board cited to the testimony of Entergy expert Ms. Potts and referenced an Entergy response to a Staff Request for Additional Information (RAI), said to “describe[] the bases” for the Entergy SAMA analysis reviewers’ conclusions regarding why the NUREG-1150 inputs are appropriate for Indian Point.<sup>117</sup> The RAI response, however, describes the CDNFRM input, without more, as a “NUREG/CR-4551 default value[]” that was scaled to a current dollar value.<sup>118</sup> Neither the RAI response nor the cited pages of Ms. Potts’s testimony reveal additional considerations beyond that of a practice to use default CDNFRM values escalated for inflation.<sup>119</sup> We have emphasized that an “expert opinion that merely

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<sup>113</sup> *Id.*

<sup>114</sup> *Id.*

<sup>115</sup> See State of New York Reply to Entergy’s and NRC Staff’s Responses to Commission Order CLI-15-2 Requesting Further Briefing on Contention NYS-12C Concerning Site-Specific Severe Accident Mitigation Alternatives (Apr. 29, 2015) at 5-6 (New York Reply Brief Re: Commission Questions). While it was not entered into the record, we further note that the SOARCA peer review addressed the “[a]ssumptions and input data associated with decontamination and cleanup of economic assets.” See “Summary Report: Peer Review of the State-of-the-Art Reactor Consequence Analyses (SOARCA) Project,” Sandia National Laboratories (May 2012), at 47 (ADAMS Accession No. ML121250032). Although these were found “acceptable for achieving the overall goals of the SOARCA project,” the peer reviewer — one of Entergy’s experts in this case — stated that “the approach taken for decontamination in the mid- to late eighties isn’t consistent with a state-of-the-art analysis.” See *id.* The SOARCA peer review was published several months before the hearing and authored by one of the Staff’s experts in this case. Although the peer reviewer’s comment is not directed to a NEPA analysis and does not suggest that use of the inputs is unacceptable, it reflects a consideration of the NUREG-1150 decontamination-related input values in a recent peer review — and a core Staff and Entergy argument before the Board and before us is that peer review vetting confirmed the reliability of the values. See, e.g., Entergy Answer to Petition at 26. We note, additionally, that while the SAMA analysis need not be state-of-the-art, it is a cost-benefit analysis, which the SOARCA study was not.

<sup>116</sup> LBP-13-13, 78 NRC at 473.

<sup>117</sup> *Id.* at 473 n.1584; see also Entergy Answer to New York Petition at 25.

<sup>118</sup> See Ex. ENT000460, NL-08-028, Letter from Fred Dacimo, Vice President, Entergy, to NRC, “Reply to Request for Additional Information Regarding License Renewal Application — Severe Accident Mitigation Alternatives Analysis, Attach. 1 at 37-38 (Feb. 5, 2008); see also Tr. at 2325-27.

<sup>119</sup> See Tr. at 2067-70. At the hearing, Ms. Potts stated that the reviewers “looked to see if [the CDNFRM value] passes the smell test,” but did not indicate what factors were considered in making

(Continued)

states a conclusion . . . without providing a reasoned basis or explanation for that conclusion is inadequate because it deprives the Board of the ability to make the necessary, reflective assessment of the opinion.”<sup>120</sup>

### **C. Other Evidence Regarding CDNFRM Values Not Addressed by the Board**

The Board left unaddressed other Staff or Entergy arguments made in support of the CDNFRM values. These claims merit acknowledgment, although we conclude that they are insufficient to serve as a basis on which to find the CDNFRM values reasonable for the Indian Point SAMA analysis.

The Staff argues, for example, that “New York’s own expert confirmed the reasonableness of the [SAMA analysis] selected inputs through his independent analysis.”<sup>121</sup> In effect, the Staff claims that if Dr. Lemay’s assumptions are altered to the degree that the Staff considers appropriate, his results become comparable or even conservative compared to the values used in the Indian Point analysis. More specifically, and as we earlier described, Dr. Lemay used four different approaches (designated A, B, C, and D) to calculate alternate ranges of CDNFRM values for Indian Point. In Dr. Lemay’s view, the “most appropriate method in [the] whole set of data” that he used was a decontamination cost methodology from the United Kingdom called CONDO, which focuses on reactor accident cleanup and which he used in his Approach “C.”<sup>122</sup> As pertinent here, Staff and Entergy experts testified that when they considered Dr. Lemay’s CONDO-

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that determination. *See* Tr. at 2068. Mr. Teagarden added that the CDNFRM values are “judged to have applicability across . . . reactor plants and sites, and now I need to escalate them appropriately [to current dollar values] for my site-specific analysis.” *See* Tr. at 2069.

<sup>120</sup> *See, e.g., USEC Inc. (American Centrifuge Plant)*, CLI-06-10, 63 NRC 451, 472 (2006). We note, additionally, that Entergy’s expert, Mr. Teagarden, described the nonfarm decontamination per person cost value of \$13,824 for heavy decontamination as equating to approximately a cost of “some \$41,000” to decontaminate a “household of three,” \$55,000 for a “household of four,” and for “an apartment building housing 200 people, . . . \$2.7 million to cover decontamination costs for that and nearby spaces.” *See* Tr. at 2040; *see also id.* at 2122. But he did not provide corroborative evidence that these are reasonable decontamination cost estimates for these types of buildings, whether speaking generally or in the specific context relevant here: namely, achieving a 93% reduction in public dose in an average of 120 days. Similarly, Mr. Jones (whose resume indicates decontamination experience) testified for the Staff that he did not have any “cesium-related characterization or cost-data” from his decontamination work experience, which was performed for the Department of Energy. *See id.* at 2100-01.

<sup>121</sup> *See* Staff Answer to New York Petition at 26; *see also id.* at 34-35.

<sup>122</sup> *See* Tr. at 2108; *see also* Tr. at 2110-11, 2151-52. Based on the CONDO methodology, Dr. Lemay’s suggested input values for CDNFRM range from \$15,422 to \$23,952 per person for light decontamination (Level 3), and from \$71,255 to \$112,856 per person for heavy decontamination (Level 15).

related methodology in light of qualifications or corrections that they considered necessary, Dr. Lemay's analyses indeed served to confirm the reasonableness of the Indian Point analyses.<sup>123</sup> The Staff therefore argues that "New York's own analysis, as corrected, suggests that the values selected by Entergy, accepted by the Staff, and approved by the Board in LBP-13-13 are conservative."<sup>124</sup>

We need not, however, parse the extensive, highly technical, and contentious testimony on New York's alternate methodologies and proposed alternate ranges of CDNFRM inputs. Much of the hearing was diverted to an inquiry over the soundness of New York's methods and assumptions — none of which the Board addressed in its decision. As the Board ultimately stated in LBP-13-13, "New York was not required to develop reasonable alternative CDNFRM values."<sup>125</sup>

More importantly, it should not be necessary — nor would it be sufficient — to rely on "informal" and "rough" consideration of New York's CONDO methodology-based results to find the Indian Point CDNFRM values reasonable.<sup>126</sup> Here, neither the Staff nor Entergy offered any updated examination of decontamination costs or benchmarking analyses of their own. And Dr. Lemay stressed that while he made his analyses available for the Staff's and Entergy's review, he was not afforded the same opportunity to review and challenge the underlying technical basis and assumptions for the CDNFRM values because these were not made available.<sup>127</sup> The Staff, moreover, discounted the CONDO methodology cost-estimation values, stating that they "cannot be technically substantiated."<sup>128</sup> Given the record as a whole, informal extrapolations from New York's alternate analyses, without more, are not a sufficient ground on which to find the SAMA analysis reasonable.

The Board also did not address a cost comparison described in the FSEIS as lending support for the CDNFRM values. The Staff in the FSEIS states that it

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<sup>123</sup> See Staff Answer to Petition at 25 n.111, 26, 29-31. More specifically, Mr. Jones testified that once he removed various multipliers and factors Dr. Lemay's analysis had applied, the result was a CDNFRM value of \$16,778 for heavy decontamination, which came "reasonably close to" the value used in the Indian Point SAMA analysis (\$13,824). See Ex. NRC000041, Staff Testimony, at 82-83; see also Tr. at 2251-52.

<sup>124</sup> See Staff Answer to New York Petition at 35.

<sup>125</sup> LBP-13-13, 78 NRC at 473.

<sup>126</sup> Mr. O'Kula explained, for example, that he took a "quick glance" and an "informal look" at Dr. Lemay's spreadsheets for the CONDO-based analyses, and after reducing various multipliers that Dr. Lemay had used to account for particular numbers of surfaces to be decontaminated, the results "became much like those applied in the Entergy SAMA analysis." See Tr. at 2365-66; see also Staff Response to Commission Questions at 22 ("after applying very rough and basic corrections to Dr. Lemay's analysis the Staff's experts concluded that New York's analysis supported the selected input variables").

<sup>127</sup> See, e.g., Tr. at 2134, 2138, 2042.

<sup>128</sup> See Ex. NYS000041, Staff Testimony, at 88.

requested the Sandia National Laboratories to compare the nonfarmland decontamination cost values used in the Indian Point analysis with “decontamination cost factors derived from” a 1996 study of site restoration costs for a plutonium-dispersal accident in Albuquerque, New Mexico.<sup>129</sup> In using this weapons-related cleanup study (referenced as the Site Restoration Study), Sandia made various assumptions including that the heavy decontamination level (dose reduction factor 15) considered in the SAMA analysis would be most comparable to the Site Restoration Study’s analysis of “moderate plutonium” decontamination.<sup>130</sup> Applying the Site Restoration Study’s estimated cost for cleanup of “moderate plutonium” contamination to the population of New York City, Sandia derived an estimated nonfarmland decontamination cost value of \$14,900 per person.<sup>131</sup> The FSEIS noted that this value is comparable to the CDNFRM value assumed in the SAMA analysis for heavy decontamination (\$13,824 per person for decontamination level of 15).<sup>132</sup> The FSEIS additionally noted that the calculated value was not scaled to 2005 dollars, in which case the per capita cost would be greater, but “within a factor of about 2” (e.g., the scaled value could be twice the estimated \$14,900 or approximately \$30,000 per person).

In CLI-15-2, we asked the parties to address the extent to which the cost comparison substantiates the nonfarm decontamination cost parameters used in the Indian Point analysis, particularly given that the FSEIS also describes the Site Restoration report as “not relevant” to reactor accident cleanup.<sup>133</sup> In its response, the Staff maintains that “weapons accidents do not provide a good analogue for estimating decontamination costs or times.”<sup>134</sup> The Staff explains that it “tr[ie]d to adjust the costs for a weapons accident to a reactor accident” in order to respond to comments received on the Draft SEIS, and that the “roughly comparable costs determined by this alternative method reinforced the Staff’s conclusion that the costs used by Entergy were reasonable.”<sup>135</sup> Entergy stresses that the 1996 Site Restoration Report “has no direct relevance” to the Indian Point

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<sup>129</sup> See Ex. NYS000133I, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3,” NUREG-1437, Supp. 38, Vol. 3, Final Report, App. G, at G-23 (Dec. 2010) (FSEIS) (referencing Ex. NYS000249, Chanin, D., and Murfin, W., “Site Restoration: Estimation of Attributable Costs from Plutonium Dispersal Accidents,” SAND96-0957, (May 1996)).

<sup>130</sup> Ex. NYS000133I, FSEIS, at G-23 to G-24.

<sup>131</sup> *Id.* at G-24.

<sup>132</sup> *Id.*

<sup>133</sup> *Id.* at G-23.

<sup>134</sup> See Staff Response to Commission Questions at 37 & n.226.

<sup>135</sup> *Id.* at 39-40.



SAMA analysis.<sup>136</sup> And for its part, New York disputes the assumptions that the Staff made in using the Site Restoration Study.<sup>137</sup>

Neither the Staff nor Entergy principally relies on the cost comparison and both further state that the Site Restoration Study is not relevant or reliable as a tool for estimating reactor accident decontamination costs for the Indian Point analysis. Therefore, while intimating no opinion on the merits of the cost comparison, we find only that we have insufficient basis to conclude that the cost comparison confirms the Indian Point CDNFRM values.

#### **D. Conclusions on the TIMDEC and CDNFRM Values**

Stepping back from the details, we reach the following conclusions. First, the Board's decision relies on several significant factual errors, both relating to SAMA analysis computer modeling and to the content of the evidence presented. Second, while the evidence does not establish that the Indian Point SAMA analysis nonfarm decontamination costs are unduly low or wrong,<sup>138</sup> it reveals potentially significant uncertainties in the nonfarm land and property decontamination cost and the decontamination time input values. The Staff and Entergy could not explain the underlying technical basis for these values. And they presented no updated analysis that revisited and confirmed the values in light of any more recent decontamination data. Given the passage of time, it is not surprising that the individuals most acquainted with the work that produced these cost and time estimates may no longer be available to explain their analyses, but unfortunately none of the parties could provide a documented description outlining the technical foundation of the estimates (e.g., the experiments, data, size of area, or other factors considered).<sup>139</sup>

In this circumstance, running sensitivity analyses for the TIMDEC and CDNFRM values is appropriate. Sensitivity analyses are a common method of addressing uncertainty in specific inputs used in PRA analyses and as such they are a common practice in SAMA analyses. Sensitivity analyses help demonstrate

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<sup>136</sup> See Entergy Nuclear Operations, Inc., Initial Brief in Response to Commission Questions in CLI-15-2 Concerning Contention NYS-12C (Mar. 30, 2015) at 37-38.

<sup>137</sup> See New York Response to Commission Questions at 37; New York Reply Brief Re: Commission Questions at 17.

<sup>138</sup> Merely because New York's analyses resulted in higher values did not show that the Staff's values were unreasonable. New York's own estimated ranges of values varied widely depending on which of the four different approaches and information sources were used; the entire range of estimated CDNFRM values based on approach "A" was much higher than the entire range obtained with approach "C."

<sup>139</sup> See, e.g., Tr. at 2006-09 (paper trail "end of the line" is NUREG/CR-3673), 2026 ("unable to trace the origin" of decontamination costs).

whether and to what extent variations in an uncertain input value might affect the overall cost-benefit conclusions. Indeed, the MACCS2 code was designed to accommodate sensitivity analyses, and Entergy already has performed sensitivity analyses for other input values in the Indian Point analysis.<sup>140</sup> And recently, the SAMA analyses performed and accepted for the Byron and the Braidwood facilities' license renewal reviews included sensitivity analyses for the CDNFRM, TIMDEC, and other generic economic input values.<sup>141</sup>

The NEPA record in this case is not yet closed. The Staff is in the process of supplementing the Indian Point FSEIS in regard to other matters.<sup>142</sup> We therefore direct the Staff to supplement the SAMA analysis with sensitivity analyses for the CDNFRM and TIMDEC values. We leave up to the Staff to determine (if it so chooses) whether there are particular ranges of input values that it considers appropriate to use. In any event, however, the Staff at a minimum should include sensitivity runs for the maximum allowable values in the code — one year (365 days) for the TIMDEC values, at least (but not limited to) the four most severe accident categories modeled; and \$100,000 for the CDNFRM values for heavy decontamination, at least (but not limited to) the four most severe accident categories modeled.

Running the analysis to the maximum values allowed will provide a better understanding of whether and to what extent uncertainty in these challenged values may alter the SAMA analysis cost-benefit conclusions. Use of a \$100,000 CDNFRM value for heavy decontamination falls within New York's suggested range of CDNFRM values for the Indian Point analysis: \$71,255 to \$112,856 for heavy decontamination, based on Dr. Lemay's Approach "C" using the CONDO cost-estimating methodology (which Dr. Lemay described as the "most appropriate" of his analyses) and which was calculated taking into account his conclusions regarding the types of buildings and building density in the 50-mile

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<sup>140</sup> See Ex. NYS000243, MACCS2 User's Guide, at 1-2 (MACCS code is intended to facilitate the "evaluation of sensitivities and uncertainties"); Tr. at 2078-79, 2039 (regarding sensitivity analysis for tourism and lost business); New York Response to Commission Questions at 16 (regarding sensitivity analysis relating to population).

<sup>141</sup> See "Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Braidwood Station, Units 1 and 2," NUREG-1437, Supp. 55, Final Report, App. F, at F-18 to F-20 (Nov. 2015) (ADAMS Accession No. ML15314A814) (citing Braidwood Station Environmental Report, SAMA Analysis, Rev. 2, App. F, at F-340); "Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Byron Station, Units 1 and 2, NUREG-1437," Supp. 54, Final Report, App. F, at F-20 (July 2015) (ADAMS Accession No. ML1516A263) (citing Byron Station Environmental Report, SAMA Analysis, Rev. 2, App. F, at F-292)).

<sup>142</sup> The Staff issued a draft second supplement (Volume 5) to the FSEIS in December 2015, and expects to issue a final supplement in September 2016. See NRC Staff's 50th Status Report in Response to the Atomic Safety and Licensing Board's Order of February 16, 2012 (Apr. 1, 2016) at 3.

radius area for Indian Point.<sup>143</sup> A \$100,000 CDNFRM value may prove to be overconservative, but in a NEPA analysis that seeks to identify *potentially* cost-beneficial mitigation alternatives,<sup>144</sup> it is not inappropriate, where the basis for a given input value is uncertain, to err on the side of conservative values when conducting a sensitivity analysis for that input.<sup>145</sup>

As to decontamination time, New York claims that the SAMA analysis “should at a minimum account for the possibility of decontamination times of one year.”<sup>146</sup> Given that it is undisputed that three out of the eight release categories modeled in the Indian Point analysis reflect cesium releases relatively comparable to (or greater than) those experienced at Fukushima, we agree with New York that it is inappropriate to discount altogether the example of the Fukushima accident as an irrelevant “extreme” or “worst-case” scenario, as the Staff and Entergy argue.<sup>147</sup> While we may not yet have a full understanding of what aspects of the Fukushima decontamination experience might be applicable to NRC severe accident analyses including (as relevant here) environmental analyses, the Fukushima experience highlights the potential need for extended decontamination periods following a severe accident with offsite consequences. At least in regard to the more severe releases modeled in the Indian Point analysis, a sensitivity analysis using a TIMDEC value of 1 year is reasonable.

Current code limitations do not permit the use of TIMDEC values longer than 1 year (or of CDNFRM values greater than \$100,000 per person). And here we agree with the Staff and Entergy that revising the code to accept TIMDEC and CDNFRM values outside of the currently allowed ranges would require a complex effort, necessitating expert validation and verification, including testing by independent laboratories.<sup>148</sup> As discussed below, NEPA does not require such an effort here.

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<sup>143</sup> See Ex. NYS000430, New York Revised Tables, tbl. 11; Tr. at 2108, 2111, 2137-38, 2150.

<sup>144</sup> See generally Ex. NYS000133I, FSEIS, App. G.

<sup>145</sup> Entergy does argue that “simple” (or “independent”) sensitivity analyses would not be “appropriate,” reasoning that TIMDEC, CDNFRM, and the decontamination factors are interrelated. Entergy Response to Commission Questions at 25. We do not deny that these inputs are interrelated, and our decision does not preclude the Staff from considering interrelationship of inputs when choosing values for the sensitivity analyses or from discussing the topic within the FSEIS supplement. In any event, with no sufficient explanation in the record for how the TIMDEC and CDNFRM values were derived, the record leaves us similarly uncertain as to the impacts of these interrelationships. The sensitivity analyses we are requiring here are intended to inform our understanding of how material these uncertainties are to the SAMA analysis conclusions.

<sup>146</sup> See New York Response to Commission Questions at 30.

<sup>147</sup> See Petition at 24; Staff Answer to New York Petition at 19; Entergy Answer to New York Petition at 32.

<sup>148</sup> Staff Response to Commission Questions at 33; see also Staff Answer to New York Petition at 18; Ex. ENT000450, Entergy Testimony, at 15, 74-76.

Much of the evidence presented in this case, including much of New York's own evidence, relates to experimental data or to decontamination cost data from incidents or accidents that may have limited relevance.<sup>149</sup> Dr. Lemay's own testimony from late 2011 stressed how "very little data" existed at the time on decontamination following "an actual severe reactor accident" in an urban environment.<sup>150</sup> Recent real-world data emerging from the Fukushima accident will provide significantly more relevant modern-day sources for assessing the decontamination times and costs of a severe reactor accident with offsite consequences. The accident involved cesium releases on the order of those modeled in the Indian Point SAMA analysis, for example, and an extensive cleanup effort remains under way. Data based on in-the-field decontamination work ultimately will allow for the review and updating, where warranted, of decontamination cost-related estimates that historically may have been based on experimental data or on smaller-scale radiological accident cleanup.<sup>151</sup>

Notably, as testimony in this case described, the CDNFRM and TIMDEC values are interconnected, and they additionally relate to the decontamination effectiveness level, and to other input values in the SAMA analysis. A number of complex considerations would be involved in properly selecting alternate CDNFRM and TIMDEC values (or ranges of values) for a SAMA analysis.<sup>152</sup> Conclusions would need to be reached, for example, on the effectiveness of different decontamination strategies on different kinds of materials, and on the costs and time scales necessary to achieve the different levels of decontamination effectiveness. Sufficient data would need to be gathered and analyzed to reach such

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<sup>149</sup> See Ex. NYS000241, New York Testimony, at 20 (alternate decontamination cost values based on "extrapolating data from other types of nuclear accidents, field radiological work," and experiments).

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

<sup>151</sup> In an unrelated context, the NRC Staff recently informed us that "Research efforts are underway to evaluate newly emerging information from the Fukushima accident recovery experience, and in particular develop MACCS decontamination plan input parameters based on Fukushima." See Draft Regulatory Basis for Containment Protection and Release Reduction for Mark I and Mark II Boiling Water Reactors (10 CFR Part 50) (May 2015) at 84, Enclosure to "Evaluation of the Containment Protection and Release Reduction for Mark I and Mark II Boiling Water Reactors Rulemaking Activities (10 CFR Part 50) (RIN-3150-AJ26)," Commission Paper SECY-15-0085 (June 18, 2015) (ADAMS Accession No. ML15042A218) (package). The specific input parameters under review "include the costs to decontaminate, the dose reductions achieved [e.g., dose reduction factors or decontamination levels], and the times required to perform decontamination." See *id.* at 85. In short, the TIMDEC and CDNFRM values litigated in this case are now under review by the Staff. Such a review likely will require an extended time to complete, as we note above.

<sup>152</sup> See, e.g., Tr. at 2201-03, 2247 ("cost is linked to the time, which is linked to the dose reduction factor"), 2273 (if decontamination time is "long enough, it could be that just radioactive decay and weathering would have gotten you below the habitability level, and you wouldn't need to decontaminate" an area); Staff Answer to Petition at 17-18.

conclusions, including data on the sizes of areas cleaned, workforce and resource needs, decontamination methods used, and even waste disposal considerations.

An EIS, however, is not a “research document reflecting the frontiers of scientific methodology, studies, and data.”<sup>153</sup> And NEPA does not require the NRC to stop and await internationally based research and potential code modifications that could take years to complete. Otherwise the NEPA process would effectively “become unending,” particularly given the NRC’s frequent long-term research to improve severe accident consequence modeling.<sup>154</sup> NEPA requires only a “reasonably complete” mitigation analysis.<sup>155</sup> Our decision mandating sensitivity analyses to the full extent of the code strikes a reasonable balance between disclosure of uncertainties (and their potential to affect the cost-benefit results) and what we reasonably can conclude and apply to the Indian Point analysis today.<sup>156</sup>

### III. ADDITIONAL CHALLENGES TO LBP-13-13

#### A. Other Challenged Input Values

New York also argues that the Board erred in limiting its consideration only to the TIMDEC and CDNFRM inputs, when New York had also challenged other economic input values in the analysis.<sup>157</sup> New York refers to the following five other economic input values: POPCST, VALWNF, DSRATE, FRNFIM, and DPRATE.

The Board focused its decision only on the decontamination time and nonfarm decontamination cost values because Dr. Lemay testified that “CDNFRM and TIMDEC were the most important ones, and the *rest had minimal impact* on the calculation of the offsite economic cost.”<sup>158</sup> Values with only a minimal effect

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<sup>153</sup> See *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315 (2010) (citing *Town of Winthrop v. Federal Aviation Administration*, 535 F.3d 1, 11-13 (1st Cir. 2008)).

<sup>154</sup> See *Massachusetts v. NRC*, 708 F.3d 63, 82 (1st Cir. 2013).

<sup>155</sup> See *Citizens Against Burlington Inc. v. Busey*, 938 F.2d 190, 206 (D.C. Cir. 1991); see also *Pilgrim*, CLI-10-22, 72 NRC at 208-09 & n.40.

<sup>156</sup> Moreover, we have generically determined, based on probability-weighted consequences, that the environmental impacts from severe accidents at plants operating under renewed licenses are expected to be “small” — our lowest impact category. See 10 C.F.R. Part 51, Subpart A, App. B, tbl. B-1 (codifying license renewal GEIS finding on environmental impacts of postulated severe accidents). Under basic NEPA principles, it is reasonable to tailor the degree of mitigation analyses to the significance of the impact to be mitigated. See 10 C.F.R. § 51.45(b)(2) (“Impacts shall be discussed in proportion to their significance.”); 40 C.F.R. § 1502.2 (same).

<sup>157</sup> Petition at 58.

<sup>158</sup> Tr. at 2054-55 (emphasis added); LBP-13-13, 78 NRC at 459.

on the offsite economic cost risk are not likely to change the SAMA cost-benefit analysis conclusions, especially considering that economic cost risk is only one portion of the offsite risk analysis, the other major portion being population dose risk. As to the DSRATE, DPRATE, and FRNFIM values, Dr. Lemay stated that using the alternate values that he considered more appropriate would have a “negligible” overall effect on the offsite economic cost risk.<sup>159</sup>

In regard to VALWNF, which represents a per capita value of nonfarm wealth, Dr. Lemay characterized his proposed change to scale up the SAMA analysis values from 1997 dollars to 2004 dollars a “minor correction” and agreed with the Board that it did not warrant much examination at the hearing.<sup>160</sup> According to Dr. Lemay’s analysis, the proposed adjustment would increase the final offsite economic cost risk by approximately 18%, not a major revision in light of such an extensive NEPA analysis.<sup>161</sup> Nonetheless, given that in this decision we remand the SAMA analysis for sensitivity analyses, the Staff should consider taking the opportunity to examine the sensitivity of this input by scaling up the VALWNF dollar values, if appropriate.

The last additional economic input value that New York references is POPCST, which is defined as the per capita cost of temporary or permanent relocation of population and businesses in a region rendered uninhabitable during the modeled “long-term phase” period.<sup>162</sup> As described in the MACCS2 code User’s Guide, the value should be derived in a fashion that “takes account of both personal and corporate income losses for a transitional period as well as moving expenses.”<sup>163</sup> The parties here agreed that moving expenses would not contribute much to the value given that most of the belongings of relocated individuals would be contaminated and therefore would not be moved.<sup>164</sup> Apart from moving expenses, the rest (and most) of the value represents an average “personal income per day” multiplied by a “number of days of lost wages” considered appropriate.<sup>165</sup>

Dr. Bixler, for the Staff, described the POPCST value as a “one-time relocation cost,” to “account for [wage] losses” that would be incurred until “for example,

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<sup>159</sup> Ex. NYS000241, New York Testimony, at 61-62. DSRATE defines the expected rate of return from land, buildings, equipment, etc. DPRATE defines the property depreciation rate (from lack of habitation and maintenance), and FRNFIM defines the fraction of nonfarm wealth due to improvements. See LBP-13-13, 78 NRC at 459. The values for these cost categories also were taken from the “Sample Problem A” values outlined in the MACCS2 code User’s Guide and taken from the NUREG-1150 study. See *id.* at 459 & n.1479.

<sup>160</sup> See Tr. at 2212.

<sup>161</sup> See Ex. NYS000241, New York Testimony, at 58-59.

<sup>162</sup> See LBP-13-13, 78 NRC at 459. In the Indian Point SAMA analysis, the “long-term phase” begins following an initial 7-day “emergency phase” and extends 30 years.

<sup>163</sup> See Ex. NYS000243, MACCS2 User’s Guide, at 7-14.

<sup>164</sup> See Ex. NYS000241, New York Testimony, at 60; Tr. at 1974, 2213.

<sup>165</sup> See Tr. at 2213.

... a new job” were found.<sup>166</sup> The POPCST value used in the SAMA analysis is \$8640 per person. It is derived from a NUREG-1150 value of \$5000 per person, escalated by use of the Consumer Price Index to \$8640.<sup>167</sup> The value reflects a “per capita lost income of \$61.70/person-day” and an estimated unemployment period of 140 days (or 20 weeks).<sup>168</sup> The value is not intended to reflect a “permanent loss of salary,” but was described by Entergy expert Mr. Teagarden as a “disruption cost” that “reflects primarily a transition period of some loss of income for a period of time.”<sup>169</sup> Staff expert Mr. Jones stated the POPCST value is applied per person for anyone relocated, regardless of age or whether employed, and therefore would reflect a cost of “just over \$40,000” for a family of five.<sup>170</sup>

New York’s proposed higher range of POPCST values is based on the view that while “New York State unemployment benefits normally last 26 weeks (182 days),” unemployment benefits “extended to 93 weeks (651 days)” during the 2008 economic crisis.<sup>171</sup> New York’s proposed range of POPCST values — \$10,640 to \$49,857 per person — are based on a minimum of 140 days to a maximum of 651 days of unemployment benefits, and Dr. Lemay agreed an average value within that proposed range would be approximately \$25,000 per person.<sup>172</sup> New York’s proposed larger POPCST value is essentially an argument for a more conservative unemployment benefits time frame given that an “extended benefit” was provided “following the crash in 2008.”<sup>173</sup> New York does not show that the 140-day value used in the analysis is unreasonable or otherwise in error. In short, the Board’s failure to address these input values at most amounts to harmless error.

## B. Decontamination Levels

New York’s appeal additionally challenges the decontamination levels assumed in the Indian Point analysis. New York claims that Dr. Lemay’s benchmarking analysis calculations, “for the purposes of comparison . . . used the same decontamination factors as Entergy” (3 and 15), but that “Entergy’s values are

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<sup>166</sup> See Tr. at 1972-73.

<sup>167</sup> See Ex. ENT000450, Entergy Testimony, at 125 (citing description of value in NUREG/CR-4551). NUREG/CR-4551 explains how the NUREG-1150 value of \$5000 was derived. It is mostly based on a \$14,600 per capita income value from 1986, and the assumption of 140 days of lost wages. See *id.*; Ex. NYS00248, NUREG/CR-4551, at 5-3.

<sup>168</sup> See Ex. ENT000450, Entergy Testimony, at 125; Tr. at 1975, 2213.

<sup>169</sup> Tr. at 1979.

<sup>170</sup> Tr. at 1972.

<sup>171</sup> See Ex. NYS000241, New York Testimony, at 60; Tr. at 2213-14.

<sup>172</sup> Tr. at 2213-14.

<sup>173</sup> Tr. at 2214.

likely unrealistic.”<sup>174</sup> New York argues that “real world experience demonstrates that decontamination of an entire building to a level greater than 10, i.e., 90%, may not be possible or realistic” at all to achieve.<sup>175</sup> But the Staff and Entergy provided evidence (including by Mr. Jones, who has decontamination work experience) that decontamination to a level of 15 potentially may be achievable with current decontamination technologies.<sup>176</sup> In the future, data from Fukushima will bring a greater understanding of decontamination methods and their effectiveness for different kinds of materials, and help to verify (or refute) these effectiveness assumptions, but we find that adequate evidence exists in the record for the values used.

### C. Other Costs the SAMA Analysis Does Not Consider

New York also argues that the Board’s decision failed to recognize that the MACCS2 code does not account for “all of the costs associated with a severe accident.”<sup>177</sup> New York further claims that there is “no requirement, regulatory or otherwise, that the MACCS2 code be used in a SAMA analysis.”<sup>178</sup> The NRC, however, has never represented that the SAMA analysis encompasses “the entirety of the environmental impacts that could realistically be associated with a severe reactor accident.”<sup>179</sup> Nor is the SAMA analysis intended to serve as the severe accident environmental impacts analysis for Indian Point, as we earlier stressed. The generic bounding environmental impacts analysis contained in the NRC’s License Renewal GEIS applies to Indian Point.

As a mitigation analysis, the SAMA cost-benefit analysis need not include every potential accident impact and cost conceivable. It is well known that the SAMA analysis does not include various categories of costs, including for example, hospitalization or other medical costs (the analysis instead assesses costs based on radiological dose the population receives), loss of tax revenues, deployment of the National Guard, and litigation expenses. NEPA requirements are “tempered by a practical rule of reason.”<sup>180</sup>

Further, New York’s arguments raise claims beyond the scope of the admitted contention. The Board admitted the contention “to the extent that it challenged the reasonableness of the “cost data for decontamination and clean up used in

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<sup>174</sup> Petition at 50.

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

<sup>176</sup> See, e.g., Ex. NRC000041, Staff Testimony, at 43-44; Ex. ENT000450, Entergy Testimony, at 71.

<sup>177</sup> See Petition at 51.

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

<sup>179</sup> See *id.* at 52.

<sup>180</sup> See *Pilgrim*, CLI-10-22, 72 NRC at 208 (citation omitted).



MACCS2.”<sup>181</sup> And as to use of the code, Dr. Lemay stressed that “use of the MACCS2 code is not in question,” and “it’s the right tool for doing this job.”<sup>182</sup>

#### **IV. NEW YORK’S PETITION FOR REVIEW OF APRIL 1, 2014 DECISION**

We also have before us New York’s petition for review of the Board’s April 1 decision.<sup>183</sup> New York sought to have the Board reopen the record on NYS-12C and reconsider its decision in LBP-13-13 based on the Staff having used a 365-day decontamination time (for both light and heavy decontamination levels) in a spent fuel pool consequence study that was issued in 2013.<sup>184</sup> New York claimed that the Staff’s use of the 365-day period contradicted the Staff’s testimony regarding a standard and ongoing practice of using the 60-day and 120-day decontamination time values. The Board denied New York’s motion, concluding that New York’s claims likely would not have led the Board to reach a materially different result.<sup>185</sup>

In seeking our review, New York’s petition calls the Board’s April 1, 2014 order “inextricably linked to, and part of, the Partial Initial Decision.”<sup>186</sup> Among other claims, New York argues that the Board overlooked New York’s evidence that using a “365 day TIMDEC for the four most severe accidents Entergy modeled (while maintaining Entergy’s values for all other parameters) would almost double the offsite economic cost risk.”<sup>187</sup> While we granted review of both related Board decisions, we need not reach the various arguments on the Board’s April 1, 2014 decision. Our decision already encompasses New York’s principal arguments on the TIMDEC values, which New York reiterates in its second petition for review.<sup>188</sup> Here, it is undisputed that the Staff used a 365-day TIMDEC value in the spent fuel pool consequence study. That fact is not material to our conclusions relating to the Board’s decision in LBP-13-13. Reopening the record on Contention NYS-12C is unwarranted given the conclusions we reach today.

We conclude with two comments. First, our decision today is not about flyspecking. It is instead about responding with appropriate scrutiny and reasoned

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<sup>181</sup> See LBP-13-13, 78 NRC at 451.

<sup>182</sup> See Tr. at 2175.

<sup>183</sup> See Petition for Review of April 1, 2014 Board Decision.

<sup>184</sup> See State of New York Motion to Reopen the Record and for Reconsideration on Contention NYS-12C (Dec. 7, 2013).

<sup>185</sup> See Order (Denying New York’s Motion to Reopen the Record; Setting Deadline for New or Amended Contention) (Apr. 1, 2014) (ADAMS Accession No. ML14091A319) (unpublished) at 3.

<sup>186</sup> Petition for Review of April 1, 2014 Board Decision at 12.

<sup>187</sup> See *id.* at 16.

<sup>188</sup> See *id.* at 5-8.

explanations to “opposing views,”<sup>189</sup> which includes being able to explain and make available underlying assumptions in our environmental analyses. Second, while the sensitivity analyses we direct the Staff to provide may identify additional potentially cost-beneficial mitigation measures, these would be additional *alternatives* for consideration to further reduce risk. NEPA does not require that a “mitigation plan be actually formulated and adopted.”<sup>190</sup> NEPA seeks to “guarantee process,” not any “specific outcomes.”<sup>191</sup>

## V. CONCLUSION

With respect to Contention NYS-12C, we *reverse* the Board’s decision in LBP-13-13 in regard to the TIMDEC and CDNFRM input values, and direct the Staff to run sensitivity analyses for those values, as indicated. New York’s petition for review of the Board’s April 1, 2014 decision is *denied*. Our decision today becomes part of, and serves to supplement, the environmental record of decision for this matter.<sup>192</sup>

IT IS SO ORDERED.<sup>193</sup>

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 4th day of May 2016.

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<sup>189</sup> See 10 C.F.R. § 51.91(b).

<sup>190</sup> *Robertson v. Methow Valley*, 490 U.S. 332, 352 (1989).

<sup>191</sup> *Massachusetts v. NRC*, 708 F.3d at 78. NEPA does not, for example, require agencies or third parties to effect mitigation measures. See, e.g., *Theodore Roosevelt Conservation Partnership v. Salazar*, 616 F.3d 497, 503 (D.C. Cir. 2010) (quoting *Citizens Against Burlington*, 938 F.2d at 206).

<sup>192</sup> See, e.g., *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-06-15, 63 NRC 687, 707 n.91 (2006).

<sup>193</sup> Chairman Burns did not participate in this matter.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Michael M. Gibson**, Chairman  
**Dr. Michael F. Kennedy**  
**Dr. William W. Sager**

**In the Matter of**

**Docket Nos. 50-250-LA  
50-251-LA  
(ASLBP No. 15-935-02-LA-BD01)**

**FLORIDA POWER & LIGHT  
COMPANY  
(Turkey Point Nuclear Generating  
Plant, Units 3 and 4)**

**May 16, 2016**

The Licensing Board denies the City of Miami's motion to reopen the record for failing to satisfy 10 C.F.R. § 2.326(a)(1) & (b). The Licensing Board also denies as untimely Miami's alternative request to participate as an interested government entity.

**RULES OF PRACTICE: LATE-FILED CONTENTIONS; MOTION  
TO REOPEN THE RECORD**

Motions to reopen a proceeding to introduce a contention not previously in controversy among the parties must satisfy a number of different regulatory factors set forth in 10 C.F.R. §§ 2.326, 2.309(c), and 2.309(f)(1).

**MOTIONS TO REOPEN THE RECORD**

Given the importance of finality in adjudicatory proceedings, the Commis-

sion's rules "place an intentionally heavy burden on parties seeking to reopen the record." *Tennessee Valley Authority* (Watts Bar Nuclear Plant, Unit 2), CLI-15-19, 82 NRC 151, 155 (2015).

### **MOTIONS TO REOPEN THE RECORD**

Pursuant to 10 C.F.R. § 2.326(a), a motion to reopen must (1) be timely; (2) address a significant safety or environmental issue; and (3) demonstrate that a materially different result would be, or would have been, likely had the newly proffered evidence been considered initially.

### **MOTIONS TO REOPEN THE RECORD: TIMELINESS**

Section 2.326(a)(1) of 10 C.F.R. allows a discretionary exception to the timeliness requirement if the motion presents "an exceptionally grave issue." This exception is narrow and will be granted only in extraordinary circumstances.

### **MOTIONS TO REOPEN THE RECORD: ACCOMPANYING AFFIDAVIT(S)**

Under 10 C.F.R. § 2.326(b), a motion to reopen must be accompanied by "affidavits that set forth the factual and/or technical bases for the movant's claim." Such affidavits must separately address each of the criteria in 10 C.F.R. § 2.326(a), along "with a specific explanation of why it has been met."

### **RULES OF PRACTICE: NONTIMELY INTERVENTION**

An eleventh-hour petition to participate as an interested government entity will be denied as untimely if it is filed after the evidentiary record is closed and on the eve of the Licensing Board's decision. *See Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-20, 24 NRC 518, 519 (1986).

## **MEMORANDUM AND ORDER**

### **(Denying Motion to Reopen and Dismissing Intervention Petition)**

Before the Licensing Board are motions by the City of Miami (Miami) to reopen the record and for leave to file three new contentions.<sup>1</sup> In the alternative,

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<sup>1</sup> Petition by the City of Miami, Florida, for Leave to Intervene in a Hearing on Florida Power & Light Company's License Amendment Application for Turkey Point Units 3 & 4 Based on New Information, or, in the Alternative, to Participate as a Non-party Interested Local Government in Any Reopened Proceedings & Motion to Reopen the Record (Apr. 6, 2016) [hereinafter *Motions*].

Miami asks to participate in the proceeding as an interested local governmental body pursuant to 10 C.F.R. § 2.315(c).<sup>2</sup> Because Miami has failed to satisfy the stringent requirements established by the Commission for reopening a closed record, we deny Miami's motion to reopen and as such need not reach its motion to admit new contentions. Additionally, with the record remaining closed regarding the sole admitted contention in this proceeding, we deny Miami's request to participate as an interested governmental entity.

## I. BACKGROUND

This proceeding concerns license amendments the Nuclear Regulatory Commission (NRC) issued to Florida Power & Light Company (FPL). The amendments increase the ultimate heat sink water temperature limit for the cooling canal system at Turkey Point Nuclear Generating Units 3 and 4. The background is set forth in detail in earlier Licensing Board orders.<sup>3</sup>

After a 2-day evidentiary hearing in mid-January 2016 on the sole admitted contention proffered by intervenor Citizens Allied for Safe Energy (CASE),<sup>4</sup> the Board closed the record on February 17, 2016.<sup>5</sup> On March 11, 2016, the Board issued an order clarifying that a March 7, 2016 report by Miami-Dade County concerning an alleged increase in tritium in Biscayne Bay was not within the scope of the existing contention, and that the issue could come before us only as a new contention.<sup>6</sup> On April 6, 2016, Miami moved to reopen the record and for leave to file three new contentions.<sup>7</sup> In the alternative, Miami petitioned to

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<sup>2</sup>*Id.* at 18. Section 2.315(c) provides that the presiding officer will afford an interested local governmental body that has not otherwise been admitted as a party to the proceeding a reasonable opportunity to participate in a hearing. 10 C.F.R. § 2.315(c).

<sup>3</sup>*See, e.g.*, LBP-15-13, 81 NRC 456, 459-61, *aff'd*, CLI-15-25, 82 NRC 389, 407 (2015); *see also* Notice of Hearing, 80 Fed. Reg. 76,324, 76,324 (Dec. 8, 2015).

<sup>4</sup>*See* Tr. at 259-571.

<sup>5</sup>Licensing Board Order (Adopting Transcript Corrections and Closing Evidentiary Record) (Feb. 17, 2016) at 2 (unpublished).

<sup>6</sup>Licensing Board Order (Clarifying Scope of Proposed Findings of Fact and Conclusions of Law and Amending Initial Scheduling Order) (Mar. 11, 2016) at 1, 4 (unpublished) [hereinafter March 11, 2016 Order] (citing Memorandum from Carlos A. Gimenez, Mayor of Miami-Dade County, to Honorable Chairman Jean Monestime and Members, Board of County Commissioners (Mar. 7, 2016), <http://www.miamidade.gov/mayor/library/memos-and-reports/2016/03/03.07.16-Report-on-Recent-Biscayne-Bay-Water-Quality-Observations.pdf>).

<sup>7</sup>Motions at 1, 3-13, 16-18.

participate as an interested government entity.<sup>8</sup> FPL and the NRC Staff oppose Miami's motions.<sup>9</sup>

## II. DISCUSSION

### A. Miami's Motion to Reopen and Proffered Contentions

Miami seeks to reopen the evidentiary record of this proceeding and the admission of three contentions. In Contention One, Miami contends that, contrary to FPL's claims, the requested license amendments will not allow for greater operational flexibility.<sup>10</sup> In Contention Two, Miami asserts that the Environmental Assessment performed by the NRC Staff does not adequately consider the impact of the license amendments on groundwater resources.<sup>11</sup> In Contention Three, Miami challenges FPL's claim that algae concentrations reduced the heat transfer capabilities of the cooling canal system.<sup>12</sup>

### B. Legal Standards

In addition to other requirements,<sup>13</sup> motions to reopen a proceeding to introduce a contention not previously in controversy among the parties must satisfy 10 C.F.R. § 2.326. Pursuant to 10 C.F.R. § 2.326(a), a motion to reopen must (1) be timely; (2) address a significant safety or environmental issue; and (3) demonstrate that a materially different result would be, or would have been, likely had the newly proffered evidence been considered initially. The rule also allows a discretionary exception to its timeliness requirement if the motion presents "an

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<sup>8</sup> *Id.* at 18.

<sup>9</sup> NRC Staff's Answer to [Miami's] Motion to Reopen the Record, Petition for Leave to Intervene, and Request to Participate as a Non-Party Interested Local Government (May 2, 2016); [FPL's] Answer to [Miami's] Motion to Reopen the Record, Petition for Leave to Intervene, and Request to Participate as an Interested Local Government (May 2, 2016). Miami filed a reply to the FPL and NRC Staff Answers on May 9, 2016. [Miami's] Reply to the [NRC Staff] and [FPL's] Answers to the Petition by [Miami] for Leave to Intervene in a Hearing on [FPL's] License Amendment Application for Turkey Point Units 3 & 4 Based on New Information, or, in the Alternative, to Participate as a Non-party Interested Local Government in any Reopened Proceedings & Motion to Reopen the Record (May 9, 2016).

<sup>10</sup> Motions at 3-4.

<sup>11</sup> *Id.* at 7-8.

<sup>12</sup> *Id.* at 11.

<sup>13</sup> Section 2.309(c)(1) of 10 C.F.R. establishes requirements for any contention submitted after the deadline to request a hearing established by notice in the *Federal Register*. See also *id.* § 2.326(d). Section 2.309(f)(1) establishes the criteria that all contentions must meet to be admissible.

exceptionally grave issue.”<sup>14</sup> Additionally, under 10 C.F.R. § 2.326(b), a motion to reopen must be accompanied by “affidavits that set forth the factual and/or technical bases for the movant’s claim.” Such affidavits must separately address each of the criteria in 10 C.F.R. § 2.326(a), along “with a specific explanation of why it has been met.”<sup>15</sup>

Given the importance of finality in adjudicatory proceedings, the Commission’s rules “place an intentionally heavy burden on parties seeking to reopen the record.”<sup>16</sup> Otherwise, “‘there would be little hope’ of completing administrative proceedings if each newly arising allegation required an agency to reopen its hearings.”<sup>17</sup> Accordingly, the Commission “consider[s] reopening the record for any reason to be an extraordinary action.”<sup>18</sup>

### C. Board Ruling

Looking to the first reopening requirement, we conclude that Miami’s motion to reopen is untimely. In our March 11, 2016 order clarifying the present scope of this proceeding, the Board referenced a March 7, 2016 memorandum from Miami-Dade County that discussed an alleged increase in tritium in Biscayne Bay.<sup>19</sup> The Board specified that motions to reopen the record and to file new contentions based on this apparently new information should be filed on or before April 6, 2016 — i.e., 30 days after the March 7, 2016 memorandum was published.<sup>20</sup>

Miami filed its motions on April 6, 2016, but Miami’s motions discuss neither the March 7, 2016 memorandum nor the issue of increased levels of tritium in Biscayne Bay. Instead, Miami bases its three contentions entirely on a February 17, 2016 study entitled, “The Cooling-Canal System at the FPL Turkey Point Power Station,” by Dr. David A. Chin.<sup>21</sup>

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<sup>14</sup> *Id.* § 2.326(a)(1).

<sup>15</sup> *Id.* § 2.326(b).

<sup>16</sup> *Tennessee Valley Authority* (Watts Bar Nuclear Plant, Unit 2), CLI-15-19, 82 NRC 151, 155 (2015).

<sup>17</sup> *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-12, 61 NRC 345, 350 n.18 (2005) (quoting *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 555 (1978)).

<sup>18</sup> *Watts Bar*, CLI-15-19, 82 NRC at 156 (internal quotation marks omitted).

<sup>19</sup> March 11, 2016 Order at 1, 4 (citing Memorandum from Carlos A. Gimenez, Mayor of Miami-Dade County, to Honorable Chairman Jean Monestime and Members, Board of County Commissioners (Mar. 7, 2016), <http://www.miamidade.gov/mayor/library/memos-and-reports/2016/03/03.07.16-Report-on-Recent-Biscayne-Bay-Water-Quality-Observations.pdf>).

<sup>20</sup> *Id.* at 4.

<sup>21</sup> In its motion to reopen, Miami states that the Chin Study was published on March 7, 2016.

(Continued)

In support of its motion to reopen, Miami repeatedly claims that the Board “invited petitions to raise possible contentions with respect to the Chin Study.”<sup>22</sup> However, the Board never mentioned the Chin Study in any of its previous orders and certainly did not “invite” parties to file new contentions based on that study. Even if the Chin Study constituted significant new information, Miami should have filed its contentions by March 18, 2016, i.e., 30 days after the Chin Study was published.<sup>23</sup>

Moreover, the Chin Study also fails to fulfill the first reopening factor because it does not set forth information that is “materially different from what was previously available,”<sup>24</sup> as demonstrated by the fact that Miami’s second proposed contention is essentially identical to the contention already admitted in this proceeding.<sup>25</sup> Specifically, both contentions point to the migration of hypersaline water from the cooling canals into the surrounding groundwater as a basis for challenging the NRC Staff’s conclusion in the Environmental Assessment that the license amendments will not have a significant environmental impact on groundwater resources.<sup>26</sup> The Chin Study does not present new information on

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Motions at 14. However, Exhibit B to Miami’s motions, which contains the Chin Study, is dated February 17, 2016. Motions, Ex. B, Dr. David A. Chin, The Cooling-Canal System at FPL Turkey Point Power Station (Feb. 17, 2016) [hereinafter Chin Study].

<sup>22</sup> See Motions at 1, 4, 8, 12.

<sup>23</sup> See March 11, 2016 Order at 3 (amending the initial scheduling order to require that parties file new or amended contentions within 30 days from the date on which the new information became available).

<sup>24</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-21, 76 NRC 491, 498 (2012).

<sup>25</sup> Compare LBP-15-13, 81 NRC at 476 (“[T]he Board admits *Contention 1*, narrowed and reformulated to read as follows: The NRC’s environmental assessment, in support of its finding of no significant impact related to the 2014 Turkey Point Units 3 and 4 license amendments, does not adequately address the impact of increased temperature and salinity in the [cooling canal system (CCS)] on saltwater intrusion arising from (1) migration out of the CCS; and (2) the withdrawal of fresh water from surrounding aquifers to mitigate conditions within the CCS.”), with Motions at 7-8 (“The Chin Study demonstrates that operation of the cooling canals at increased temperatures following the May 2013 uprate has caused a significant increase in evaporation and salinity concentrations within the canals, and that there is a resulting increase in the amounts of saline and radioactive effluent that have discharged from the canals into area ground and surface waters, including the Biscayne Aquifer . . . . Thus, the City challenges the NRC’s conclusion that the license amendment would have no significant impact on groundwater resources.”).

<sup>26</sup> See Motions at 7-11. In addition to its claims regarding saltwater migration, Miami also argues that an increase in the cooling canal system temperature “has been associated over time with . . . radioactive effluent leaching out of the canals and into area ground and surface waters.” *Id.* at 8. However, Miami neither explains what it means by “radioactive effluent” nor provides any support for its assertion. In fact, in the 2014 Environmental Assessment, the NRC Staff addressed whether the license amendments would result in higher radioactive effluent releases. See Environmental

(Continued)



saltwater migration that is materially different from the publicly available sources that have already been examined in the course of this proceeding.<sup>27</sup> As the Commission has made clear, “[t]here simply would be no end to NRC licensing proceedings if petitioners could disregard our timeliness requirements and add new contentions at their convenience during the course of a proceeding based on information that could have formed the basis for a timely contention at the outset of the proceeding.”<sup>28</sup>

Miami’s other two contentions challenge FPL’s assertions regarding the necessity of the license amendments for operational flexibility and the impacts of algae in the cooling canals.<sup>29</sup> Essentially, Miami challenges the accuracy of statements made in FPL’s license amendment application.<sup>30</sup> However, Miami failed to demonstrate that it could not have raised these issues regarding the content of FPL’s application as a timely challenge when FPL first requested the license amendments in 2014.<sup>31</sup> Moreover, the time to raise a challenge to the accuracy of FPL’s application is well past, considering that the NRC Staff has since granted

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Assessment and Final Finding of No Significant Impact, Issuance, 79 Fed. Reg. 44,464, 44,467 (July 31, 2014) (“The proposed action would result in no changes to radiation levels or the types or quantities of radioactive effluents (gaseous or liquid) that affect radiation exposures to members of the public or plant workers.”); *see also id.* at 44,469 (“The NRC staff reviewed several years of radiation dose data contained in the licensee’s annual radioactive effluent release reports for Turkey Point, and the data demonstrate that the dose to members of the public from radioactive effluents is within the limits of 10 CFR part 20 and 40 CFR part 190.”). Nothing in Miami’s motion to reopen calls into question this analysis. Moreover, even if we were to construe Miami’s vague use of “radioactive effluent” to allege an increase in tritium, the Chin Study, upon which Miami’s motion is based, only discusses tritium in the context of using it to trace the extent of saltwater migration from the cooling canals into the Biscayne Aquifer. *See* Chin Study at 2, 12. Consequently, Miami has failed to show how its vague and unsupported allegation that the license amendments will lead to an increased release of “radioactive effluent” presents information that is materially different from what was previously available.

<sup>27</sup> *See, e.g.*, Ex. FPL-026, Letter from Melissa L. Meeker, Executive Director, South Florida Water Management District, to Barbara Linkiewicz, Senior Director, Environmental Licensing & Permitting, FPL & NextEra Energy Resources, Consultation Pursuant to the October 14, 2009 Fifth Supplemental Agreement between South Florida Water Management District and [FPL] at 1 (Apr. 16, 2013) (notifying FPL that hypersaline water from the cooling canals had migrated westward of the Turkey Point plant in violation of FPL’s agreement with local regulatory authorities).

<sup>28</sup> *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 272 (2009) (footnotes and internal quotation marks omitted).

<sup>29</sup> Motions at 3-4, 11.

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

<sup>31</sup> *See* Ex. FPL-008, Letter from Michael Kiley, Vice President, Turkey Point Nuclear Plant, to NRC, License Amendment Request No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit (July 10, 2014).

the license amendments and published its Environmental Assessment.<sup>32</sup> Given the well-settled precept that petitioners have an “iron-clad obligation to examine the publicly available documentary material . . . with sufficient care to enable it to uncover any information that could serve as the foundation for a specific contention,”<sup>33</sup> these contentions cannot provide the basis for a timely reopening request. Moreover, as we noted above, because Miami has not shown how the Chin Study provides materially different information, this recent publication does not excuse Miami from waiting until now to seek to reopen the record so as to bring its contentions into this proceeding.

Nor has Miami shown that the untimeliness of its motion to reopen should be excused on the theory that it has raised an “exceptionally grave issue.”<sup>34</sup> With respect to Contention One, Miami argues that the license amendments were a “futile exercise” because FPL would need to operate at even higher temperatures to achieve operational flexibility.<sup>35</sup> When FPL applied for the license amendments, the ultimate heat sink temperature limit was 100 degrees Fahrenheit, a limit FPL had already approached and exceeded in the month prior to the issuance of the amendments.<sup>36</sup> Thus, the NRC Staff determined the proposed license amendments were needed to prevent FPL from having to place Units 3 and 4 in cold shutdown.<sup>37</sup> Nothing in Miami’s motion to reopen calls into question the NRC Staff’s analysis in the Environmental Assessment of the need for the license amendments. Nor do we find anything in Contention Two that meets this standard, particularly given that it simply mirrors an issue already before us.

Finally, with respect to Contention Three, Miami asserts that FPL’s claim that reducing algae in the cooling canals will improve the canal’s heat transfer capabilities is “unsupported.”<sup>38</sup> However, Miami fails to tie this assertion to any deficiency in the NRC Staff’s environmental review. The Commission has made clear that the exceptionally grave issue provision is a “narrow exception [and] will be granted rarely and only in truly extraordinary circumstances.”<sup>39</sup> The

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<sup>32</sup> See *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), LBP-12-11, 75 NRC 731, 737 (2012) (“To the extent Petitioners criticize the accuracy of statements in Entergy’s [Environmental Report], the time for challenging the [Environmental Report] passed when the NRC Staff released its draft supplemental [Environmental Impact Statement].”).

<sup>33</sup> *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 496 (2010) (quoting *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), CLI-93-3, 37 NRC 135, 147 (1993)).

<sup>34</sup> The reopening rule permits the consideration of an “exceptionally grave issue even if it is untimely presented.” 10 C.F.R. § 2.326(a)(1).

<sup>35</sup> Motions at 7.

<sup>36</sup> 79 Fed. Reg. at 44,466.

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

<sup>38</sup> Motions at 11.

<sup>39</sup> *Pilgrim*, CLI-12-21, 76 NRC at 501 n.67 (internal quotation marks omitted).

issues raised in Miami's proffered contentions clearly do not reach the level of extraordinary circumstances.

While the reopening motion's untimeliness alone is fatal,<sup>40</sup> Miami also fails to satisfy the affidavit requirements of 10 C.F.R. § 2.326(b). Under that subsection, a motion to reopen the record must be accompanied by affidavits that specifically address the criteria of 10 C.F.R. § 2.326(a) and explain why each has been met.<sup>41</sup> However, because the affidavit of Dr. Chin does not even mention the reopening standards in section 2.326(a),<sup>42</sup> it fails to satisfy the requirements of section 2.326(b).<sup>43</sup> This Board is not empowered to rehabilitate that failure. As the Commission has stated, "[w]e do not expect boards to search the pleadings for information that would satisfy our reopening requirements."<sup>44</sup> Accordingly, the failure of Dr. Chin's affidavit to address the reopening criteria is fatal to Miami's reopening request as well.<sup>45</sup>

Because Miami's motion to reopen this proceeding fails to satisfy 10 C.F.R. §§ 2.326(a)(1) and (b), we find it unnecessary to analyze any of the other regulatory requirements applicable to Miami's intervention request. Miami's motion to reopen the record is denied.

#### **D. Petition to Participate as an Interested Government Entity**

Miami requests permission to participate in this proceeding as an interested local government body pursuant to 10 C.F.R. § 2.315(c) if its contentions are deemed inadmissible, and "if the Board reopens the proceedings to consider any new contentions submitted by any other party."<sup>46</sup> Given that the record remains closed in this proceeding, the Board denies Miami's request. Because the Board

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<sup>40</sup> See *id.* at 498-99, 502.

<sup>41</sup> 10 C.F.R. § 2.326(b).

<sup>42</sup> Dr. Chin's statement merely provides that he is "responsible for the factual content and expert opinions expressed in Petitioner's contentions." Motions, Ex. A, Decl. of Dr. David A. Chin in Support of [Miami's] Contentions at 2 (Apr. 6, 2016).

<sup>43</sup> See *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-3, 75 NRC 132, 145 n.86 (2012) (noting that an affidavit that merely states that the declarant has "read and reviewed the . . . contention and fully support[s] all [of] its statements" fails to meet the affidavit requirements in 10 C.F.R. § 2.326(b)).

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

<sup>45</sup> See *Southern Nuclear Operating Co.* (Vogtle Electric Generating Plant, Units 3 and 4), CLI-11-8, 74 NRC 214, 222 (2011) ("The August 2010 Pleading could have been rejected solely on the basis of the Appellants' failure to comply fully with section 2.326(b).").

<sup>46</sup> Motions at 18.

has already held a hearing on the sole admitted contention in this proceeding, Miami's request to participate is untimely.<sup>47</sup>

Although Miami is thus not a participant in this proceeding, it may, in the Commission's discretion, file an amicus brief pursuant to 10 C.F.R. § 2.315(d) should there be an appeal from the Board's forthcoming initial decision on CASE Contention One.<sup>48</sup> In addition, Miami may raise concerns about current or ongoing safety deficiencies at the Turkey Point plant at any time through a 10 C.F.R. § 2.206 petition.<sup>49</sup>

### III. ORDER

For the reasons stated, Miami's request to reopen the record is denied and the Board need not address the sufficiency of the motion to admit three new contentions. Miami's alternative request to participate as an interested government entity is denied as well. The record of this adjudicatory proceeding remains closed. Miami may file an appeal from this Memorandum and Order within twenty-five (25) days of service of this decision by filing a notice of appeal and an accompanying supporting brief pursuant to 10 C.F.R. § 2.311(b). Any party opposing an appeal may file a brief in opposition to the appeal. All briefs must conform to the requirements of 10 C.F.R. § 2.341(c)(3).

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<sup>47</sup> See *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-20, 24 NRC 518, 519 (1986), *aff'd sub nom. Ohio v. NRC*, 814 F.2d 258 (6th Cir. 1987) (denying a state's petition to intervene as an interested governmental entity as untimely when the state's petition was filed after the close of the adjudicatory record and on the eve of the Commission's licensing decision); see also *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-600, 12 NRC 3, 8 (1980) ("A tardy petitioner with no good excuse may be required to take the proceeding as it finds it."). We note also that, in addition to the absence of any request to participate as an interested governmental entity relative to CASE's admitted Contention One, the time for filing proposed findings of fact and conclusions of law had already passed when Miami submitted its request.

<sup>48</sup> See 10 C.F.R. § 2.315(d); see also *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-583, 11 NRC 447, 449 (1980).

<sup>49</sup> See *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-15-20, 82 NRC 211, 230 (2015) ("[S]ection 2.206 provides a process for stakeholders to advance concerns and obtain full or partial relief, or written reasons why the requested relief is not warranted.") (internal quotation marks omitted).

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Michael M. Gibson, Chairman  
ADMINISTRATIVE JUDGE

Dr. Michael F. Kennedy  
ADMINISTRATIVE JUDGE

Dr. William W. Sager  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
May 16, 2016

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Michael M. Gibson**, Chairman  
**Dr. Richard E. Wardwell**  
**Brian K. Hajek**

**In the Matter of**

**Docket No. 40-8943**  
**(ASLBP No. 08-867-02-OLA-BD01)**  
**(License Renewal)**

**CROW BUTTE RESOURCES, INC.**  
**(In Situ Leach Facility, Crawford,**  
**Nebraska)**

**May 26, 2016**

On November 27, 2007, Crow Butte Resources, Inc. (“Crow Butte”) timely filed to renew its Source Materials License for continued operation of its in situ leach uranium recovery facility near Crawford, Nebraska. Several Intervenor challenged Crow Butte’s license renewal application, and the Board admitted a number of contentions. In Contention 1, the Intervenor challenged the adequacy of the NRC’s Environmental Assessment (“EA”) with respect to the EA’s review of Traditional Cultural Properties (“TCPs”) in the license area and the NRC Staff’s consultation with Indian tribes regarding those TCPs. In this Partial Initial Decision addressing only Contention 1, the Board concluded that the cultural surveys the NRC Staff performed and incorporated into the EA did not receive the “hard look” required by the National Environmental Policy Act (“NEPA”) and failed to comply with the NRC Staff’s “Identification Obligations” under the National Historic Preservation Act (“NHPA”).

### **NEPA: HARD LOOK; NRC RESPONSIBILITY**

While NEPA does not create a substantive requirement that a federal agency affirmatively limit the environmental harms of its actions, NEPA's "hard look" requires informed and reasoned decisionmaking in which the agency "obtains opinions from its own experts, obtains opinions from experts outside the agency, gives careful scientific scrutiny and responds to all legitimate concerns that are raised." *Hughes River Watershed Conservancy v. Johnson*, 165 F.3d 283, 288 (4th Cir. 1999).

### **NEPA: RECORD OF DECISION**

Where an adjudicatory hearing tests the adequacy of an EA or Environmental Impact Statement ("EIS"), evidence adduced at the hearing may cure a defective NEPA document — because in contested proceedings with a hearing, a licensing board creates the final record of decision under NEPA, i.e., the entire adjudicatory record in addition to the EA or EIS.

### **NEPA: RECORD OF DECISION**

Even where the contested hearing's record of decision supplements a deficient factual analysis in an EA or EIS, if the end result raises other questions about the sufficiency of the NRC Staff's analysis that should be explored under NEPA, a remand to the NRC Staff would be required to address all such NEPA concerns.

### **NHPA: REASONABLE AND GOOD FAITH EFFORT**

Section 106 of the NHPA requires a federal agency to make a "reasonable and good faith effort" to (1) identify historic properties; (2) evaluate the significance of those properties using the criteria for listing within the National Register of Historic Places ("National Register"); (3) assess any potential effects of the undertaking on important aspects of those properties; and (4) avoid or mitigate any adverse effects that are identified (collectively "Identification Obligations").

### **NHPA: NATIONAL REGISTER**

There are four basic criteria identified in 36 C.F.R. § 60.4(a) for placing historic properties on the National Register: (1) whether the item is associated with significant contributions to history; (2) whether the item is associated with the lives of important people; (3) whether the item embodies distinguishable characteristics of a particular art, place, or period; or (4) whether the item yields information important in prehistory or history.

#### **NHPA: TRIBAL CONSULTATION**

Agency consultation with Indian tribes under the NHPA must provide each Indian tribe with “a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking’s effects on such properties, and participate in the resolution of adverse effects.” 36 C.F.R. § 800.2(c)(2)(ii). The NHPA further requires that consultation efforts “recognize the government-to-government relationship between the Federal Government and Indian tribes.” *Id.*

#### **NHPA: TRIBAL CONSULTATION**

In determining whether a particular federal agency has complied with obligations to consult with Indian tribes under the NHPA, it is necessary to examine: (1) whether the agency provided an affected Indian tribe with a “reasonable opportunity” to identify its concerns about the preservation of historic properties and to advise the agency on the identification and protection of any such historic properties; (2) whether consultation between the agency and the affected tribe was conducted in a meaningful, accountable, and timely process; and (3) whether the process recognized the “government-to-government” relationship between the agency and the affected tribe. 36 C.F.R. § 800.2(c)(2)(ii).

#### **NHPA: ADEQUACY OF TRIBAL CONSULTATION**

A 3-day event that was merely intended to be an introductory meeting did not afford the impacted tribes with a meaningful opportunity to assist in, or share their perspectives regarding, the identification and evaluation of historic properties within the license area.

#### **NHPA: ADEQUACY OF TRIBAL CONSULTATION**

The government-to-government consultation requirements under the NHPA are not met if the focus does not remain on substantive consultations between equivalent levels of NRC Staff management and Tribal executives. A letter at the start of the consultation process from a Division Director is insufficient in itself to satisfy the government-to-government consultation requirements under the NHPA.

#### **NHPA: ADEQUACY OF TRIBAL CONSULTATION**

Providing a draft EA to a state Department of Environmental Quality, but not



to the affected Indian tribe, fails to accord the Tribe its proper status as a sovereign entity or a meaningful and equal participant.

**RULES OF PRACTICE: BURDEN OF PROOF**

The Commission has made clear that the parties are responsible for ensuring there is sufficient evidence on the record to meet their respective burdens. And at the hearing phase, the NRC Staff is the party with the burden of proof.

**RULES OF PRACTICE: BURDEN OF PROOF; MANDATORY DISCLOSURES**

Because the NRC Staff did not provide certain documents to the opposing parties as part of its required monthly disclosure obligations, the NRC Staff may not rely on those documents in support of its burden of proof.

**NHPA: TRIBAL CONSULTATION**

The NHPA does not empower an Indian tribe to delay or stall a licensing proceeding.

**NHPA: IDENTIFICATION OF TRADITIONAL CULTURAL PROPERTIES**

As stated in National Register Bulletin 38, and as adopted by the courts, “a reasonable effort to identify traditional cultural properties ‘depends in part on the likelihood that such properties may be present.’” *Pueblo of Sandia v. United States*, 50 F.3d 856, 861 (10th Cir. 1995). An area steeped in history calls for greater scrutiny of the license area, not less.

**NHPA: IDENTIFICATION OF TRADITIONAL CULTURAL PROPERTIES**

In order to make a reasonable and good faith effort at identifying TCPs, federal agencies must consult with qualified individuals with a demonstrated familiarity with the range of potentially historic properties that may be encountered, as well as with their characteristics. Indian tribes possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them.

## **NHPA: IDENTIFICATION OF TRADITIONAL CULTURAL PROPERTIES**

A decades-old Class III survey of the license area, performed under a substantively different version of the NHPA and supplemented by a contemporary literature review and brief interviews with historians or archeologists inexperienced with Lakota TCPs, fails to satisfy the NHPA's requirement to identify and protect Indian-origin historic properties.

## **NRC: ENVIRONMENTAL RESPONSIBILITIES**

While the use of contractors is by no means prohibited under NEPA, a federal agency cannot impermissibly delegate important NHPA administrative determinations to private parties. *See U.S. Telecom Ass'n v. Federal Communications Commission*, 359 F.3d 554, 568 (D.C. Cir. 2004).

## **EVIDENCE**

Licensing boards are not bound by formal rules of evidence, and Congress specifically created licensing boards to serve as a panel of experts that brings all of the accumulated knowledge possessed by both technical members to bear on the questions before it.

## **LICENSING BOARD(S): BOARD EXHIBITS**

By introducing potentially relevant background information in Board exhibits, the Board ensured that this information is easily available for public and appellate review, fulfilling the spirit of NEPA's disclosure goals and the NRC's transparency requirements.

## **RULES OF PRACTICE: TESTIMONY**

Sworn testimony from previous related proceedings may be admitted where the same witness appears in the current proceeding or when a witness passes before the hearing commences.

## **REMEDIES: INJUNCTION**

Where an agency fails to comply with procedural statutes such as NEPA or the NHPA, an injunction is sometimes the proper recourse.

## REMEDIES: INJUNCTION

The United States Supreme Court has made clear that such injunctive relief is only warranted when the traditional test justifying it is met, i.e.,

(1) that [Intervenors have] suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between [Intervenors] and [Crow Butte], a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction. *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 156-57 (2010).

## REMEDIES: INJUNCTION

Monetary remedies are not possible in the NRC licensing context, and a failure to comply with NEPA presumptively implies environmental harms that money cannot fix.

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## PARTIAL INITIAL DECISION

### I. INTRODUCTION

This adjudicatory proceeding arises from a challenge to the application of Crow Butte Resources, Inc. (“Crow Butte”) to renew its Source Materials License No. SUA-1534 for continued operation of its in situ leach (“ISL”) uranium recovery facility near Crawford, Nebraska.<sup>1</sup> Crow Butte’s original materials license was issued in 1988.<sup>2</sup> Thereafter, Crow Butte sought renewal of this license in 1995, which the NRC Staff granted in 1998 for an additional 10-year term.<sup>3</sup>

#### A. Procedural History

On November 27, 2007, 3 months before its renewed license was set to expire, Crow Butte timely filed the instant license renewal application (“LRA”), seeking another 10-year renewal of its license.<sup>4</sup> On March 28, 2008, the NRC Staff accepted the LRA for technical review, and on May 27, 2008, a notice of opportunity for a hearing to contest the LRA was published in the *Federal*

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<sup>1</sup> Ex. CBR-011, Application for 2007 License Renewal USNRC Source Materials License SUA-1534 Crow Butte License Area (Nov. 27, 2007) [hereinafter “LRA”]. Documents relating to this proceeding are available for public inspection electronically on the NRC’s Electronic Hearing Docket (“EHD”) at <https://adams.nrc.gov/ehd>. For additional information regarding the EHD please see <http://www.nrc.gov/about-nrc/regulatory/adjudicatory.html#ehd> or contact the NRC Public Document Room reference staff by e-mail addressed to [pdr@nrc.gov](mailto:pdr@nrc.gov) or by telephone at (800) 397-4209 or (301) 415-4737. Reference staff are available Monday through Friday between 8:00 AM and 4:00 PM ET, except federal holidays. For additional information regarding the NRC Public Document Room please see <http://www.nrc.gov/reading-rm/pdr.html>. For documents that are not available on EHD, we provide in the citation “ADAMS Accession” numbers, which are unique document identifiers.

<sup>2</sup> See LBP-15-11, 81 NRC 401, 404 (2015).

<sup>3</sup> Ex. NRC-009, Safety Evaluation Report (Revised), License Renewal of the Crow Butte Resources ISR Facility Dawes County, Nebraska Materials License No. SUA-1534, at 10 (Aug. 2014) [hereinafter “SER”].

<sup>4</sup> LRA at 1; LBP-08-24, 68 NRC 691, 699 (2008).

*Register*.<sup>5</sup> On July 28, 2008, three hearing requests were received in response to that notice.<sup>6</sup>

On August 15, 2008, this Board was established,<sup>7</sup> and on November 21, 2008, we ruled on the three petitions to intervene and requests for a hearing, admitting the Oglala Sioux Tribe (“Tribe”) and Consolidated Intervenors as intervenors (together “Intervenors”).<sup>8</sup> The third petitioner, the Great Sioux Nation Treaty Council, was not admitted as an intervenor, but rather as an interested local governmental body.<sup>9</sup> We admitted, and the Commission affirmed the admission of, four environmental<sup>10</sup> contentions proposed by Intervenors.<sup>11</sup>

Nearly 7 years later,<sup>12</sup> on October 27, 2014, the NRC Staff notified the Board and parties that it had completed its Environmental Assessment (“EA”) for the proposed license renewal.<sup>13</sup> Ten days after doing so, the NRC Staff notified the Board that it had issued a renewed license to Crow Butte with an expiration date of November 5, 2024.<sup>14</sup> Although the Intervenors requested a stay of the license, we declined to issue one.<sup>15</sup>

On January 5, 2015, Intervenors moved to admit several new contentions

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<sup>5</sup> Notice of Opportunity for Hearing, Crow Butte Resources, Inc., Crawford, NE, In Situ Leach Recovery Facility, 73 Fed. Reg. 30,426 (May 27, 2008).

<sup>6</sup> See Request for Hearing and/or Petition to Intervene, Oglala Sioux Tribe (July 28, 2008); Consolidated Request for Hearing and Petition for Leave to Intervene (July 28, 2008); Request for Hearing and Petition for Leave to Intervene, Oglala Delegation of the Great Sioux Nation Treaty Council (July 28, 2008).

<sup>7</sup> Establishment of Atomic Safety and Licensing Board (Aug. 15, 2008) (unpublished).

<sup>8</sup> LBP-08-24, 68 NRC at 698.

<sup>9</sup> *Id.* at 715.

<sup>10</sup> Although Contention F was affirmed by the Commission as a “[t]echnical” contention, it challenged the environmental aspects of Crow Butte’s LRA and was thus treated as an environmental contention. See CLI-09-9, 69 NRC 331, 357 (2009). The contention was later migrated as an environmental contention challenging the EA, without objection from the parties. See Tr. at 604-08.

<sup>11</sup> CLI-09-9, 69 NRC at 366; LBP-08-24, 68 NRC at 760.

<sup>12</sup> See LBP-15-2, 81 NRC 48, 59-61 (2015).

<sup>13</sup> Environmental Assessment Availability Notification, Letter from Marcia Simon, NRC Staff Counsel, to Administrative Judges (Oct. 27, 2014); Ex. NRC-010, Final Environmental Assessment for the License Renewal of U.S. Nuclear Regulatory Commission License No. SUA-1534 (Nov. 2014) [hereinafter “EA”].

<sup>14</sup> License Renewal Notification, Letter from Marcia Simon, NRC Staff Counsel, to Administrative Judges and Parties (Nov. 6, 2014). The renewed license was issued pursuant to 10 C.F.R. § 2.1202(a), which allows certain NRC license applications to be granted at the conclusion of the NRC Staff’s review process even though a hearing is pending. A license issued under these circumstances can be revoked, conditioned, modified, or affirmed, based on the evidence adduced at a licensing board evidentiary hearing. See *infra* notes 537-539.

<sup>15</sup> See LBP-15-2, 81 NRC at 58.

that challenged the analyses performed in the EA.<sup>16</sup> After oral argument on the admissibility of those new contentions, we admitted five of them, and supplemented one of the four previously admitted contentions.<sup>17</sup> On March 16, 2015, Consolidated Intervenors moved to admit additional contentions based on the United States Environmental Protection Agency's proposed rulemaking on uranium ISL mining,<sup>18</sup> but we declined to admit those contentions.<sup>19</sup>

From August 24 through August 28, 2015, we held an evidentiary hearing using 10 C.F.R. Part 2, Subpart L procedures.<sup>20</sup> During this hearing, new information came to light that raised additional questions and so a supplemental day of hearing was held on October 23, 2015, with respect to those matters.<sup>21</sup> We closed the record regarding this proceeding on December 3, 2015.<sup>22</sup>

## **B. Contention 1 (Consultation & Tribal Cultural Properties)**

This Partial Initial Decision contains our ruling only with respect to Contention 1. This contention covers the adequacy of the EA's review of Traditional Cultural Properties ("TCPs")<sup>23</sup> in the license area<sup>24</sup> and the NRC Staff's consultation with Indian tribes regarding those TCPs. This Partial Initial Decision also contains the Board's resolution of the parties' objections and motions in limine insofar as they challenge evidence offered with respect to Contention 1.<sup>25</sup>

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<sup>16</sup> The Oglala Sioux Tribe's Renewed and New Contentions Based on the Final Environmental Assessment (October 2014) (Jan. 5, 2015); Consolidated Intervenors' New Contentions Based on the Final Environmental Assessment (October 2014) (Jan. 5, 2015).

<sup>17</sup> LBP-15-11, 81 NRC at 406, *petition for interlocutory review denied*, CLI-15-17, 82 NRC 33, 47 (2015).

<sup>18</sup> Consolidated Intervenors' Motion for Additional Contentions Based on [Environmental Protection Agency] Proposed Rules (Mar. 16, 2015).

<sup>19</sup> LBP-15-15, 81 NRC 598, 600 (2015).

<sup>20</sup> Tr. at 945-2375.

<sup>21</sup> Licensing Board Notice of Supplemental Hearing at 3 (Sept. 25, 2015) (unpublished); Tr. at 2404-2640.

<sup>22</sup> Licensing Board Order (Adopting Transcript Corrections and Closing Evidentiary Record) (Dec. 3, 2015) (unpublished).

<sup>23</sup> The subset of cultural resources that relate to Native American history and culture is addressed herein with the term "Traditional Cultural Properties," or "TCPs." Oglala Sioux Tribe and Consolidated Intervenors' Joint Filing of Proposed Findings of Fact and Conclusions of Law at 24 (Nov. 23, 2015); *see also* note 56 (defining "historic property").

<sup>24</sup> The LRA and the EA differ somewhat as to the exact size of the license area. LRA § 1.3; EA §§ 1.3, 2.1, 3.9. For the purposes of this Partial Initial Decision, we define the license area as the facility boundary described by Crow Butte, which appears to be 2875 acres. *See* LRA § 1.3.

<sup>25</sup> *See infra* Section IV. The remaining eight contentions (Contentions A, C, D, F, 6, 9, 12, and 14), as well as all challenges to the evidence offered on these contentions, will be resolved in a subsequent Partial Initial Decision.

Contention 1 states: “Whether the cultural surveys performed and incorporated into the EA formed a sufficient basis on which to renew Crow Butte’s permit.”<sup>26</sup> Intervenor’s contention is in essence a refiling of an earlier contention that was rejected by the Commission as premature: “Failure to Meet Applicable Legal Requirements Regarding Protection of Historical and Cultural Resources.”<sup>27</sup> In our order admitting Contention 1, we explained that its resolution would entail a determination of “whether there has been meaningful consultation with the Tribe [pursuant to the National Historic Preservation Act],” and “whether the cultural surveys performed and incorporated into the EA are not adequate support for the EA’s conclusions,”<sup>28</sup> thus implicating concerns under both the National Historic Preservation Act (“NHPA”)<sup>29</sup> and the National Environmental Policy Act (“NEPA”).<sup>30</sup> To address these complex questions, we heard testimony, received and examined documentary evidence, and considered the parties’ legal analyses covering all aspects of the consultation process, as well as the cultural survey process.

After a thorough review of the evidence regarding Contention 1, the Board finds that Contention 1 is resolved in favor of Intervenor, in part. The cultural surveys the NRC Staff performed and incorporated into the EA did not receive the “hard look” required by NEPA and failed to comply with the NRC Staff’s obligations under the NHPA.

## II. LEGAL STANDARDS

This proceeding concerns NEPA, the NHPA, and the regulations implementing these acts.<sup>31</sup>

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<sup>26</sup> LBP-15-11, 81 NRC at 451.

<sup>27</sup> *Id.* at 412. In rejecting this earlier contention as premature, the Commission instructed that the Contention be refiled after the EA was issued. *See id.* at 414-15.

<sup>28</sup> *Id.* at 415.

<sup>29</sup> 16 U.S.C. § 470 *et seq.*

<sup>30</sup> 42 U.S.C. § 4321 *et seq.*

<sup>31</sup> The NRC promulgates regulations implementing NEPA and the NHPA. *See* 10 C.F.R. Part 51. However, the U.S. Council on Environmental Quality (“CEQ”) also promulgates regulations concerning NEPA, though its regulatory authority derives not from statute, but from executive orders. *See* Exec. Order No. 11,991, 42 Fed. Reg. 26,967 (May 24, 1977); Exec. Order No. 11,514, 35 Fed. Reg. 4248 (Mar. 7, 1970). Nonetheless, the NRC gives CEQ’s regulations “substantial deference.” *Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), CLI-07-27, 66 NRC 215, 222 n.21 (2007). In addition, the Advisory Council on Historic Preservation (“ACHP”) is empowered by statute to promulgate binding regulations implementing section 106 of the NHPA. 54 U.S.C.A. § 304108 (West 2016); 36 C.F.R. § 800.1(a).



## A. NEPA's Requirements

### 1. NEPA's Fundamental "Hard Look" & Disclosure Goals

NEPA obligates each federal agency to take a "hard look" at the environmental impacts of its actions<sup>32</sup> and to disclose those potential environmental impacts before proceeding with a planned action.<sup>33</sup> While NEPA does not create a substantive requirement that a federal agency affirmatively limit the environmental harms of its actions,<sup>34</sup> NEPA's "hard look" requires informed and reasoned decisionmaking in which the agency "obtains opinions from its own experts, obtains opinions from experts outside the agency, gives careful scientific scrutiny and responds to all legitimate concerns that are raised."<sup>35</sup>

NEPA casts a wide net with respect to those impacts that an agency must assess in its environmental review.<sup>36</sup> According to the Council on Environmental Quality ("CEQ"), the "impacts" or "effects" that must be accounted for include "ecological . . . , aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative."<sup>37</sup> To be sure, the "hard look" requirement is subject to a "rule of reason[ ]," and agencies may exclude from consideration those impacts that are not reasonably foreseeable, but are remote and speculative.<sup>38</sup>

At the heart of the disclosure-forcing function of NEPA is the EA or EIS, which assures the public that the agency has in fact considered all the impacts.<sup>39</sup> The EA or EIS is to provide, not merely the agency's general conclusions, but all relevant considerations that went into reaching those conclusions,<sup>40</sup> such as the underlying data.<sup>41</sup>

Where an adjudicatory hearing tests the adequacy of an EA or EIS, evidence adduced at the hearing may cure a defective NEPA document — because in contested proceedings with a hearing, a licensing board creates the final record of

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<sup>32</sup> *Sierra Club v. U.S. Army Corps of Engineers*, 803 F.3d 31, 37 (D.C. Cir. 2015) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-51 (1989)); *Louisiana Energy Services, L.P. (Claiborne Enrichment Center)*, CLI-98-3, 47 NRC 77, 87-88 (1998).

<sup>33</sup> *Pogliani v. U.S. Army Corps of Engineers*, 306 F.3d 1235, 1237 (2d Cir. 2002) (citing *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 100 (1983)).

<sup>34</sup> *Department of Transportation v. Public Citizen*, 541 U.S. 752, 756-57 (2004).

<sup>35</sup> *Hughes River Watershed Conservancy v. Johnson*, 165 F.3d 283, 288 (4th Cir. 1999).

<sup>36</sup> *Gunpowder Riverkeeper v. FERC*, 807 F.3d 267, 276 (D.C. Cir. 2015).

<sup>37</sup> 40 C.F.R. § 1508.8; see also *id.* § 1508.27(b).

<sup>38</sup> *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 739, 745 (3d Cir. 1989); see also *Ground Zero Center for Non-Violent Action v. U.S. Department of the Navy*, 383 F.3d 1082, 1090 (9th Cir. 2004).

<sup>39</sup> *Robertson*, 490 U.S. at 349.

<sup>40</sup> *Te-Moak Tribe of Western Shoshone of Nevada v. U.S. Department of the Interior*, 608 F.3d 592, 601 (9th Cir. 2010).

<sup>41</sup> *Jones v. National Marine Fisheries Service*, 741 F.3d 989, 998 (9th Cir. 2013).

decision under NEPA,<sup>42</sup> i.e., the entire adjudicatory record in addition to the EA or EIS.<sup>43</sup> This allows a licensing board's factual findings, as well as the adjudicatory record, to "become, in effect, part of the [final NEPA document]."<sup>44</sup> To be sure, however, there are limits on the extent to which a licensing board can "cure" a deficient NEPA document. Curing an EA or EIS that made fundamentally erroneous statements, even if corrected later at hearing, would vitiate NEPA's disclosure requirements.<sup>45</sup> In addition, even where the contested hearing's record of decision supplements a deficient factual analysis in an EA or EIS, if the end result raises other questions about the sufficiency of the NRC Staff's analysis that should be explored under NEPA, a remand to the NRC Staff would be required to address all such NEPA concerns. Insofar as the NRC Staff seeks to supplement its EA with testimony at a contested hearing, the licensing board should not allow glaring gaps in the NRC Staff's analysis to go unexplored.<sup>46</sup>

## 2. *Distinctions Between an EA and an EIS*

While NEPA requires that an EA or EIS meet the same basic requirements noted above,<sup>47</sup> they are by no means identical documents. An EIS is an expansive document that "provide[s] full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives."<sup>48</sup> Because an EIS is required for all major NRC licensing efforts "significantly affecting the quality of the *human environment*,"<sup>49</sup> the EA performs the critical role of first determining whether the proposed federal action may produce any such significant, unmitigated impacts.<sup>50</sup> As such, an EA is a "concise public document" that contains "brief discussions of the need for the proposal, of alternatives as required by [NEPA] section 102(2)(E), of the environmental

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<sup>42</sup> *Claiborne*, CLI-98-3, 47 NRC at 89; 10 C.F.R. § 51.102.

<sup>43</sup> See *Louisiana Energy Services, L.P.* (National Enrichment Facility), LBP-05-13, 61 NRC 385, 404 (2005), *aff'd*, CLI-06-22, 64 NRC 37 (2006); see also *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-09-7, 69 NRC 613, 733 (2009), *petition for review denied*, CLI-10-5, 71 NRC 90 (2010).

<sup>44</sup> *Claiborne*, CLI-98-3, 47 NRC at 89.

<sup>45</sup> See, e.g., *Sierra Club v. Marsh*, 976 F.2d 763, 770 (1st Cir. 1992).

<sup>46</sup> See 5 U.S.C. § 556(d); Final Rule: "Changes to Adjudicatory Process," 69 Fed. Reg. 2182, 2192 (Jan. 14, 2004); see also 10 C.F.R. § 2.319. Neither the need for a full disclosure of the facts nor the development of an adequate record would be served were a licensing board to leave aside glaring gaps in the NRC Staff's analysis of environmental matters. Moreover, such an approach certainly would not constitute a hard look under NEPA.

<sup>47</sup> See, e.g., *Pa'ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 75 (2010).

<sup>48</sup> 40 C.F.R. § 1502.1.

<sup>49</sup> 42 U.S.C. § 4332(2)(C) (emphasis added).

<sup>50</sup> 40 C.F.R. § 1508.9(a); *Myersville Citizens for a Rural Comm'y, Inc. v. FERC*, 783 F.3d 1301, 1322 (D.C. Cir. 2015).

impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.”<sup>51</sup>

If the EA concludes there will be a significant impact on the human environment that will not be mitigated, an EIS is needed.<sup>52</sup> If an EIS is not needed, then the NRC Staff must support that determination with a separate document, termed a Finding of No Significant Impact (“FONSI”), which briefly presents “the reasons why an action . . . will not have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared.”<sup>53</sup> Here, the NRC Staff issued an EA and a FONSI, and therefore declined to write an EIS.<sup>54</sup>

## **B. The NHPA’s Requirements**

### ***1. The NHPA’s Basic Requirements***

Section 106 of the NHPA (“Section 106”), the central provision of the NHPA, requires federal agencies to take into account the effect of an undertaking on any historic property prior to approving an action like the renewal of Crow Butte’s license.<sup>55</sup> In doing so, a federal agency must make a “reasonable and good faith effort” to (1) identify historic properties;<sup>56</sup> (2) evaluate the significance of those properties using the criteria for listing within the National Register of Historic Places (“National Register”);<sup>57</sup> (3) assess any potential effects of the undertaking on important aspects of those properties;<sup>58</sup> and (4) avoid or mitigate any adverse effects that are identified (collectively “Identification Obligations”).<sup>59</sup>

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<sup>51</sup> 40 C.F.R. § 1508.9.

<sup>52</sup> *Id.* § 1508.9(a).

<sup>53</sup> *Id.* §§ 1501.4(e), 1508.13.

<sup>54</sup> Both CEQ and the NRC suggest that where agency staff must draft very long EAs to justify a FONSI determination, it may be an indication that an EIS should be written instead. Ex. NRC-014, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, NUREG-1748, § 3.2 (Aug. 2003) [hereinafter “NUREG-1748”] (citing 46 Fed. Reg. at 18,037); *see also* 40 C.F.R. § 1502.7. Additionally, in circumstances where the significance of an action is unclear because of scientific uncertainty, the Commission also advises “that the preferable course of action . . . is to prepare an environmental impact statement.” *Virginia Electric and Power Co.* (Surry Nuclear Power Station, Units 1 and 2), CLI-80-4, 11 NRC 405, 406 (1980).

<sup>55</sup> 54 U.S.C.A. § 306108 (West 2016).

<sup>56</sup> 36 C.F.R. § 800.4(b). In NHPA nomenclature, the word “historic property” refers to the subset of “cultural resources,” *supra* note 23, that are included in or eligible for placement in the National Register. 54 U.S.C. § 300308 (West 2016).

<sup>57</sup> *Id.* § 800.4(c). The National Register of Historic Places was created pursuant to section 101 of the NHPA. *See* 54 U.S.C.A. § 302101 (West 2016); 16 U.S.C § 470a (2012).

<sup>58</sup> *Id.* §§ 800.4(d), 800.5(a).

<sup>59</sup> *Id.* § 800.6(b).

There are four basic criteria identified in 36 C.F.R. § 60.4(a) for placing historic properties on the National Register: (1) whether the item is associated with significant contributions to history; (2) whether the item is associated with the lives of important people; (3) whether the item embodies distinguishable characteristics of a particular art, place, or period; or (4) whether the item yields “information important in prehistory or history.”<sup>60</sup>

## 2. *The Impact of the 1992 Amendments to the NHPA*

Changes were made to the NHPA after Crow Butte received its first license in 1988. Of particular significance to our inquiry here are the NHPA amendments enacted in 1992 that bestowed special protections on Native American historic properties (the “1992 NHPA Amendments”).<sup>61</sup> The 1992 NHPA Amendments also established mechanisms for more meaningful involvement of Indian tribes in agency historic preservation efforts.<sup>62</sup>

Prior to 1992, historic properties could be placed on the National Register only if they met certain regulatory requirements, none of which considered the unique interests and viewpoints of Native Americans.<sup>63</sup> But the 1992 NHPA Amendments added this language to NHPA section 101: “Propert[ies] of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register.”<sup>64</sup> The ACHP’s regulations reflect this change in directing how agencies are to apply the National Register criteria to evaluate historic properties: “[t]he agency official shall acknowledge that Indian tribes and Native Hawaiian organizations possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them.”<sup>65</sup> National Register Bulletin 15 further directs agencies to gather tribal input on TCPs through interviews and discussions with Indian Tribes.<sup>66</sup>

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<sup>60</sup> *Id.* § 60.4(a).

<sup>61</sup> National Historic Preservation Act Amendments of 1992, Pub. L. No. 102-575 § XL, 106 Stat. 4600 (Jan. 3, 1992) [hereinafter “1992 NHPA Amendments”].

<sup>62</sup> S. Rep. No. 102-336, at 13 (1992).

<sup>63</sup> *See* 36 C.F.R. § 60.4 (1991).

<sup>64</sup> 54 U.S.C. § 302706(a) (West 2016); 1992 NHPA Amendments § 4006 (emphasis added); *see also* Advisory Council on Historic Preservation, Chapter II, *The National Historic Preservation Act, in Federal Historic Preservation Case Law, 1966-1996*, available at <http://www.achp.gov/book/sectionII.html> (last visited May 15, 2016).

<sup>65</sup> 36 C.F.R. § 800.4(c)(1).

<sup>66</sup> National Register Bulletin 15, *How to Apply the National Register Criteria for Evaluation* at 3, 9-10, 13 (1997) [hereinafter “National Register Bulletin 15”], available at <http://www.nps.gov/nr/publications/bulletins/nrb15/>.

Apart from expanding the Identification Obligations, the 1992 NHPA Amendments also created a role for Indian tribes as consulting parties in the NHPA process. The NHPA was amended to add: “[i]n carrying out its responsibilities under [NHPA § 106], a Federal agency shall consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to property[ies]” (“Consultation Obligations”).<sup>67</sup>

The ACHP’s current regulations require each federal agency, during the consultation process, to “[g]ather information from any Indian tribe . . . to assist in identifying properties, including those located off tribal lands, which may be of religious and cultural significance to them and may be eligible for the National Register.”<sup>68</sup> Agency consultation must provide each Indian tribe with “a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking’s effects on such properties, and participate in the resolution of adverse effects.”<sup>69</sup> The ACHP’s regulations also state that consultation efforts must “recognize the government-to-government relationship between the Federal Government and Indian tribes,” and be sensitive to the needs of the tribal participants.<sup>70</sup>

In 2009, the NRC Staff Office of Nuclear Material Safety and Safeguards (“NMSS”) began work on a guidance document establishing the protocol for engaging with Indian tribes (“NUREG-2173”), admitted in this proceeding as Ex. NRC-047.<sup>71</sup> After acknowledging that the NRC has a government-to-government relationship with Indian tribes,<sup>72</sup> NUREG-2173 instructs the NRC Staff to be aware that cultural differences exist between Indian tribes and the agency that could impact the consultation process.<sup>73</sup> It also instructs the NRC Staff to recognize that there may be conflicting priorities of Indian tribes when setting meetings, that tribal elders are to be afforded great respect, and that the NRC is to obtain the opinions of those tribal elders along with those of the tribes’ elected government members.<sup>74</sup> Moreover, NUREG-2173 concedes that Indian tribes have a different

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<sup>67</sup> 54 U.S.C.A. § 302706(b) (West 2016); 1992 NPA Amendments § 4006.

<sup>68</sup> 36 C.F.R. § 800.4(a)(4).

<sup>69</sup> *Id.* § 800.2(c)(2)(ii)(A).

<sup>70</sup> *Id.* § 800.2(c)(2)(ii)(C).

<sup>71</sup> See Draft Tribal Protocol Manual and Scoping for Proposed Policy Statement, 77 Fed. Reg. 62,269, 62,269 (Oct. 12, 2012), which notes that a draft of NUREG-2173 had been released in September 2012. A revised version was published in 2014. Ex. NRC-047, Division of Material, Safety, States, Tribal, and Rulemaking Programs, NMSS, Tribal Protocol Manual, NUREG-2173 (Dec. 2014) [hereinafter “NUREG-2173”].

<sup>72</sup> NUREG-2173 at 1; see *id.* §§ 1.B, 1.E.

<sup>73</sup> *Id.* § 2.A.

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

relationship to the earth and its resources — and therefore to TCPs and other cultural resources — than others may have.<sup>75</sup> As with the ACHP’s regulations and guidance, NUREG-2173 states that consultation should start as early as possible in the process.<sup>76</sup>

### **III. CONTENTION 1 (TRIBAL CONSULTATION & IDENTIFICATION OF TRIBAL CULTURAL PROPERTIES)**

#### **A. General Discussion of Contention 1**

##### ***1. Contents of the EA***

In EA § 3.9, the NRC Staff discusses its efforts to identify, assess, and attempt to mitigate adverse impacts to TCPs in the license area and to consult with nearby Indian tribes for the purposes of this license renewal.

##### ***a. Literature Review & General Background***

EA § 3.9’s description of the history of western Nebraska is largely based on two sources: NUREG-1910, the “Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities” (“ISL Mining GEIS”)<sup>77</sup> and a site-specific cultural resources report of the Crow Butte license area conducted in 1982 and 1987 by John R. Bozell and Robert E. Pepperl (the “Bozell & Pepperl Survey”).<sup>78</sup> The history review in EA § 3.9 also draws, to a lesser extent, on archeological studies conducted at a nearby Crow Butte expansion site, and two other, more cursory, archeological studies.<sup>79</sup> In discussing the original inhabitants of western Nebraska, the EA states that the “predominant Tribe in the region” was the Great Sioux Nation, which includes the Lakota. The EA notes that the Fort Laramie Treaty of 1851 defined the territories of the Indian tribes of the area and explains the gradual encroachment of those territories by Euro-American settlers, the breakup of the Indian tribes’ communal lands by the U.S. government,

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<sup>75</sup> See *id.*

<sup>76</sup> *Id.* § 2.B; 36 C.F.R. § 800.2(c)(2)(ii)(A); see also Advisory Council on Historic Preservation, *Consultation with Indian Tribes in the Section 106 Review Process: A Handbook* at 3, 7, 29 (Nov. 2008), available at <http://www.achp.gov/regs-tribes2008.pdf>.

<sup>77</sup> NRC, Office of Federal and State Materials and Environmental Management Programs, Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities, NUREG-1910, at G-94 (May 2009) [hereinafter “ISL Mining GEIS”]. Ex. NRC-045 is an excerpt from the ISL Mining GEIS.

<sup>78</sup> EA § 3.9.3; Ex. CBR-027, John R. Bozell and Robert E. Pepperl, *A Cultural Resources Study of the Crow Butte Uranium Prospect Dawes County, Nebraska* (Sept. 1987).

<sup>79</sup> EA § 3.9.3 (referring to the “Späth 2007,” “Koch 2000,” and “Louis Berger 2005” sources).

and the resulting wars between the Sioux peoples and the U.S. government. It also discusses the construction of Fort Robinson — which the nearby town of Crawford was established to support.<sup>80</sup>

*b. Previously Identified Cultural Resources*

According to the EA, the NRC Staff sought information about pertinent cultural properties from the Bozell & Pepperl Survey, from the National Register, and from the Nebraska Register of Historic Places (“Nebraska Register”), which is an informal state-specific register.<sup>81</sup>

The NRC Staff’s review of the National Register identified only five historic properties of interest. All are American military, government, or settlement sites, and all are located several miles from the project area.<sup>82</sup> The Nebraska Register, on the other hand, lists twenty-one sites in proximity to Crawford, Nebraska, of which “[a]ll but three” are related either to Fort Robinson or to the Red Cloud Agency — although none are located within the license area.<sup>83</sup>

As the National Register and the Nebraska Register identified no properties on the site, the EA relied heavily on the Bozell & Pepperl Survey to identify TCPs within the license area.<sup>84</sup> The EA states that the Bozell & Pepperl Survey involved “[i]ntensive (100-percent coverage) field surveys for historical and archaeological sites within the CBR [Crow Butte] facility.”<sup>85</sup> According to the EA, the Bozell & Pepperl Survey noted twenty-one “prehistoric and historic period archaeological sites” within the license area, of which three Native American and three [Euro-American] properties were identified as “potentially eligible” for inclusion in the National Register.<sup>86</sup> The EA concluded that Crow Butte’s mining operations had successfully avoided contact with these six sites, at least as of 1995.<sup>87</sup> The EA fails to explain what happened to these sites after 1995, but Crow Butte’s prefiled testimony reveals that at least one of the sites was subsequently impacted by Crow Butte operations.<sup>88</sup>

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

<sup>81</sup> EA § 3.9.4.

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

<sup>83</sup> EA § 3.9.5.

<sup>84</sup> EA § 3.9.6. In total, the Bozell & Pepperl field survey covered 1350 acres. Ex. CBR-027 at i. While the survey did not cover the entire license area, which is 2875 acres, it did study those specific areas that Crow Butte expected its activities would impact. See LRA § 1.3; EA §§ 1.3, 2.1.

<sup>85</sup> EA § 3.9.6.

<sup>86</sup> *Id.* The “historic period,” according to the EA, dates back 400 years. EA § 3.9.3.

<sup>87</sup> EA § 3.9.6.

<sup>88</sup> Ex. CBR-027 at 75. In 2003, site 25DW198, one of the three Native American-origin sites,  
(Continued)

c. *Consultations Undertaken for Current License Renewal*

EA § 3.9.7 describes the NRC Staff's communications with Indian tribes pursuant to the consultation requirements of NHPA § 106. A table in the EA identifies three particular attempts at communication with Indian tribes: (1) an invitation dated January 13, 2011, requesting the tribes to be consulting parties under the NHPA; (2) an invitation to the tribes to attend a June 7-9, 2011 "Informal Information-Gathering Meeting" at the Pine Ridge Reservation; and (3) discussions at that June 2011 informal meeting.<sup>89</sup>

According to the EA, out of twenty-four tribes invited, members of six tribes attended the June 2011 meeting that also included a bus tour of both the Crow Butte license area and a new ISL facility under construction in South Dakota, the "Powertech" facility.<sup>90</sup> The EA claims that this June 2011 meeting, "supplemented by literature searches," identified the following four previously unknown TCPs: (1) the Crow Butte geologic formation itself (close to and looking over the license area), which was the site of a legendary battle between the Lakota and Crow tribes; (2) a ridge 1 mile from the Crow Butte site, which is a location for vision quests by tribal members; (3) unspecified medicinal herbs that grow on the license area but purportedly not elsewhere; and (4) the general landscape, as it is steeped in history and dates back to the periods of Fort Robinson, the Red Cloud Agency, and the Great Sioux War.<sup>91</sup> The EA notes that, during the June 2011 meeting, "tribal officials expressed concerns about the identification and preservation of historic properties of traditional religious and cultural importance to tribes," and they asserted that a TCP survey of the Crow Butte facility should be conducted.<sup>92</sup>

According to the EA, on February 24-25, 2012, the NRC Staff held another meeting attended by nineteen tribes "to continue ongoing consultation and discuss hear [sic] the views of the Tribes about potential Traditional Cultural Properties."<sup>93</sup> The EA also states that on October 31, 2012, the NRC Staff "invited all the consulting Tribes to complete a TCP field Survey of the CBR [Crow Butte] facility and proposed expansion areas in the vicinity of the" license area (the

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*id.* at 74-75, was alleged by Crow Butte to be found "in an area of new [Crow Butte] well-drilling activities." Crow Butte Resources' Proposed Findings of Fact and Conclusions of Law at 70 (Nov. 23, 2015) [hereinafter "Crow Butte Proposed Findings & Conclusions"] (citing Ex. CBR-032, Carl Späth and Cherie K. Walth, Crow Butte Resources Evaluative Testing of Site 25DW198 Dawes County, Nebraska (June 2003)). The thoroughness of Crow Butte's treatment of this site is discussed *infra* note 157.

<sup>89</sup> EA § 3.9.7, tbl. 3-14.

<sup>90</sup> EA § 3.9.7. The significance of the Powertech facility for this proceeding is discussed *infra* Section III.B.2.a.

<sup>91</sup> EA § 3.9.8.

<sup>92</sup> EA § 3.9.7.

<sup>93</sup> *Id.*



“November 2012 TCP Survey”).<sup>94</sup> The EA states that representatives of the Santee Sioux Nation and the Crow Nation participated in the November 2012 TCP Survey, but they “concluded that there were no eligible sites of cultural or religious significance to the Tribes at the [Crow Butte] facility and the proposed Marsland and Three Crow expansion areas.”<sup>95</sup> The EA noted that several other tribes disagreed, not only with the purported findings of the November 2012 TCP Survey, but more fundamentally with the NRC Staff’s NHPA review process itself. The EA characterized these criticisms as merely “pertaining to NRC staff’s overall NHPA consultation” and did not address the criticisms concerning whether TCPs were present on the site.<sup>96</sup>

## **2. *Parties’ Positions***

### **a. *Witnesses for the Intervenors***

In support of its contention, Intervenors offered four cultural resource expert witnesses: Michael CatchesEnemy, who during much of the consultation process served as the Tribal Historic Preservation Officer and Director of the Oglala Sioux Tribe Natural Resources Regulatory Agency; Dennis Yellow Thunder, who, as of the date of the hearing, served as the Tribal Historic Preservation Officer for the Oglala Sioux Tribe and Director of the Oglala Sioux Tribe’s Office of Cultural Affairs and Historic Preservation; Louis Redmond, Ph.D., President of Red Feather Archeology, which provides consultation and training to Indian tribes and U.S. government agencies on various cultural and historic preservation laws and programs; and Debra White Plume, a founding member of Owe Aku, an organization dedicated to preserving “Lakota culture and ways of life.”<sup>97</sup> Mr. CatchesEnemy and Mr. Yellow Thunder provided written direct testimony regarding the “ancestral, historic, cultural, religious, and spiritual” significance of the lands in and near the license area, as well as the NRC Staff’s consultation efforts with Indian tribes.<sup>98</sup>

### **b. *Intervenors’ General Position***

In general, Intervenors contend that the Crow Butte license area contains

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<sup>94</sup> EA § 3.9.8.

<sup>95</sup> *Id.*

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

<sup>97</sup> Ex. INT-031, Declaration of Michael CatchesEnemy ¶ 5 (May 8, 2015); Ex. INT-032, Declaration of Dennis Yellow Thunder ¶ 4 (May 8, 2015); Ex. INT-061, Resume of Louis Arthur Redmond, at 2 (undated); Ex. INT-021, Statement of Debra White Plume (Apr. 30, 2015).

<sup>98</sup> Ex. INT-031 ¶¶ 13, 14; Ex. INT-032 ¶¶ 10, 11.

multiple TCPs relevant to the Tribe, including “natural ponds, springs, and creeks,” and “prehistoric camp sites,” that were not identified in the EA.<sup>99</sup> Intervenors also assert that the license area “was traditionally utilized by the extended family of Lakota Chief Crazy Horse and other Lakota.”<sup>100</sup> Intervenors therefore take issue with the EA’s cultural resources analysis, and in particular criticize the NRC Staff’s effort because “[n]o specific survey was performed for this license renewal.”<sup>101</sup> Likewise, Intervenors criticize the NRC Staff for relying on a 30-year-old archeological survey, contending that the Bozell & Pepperl Survey is too old to be useful, that the authors lacked professional credentials, and that it was conducted without the benefit of any meaningful involvement from Indian tribes.<sup>102</sup> As a result, Intervenors maintain, many sites of archeological significance within the license area potentially were either misunderstood or missed altogether.<sup>103</sup> Intervenors claim that a “proper” survey for TCPs “must involve the Tribal elders of the Lakota people and their extended families and extended site visits by them,” because only they are capable of understanding the historic implications of any sites identified.<sup>104</sup> In contrast with this approach, however, Intervenors allege that “[t]he NRC Staff refused to accept, or fund, the TCP survey design protocol proposed by the tribes as to their own cultural resources.”<sup>105</sup>

Intervenors also contend that the consultation process itself was fundamentally flawed and in violation of the NHPA.<sup>106</sup> Intervenors argue that the NRC Staff’s actions fail to demonstrate respect for the government-to-government relationship that exists between Indian tribes and the U.S. government.<sup>107</sup> Intervenors also criticize the lengthy delay between the time that Crow Butte filed its license renewal application (2007) and the time that the NRC Staff initiated the consultation process (2011).<sup>108</sup> Intervenors also take issue with the methods employed by the NRC Staff to consult with the tribes, asserting that “leaving voice messages[,]

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<sup>99</sup> [Intervenors’] Joint Filing of Proposed Findings of Fact and Conclusions of Law at 23 (Nov. 23, 2015) [hereinafter “Intervenors’ Proposed Findings & Conclusions”].

<sup>100</sup> *Id.*

<sup>101</sup> *Id.* at 24 (citing the Bozell & Pepperl Survey).

<sup>102</sup> *Id.*; The Oglala Sioux Tribe and Consolidated Intervenors Joint Reply to NRC Staff and [Crow Butte] at 21 (Dec. 11, 2015) [hereinafter “Intervenors’ Reply Findings & Conclusions”].

<sup>103</sup> *See* Intervenors’ Proposed Findings & Conclusions at 24; *see also* Intervenors’ Reply Findings & Conclusions at 21.

<sup>104</sup> Intervenors’ Proposed Findings & Conclusions at 24.

<sup>105</sup> *Id.* at 32.

<sup>106</sup> *Id.*

<sup>107</sup> *Id.* at 22, 28.

<sup>108</sup> *Id.* at 28.

sending out mass mailings,” and relying on contractors — demonstrate the NRC Staff’s lack of substance and good faith.<sup>109</sup>

Both witnesses testified that this area was “utilized by the Sioux as an encampment during the period of forced removal by the United States . . . and the ‘sign or starve’ treaty-making tactics of the United States in the mid to late 1800s,” and therefore “it can be reasonably presumed that many sites and artifacts of significant historic and cultural importance to the [Oglala Sioux] Tribe exist in the area.”<sup>110</sup> Specifically, these witnesses pointed to the Crow Butte geologic feature itself as sacred to the Oglala Sioux Tribe, and asserted that the “mere presence of industrial activity in the vicinity significantly infringes upon the spiritual experience” and is destructive of the very elements held sacred by the Tribe, “the earth, water, flora, fauna, and the environment.”<sup>111</sup> These witnesses also testified that the Bozell & Pepperl Survey was insufficiently rigorous to identify and protect TCPs within the license area, as “[a]rcheological surveys are not cultural resources surveys and are not sufficient to identify all sites and resources of historic, cultural, and spiritual significance to tribes.”<sup>112</sup> Both witnesses opined that it is probably for this reason that the Bozell & Pepperl Survey missed TCPs that date back to the “sign or starve” encampments of the late 1800s.<sup>113</sup>

Turning to the consultation process itself, these Intervenor witnesses described the consultation between the NRC Staff and the tribes as a “predetermined” process, which was heavily reliant on Crow Butte’s contractor, the SRI Foundation, and which combined reviews involving multiple mining sites.<sup>114</sup> Mr. CatchesEnemy testified that the tribes sought to enlist “knowledgeable tribal representatives, including tribal elders and spiritual leaders, rather than just archeologists [to] conduct the cultural surveys.”<sup>115</sup> He added that, contrary to the claims of the NRC Staff and Crow Butte, the design of the November 2012 TCP Survey was far too abridged in scope, contained modifications made without discussion with the tribes, and contained elements that “were simply not feasible.”<sup>116</sup> He also testified that the final November 2012 TCP Survey involved only two tribes, was the subject of scorn and ridicule from other tribes that were not involved, and was “just short of a bribe disguised as a token identification effort.”<sup>117</sup> Both Mr.

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<sup>109</sup> Intervenor’s Reply Findings & Conclusions at 55; Intervenor’s Proposed Findings & Conclusions at 29.

<sup>110</sup> Ex. INT-031 ¶ 14; Ex. INT-032 ¶ 11.

<sup>111</sup> Ex. INT-031 ¶ 15; Ex. INT-032 ¶ 12.

<sup>112</sup> Ex. INT-031 ¶¶ 25, 26; Ex. INT-032 ¶¶ 16, 17.

<sup>113</sup> Ex. INT-031 ¶¶ 25, 26; Ex. INT-032 ¶¶ 16, 17.

<sup>114</sup> Ex. INT-031 ¶¶ 17, 18; Ex. INT-032 ¶ 14.

<sup>115</sup> Ex. INT-031 ¶ 18.

<sup>116</sup> *Id.* ¶ 19.

<sup>117</sup> *Id.* ¶¶ 20-22.

CatchesEnemy and Mr. Yellow Thunder then testified that, after the TCP Survey was conducted, the NRC Staff submitted the final EA without circulating a draft for consideration by the tribes — whereas, Intervenor alleges, had the NRC Staff provided a draft to the tribes, it might have proven useful in resolving the disputes between the tribes and the NRC Staff that ultimately surfaced as a contention in this proceeding.<sup>118</sup>

*c. The NRC Staff's Witnesses*

The NRC Staff offered two witnesses, Nathan Goodman, the lead environmental project manager for the Crow Butte license renewal,<sup>119</sup> and Paul Nickens, Ph.D., a Senior Cultural Resources Specialist for NRC Staff contractor Sanford Cohen and Associates (“SC&A”), who provided cultural resource expert support to Mr. Goodman.<sup>120</sup>

*d. The NRC Staff's General Position*

The NRC Staff defends its cultural resources review by arguing that: (1) the 1980s Bozell & Pepperl Survey is “complete, thorough, and fully adequate” for identifying TCPs;<sup>121</sup> (2) little has changed at the license renewal site since the Bozell & Pepperl Survey was conducted;<sup>122</sup> (3) neither NEPA nor the NHPA require Lakota Tribal elders or their extended families to visit the sites;<sup>123</sup> (4) the Advisory Council on Historic Preservation considers a reasonable effort to identify historic properties as involving “‘at a minimum,’ simply ‘a review of existing information on historic properties that are located or may be located;’”<sup>124</sup> (5) the NRC Staff opted for an “open site”<sup>125</sup> TCP survey of the license area, in which

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<sup>118</sup> Ex. INT-031 ¶ 24; Ex. INT-032 ¶ 15.

<sup>119</sup> Ex. NRC-001-R, NRC Staff's Initial Testimony, at 2 (May 8, 2015). *See also* Ex. NRC-076-R2, Revised Testimony of David Back, Tianqing Cao, Mark Fuhrmann, Nathan Goodman, Thomas Lancaster, Paul Nickens, and Elise Striz (July 29, 2015); Ex. NRC-004, Statement of Professional Qualifications for Nathan E. Goodman (May 8, 2015).

<sup>120</sup> Ex. NRC-001-R at 2; Tr. at 2039. *See also* Ex. NRC-076-R2; Ex. NRC-006, Statement of Professional Qualifications for Paul R. Nickens, PhD (May 8, 2015).

<sup>121</sup> NRC Staff's Proposed Findings of Fact and Conclusions of Law at 97, 100 (Nov. 23, 2015) [hereinafter “Staff Proposed Findings & Conclusions”].

<sup>122</sup> *Id.*

<sup>123</sup> NRC Staff Reply Findings of Fact and Conclusions of Law at 16 (Dec. 11, 2015) [hereinafter “Staff Reply Findings & Conclusions”].

<sup>124</sup> *Id.*

<sup>125</sup> The open site TCP survey approach consisted of leaving the site open for a specified amount of time during which any Indian tribe could enter the site and conduct its own investigation, with limited

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“[a]ll consulting Tribes were invited to participate, and two — the Santee Sioux Nation and the Crow Nation — accepted;”<sup>126</sup> and (6) once the representatives from the Crow Nation and Santee Sioux Nation decided the license area was too disturbed to warrant a survey by foot,<sup>127</sup> no further investigation was needed because “where previous or partial surveys ‘and all other evidence, indicate that a complete survey would be fruitless,’ the NHPA does not require a complete survey of the project area.”<sup>128</sup>

While the NRC Staff concedes that it initiated the consultation process “well after” the LRA was submitted, it argues it eventually engaged in a “lengthy and meaningful consultation process” that afforded the tribes an opportunity to offer advice and views on TCPs in and near the license area.<sup>129</sup> The NRC Staff asserts that: (1) it undertook a “reasonable and good-faith effort” to identify interested Indian tribes;<sup>130</sup> (2) it consulted with the tribes through letters, calls, and face-to-face meetings;<sup>131</sup> (3) its consultation efforts were government-to-government, because the invitation to the June 7-9, 2011 meeting “took the form of a letter from the NRC Division Director responsible for the undertaking to Oglala Sioux Tribe President Theresa Two Bulls, with copy to the” Oglala Sioux Tribe Tribal Historic Preservation Officer;<sup>132</sup> (4) the consultation process consisted not of just one large group meeting, but a series of meetings, phone conferences, letters, and other interactions from 2011 through 2014;<sup>133</sup> (5) the grouping together of multiple facilities during the consultation process is consistent with the practice of other federal agencies and ACHP regulations; and (6) contrary to the claims of the Oglala Sioux Tribe, it was not the NRC Staff — but the Oglala Sioux Tribe itself — that failed to engage meaningfully in the consultation process.<sup>134</sup>

In their testimony, these NRC Staff witnesses asserted that it was not necessary to perform a new cultural resources review of the Crow Butte license area because Crow Butte has no new mine units planned, and thus any impacts to previously undisturbed ground surfaces will be limited.<sup>135</sup> In addition, these

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monitoring or support by Crow Butte personnel. *See infra* Section III.C.4; *see also* Staff Proposed Findings & Conclusions at 95; Ex. NRC-052, Santee Sioux Nation Tribal Historic Preservation Office, TCP Survey Report for the Crow Butte Project Dawes County Crawford Nebraska, at 2 (2013).

<sup>126</sup> Staff Proposed Findings & Conclusions at 98.

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

<sup>128</sup> *Id.* at 98 (quoting *Wilson v. Block*, 708 F.2d 735, 754-55 (D.C. Cir. 1983), citing 36 C.F.R. § 800.4(b)(1)).

<sup>129</sup> *Id.* at 93.

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

<sup>131</sup> *Id.* at 93, 95.

<sup>132</sup> *Id.* at 94.

<sup>133</sup> Staff Reply Findings & Conclusions at 17.

<sup>134</sup> Staff Proposed Findings & Conclusions at 94-95.

<sup>135</sup> Ex. NRC-001-R at 66-67.

witnesses maintained that future reclamation efforts will further reduce any impacts, including impacts to the view from the Crow Butte geologic formation.<sup>136</sup>

The NRC Staff witnesses conceded that “the original license application and environmental review [for the 1988 license] did not adequately address known or potential places of religious or cultural significance for Tribes,” necessitating the NRC Staff’s more intensive examination in conjunction with this license renewal<sup>137</sup> that is described in the EA as a site visit to the license area, contacting state organizations, and conducting a literature review both to verify all historic sites previously identified and to identify any new potential sites.<sup>138</sup> After conducting this more robust review, the NRC Staff acknowledged, it became clear that the Lakota tribes were the “traditional occupants of the area.” As a result, the NRC Staff witnesses asserted that “special emphasis was given to potential Lakota places of significance, especially for the nearby Oglala Sioux Tribe.”<sup>139</sup> The NRC Staff witnesses also conceded that the universal view of all participating tribes was that a TCP survey would be the “only way to properly identify cultural properties” within the license area.<sup>140</sup>

According to the testimony of these NRC Staff witnesses, the NRC Staff ultimately opted to pursue the open site TCP survey proposed by Crow Butte “that included funding for the Tribes”<sup>141</sup> and afforded any participating tribe an opportunity to conduct its own TCP inventory by foot of the license area.<sup>142</sup> They also disputed Intervenor’s claims that the NRC Staff’s approach was not up to the task, by asserting that, in fact, there are no specific standards governing TCP Surveys.<sup>143</sup>

*e. Crow Butte’s Witnesses*

Crow Butte offered testimony of Larry Teahon, the Crow Butte facility Safety, Health, Environment, and Quality Manager,<sup>144</sup> whose testimony primarily focused on the Bozell & Pepperl Survey.

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<sup>136</sup> Ex. NRC-076-R2 at 61.

<sup>137</sup> *Id.* at 59; *see also* Ex. NRC-001-R at 67.

<sup>138</sup> Ex. NRC-001-R at 67-69, 80; Ex. NRC-076-R2 at 59-61.

<sup>139</sup> Ex. NRC-076-R2 at 59.

<sup>140</sup> Ex. NRC-001-R at 63.

<sup>141</sup> *Id.* at 65, 73.

<sup>142</sup> *Id.* at 73.

<sup>143</sup> Ex. NRC-076-R2 at 54, 58.

<sup>144</sup> Ex. CBR-007, Initial Written Testimony of Crow Butte Resources Witness Larry Teahon on Contention 1, at 1 (May 8, 2015); Ex. CBR-051, Rebuttal Testimony of Crow Butte Resources Witness Larry Teahon on Contention 1 (June 8, 2015); *see also* Ex. CBR-006, Affidavit of Larry Teahon, at 2 (May 8, 2015).

*f. Crow Butte's General Position*

While Crow Butte's position is largely consistent with that of the NRC Staff, Crow Butte added several legal arguments in support of the NRC Staff's consultation efforts, namely that: (1) the NRC Staff properly followed NUREG-2173 when it sent a letter from the NRC Division Director to the Oglala Sioux Tribe President and THPO;<sup>145</sup> (2) the ACHP's regulations established that "[c]ommunication with the THPO is, by itself, sufficient to establish that there is a government-to-government communication" with a tribe;<sup>146</sup> (3) the NHPA not only permits the NRC Staff to conduct face-to-face discussions via large multitribe and multiapplicant meetings, but that such meetings actually reduce the burden on participating Indian tribes;<sup>147</sup> and (4) the ACHP regulations expressly permit the use of consultants to assist federal agencies in discharging their Consultation Obligations under the NHPA.<sup>148</sup>

With regard to the November 2012 TCP Survey, Crow Butte maintains the NRC Staff chose an "open site" approach because the consulting tribes wanted to be in charge of the TCP Survey, and wanted to conduct the survey all at once and not in a phased approach.<sup>149</sup> As to why the draft EA, incorporating the November 2012 TCP Survey results, was not provided to the Oglala Sioux Tribe but instead to the Nebraska SHPO, Crow Butte counters that the Tribe was afforded an opportunity to respond to the portion of the EA addressing the section 106 consultation process at an earlier point in time, i.e., when it was posted on the NRC's website, and that this posting is legally sufficient.<sup>150</sup>

Although asserting that the presence of additional tribal resources on the Crow Butte site is pure speculation,<sup>151</sup> Mr. Teahon claimed that License Condition 9.8 of the renewed license obligates Crow Butte, before undertaking any construction activity not previously assessed by the NRC, to conduct a cultural resources inventory and to catalogue any newly discovered artifacts before construction can proceed.<sup>152</sup> He testified that these protections will continue for the duration of

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<sup>145</sup> Crow Butte Resources' Proposed Reply Findings of Fact and Conclusions of Law at 25 (Dec. 11, 2015) [hereinafter "Crow Butte Reply Findings & Conclusions"].

<sup>146</sup> Crow Butte Proposed Findings & Conclusions at 72.

<sup>147</sup> Crow Butte Reply Findings & Conclusions at 24, 25.

<sup>148</sup> Crow Butte Proposed Findings & Conclusions at 73 (citing 36 C.F.R. § 800.2(a)(3)); Crow Butte Reply Findings & Conclusions at 25.

<sup>149</sup> Crow Butte Proposed Findings & Conclusions at 68; Crow Butte Reply Findings & Conclusions at 22.

<sup>150</sup> Crow Butte Proposed Findings & Conclusions at 73.

<sup>151</sup> Ex. CBR-051 at 5.

<sup>152</sup> Ex. CBR-007 at 12; Ex. CBR-051 at 5.

the renewed license, including any restoration or decommissioning of the license area.<sup>153</sup>

### **3. Evaluating Contention 1**

The Board thoroughly reviewed the record regarding Contention 1. All other testimony and arguments not referenced herein were reviewed but deemed irrelevant.

We evaluate Contention 1 by looking first to whether the NRC Staff satisfied its Consultation Obligations under the NHPA (Section III.B). Then, we evaluate whether the NRC Staff has met its Identification Obligations under the NHPA (Section III.C). Finally, we evaluate whether the EA complies with NEPA (Section III.D).

#### **B. Meeting the NHPA's Consultation Obligations**

In determining whether a particular federal agency has complied with its NHPA Consultation Obligations, it is necessary to examine: (1) whether the agency provided an affected Indian tribe with a “reasonable opportunity” to identify its concerns about the preservation of historic properties and to advise the agency on the identification and protection of any such historic properties;<sup>154</sup> (2) whether consultation between the agency and the affected tribe was conducted in a meaningful, accountable, and timely process;<sup>155</sup> and (3) whether the process recognized the “government-to-government” relationship between the agency and the affected tribe.<sup>156</sup>

From the time the 1992 NHPA amendments were passed until 2011, the NRC Staff and the Oglala Sioux Tribe had never actually consulted meaningfully on a government-to-government basis with respect to the Crow Butte mining license for this site.<sup>157</sup> This absence of consultation, especially between 2007 and 2011,<sup>158</sup>

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<sup>153</sup> Ex. CBR-007 at 13.

<sup>154</sup> 36 C.F.R. § 800.2(c)(2)(ii)(A).

<sup>155</sup> Exec. Order No. 13,175, 65 Fed. Reg. 67,249, 67,249-50 (Nov. 6, 2000); *see also infra* Section III.B.2.b.

<sup>156</sup> 36 C.F.R. § 800.2(c)(2)(ii)(C); Tribal Policy Statement: Proposed Policy Statement and Request for Comment, 79 Fed. Reg. 71,136, 71,137 (Dec. 1, 2014).

<sup>157</sup> It is undisputed that the NRC Staff's review of Crow Butte's 1995 LRA failed to meet the NHPA's post-1992 tribal consultation requirements. *See* Tr. at 2035-36; Ex. CBR-044 at 81-82; *Pueblo of Sandia v. United States*, 50 F.3d 856, 860 (10th Cir. 1995). Similarly, the NRC Staff failed to meet its NHPA obligations with respect to Crow Butte's reevaluation of site 25DW198 in 2003, before its disturbance due to mining. *Supra* note 88; Ex. CBR-032.

<sup>158</sup> Although as early as 2008 the NRC Staff informed this Board that it would shortly pursue NHPA  
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has undoubtedly contributed to the troubled relationship between the Oglala Sioux Tribe and the NRC Staff. However, in the end, the NRC Staff did provide a reasonable opportunity for such consultation to occur, and so it fulfilled its Consultation Obligation under the NHPA.

### ***1. Consultation Begins in 2011***

Consultation efforts relating to the instant case kicked off with a January 13, 2011 letter from Larry Camper, NMSS Division Director, to the president of the Oglala Sioux Tribe,<sup>159</sup> seeking the Tribe's participation as a consulting party with respect to the license renewal.<sup>160</sup> The consultation process consisted of the three face-to-face meetings (on June 7-9, 2011, February 14-15, 2012, and May 23, 2013) as well as three teleconferences during the spring and summer of 2012.<sup>161</sup> While both the June 2011 and February 2012 meetings were well staffed by NRC cultural resources experts, no one in an executive position within the NRC Staff attended the meetings.<sup>162</sup> The President of the Oglala Sioux Tribe attended part of the February 2012 meeting.<sup>163</sup>

It is important to keep in mind that once consultation began, the entire effort became focused on the development of a TCP survey of the license area. Not only did the Indian tribes view a TCP survey as the best way to gain an understanding of TCPs and Indian-origin historic properties on the site, but the NRC Staff had advised the tribes that it shared their view.<sup>164</sup> After the February 2012 meeting, the NRC Staff held three teleconference calls during the spring and summer of 2012, purportedly in hopes of developing a TCP survey that would cover the

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consultation with the Oglala Sioux Tribe, Tr. at 363-64, a comprehensive list of all communications indicates that it took more than 3 years after the LRA was filed before the NRC Staff made *any attempt* to communicate with the Oglala Sioux Tribe. Ex. NRC-038, List of NRC Staff Communications with the Oglala Sioux Tribe as Part of Section 106 Consultation for the Crow Butte License Renewal, at 1 (entry 1) (May 8, 2015) [hereinafter "NRC Staff Communications Log"]; Tr. at 2015.

<sup>159</sup>NRC Staff Communications Log at 1 (entry 1); Ex. NRC-039, Letter from Larry W. Camper, Director, Division of Waste Management and Environmental Protection, to Theresa Two Bulls, President, Oglala Sioux Tribal Council (Jan. 13, 2011).

<sup>160</sup>Ex. NRC-039 at 1-2.

<sup>161</sup>*See infra* Section III.B.2.b.

<sup>162</sup>*See id.*; Ex. NRC-042.

<sup>163</sup>Ex. NRC-001-R at 65.

<sup>164</sup>Ex. NRC-050, SC&A, Inc., Trip Report: Section 106 Information-Gathering Meeting and Site Visits for Crow Butte In Situ Leach License Renewal and North Trend Expansion Area and Dewey-Burdock License Applications June 7-9, 2011, at 4 (June 20, 2011); Tr. at 2082-83, 2097.

Crow Butte license area, as well as nearby Crow Butte expansion sites and the Powertech site in South Dakota.<sup>165</sup>

As the summer of 2012 drew to a close, the NRC Staff had still been unable to reach a final agreement on how to conduct TCP surveys for all of these sites.<sup>166</sup> When Crow Butte suggested an alternate “open site” TCP survey approach on October 3, 2012,<sup>167</sup> the NRC Staff adopted it, and on October 31, 2012, the NRC Staff: (1) abruptly separated the Crow Butte projects from the Powertech project;<sup>168</sup> (2) issued an invitation to the tribes to participate in the open site TCP survey that Crow Butte had conceived and that would cover only the Crow Butte license area and Crow Butte expansion sites; and (3) insisted that the survey had to be conducted within just a few weeks thereafter in late November of 2012.<sup>169</sup>

While only two tribes, the Crow Nation and Santee Sioux Tribe, agreed to participate in the open site process,<sup>170</sup> there is no evidence that either has any meaningful historical connection to the area.<sup>171</sup> Moreover, neither of these two tribes actually surveyed the license area, after themselves concluding that the site was too disturbed to justify an actual TCP survey on the site.<sup>172</sup>

The NRC Staff further attempted to consult face-to-face with the Oglala Sioux Tribe and other tribes about NHPA issues related to the Crow Butte license renewal with its May 23, 2013 meeting, which the NMSS Deputy Director attended.<sup>173</sup> The Oglala Sioux Tribe failed to attend, however, and provided no prior notice that it would not participate.<sup>174</sup> The NRC Staff thereafter effectively ended the consultation process with respect to Crow Butte’s license renewal, posting a draft of its NHPA § 106 review findings online on October 1, 2013, and roughly 6 months later, providing a hard copy to the Oglala Sioux Tribe, seeking its comments.<sup>175</sup>

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<sup>165</sup> See NRC Staff Communications Log at 4 (entries 20-26); Ex. BRD-020, Letter from Kevin Hsueh, Chief, Environmental Review Branch, NRC Office of Federal and State Materials and Environmental Management Programs to Tribal Historic Preservation Officers (Mar. 6, 2012).

<sup>166</sup> Tr. at 2171-73.

<sup>167</sup> Ex. BRD-026, Cameco, Alternative Proposal for the Four Cameco ISR Properties (Oct. 3, 2012).

<sup>168</sup> Tr. at 2175-76, 2256-57.

<sup>169</sup> Ex. BRD-023, Letter from Kevin Hsueh, Chief, Environmental Review Branch, NRC Office of Federal and State Materials and Environmental Management Programs (Oct. 31, 2012).

<sup>170</sup> Ex. NRC-052 at 2.

<sup>171</sup> See *infra* Section III.C.4.b.

<sup>172</sup> Ex. NRC-001-R at 74; Tr. at 2307-08.

<sup>173</sup> Ex. NRC-043, Letter from Larry W. Camper, Director, Division of Waste Management and Environmental Protection Office of Federal and State Materials and Environmental Management Programs, to Bryan Brewer, President, Oglala Sioux Tribe (Mar. 12, 2013); Ex. NRC-044, Letter from Bryan Brewer, President, Oglala Sioux Tribe (Mar. 29, 2013).

<sup>174</sup> Ex. NRC-001-R at 65-66; Tr. at 2323.

<sup>175</sup> NRC Staff Communications Log at 6 (entries 36, 37).

## 2. *Evaluation of NRC Staff's Consultation Approach*

There were four errors in the consultation process, and our evaluation looks at each one. The first three focus on the NRC Staff's conduct, while the fourth focuses on the Oglala Sioux Tribe's conduct.

### a. *The NRC Staff's Grouping of Projects*

Contemporaneous with Crow Butte's license renewal application, the NRC received a number of other license applications — including three separate license applications from Crow Butte for expansion sites located near the license area, identified as the Marsland expansion area (centered 12 miles south of Crawford),<sup>176</sup> the Three Crow expansion area (centered 6 miles south of Crawford),<sup>177</sup> and the North Trend expansion area (centered 2 miles north of Crawford).<sup>178</sup> For reference, the license area is centered approximately 4 miles southeast of Crawford.<sup>179</sup> In addition, the NRC Staff attempted to consolidate its consultation efforts to cover another license proceeding, the new Powertech ISL mine, located in Custer and Fall River Counties, South Dakota.<sup>180</sup> While the Crow Butte expansion sites were to have common ownership and are located in close proximity to the license area, the Powertech facility had wholly separate ownership and is located more than 65 miles away, in a different state.<sup>181</sup>

Although the NRC Staff paired the Crow Butte license renewal with these four other proceedings for much of its consultation efforts, at one time the NRC Staff envisioned addressing as many as nine facilities, spanning three states, in a single meeting with the Indian tribes.<sup>182</sup> NRC Staff witness Mr. Goodman testified that this multirite, multisite approach was intended to assist the tribes by minimizing the amount of time individual tribes would need to devote to the process.<sup>183</sup> While well intentioned, Mr. CatchesEnemy for the Intervenor testified that grouping several projects into one meta-consultation resulted in confusion on the part of the Oglala Sioux Tribe as to whether the whole set of mining projects, rather than only a single mining project,<sup>184</sup> was the subject of particular consultation or

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<sup>176</sup> Ex. NRC-054A, Cameco Resources Marsland Expansion Area Uranium Project Class III Cultural Resource Investigation Dawes County, Nebraska, at 4 (Apr. 28, 2011).

<sup>177</sup> LRA fig. 1.3-1.

<sup>178</sup> LRA fig. 2.8-3.

<sup>179</sup> LRA fig. 1.3-1.

<sup>180</sup> *Powertech USA, Inc.* (Dewey Burdock In Situ Uranium Recovery Facility), LBP-15-16, 81 NRC 618, 627 (2015).

<sup>181</sup> EA § 4.13.

<sup>182</sup> Ex. NRC-043 at 10.

<sup>183</sup> Tr. at 2256-57.

<sup>184</sup> Tr. at 2180-82, 2185-86, 2041-42.

action. That greater clarity in this regard from the NRC Staff would have helped was underlined by Mr. CatchesEnemy's testimony that the Oglala Sioux's Tribal Historic Preservation Office has but one staff person to oversee fifty to seventy-five federal agency projects requesting its participation in NHPA proceedings at any one time.<sup>185</sup> Mr. Yellow Thunder concurred, adding that he had concerns with the NRC Staff lumping the sites together, and that it was difficult for the Tribe to address particular projects, as it was hard enough to get the tribes together at one time for internal discussions, much less for ones with the NRC Staff.<sup>186</sup>

The NRC Staff added to the confusion by treating elements of the consultation jointly at times with the other projects and individually at other times. For instance, Mr. Goodman testified that "at no point did NRC staff say that the projects were not unique entities themselves."<sup>187</sup> While this may be true, there is nothing in the record to indicate the NRC Staff ever articulated to the tribes that these consultation efforts had both a joint and separate aspect. Rather, all evidence points to the participating tribes having no such understanding of this intended, but unarticulated, dual purpose.

An example of this comes from the Oglala Sioux Tribe's submission on September 27, 2012 of a proposed statement of work for a TCP survey, nominally for the Powertech project (the "Makoche Wowapi" proposal).<sup>188</sup> Mr. Goodman's testimony was clear that the NRC Staff treated the Crow Butte license area, the North Trend Expansion, and the Powertech projects as one unified TCP consultation until October 31, 2012.<sup>189</sup> Additionally, written communications from the NRC Staff before each of the three teleconferences in the spring and summer of 2012 stated that it wished to develop one single TCP survey for all three projects.<sup>190</sup> As a result, the Oglala Sioux Tribe would not have been in error in assuming that the Makoche Wowapi TCP Survey proposal, submitted on September 27, 2012, a month before the NRC Staff split apart the consultation, could be useful in determining how to conduct a TCP Survey for the license area. After all, the evidence is clear that the NRC Staff was soliciting proposals, not for just one site, but for all sites at the same time.<sup>191</sup>

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<sup>185</sup> Tr. at 2257-58.

<sup>186</sup> Tr. at 2258-59.

<sup>187</sup> Tr. at 2257.

<sup>188</sup> See Ex. BRD-022, Makoche Wowapi Proposal with Cost Estimate for Traditional Cultural Properties Survey for Proposed Dewey Burdock [Powertech] Project (Sept. 27, 2012); Tr. at 2190.

<sup>189</sup> Tr. at 2175.

<sup>190</sup> Ex. BRD-019, Proposed Agenda for the February 14-15, 2012 Meeting on the Dewey-Burdock and Crow Butte Projects, at 1 (undated); Ex. BRD-020 at 1; Ex. BRD-021, Letter from Kevin Hsueh, Chief, Environmental Review Branch, NRC Office of Federal and State Materials and Environmental Management Programs to Tribal Historic Preservation Officers (April 5, 2012) at 1.

<sup>191</sup> Ex. BRD-020 at 1 (soliciting a "draft [Statement of Work] for the proposed Crow Butte License Renewal, Crow Butte North Trend, and Dewey-Burdock projects").

Yet, Mr. Goodman for the NRC Staff testified that he did not even consider the details of the tribes' joint September 2012 proposal with respect to Crow Butte because the Powertech site "was not my [Mr Goodman's] project."<sup>192</sup> Even more disappointing is that the NRC Staff went so far as to argue that the Oglala Sioux Tribe "did not engage in plans to develop a process for identifying cultural properties" for the Crow Butte site,<sup>193</sup> because the Makoche Wowapi proposal indicates that the Oglala Sioux Tribe submitted exactly such a proposal — albeit denominated for the Powertech site — well before the NRC Staff claimed it had separated the projects from each other.

In effect, the NRC Staff claims credit for all consultation efforts covering all the projects at the same time that it denies the Indian tribes' good-faith effort to contribute to the development of a TCP survey. The Commission has directed the NRC Staff "to protect Tribal treaty rights, lands, assets, and resources."<sup>194</sup> The NRC Staff has been much better served when, instead of just checking the boxes to meet some procedural minimums, it has worked with Indian tribes to comply with the substance of NEPA and the NHPA.<sup>195</sup>

*b. The NRC Staff's Consulting Efforts at Face-to-Face Meetings*

The core of the NRC Staff's consultation efforts were the three face-to-face meetings. Beginning with the June 7-9, 2011 meeting, there were members from six Indian tribes who attended (including staff from the Oglala Sioux's Tribal Historic Preservation Office).<sup>196</sup> Although Mr. Goodman argued in his testimony that the June 7-9 meeting satisfied all of the NHPA's consultation requirements,<sup>197</sup>

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<sup>192</sup> Tr. at 2253.

<sup>193</sup> See NRC Staff's Initial Statement of Position at 49 (May 8, 2015) [hereinafter "Staff Initial Statement of Position"].

<sup>194</sup> 79 Fed. Reg. at 71,138.

<sup>195</sup> For example, in the *Prairie Island* Independent Spent Fuel Storage Installation proceeding, the NRC Staff served as an effective supporter of the cultural concerns of an Indian tribe in a dispute with the license applicants; that proceeding settled without a hearing on apparently amicable terms. See *Northern States Power Co.* (Prairie Island Nuclear Generating Plant Independent Spent Fuel Storage Installation), LBP-15-30, 82 NRC 339 (2015). There, the Prairie Island Indian Community settled all of its cultural resource and safety-related contentions with the applicant regarding the renewal of a license for a spent fuel storage facility, which could only have been accomplished with substantial effort on the part of the NRC Staff to work with the local Indian tribe on its concerns. See *id.*

<sup>196</sup> EA § 3.9.7; Ex. INT-053, Informal Information-Gathering Meeting Pertaining to Dewey-Burdock, Crow Butte North Trend, & Crow Butte License Renewal, In-Situ Uranium Recovery Projects (Transcript), at 2-3, 6 (June 8, 2011).

<sup>197</sup> Tr. at 2083.

it is difficult to square Mr. Goodman's assertion with the report made of this trip.<sup>198</sup>

Insofar as there was any communication that could be considered consultation, it would have occurred during the 1-day meeting that was sandwiched between a June 7 bus tour of the two Crow Butte locations and a June 9 bus tour of the Powertech site. The record indicates that the June 7 bus tour did little more than introduce the tribes to the Crow Butte license renewal site for a brief period, as the tour covered four sites, was constrained by driver delays, and did not allow the tribal members to exit the bus.<sup>199</sup> Furthermore, it was widely criticized the next day.<sup>200</sup> It is also unclear from the record what role, if any, the NRC Staff itself played on the bus tour, especially given that the only report of this trip was prepared, not by the NRC Staff, but by Crow Butte's contractor.<sup>201</sup>

Moreover, all evidence about that June 8 meeting indicates it was only an initial informal meeting that was led by the NRC Staff.<sup>202</sup> The evidence is clear that, after introductions, the NRC Staff spent much of the session making a presentation to the Indian tribes about the NRC, about Crow Butte's license renewal and expansion sites, and about the Powertech site.<sup>203</sup> Although there was some time allotted for comments from the Indian tribal members present, the evidence indicates that the NRC Staff did not attempt to guide this process, and so only very general comments were obtained from the tribes — most of which concerned environmental or water contamination issues.<sup>204</sup> There is no evidence that any new information on cultural resources of any type was gathered at this June 8, 2011 meeting.<sup>205</sup> Instead, with this lack of structure to the meeting, and with most of the time allotted for introducing the NRC Staff and Crow Butte to the Indian tribes (instead of the other way around), the goal of the meeting was not — as the NRC Staff now posits — to collect information about identification and preservation of TCPs.

Under ACHP regulations, the consultation process must afford an Indian tribe with “a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the under-

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<sup>198</sup> See Ex. NRC-050 at 1.

<sup>199</sup> Tr. at 2052-53; Ex. NRC-050 at 6-7.

<sup>200</sup> Ex. INT-053 at 15, 121-122, 181, 183.

<sup>201</sup> Ex. NRC-050 at 1.

<sup>202</sup> See Ex. NRC-050 at 6-7, 10, 25.

<sup>203</sup> See, e.g., Ex. INT-053 at 27-61.

<sup>204</sup> See, e.g., *id.* at 16, 65-66, 79, 81, 87-88, 131, 139-40.

<sup>205</sup> The evidence adduced at the hearing establishes that all of the items that the NRC Staff claims were uncovered during the 3-day meeting were the result of the bus tour, not of the June 8, 2011 sit-down session. Tr. at 2066 (Dr. Nickens); Ex. NRC-050 at 8.

taking's effects on such properties, and participate in the resolution of adverse effects.”<sup>206</sup>

While this 3-day event helped inform the tribes of the NRC Staff's planned actions and set the stage for future discussions, it in no way afforded the tribes with a meaningful opportunity to assist in, or share their perspectives regarding, the identification and evaluation of historic properties within the license area. It certainly did not satisfy the consultation requirements of the NHPA. Rather the June 8 meeting, in conjunction with the June 7 and June 9 bus tours, was intended to be an introductory meeting, the first of many, and the record suggests nothing more.<sup>207</sup>

In contradiction of the NRC Staff's current claims, NRC Staff witness Mr. Goodman himself advised the tribes at the meeting that this was an “informal” event, that it was “just the first step in the whole 106 process,” and that consultation would not stop there.<sup>208</sup> Mr. Goodman reiterated later in the meeting that the NRC Staff was “early on in the Crow Butte 106 consultation process.”<sup>209</sup> To the same effect, the NRC trip report noted that “[t]he NRC staff repeatedly stated that the week's activities were only the start of consultation with the Tribes.”<sup>210</sup> And while the June 2011 meeting may have been instrumental in initiating the consultation process, it did not satisfy the NHPA's consultation requirements. To argue otherwise is to treat the entire consultation process as a checklist, without examining the substance of the dialogue among the parties to ascertain whether it produced meaningful consultation about TCPs.<sup>211</sup>

The next meeting, on February 14-15, 2012, was convened to “hear the views of the Tribes about potential [TCPs],” and to solicit the tribes' input on how to find cultural resources by using a TCP survey.<sup>212</sup> The evidence indicates that, unlike the June 7-9, 2011 introductory meeting, the NRC Staff structured the February 14-15, 2012 meeting to gain insights from the Indian tribes about TCPs in the area. In the invitation, the NRC Staff stated that the purpose of this meeting was to gather information on the “historic properties of religious and cultural significance to the Tribes that the Tribes know or believe to be located in the three

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<sup>206</sup> 36 C.F.R. § 800.2(c)(2)(ii)(A).

<sup>207</sup> See Tr. at 2083-84.

<sup>208</sup> Ex. INT-053 at 102.

<sup>209</sup> *Id.* at 110; see also *id.* at 173.

<sup>210</sup> Ex. NRC-050 at 3.

<sup>211</sup> *Oglala Sioux Tribe of Indians v. Andrus*, 603 F.2d 707, 722 (8th Cir. 1979) (“Failure of the Bureau [of Indian Affairs] to make any real attempt to comply with its own policy of consultation not only violates those general principles which govern administrative decisionmaking, but also violates ‘the distinctive obligation of trust incumbent upon the Government in its dealings with these dependent and sometimes exploited people.’” (citing *Morton v. Ruiz*, 415 U.S. 199, 236 (1974)) (internal citations omitted)).

<sup>212</sup> EA § 3.9.7.

project areas [the license area, the North Trend Expansion site, and the Powertech site],” and to gather the tribes’ views on how to identify these properties, what potential impacts these projects would pose for such properties, and how such impacts could be avoided.<sup>213</sup> Unlike the introductory nature of the June 7-9, 2011 meeting,<sup>214</sup> this meeting was to target at least some of the requirements of the NHPA.<sup>215</sup>

The NRC Staff’s agenda for the February 14-15, 2012 meeting indicated time would be allocated for discussion on the identification, evaluation, and mitigation of TCPs that might be common to the license area, the Powertech site, and the Crow Butte North Trend expansion site.<sup>216</sup> The evidence suggests that, at this meeting, the NRC Staff made a sincere and meaningful effort conducted in good faith to learn about when TCPs can qualify as historic properties under the NHPA as well as how to identify and mitigate impacts to TCPs.<sup>217</sup>

Regardless, the February 14-15, 2012 meeting — contrary to the NRC Staff’s current assertion<sup>218</sup> — did little to foster the government-to-government relationship between the parties as required by the ACHP and Executive Order 13175.<sup>219</sup> Executive Order 13175, which has been embraced by the Commission,<sup>220</sup> emphasizes the “government-to-government” relationship with Indian tribes, and encourages federal agencies “to establish regular and meaningful consultation and collaboration with tribal officials” through “an accountable process” at each agency.<sup>221</sup> While the President of the Oglala Sioux Tribe did come to the meeting,<sup>222</sup> there is no evidence that any executives from the NRC Staff were also in attendance.<sup>223</sup> In light of their absence, it is not surprising that the President of the Oglala Sioux Tribe walked out of the February 14-15, 2012 meeting when the NRC Staff attempted to characterize it as a government-to-government consultation.<sup>224</sup> This example again reflects the NRC Staff’s prioritization of form over substance with respect to the NHPA requirements. The government-to-government relationship is not benefited, and if anything harmed, if the focus

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<sup>213</sup> Ex. BRD-018, Letter from Kevin Hsueh, Chief, Environmental Review Branch, to Tribal Historic Preservation Officers, at 1 (Jan. 19, 2012).

<sup>214</sup> Ex. NRC-039.

<sup>215</sup> Ex. BRD-018 at 1.

<sup>216</sup> Ex. BRD-019 at 2-3.

<sup>217</sup> Tr. at 2097-98, 2332.

<sup>218</sup> Staff Initial Statement of Position at 51.

<sup>219</sup> 36 C.F.R. § 800.2(c)(2)(ii)(C); 65 Fed. Reg. at 67,249-50.

<sup>220</sup> 79 Fed. Reg. at 71,137.

<sup>221</sup> 65 Fed. Reg. at 67,249-50.

<sup>222</sup> Tr. at 2108-09.

<sup>223</sup> Ex. BRD-019 at 4; Ex. NRC-042.

<sup>224</sup> See Tr. at 2109.



does not remain on substantive consultations between equivalent levels of NRC Staff management and Tribal executives.

If the NRC Staff wants tribal leadership to attend, and most especially wants to legitimately claim a tribal leader has attended for the purposes of NHPA consultation, then NRC Staff leadership needs to attend as well. The NRC Staff claims it recognizes<sup>225</sup> that the ACHP mandates a government-to-government relationship between the parties.<sup>226</sup> And yet it argues that it has effectuated this requirement by way of a letter, signed by a NRC Division Director,<sup>227</sup> who never appears again in the process. In support of its minimalist approach, the NRC Staff argues that NUREG-2173 requires only that the initial communication letter be signed by a Division Director, after which all other communications can be with lower-ranked staff members.<sup>228</sup> While this manual certainly does require that the NRC Staff's initial written communication with a tribe be signed by a division director,<sup>229</sup> the Division Director's involvement does not end there. Instead, NUREG-2173 states that "[s]ubsequent interactions with Tribal governments can be conducted by the NRC staff that contact and establish relationships with Tribal representatives who hold *similar levels of authority*."<sup>230</sup> Here, the president of a *nation* came, and while we need not delve into the NRC organizational chart to find the exact person within it who would qualify, it is clear that no one present for the NRC Staff at the February 14-15, 2012 meeting would qualify as holding a similar level of authority.

Indian tribes are nations with unique sovereign status that predates the United States.<sup>231</sup> Although not fully independent sovereigns — sometimes referred to as “domestic dependent nations” — the United States Supreme Court has recognized that Indian tribes “remain ‘separate sovereigns pre-existing the Constitution,’” and maintain “their historic sovereign authority.”<sup>232</sup> In accordance with this special status, NUREG-2173 acknowledges that each tribe, like each nation, has a unique history and experience “with its own customs, culture, concerns, interests and needs.” Accordingly, NUREG-2173 acknowledges that federally recognized

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<sup>225</sup> 79 Fed. Reg. at 71,137.

<sup>226</sup> 36 C.F.R. § 800.2(c)(2)(ii)(C).

<sup>227</sup> Ex. NRC-039.

<sup>228</sup> Staff Proposed Findings & Conclusions at 24-25.

<sup>229</sup> NUREG-2173 § 2.D.

<sup>230</sup> *Id.* (emphasis added).

<sup>231</sup> *Michigan v. Bay Mills Indian Community*, 134 S. Ct. 2024, 2030 (2014); NUREG-2173 §§ 1.A, 1.C.

<sup>232</sup> *Bay Mills Indian Cmty.*, 134 S. Ct. at 2030 (quoting *Santa Clara Pueblo v. Martinez*, 436 U.S. 49, 56 (1978)).

Indian tribes should “expect to be treated as sovereign nation representatives” when working with the NRC.<sup>233</sup>

We find there was nothing inappropriate in holding meetings or teleconferences led by mid-level officials and subject-matter experts to design the TCP survey.<sup>234</sup> But, at the same time, we note that such meetings or teleconferences do not satisfy the government-to-government consultation requirements under the NHPA. Letters at the start of the process may be necessary, but they are not sufficient in themselves. Or, as the *Powertech* licensing board noted, an abundance of letters does not equate to meaningful or reasonable consultation.<sup>235</sup>

To the NRC Staff’s credit, it later recognized its mistake and attempted to cure the otherwise defective consultation by bringing in NMSS Deputy Division Director Aby Mohseni to the May 23, 2013 meeting.<sup>236</sup> Although the Oglala Sioux Tribe never attended that meeting, the Deputy Director’s presence certainly demonstrated that the NRC Staff was genuinely attempting to engage in meaningful government-to-government consultation at the executive-to-executive level. In the Board’s estimation, this May 23, 2013 meeting represents the only moment in time when the government-to-government relationship between the NRC Staff and Oglala Sioux Tribe could have been consummated. In fact, Mr. CatchesEnemy admitted in his written testimony that the May 23, 2013 meeting was a government-to-government consultation.<sup>237</sup>

Even after this point, however, there were missteps that failed to accord the Oglala Sioux Tribe the respect that is due a sovereign entity. The EA notes that on March 21, 2014, a copy of the draft EA was sent to NDEQ<sup>238</sup> — but not to the Oglala Sioux Tribe.<sup>239</sup> We agree with the Tribe that providing the draft EA to NDEQ but not the Oglala Sioux Tribe fails to accord the Tribe its proper status as a sovereign entity or meaningful and equal participant,<sup>240</sup> particularly in light of the fact that the NRC Staff witnesses were unable to offer a satisfactory reason for this disparate treatment.<sup>241</sup> Although the Tribe has not demonstrated that it thereby suffered significant harm (e.g., there is no evidence that providing the draft EA would have enabled the Tribe to protect its cultural resources), such slights stain the consultation process.

Still, it is worrisome that the NRC Staff could not admit that this was a simple

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<sup>233</sup> NUREG-2173 §§ 1.A, 1.C.

<sup>234</sup> *Id.* § 2.D.

<sup>235</sup> *Powertech*, LBP-15-16, 81 NRC at 656.

<sup>236</sup> Tr. at 2328.

<sup>237</sup> Ex. INT-031 ¶ 23.

<sup>238</sup> EA § 5.

<sup>239</sup> Tr. at 2341-42.

<sup>240</sup> Intervenor’s Reply Findings & Conclusions at 22.

<sup>241</sup> Tr. at 2358-59.

mistake, and instead defended its failure to send the draft EA to the Tribe by asserting that “there’s no [NRC] regulatory requirement.”<sup>242</sup> We expect that going forward, the NRC Staff will recognize what is required to accord the Tribe its proper status as a sovereign entity.

*c. Failure of the TCP Survey*

As a result of their face-to-face meetings and teleconferences with the tribes, it was clear to the NRC Staff that the Indian tribes participating in the section 106 consultation wanted to perform a TCP survey of the site. The tribes expressed this interest at the June 7-9, 2011 meeting,<sup>243</sup> and Mr. Goodman for the NRC Staff shared the sentiment.<sup>244</sup> Mr. Goodman testified that the tribes also drove this point home during the February 14-15, 2012 meeting and that “one of the big take aways was that staff felt that it was very important to have a TCP [survey] conducted by the tribes.”<sup>245</sup>

The NRC Staff’s efforts to develop a TCP survey began in earnest after the February 2012 meeting, with the NRC Staff asking both Crow Butte and the Indian tribes to submit draft “statements of work,” that would reflect their respective concepts for conducting such a survey.<sup>246</sup> Contemporaneously, the NRC Staff communicated in writing that it sought to develop a single TCP survey for the Crow Butte license renewal, for some or all of the expansion sites, and for the Powertech project.<sup>247</sup> To develop the final survey statement of work, the NRC Staff conducted three teleconferences with members of local Indian tribes: one on April 24, 2012, one on August 9, 2012, and the last one on August 21, 2012.<sup>248</sup> Nevertheless, the parties ultimately were unable to reach an agreement on a final statement of work for a TCP survey for these sites.

Many aspects of what happened during these teleconferences are widely disputed. First, the parties disagree as to who was in attendance. Mr. Goodman testified that members of the Oglala Sioux Tribe were present on all the conference calls,<sup>249</sup> although Mr. Yellow Thunder testified that he — in his capacity as Tribal Historic Preservation Officer for the Oglala Sioux Tribe — participated in only one of the calls.<sup>250</sup> Second, the parties dispute the goal of the teleconferences.

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<sup>242</sup> Tr. at 2346.

<sup>243</sup> Ex. NRC-050 at 4.

<sup>244</sup> Tr. at 2082-83.

<sup>245</sup> Tr. at 2097.

<sup>246</sup> Ex. BRD-020 at 1.

<sup>247</sup> See *id.*; Ex. BRD-021.

<sup>248</sup> NRC Staff Communications Log at 4 (entries 20-26).

<sup>249</sup> Tr. at 2237.

<sup>250</sup> Tr. at 2179.

Mr. Goodman testified that the conference calls covered the design and conduct of a TCP survey for the Crow Butte license area, the North Trend expansion area, and the Powertech project.<sup>251</sup> Mr. Goodman and Mr. Teahon also testified that the SRI Foundation, a contractor for Crow Butte, created a first cut of the TCP survey “statement of work,” and that the teleconferences provided the tribes with a genuine opportunity to discuss the proposal.<sup>252</sup> While Mr. Yellow Thunder agreed that the SRI Foundation provided a scope of work for the TCP survey,<sup>253</sup> he viewed the core topic of the three teleconferences as the development of a programmatic agreement.<sup>254</sup> Although the NRC Staff now asserts that it did not intend to utilize a programmatic agreement for the Crow Butte license area, it is easy to see how this multisite approach confused the participating tribes.<sup>255</sup>

Third, the parties dispute the role of the SRI Foundation in these teleconferences. Initially, we note that the NHPA does not bar the use of consultants.<sup>256</sup> The dispute here, however, involves whether the SRI Foundation managed the process to such an extent that the NRC Staff was not actually overseeing the effort and making final conclusions, as was the view of both Mr. CatchesEnemy and Mr. Yellow Thunder.<sup>257</sup> Mr. Goodman for the NRC Staff and Mr. Teahon for Crow Butte both disputed this, asserting in their testimony that the SRI Foundation was involved “to assist only with data collection.”<sup>258</sup> Mr. Goodman testified that while the SRI Foundation may have fielded questions in the context of its responsibility for completing Crow Butte’s survey, it in no way mediated the design of the TCP Survey itself.<sup>259</sup>

Actual transcripts of these conference calls would have assisted us in evaluating these disputes in the testimony, but the NRC Staff did not provide the transcripts from the teleconferences as part of the record until just before the hearing, at the request of the Board.<sup>260</sup> The Commission has made clear that “the parties are responsible for ensuring that there is sufficient evidence on-the-record to

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<sup>251</sup> Tr. at 2261-62, 2176.

<sup>252</sup> Tr. at 2261-68, 2226-28.

<sup>253</sup> See Tr. at 2182.

<sup>254</sup> Tr. at 2171-74. “A Programmatic Agreement may be used to implement the Section 106 process in situations where the effects to historic properties cannot be fully determined prior to the approval of an undertaking, such as where an applicant proposes a phased approach to developing its project.” *Powertech*, LBP-15-16, 81 NRC at 640.

<sup>255</sup> Tr. at 2172-73; see also Ex. BRD-026 at 2.

<sup>256</sup> 36 C.F.R. § 800.2(a)(3).

<sup>257</sup> Ex. INT-031 ¶ 18; Ex. INT-032 ¶ 14; Tr. at 2102.

<sup>258</sup> Tr. at 2259-60; see also Tr. at 2260-67.

<sup>259</sup> Tr. at 2262-63.

<sup>260</sup> Parties’ Joint Response to the Board’s July 31, 2015 Order Regarding Redaction of Documents (Aug. 10, 2015) [hereinafter “Staff Response to Board Document Request”].

meet their respective burden.”<sup>261</sup> And at the hearing phase, the NRC Staff is the party with the burden of proof.<sup>262</sup> More importantly, the NRC Staff failed even to provide the transcripts for the August 9 and August 21 conference calls in its disclosure reports, as a result of which the parties were never afforded an opportunity to examine the transcripts to prepare their case for hearing.<sup>263</sup>

Because the NRC Staff did not provide two of the three teleconference transcripts to the opposing parties as part of its required monthly disclosure obligations, the Board is hesitant to consider them. We find that, in the face of the conflicting claims and the NRC Staff’s failure to meet its basic disclosure requirements, the NRC Staff may not rely on the three 2012 teleconference calls in support of its burden of proof. Without the conference calls in evidence, the NRC Staff is unable to rebut any of Intervenor’s claims that the TCP survey development process was run mostly by Crow Butte’s contractor and failed to engage the tribes in a meaningful way.

What the remaining record suggests is that, in the midst of this contested process in which all parties had devoted considerable time and effort to devise a TCP survey that involved multiple tribes and multiple sites, Crow Butte suggested an alternate “open site”<sup>264</sup> TCP survey approach on October 3, 2012,<sup>265</sup> which the NRC Staff adopted shortly thereafter. Less than a month later on October 31, 2012, the NRC Staff invited the Indian tribes to participate in an open site TCP survey to be conducted in late November of 2012 (i.e., the “November 2012 TCP Survey”).<sup>266</sup> The record does not indicate that the NRC Staff attempted to communicate with the Oglala Sioux Tribe (or with any other Indian tribe) between October 3, 2012, when Crow Butte formally proposed its alternative approach, and October 31, 2012, when the NRC Staff sent out its formal NRC Staff 2012 invitation to participate in an open site TCP Survey.<sup>267</sup> In addition to casting a pall on the quality of the final TCP survey itself,<sup>268</sup> this also reflects negatively on the NRC Staff’s efforts to engage with the Indian tribes, especially considering the dramatic reversal that the open site approach represented from the previous 2

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<sup>261</sup> 69 Fed. Reg. at 2213.

<sup>262</sup> See *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), CLI-10-2, 71 NRC 27, 34-35 (2010); see also *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), CLI-07-17, 65 NRC 392, 395 (2007).

<sup>263</sup> See NRC Staff Mandatory Hearing File Update 38 (Apr. 26, 2012) (ADAMS Accession No. ML12117A456); NRC Staff Mandatory Hearing File Update 41 (July 26, 2012) (ADAMS Accession No. ML12208A319).

<sup>264</sup> See *infra* Section III.C.4.

<sup>265</sup> Ex. BRD-026.

<sup>266</sup> Ex. BRD-023.

<sup>267</sup> See NRC Staff Communications Log at 4 (entry 27); EA § 3.9.8; Ex. BRD-023.

<sup>268</sup> The November 2012 TCP Survey is addressed in detail *infra* Section III.C.4.

years of deliberations between the NRC Staff and the tribes about how to identify and assess TCPs.

Not surprisingly, the November 2012 TCP Survey engendered little meaningful participation by the tribes. Only two tribes participated:<sup>269</sup> the Crow Nation and the Santee Sioux Nation.<sup>270</sup> Mr. CatchesEnemy and Mr. Yellow Thunder opined that neither the Crow Nation nor the Santee Sioux have sufficient historical contact with the license area to identify TCPs that may be of significance to tribes such as the Oglala Sioux Tribe (who have a far deeper historical connection to the area).<sup>271</sup>

We find that the Lakota nations, and specifically the Oglala Sioux Tribe, have a sufficient historic connection to guide the development of a TCP at the license area, as supported by: (1) the NRC Staff's EA;<sup>272</sup> (2) the Bozell & Pepperl Survey;<sup>273</sup> (3) Staff testimony confirming that, of the seven Lakota bands, the Oglala Sioux Tribe is the largest;<sup>274</sup> and (4) testimony from both Mr. CatchesEnemy and Mr. Yellow Thunder, supporting the NRC Staff's position in this regard<sup>275</sup> and noting that the Pine Ridge Reservation, the current home of the Oglala Sioux Tribe, is a mere 30 miles from the Crow Butte mine.<sup>276</sup> Consequently, all indications pointed clearly to the importance of consultation with persons having expertise in TCPs of the Oglala Sioux Tribe — i.e., if not a member of that Tribe, then at least someone with expertise in Lakota TCPs. But that was not the course chosen by the NRC Staff. Instead of rethinking its consultation approach, the NRC Staff went ahead with a TCP survey conducted by two tribes with no such expertise in Lakota TCPs.

While we address the adequacy of the November 2012 TCP Survey below, in reference to whether the NRC Staff met its Identification Obligations of the NHPA,<sup>277</sup> the fact that the NRC Staff decided to go ahead with the open site survey approach, based on consultation with two tribes that could not be expected to identify TCPs of value to Lakota tribes or to the Oglala Sioux Tribe, renders consultation with those tribes about TCPs within the license area largely meaningless.

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<sup>269</sup> Tr. at 2303-04.

<sup>270</sup> Tr. at 2338; Ex. NRC-052.

<sup>271</sup> Ex. INT-031 ¶ 26; Ex. INT-032 ¶ 17.

<sup>272</sup> EA § 3.9.3; *see also* EA § 3.9.8.

<sup>273</sup> Ex. CBR-027 at 6.

<sup>274</sup> Tr. at 2300-01.

<sup>275</sup> Tr. at 2296-329; *see also* Ex. INT-031 ¶ 8; Ex. INT-032 ¶ 5.

<sup>276</sup> Tr. at 1033, 1508, 1355.

<sup>277</sup> *Infra* § III.C.4.

*d. Genuine Attempts at Consultation and the Oglala Sioux Tribe's  
Lack of Reciprocity*

Sometime after the February 14-15, 2012 meeting, communications soured considerably between the Indian tribes and the NRC Staff. Intervenors characterized this as a complete breakdown.<sup>278</sup> While the NRC Staff's record in this matter is less than stellar, the Oglala Sioux Tribe is by no means blameless. At the hearing, Mr. Yellow Thunder testified that the Tribe started to pull back from further communications with the NRC Staff in 2012, and eventually actively resisted the consultation process.<sup>279</sup>

The Oglala Sioux Tribe disliked the use of teleconferences, as opposed to face-to-face meetings, for designing the TCP survey.<sup>280</sup> Moreover, by that time, at least some members of the Tribe were convinced the NRC Staff had misinformed other tribes that the Oglala Sioux Tribe was on board with the consultation process in order to get those other tribes to participate.<sup>281</sup> Mr. Yellow Thunder referred to these actions as a "ploy,"<sup>282</sup> and Mr. CatchesEnemy further asserted that the Oglala Sioux Tribe was "misled" by the NRC Staff.<sup>283</sup>

At the same time, however, the record is devoid of any attempt by the Oglala Sioux Tribe to discuss such misgivings with the NRC Staff. According to Mr. Yellow Thunder, instead of explaining the Tribe's concerns or informing the NRC Staff that the Tribe was going to disengage from the consultation process, the Oglala Sioux Tribe representatives declined to make any effort to work with the NRC Staff.<sup>284</sup> Mr. Yellow Thunder testified that "[w]e were merely listening and not participating to develop" the TCP survey.<sup>285</sup> He added that at some point "we refused to participate in any more conference calls."<sup>286</sup> Mr. Goodman corroborated this testimony, indicating that during this time phone calls the NRC Staff made to the Oglala Sioux Tribe "were not getting returned."<sup>287</sup> This deterioration in relations culminated with the Oglala Sioux Tribe affirmatively choosing not to participate in the November 2012 open site TCP Survey.<sup>288</sup>

Even though its overtures were repeatedly rebuffed, the NRC Staff persisted in making genuine efforts at consultation. On March 12, 2013, NMSS Division

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<sup>278</sup> Tr. at 2137, 2171-72, 2176, 2219, 2234; *see also* Ex. INT-031 ¶ 24; Ex. INT-032 ¶ 15.

<sup>279</sup> Tr. at 2171-72.

<sup>280</sup> *See* Ex. INT-031 ¶ 19; Tr. at 2171-72.

<sup>281</sup> Tr. at 2176-77.

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

<sup>283</sup> Tr. at 2255-56.

<sup>284</sup> Tr. at 2171-72.

<sup>285</sup> Tr. at 2171.

<sup>286</sup> Tr. at 2172-73.

<sup>287</sup> Tr. at 2234.

<sup>288</sup> Tr. at 2243-45; 2255-56.

Director Larry Camper sent another invitation for a government-to-government consultation, to be conducted in person, on proposed ISL facility projects in the area.<sup>289</sup> Oglala Sioux President Bryan Brewer of the Oglala Sioux Tribe responded, accepting the invitation to the meeting and acknowledging that it would be a “government-to-government” consultation.<sup>290</sup> A number of NRC Staff members, including NMSS Deputy Division Director Aby Mohseni, flew to attend the meeting.<sup>291</sup>

Yet when the meeting occurred on May 23, 2013, the Oglala Sioux Tribe simply did not show up.<sup>292</sup> This significantly compromised the entire consultation process, because, as Mr. CatchesEnemy explained at the hearing, the Oglala Sioux Tribe is the largest tribe in the area and other tribes often follow its lead.<sup>293</sup> There is no indication in the record that the Oglala Sioux Tribe informed the NRC Staff that it would not attend the meeting, and at the hearing neither Mr. CatchesEnemy nor Mr. Yellow Thunder could provide any explanation for why no tribal representatives appeared.<sup>294</sup> This resulted in a significant waste in time and effort for all parties involved.

### ***3. Findings on Consultation Process***

The record before the Board presents a close call as to whether the NRC Staff provided a meaningful opportunity for the Indian tribes to consult on the Crow Butte license renewal. We find that the NRC Staff’s consultation process suffered from years of inaction and delay, a confusing multisite project approach, and for most of the process an absence of sincere respect for the government-to-government relationship that exists between Indian tribes and the United States. Nonetheless, in 2013, the NRC Staff attempted to rectify its mistakes by endeavoring to consult meaningfully with affected Indian tribes. Sadly, at that time, the Oglala Sioux Tribe also took steps that undermined the process.

The NHPA requires no more of a federal agency than to afford an opportunity for Indian tribes to consult meaningfully on federal actions that affect properties of religious or cultural significance to an Indian tribe, as well as to advise the

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<sup>289</sup> Ex. NRC-043, Letter from Larry W. Camper, Director, Division of Waste Management and Environmental Protection, to Bryan V. Brewer, Sr., President, Oglala Sioux Tribe (Mar. 12, 2013); *see also* NRC Staff Communications Log at 5.

<sup>290</sup> Ex. NRC-044, Letter from Bryan V. Brewer, Sr., President, Oglala Sioux Tribe, to Larry W. Camper, Director, Division of Waste Management and Environmental Protection, at 1 (Mar. 20, 2013).

<sup>291</sup> Tr. at 2328.

<sup>292</sup> Tr. at 2323.

<sup>293</sup> Tr. at 2177-18, 2298.

<sup>294</sup> Tr. at 2323; Ex. NRC-001-R at 65-66.



agency on identification and evaluation of such properties, and to participate in the resolution of any possible adverse consequences.<sup>295</sup> The NHPA does not empower an Indian tribe to delay or stall a licensing proceeding. After considerable and unreasonable delay, the NRC Staff finally provided the Oglala Sioux Tribe with a meaningful opportunity to be consulted about TCPs within the license area.<sup>296</sup> This includes three face-to-face meetings over the better part of 2 years, the second of which focused on gaining tribal input, and the third of which a Deputy Division Director attended. While the NRC Staff could have done a number of things differently, there is no evidence that its mistakes post-2011 were prejudicial.

Moreover, even were the Board to find for Intervenor, there is no evidence that the Oglala Sioux Tribe has any genuine interest in further consultation efforts with the NRC Staff with respect to the license area. While the Oglala Sioux Tribe claims it seeks “a meaningful opportunity to be involved in the assessment or determination of the significance of the identified sites,” the undisputed fact is that, after repeatedly requesting a face-to-face meeting, the Oglala Sioux Tribe was finally given one — and despite assurances it would attend such a meeting, it failed to show up even after the NRC Staff officials flew to Nebraska to consult.

We note that, while facially similar, this proceeding is unlike that before the *Powertech* licensing board. Certainly, both proceedings involved the same parties, the same meetings, the same teleconferences, and the same consultation process for both pending ISL mining licenses (as well as other planned mining licenses). But what differentiates the two is that the Oglala Sioux Tribe apparently made a good-faith attempt to work with the NRC Staff on the *Powertech* licensing matter, remaining engaged with the NRC Staff there well into 2013.<sup>297</sup> The *Powertech* licensing board recognized that both sides were at fault for the failure of that consultation process;<sup>298</sup> and while there is certainly plenty of blame to go around in the instant proceeding, the Board finds that the balance weighs against the Oglala Sioux Tribe in this proceeding.

For the foregoing reasons, we find by a preponderance of the evidence that the NRC Staff eventually made a genuine effort to consult with the Oglala Sioux Tribe with respect to the Crow Butte license area, and so it met its Consultation Obligations under the NHPA.

### C. Meeting the NHPA’s Identification Obligations

We next turn to whether the NRC Staff satisfied its Identification Obligations

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<sup>295</sup> 54 U.S.C.A. § 302706 (West 2016); 36 C.F.R. § 800.2(c)(2)(ii)(A).

<sup>296</sup> 65 Fed. Reg. at 67,250.

<sup>297</sup> *Powertech*, LBP-15-16, 81 NRC at 648.

<sup>298</sup> *Id.* at 656.

under the NHPA. Analysis of this issue turns on four efforts: (1) the Bozell & Pepperl Survey; (2) the NRC Staff's literature reviews; (3) the June 7-9, 2011 informal information-gathering session; and (4) the November 2012 TCP Survey. Each is examined *seriatim*, below.

### **1. Bozell & Pepperl Survey**

The Board agrees with the NRC Staff that the Bozell & Pepperl Survey yielded valuable information about historic properties and that, as such, it is clearly pertinent to this license renewal.<sup>299</sup> The Bozell & Pepperl Survey was a Class III archeological survey, which, at least in modern times, is an intensive, professionally conducted study of a target area.<sup>300</sup> The Bozell & Pepperl Survey included a review of previous studies and archival records and a pedestrian “by-foot” survey of a significant portion of the license area.<sup>301</sup> The pedestrian “by-foot” survey was extensive, with surveyors walking no more than 20 to 30 meters apart, and with a focused survey near creeks and tributaries.<sup>302</sup>

Crow Butte's witness, Mr. Teahon, however, goes further and opines that this survey is sufficient on its own to meet the requirements of the NHPA for this license renewal.<sup>303</sup> We disagree. Federal agencies are now required to assume responsibility for identifying, assessing, and attempting to mitigate impacts to tribal cultural resources under the NHPA.<sup>304</sup> But when the Bozell & Pepperl Survey was conducted in 1988, this NHPA Identification Obligation specific to TCPs had not yet been imposed on federal agencies.<sup>305</sup> Of particular import here, in 1988, the NRC Staff was not obligated to consider the cultural or religious significance that tribes might ascribe to TCPs, as was required in 2007 when Crow Butte applied to renew its license.<sup>306</sup>

To their credit, the authors of the Bozell & Pepperl Survey conducted literature and archival research, using federal and state databases, to obtain historical and prehistorical context for the license area. At the same time, however, the Bozell & Pepperl Survey team made no attempt to communicate with any of the neighboring tribes, such as the Oglala Sioux Tribe (just 30 miles away), to

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<sup>299</sup> Staff Initial Statement of Position at 52.

<sup>300</sup> See *Montana Wilderness Ass'n v. Connell*, 725 F.3d 988, 1006 (9th Cir. 2013).

<sup>301</sup> Ex. CBR-027 at i, ii, 3.

<sup>302</sup> *Id.* at 18.

<sup>303</sup> See Ex. CBR-007 at 8.

<sup>304</sup> See *supra* Section II.B.2.

<sup>305</sup> 16 U.S.C. § 470(f) (1988).

<sup>306</sup> 54 U.S.C.A. § 302706(a) (West 2016); 1992 NHPA Amendments § 4006; Ex. NRC-083, National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (1998) [hereinafter “National Register Bulletin 38”].

inquire whether those tribes had other literature resources or advice that might bear on the identification or evaluation of historic properties.<sup>307</sup> As a result, the surveyors' understanding of the historical activities of Indian tribes in the region<sup>308</sup> was far less specific than was their understanding of Euro-American activities.<sup>309</sup> For example, homesteads and other American historical sites were described in significant detail, with site measurements and backgrounds of the individual settlements provided,<sup>310</sup> whereas little attempt was made to understand the context of any Indian-origin TCPs.<sup>311</sup> Moreover, no evidence was presented at the hearing that the survey staff for the Bozell & Pepperl Survey had any specific expertise with Native American TCPs, and a review of the report itself fails to identify any such expertise. While the authors apparently did what was required of them under the NHPA in 1988, their failure to utilize experts in Lakota TCPs, such as Lakota tribal members who could have added to the survey process, is clearly contrary to current regulations.<sup>312</sup>

In addition, when making their final site eligibility determinations, the Bozell & Pepperl surveyors relied significantly on personal judgment calls that were based on an understanding of the NHPA that would not pass muster today. For example, the authors of the Bozell & Pepperl Survey immediately discounted cultural resources that did not have "physical integrity," stating that "a site's physical integrity must be established prior to further considerations of eligibility."<sup>313</sup> But, the value placed on physical integrity in determining site eligibility for the National Register is not the same today as when the Bozell & Pepperl Survey was completed. National Register Bulletin 15 explains the current concept of a historic property's "integrity" by cataloguing seven separate attributes (i.e. location, design, setting, materials, workmanship, feeling, and association).<sup>314</sup> There is no mention of "physical integrity."<sup>315</sup> A modern NHPA listing evaluation is far less rigid than was the guidance relied upon by the Bozell & Pepperl Survey team in 1988.<sup>316</sup> As one example that is pertinent here, National Register Bulletin 15 makes clear that even a barren hilltop can be eligible for placement

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<sup>307</sup> Tr. at 2032; Ex. CBR-027 at 1; Ex. NRC-001-R at 69-70.

<sup>308</sup> See, e.g., Ex. CBR-027 at 6.

<sup>309</sup> See, e.g., *id.* at 6-7.

<sup>310</sup> See, e.g., *id.* at 24-26 (descriptions of sites 25DW111 through 25DW113).

<sup>311</sup> See, e.g., *id.* at 32 (description of site 25DW114).

<sup>312</sup> Cf. 36 C.F.R. § 800.4(c)(1).

<sup>313</sup> Ex. CBR-027 at 69.

<sup>314</sup> 36 C.F.R. § 60.4.

<sup>315</sup> National Register Bulletin 15 at 44.

<sup>316</sup> *Id.* at 44-46; Ex. CBR-027 at 69.

on the National Register, if the oral historical record of an Indian tribe ascribes significance to it.<sup>317</sup>

Similarly, another guidance document, National Register Bulletin 38,<sup>318</sup> Ex. NRC-083, provides that locations may be eligible for placement in the National Register if religious practitioners have historically traveled there, or if cultural performances have been held there,<sup>319</sup> even if such “cultural uses may have left little or no physical evidence.”<sup>320</sup> Bulletin 38 further states that “[i]t would be ethnocentric in the extreme to say that ‘whatever the Native American group says about this place, I can’t see anything here so it is not significant.’”<sup>321</sup>

Ultimately, these National Register Bulletins are based on the ACHP’s regulations, which in 1981<sup>322</sup> established four criteria for the listing of historic properties:

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history.<sup>323</sup>

Of these four National Register listing criteria, the Bozell & Pepperl surveyors emphasized the cultural resource’s ability to yield important historical information.<sup>324</sup> Today, however, there is no indication the fourth criterion is to be given outsized importance.<sup>325</sup> Because the Bozell & Pepperl Survey focused so heavily on a particular property’s ability to yield important historical information, it accordingly gave insufficient consideration to the third ACHP listing criterion, i.e., historic properties “that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that

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<sup>317</sup> National Register Bulletin 15 at 13.

<sup>318</sup> See National Register Bulletin 38 at 5.

<sup>319</sup> *Id.* National Register Bulletin 38 avers that the 1992 amendments to the NHPA, incorporating the views of Indian tribes into the NHPA, expanded upon the role of “culture” as a determining factor of eligibility in the NHPA. *Id.*

<sup>320</sup> *Id.* at 22.

<sup>321</sup> *Id.* at 8.

<sup>322</sup> National Register of Historic Places, 46 Fed. Reg. 56,183, 56,187 (Nov. 16, 1981).

<sup>323</sup> 36 C.F.R. § 60.4.

<sup>324</sup> Ex. CBR-027 at 69, 74.

<sup>325</sup> See generally National Register Bulletin 15.

possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.”<sup>326</sup>

The inadequate significance the Bozell & Pepperl Survey accorded to these cultural considerations was evident in this proceeding. The Oglala Sioux Tribe witnesses opined about a number of important events that occurred within or near the license area, in particular the site’s use “as an encampment during [the] period of forced removal by the United States of the Sioux from their ancestral lands and during the existence of Fort Robinson and the ‘sign or starve’ treaty-making tactics of the United States in the mid to late 1800s.”<sup>327</sup> These events have great importance to the Oglala Sioux Tribe and Lakota tribes.<sup>328</sup> By emphasizing the physical integrity and research value of a particular cultural resource to the exclusion of the unique cultural relationship between that resource and the Oglala Sioux Tribe and other Lakota tribes, such properties could be missed by a Class III survey. Although the NRC Staff argues that its literature review places these encampments slightly east of the license area,<sup>329</sup> a literature review is inferior to the expertise<sup>330</sup> of the Oglala Sioux Tribe witnesses who testified to the contrary. Furthermore, as Crow Butte’s own witness Mr. Teahon acknowledged,<sup>331</sup> potentially up to nine Indian-origin cultural sites were identified from the Bozell & Pepperl Survey alone, clearly indicating that the license area is far from barren in historical content.<sup>332</sup>

Compounding these errors, the authors of the Bozell & Pepperl Survey discounted the value of certain Indian sites for reasons that today would be considered improper. The Bozell & Pepperl surveyors discounted tribal burial grounds as mere cemeteries, which at that time were “ordinarily not considered eligible for *National Register* involvement.”<sup>333</sup> This exclusion of cemeteries stemmed from the language of the ACHP regulations at that time: “[o]rdinarily, cemeteries, birthplaces, or graves of historical figures” are not eligible for listing as a historic property, unless the cemetery derives its importance through other means, such as “association with historic events.”<sup>334</sup>

Intervenors’ testimony confirms that the Oglala Sioux Tribe disputes a number of the conclusions of the Bozell & Pepperl Survey, including the short shrift given

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<sup>326</sup> 36 C.F.R. § 60.4(c).

<sup>327</sup> Ex. INT-031 ¶ 14; Ex. INT-032 ¶ 11; Tr. at 2268.

<sup>328</sup> Ex. INT-031 ¶¶ 14-15, 26; Ex. INT-032 ¶¶ 11-12.

<sup>329</sup> Ex. NRC-076-R2 at 60.

<sup>330</sup> See 36 C.F.R. § 800.4(c)(1).

<sup>331</sup> Ex. CBR-007 at 7.

<sup>332</sup> Ex. CBR-027 at i, 18; EA § 3.9.8.

<sup>333</sup> Ex. CBR-027 at 69.

<sup>334</sup> 36 C.F.R. § 60.4 (1988); see also Section VII, “How to Apply the Criteria Considerations,” in *National Register Bulletin* 15.

to tribal burial grounds. During the hearing, the Oglala Sioux Tribe's witnesses placed special emphasis on the importance of cemeteries<sup>335</sup> due to their unique historical, cultural, and religious role for the Lakota people<sup>336</sup> and opined that there may be burial grounds in or near the license area related to the "sign or starve" encampments as well as to historically important wars.<sup>337</sup> At the hearing, tribal representatives also testified that Indian tribes may see significance in "stone features or scatters or hearths or burials" independent of their association with specific past events, people, or research value.

Even though the Bozell & Pepperl Survey may have been compliant with the NHPA as it was in force in 1988, there is little doubt that, after 1992, such carte-blanche exclusion of tribal burial grounds was no longer acceptable. National Register Bulletin 38 states that "it is possible for the birth or burial itself to have been ascribed such cultural importance that its association with the property contributes to its significance."<sup>338</sup> That cemeteries can have distinct cultural and religious importance to Indian tribes was also made abundantly clear 2 years before the 1992 amendments to the NHPA, with the passage of the Native American Graves Protection and Repatriation Act.<sup>339</sup> Yet, the tribes' critique of the Bozell & Pepperl Survey is not confined to burial grounds. They also complain that it does not tie any of the cultural resources identified to the Great Sioux Wars, the Red Cloud Agency, or any other event of great significance to the Lakota people that occurred in the area.<sup>340</sup>

As Mr. Teahon's testimony recognized, even using the listing criteria acceptable in 1988, the Bozell & Pepperl Survey identified nine potential TCPs of Indian origin,<sup>341</sup> and determined that three of them were potentially eligible for placement in the National Register (and therefore worthy of protection).<sup>342</sup> Had current listing criteria been used instead, we find it is at least plausible that other Indian-origin historic properties would have been identified within the license area. Even Crow Butte appears to have recognized these deficiencies in the Bozell & Pepperl Survey (although it argued otherwise in this litigation<sup>343</sup>). For example, a letter sent to Indian tribes *by Crow Butte* in conjunction with the 1998 license renewal acknowledged that the Bozell & Pepperl Survey was inconclusive at

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<sup>335</sup> Tr. at 2055.

<sup>336</sup> Tr. at 997, 1000-01, 2055, 2269, 2368.

<sup>337</sup> See *supra* note 327.

<sup>338</sup> National Register Bulletin 38 at 20.

<sup>339</sup> Native American Graves Protection and Repatriation Act, Pub. L. No. 101-61, 104 Stat. 3048 (1990) (codified at 25 U.S.C. § 3001 *et seq.*).

<sup>340</sup> See Ex. CBR-027 at 9 (giving scant recognition to these recent historical events).

<sup>341</sup> *Id.* at i, 18.

<sup>342</sup> *Id.* at 74-75, 78 (sites 25DW114, 25DW194, 25DW198).

<sup>343</sup> See Crow Butte Proposed Findings & Conclusions at 67; Ex. CBR-007 at 9-10.

recognizing the full scope of TCPs potentially present at the site.<sup>344</sup> In sum, the Bozell & Pepperl Survey does not meet the requirement of the current version of the NHPA with respect to TCPs, and for this reason alone, the NRC Staff cannot rely on the Bozell & Pepperl Survey to meet its Identification Obligation under the NHPA.

## **2. Literature Reviews and Interviews**

In his testimony, Mr. Goodman claims that one of the key steps the NRC Staff undertook to cure any possible deficiencies in the Bozell & Pepperl Survey was to conduct its own literature review, which included interviews of Nebraska and federal archeologists.<sup>345</sup> While such a literature review certainly may have been helpful to the NRC Staff, by no means was it sufficient to comply with the NHPA.

The record establishes that the NRC Staff's literature reviews focused largely on Euro-American resources and Euro-American cultural artifacts, and so those reviews would not be expected to uncover sites of significance to Indian tribes — which for the most part are recorded orally.<sup>346</sup> Furthermore, it is highly unlikely that literature searches would lead to the identification of specific TCPs within the license area, regardless of whether they could qualify as historic properties under the NHPA. Dr. Nickens for the NRC Staff testified that literature reviews and historical background checks “should be a corollary” to a TCP study or survey<sup>347</sup> because a literature search cannot “ascribe the cultural meaning” to a TCP “that the Lakota people would.”<sup>348</sup>

As for the interviews that were conducted, Mr. Goodman characterized them as “interviews with local experts in the history and ethnohistory of the area,” that played a critical part in the literature review process.<sup>349</sup> On further review, however, Mr. Goodman's claim clearly overstates the value of these interviews that Dr. Nickens conducted on a single trip to the area on October 23-25, 2012.<sup>350</sup> Not only did Dr. Nickens' travel to Nebraska encompass only 2 days, but his

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<sup>344</sup> Ex. CBR-029, Letter from Bartley W. Conroy, Vice President, Resource Technologies Group, Inc., to L. Robert Puschendorf, Deputy Nebraska State Historic Preservation Officer, at 38 (Apr. 3, 1998).

<sup>345</sup> Ex. NRC-076-R2 at 59.

<sup>346</sup> *Accord* National Register Bulletin 38 at 5; Tr. at 2302.

<sup>347</sup> Tr. at 2024; *see also* Tr. at 2068.

<sup>348</sup> Tr. at 2277.

<sup>349</sup> Ex. NRC-076-R2 at 59-60 (citing Ex. NRC-051A, SC&A Trip Report on Site Visit for Marsland Expansion Area License Application, Part 1 of 3 (Nov. 6, 2012); Ex. NRC-051C, SC&A Trip Report on Site Visit for Marsland Expansion Area License Application, Part 3 of 3 (Nov. 6, 2012)).

<sup>350</sup> Ex. NRC-001-R at 68 (citing Ex. NRC-051A; Ex. NRC-051C; Ex. NRC-051B, SC&A Trip Report on Site Visit for Marsland Expansion Area License Application, Part 2 of 3 (Nov. 6, 2012)).

primary focus was not on the license area itself, but rather on Crow Butte's expansion sites,<sup>351</sup> with much of those 2 days devoted to conversations with facility operators and local officials.<sup>352</sup> He did meet with archeology experts on Wednesday, October 24 and Thursday, October 25,<sup>353</sup> which Dr. Nickens described as "very productive in terms of acquiring regional information relevant to both the cultural affiliations of Tribes who historically inhabited the area and for the types of TCPs that might be anticipated to occur in the CBR [Crow Butte] project areas."<sup>354</sup>

But however productive, there is no evidence that any of these discussions led to the identification of potential specific TCPs or to "specific new information for any [possible TCPs within the Crow Butte] project areas,"<sup>355</sup> which is not surprising, given that the archaeologists with whom Dr. Nickens met did not even know the exact locations of important historical events involving nearby tribes.<sup>356</sup>

We find that Dr. Nickens' testimony demonstrated considerable expertise regarding TCPs and the traditions and cultures of Indian tribes. However, the purpose of Dr. Nickens' travel to the Crow Butte sites was not to search for more TCPs or to supplement the Bozell & Pepperl Survey, but only "to gain an awareness of the project operations in relation to previously recorded cultural resource sites based on the Class III archeological survey[,] and [then] to assess the current status of certain cultural sites that were originally designated as being potentially eligible for listing in the National Register of Historic Places (NRHP)."<sup>357</sup> Stated otherwise, the Board finds that the NRC Staff enlisted Dr. Nickens to check on those historic properties that had previously been identified in the Bozell & Pepperl Survey, not to find new TCPs or historic properties within the license area.

If anything, Dr. Nickens' insights indicate it is plausible that the area contains TCPs and potentially eligible historic properties that have yet to be identified.<sup>358</sup> This is fully consistent with the ACHP's regulations, which remind agencies that territories ceded by Indian tribes to the U.S. government, such as the Black Hills

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<sup>351</sup> Tr. at 2285; *see also* Ex. NRC-051A at 4.

<sup>352</sup> *See* Ex. NRC-051A at 3 (agenda of trip report).

<sup>353</sup> *Id.*; Ex. NRC-051C at 6-10.

<sup>354</sup> Ex. NRC-051C at 6-10.

<sup>355</sup> *See id.* at 10.

<sup>356</sup> *Id.*

<sup>357</sup> Ex. NRC-001-R at 68.

<sup>358</sup> *See, e.g.,* Ex. NRC-051C at 9-11 (During this visit to Nebraska, Dr. Nickens learned that there had been a "legendary battle between a party of Crow Indians and a pursuing group of Brulé Sioux in the fall of 1849," that "the 1877 camp of the renowned Oglala Lakota leader Crazy Horse might have been located on the White River close to" the North Trend Expansion area, and that a large and important Indian Sun Dance occurred in the area.).



region,<sup>359</sup> are more likely to encounter “historic properties of religious and cultural significance.”<sup>360</sup> As stated in National Register Bulletin 38, and as adopted by the courts, “a reasonable effort to identify traditional cultural properties ‘depends in part on the likelihood that such properties may be present.’”<sup>361</sup> As indicated by Dr. Nickens’ literature review, and acknowledged by the EA, the area around the Crow Butte mine is “steeped in history.”<sup>362</sup> This calls for *greater* scrutiny of the license area, not less.<sup>363</sup>

The NRC Staff argues that a guidance document from ACHP (“ACHP Guidance”) provides that the NHPA’s requirement for a “reasonable and good faith effort”<sup>364</sup> can be satisfied merely by “a review of existing information on historic properties that are located or may be located within the [area of potential effects].”<sup>365</sup> In fairness, however, this quote from the ACHP Guidance sets the bare minimum needed to investigate historic properties.<sup>366</sup> The ACHP Guidance goes on to explain that the “reasonable and good faith effort” required of each federal agency envisions specific identification carried out by qualified individuals who “have a demonstrated familiarity with the range of potentially historic properties that may be encountered, and their characteristics,” and who acknowledge “the special expertise possessed by Indian tribes . . . in assessing the eligibility of historic properties that may possess religious and cultural significance to them.”<sup>367</sup> There is no evidence that the NRC Staff enlisted anyone during its literature search, nor interviewed anyone, who met these qualifications.<sup>368</sup> Accordingly, when we consider the ACHP Guidance in its entirety, the Board finds that it effectively negates the NRC Staff’s argument.

Furthermore, the ACHP regulations and the ACHP Guidance envision “field investigations” as a means of compliance with the ACHP.<sup>369</sup> While perhaps not

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<sup>359</sup> The Oglala Sioux Tribe contends the Black Hills region falls under its tribal territory. LBP-08-24, 68 NRC at 711-12.

<sup>360</sup> 36 C.F.R. § 800.2(c)(2)(ii)(D).

<sup>361</sup> *Pueblo of Sandia*, 50 F.3d at 861 (quoting National Register Bulletin 38 at 10).

<sup>362</sup> EA § 3.9.8.

<sup>363</sup> *Pueblo of Sandia*, 50 F.3d at 861.

<sup>364</sup> 36 C.F.R. § 800.4(b)(1).

<sup>365</sup> Staff Reply Findings of Facts & Conclusions of Law at 16 (quoting *Meeting the “Reasonable and Good Faith” Identification Standard in Section 106 Review*, ACHP, at 1, available at [http://www.achp.gov/docs/reasonable\\_good\\_faith\\_identification.pdf](http://www.achp.gov/docs/reasonable_good_faith_identification.pdf)) (last retrieved Feb. 16, 2016) [hereinafter “ACHP Guidance”]] (quotation marks omitted).

<sup>366</sup> *See id.*

<sup>367</sup> ACHP Guidance at 1-2.

<sup>368</sup> *See e.g.*, Tr. at 2277; Ex. NRC-051A at 3 (agenda of trip report). Notably, Dr. Nickens testified that he was not capable of making determinations as to the cultural significance of Indian tribal artifacts in the same way that a tribal elder could. Tr. at 2277.

<sup>369</sup> 36 C.F.R. § 800.4(b); ACHP Guidance at 1.

required in every circumstance, field investigations on the ground would be appropriate<sup>370</sup> at a site such as Crow Butte, which the EA itself describes as “steeped in history.”<sup>371</sup> Routinely, federal agencies consider field investigations to be the best method for identifying TCPs and historic properties.<sup>372</sup> And certainly, more recent pronouncements by the NRC Staff likewise point to field investigations as the NRC Staff’s preferred route to investigate TCPs. For example, Crow Butte License Condition 9.8 requires that before any previously unreviewed portion of the license area is to be disturbed by operations, Crow Butte “shall administer a cultural resource inventory if such survey has not been previously conducted and submitted to the NRC.”<sup>373</sup> To the same effect is the NRC Staff’s October 31, 2012 invitation soliciting tribes to participate in the November 2012 TCP Survey, which stated “a field study is a reasonable means of identifying properties of cultural and religious significance at” the license area and other Crow Butte sites.<sup>374</sup>

Particularly instructive on this point is a decision of the United States Court of Appeals for the Ninth Circuit in *Montana Wilderness Association v. Connell*.<sup>375</sup> There, the Bureau of Land Management (“BLM”) created a resource management plan for the Upper Missouri River Breaks National Monument that authorized “roads, airstrips, and motorboats” near the monument.<sup>376</sup> To meet its NHPA obligations, BLM performed a Class I survey, which is akin to a literature review,<sup>377</sup> and relied on Class III surveys from the distant past that were recognized as having flaws.<sup>378</sup> After a challenge from public interest groups, the Ninth Circuit determined that, insofar as there were areas that would be affected by changed operations or new construction, BLM’s literature review and reliance on past surveys was inadequate: “BLM is required to conduct Class III inventories for roads, ways and airstrips that have not been surveyed previously or were surveyed decades ago.”<sup>379</sup>

Similarly, here, a decades-old Class III survey was conducted for the license area using a previous version of the NHPA that is fundamentally less demanding than the current statute, particularly with respect to its treatment of Indian-origin TCPs. We find that a literature review and a couple of brief interviews with historians or archeologists lacking experience in Lakota TCPs cannot cure the

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<sup>370</sup> *Pueblo of Sandia*, 50 F.3d at 861.

<sup>371</sup> EA § 3.9.8.

<sup>372</sup> See, e.g., *Te-Moak Tribe*, 608 F.3d at 601.

<sup>373</sup> See Ex. NRC-012, U.S. NRC Materials License SUA-1534 § 9.8 (Nov. 5, 2014).

<sup>374</sup> Ex. BRD-023 at 1.

<sup>375</sup> 725 F.3d 988 (9th Cir. 2013).

<sup>376</sup> *Id.* at 993.

<sup>377</sup> See *id.* at 1005-07.

<sup>378</sup> *Id.* at 1007.

<sup>379</sup> *Id.* at 1009.

shortcomings of the Bozell & Pepperl Survey in a post-1992 era. As Dr. Nickens admitted, the most this will be able to provide is background information.<sup>380</sup> As was the case in *Montana Wilderness*, a new field investigation appears to be the only “reasonable and good faith effort”<sup>381</sup> for identifying TCPs within the license area.

### 3. June 7-9, 2011 Informal Information-Gathering Meeting & Bus Tour

We have previously described the June 7-9, 2011 informal information-gathering session with six tribes as the first significant attempt by the NRC Staff to solicit information regarding historic properties of possible concern within the license area.<sup>382</sup> But just as this meeting failed to satisfy the Consultation Obligations of the NHPA, so it also failed to satisfy the NRC Staff’s Identification Obligations of the NHPA. While the bus tour may have placed Indian tribal members within the license area, there was never an opportunity for attendees to exit the bus and examine the area.<sup>383</sup>

Although the EA contends that the June 7-9 meeting was nonetheless an effective information-gathering tool because it identified four TCPs (the Crow Butte itself, a long ridge adjacent to the butte that serves as a vision quest site, medicinal herbs, and the “cultural landscape” “steeped in history”),<sup>384</sup> two of these — the Crow Butte geologic feature’s significance and the license area’s location being “steeped in history,” — were matters of common knowledge (even by the NRC Staff), well before the June 7-9 meeting began.<sup>385</sup> As for the second item, the vision quest site, it lies a mile to the east of the project area.<sup>386</sup> Consequently, the only new item identified as relating to the license area was the possible presence of important medicinal and spiritual herbs.<sup>387</sup> Even then, however, Dr. Nickens testified that the NRC Staff did not attempt to locate the herbs or seek further information from the Indian tribes about their location or significance.<sup>388</sup> These

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<sup>380</sup> Tr. at 2024.

<sup>381</sup> 36 C.F.R. § 800.4(b)(1).

<sup>382</sup> *Supra* Section III.B.2.b.

<sup>383</sup> Ex. NRC-050 at 7; Tr. at 2052.

<sup>384</sup> EA § 3.9.8 (emphasis removed); Tr. at 2066; Ex. NRC-050 at 8; Ex. NRC-051C.

<sup>385</sup> Tr. at 2067, 2070. Dr. Nickens also stated that during the bus tour it was simply pointed out that the Crow Butte geologic feature is culturally important, but the bus tour did not provide an opportunity for the tribes to elucidate on its cultural importance to them. Tr. at 2077.

<sup>386</sup> EA. § 3.9.8.

<sup>387</sup> Tr. at 1129; Ex. NRC-050 at 8.

<sup>388</sup> Tr. at 2070. The NRC Staff performed its own analysis by comparing *known* plants in the area against a two-decade-old study of plants of import to the Lakota people. Tr. at 2069. The NRC

(Continued)

efforts and general findings do not suggest adequate TCP identification when considered with the TCPs that Intervenor assert lie in the license area, such as the “sign or starve” encampments,<sup>389</sup> and which can only be found by a field investigation.

Based on the testimony adduced at the hearing, it is abundantly clear the June 7-9, 2012 meeting was inadequate to identify historic properties “within the area of potential effects.”<sup>390</sup> The cursory discussions and the brief bus tour cannot be deemed to meet the NHPA’s requirements to identify, assess, and attempt to mitigate impacts to potential historic properties of significance to Indian tribes.<sup>391</sup>

#### **4. The November 2012 TCP Survey**

The NRC Staff claims that, in conjunction with the Bozell & Pepperl Survey and the June 2011 meeting and bus tour, the Crow Butte and Santee Sioux November 2012 TCP Survey met its Identification Obligations under the NHPA.<sup>392</sup> There are three separate reasons why the NRC Staff’s claim fails.

##### *a. Opposition to the NRC Staff’s “Open Site” Survey Approach*

We turn first to why the design of the November 2012 TCP Survey failed to comply with the NRC Staff’s Identification Obligations under the NHPA. The defining feature of this survey is its “open site” approach. Rather than following guidelines or a formal structure, under the open site approach, surveyors would have been allowed onto the license area to search for TCPs as they deemed appropriate.<sup>393</sup> According to Mr. Goodman, the NRC Staff chose the open site approach because it would afford the tribes the freedom to concentrate “on the areas most important to them.”<sup>394</sup> He further asserted that “[a]fter receiving input from the tribes and the Applicant” the NRC Staff deemed this the “best approach,” even though the tribes were seeking a far more intensive alternative that would

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Staff appears to have ignored the tribal elders’ warning on the bus tour that nontribal experts “may not be able to identify the presence of unique medicinal herbs.” Ex. NRC-050 at 3. Cf. 36 C.F.R. § 800.4(c)(1) (requiring agency officials to acknowledge the expertise of Indian tribes in assessment of cultural resources “that may possess religious and cultural significance to them.”).

<sup>389</sup> Ex. INT-031 ¶¶ 25, 26; Ex. INT-032 ¶¶ 16, 17.

<sup>390</sup> See 36 C.F.R. § 800.4.

<sup>391</sup> 54 U.S.C.A. § 306108 (West 2016); 36 C.F.R. § 60.4.

<sup>392</sup> See Staff Initial Statement of Position at 49 (indicating the 2012 TCP survey was a “critical piece[ ] of the Staff’s Section 106 consultation”); *id.* at 52.

<sup>393</sup> See Ex. BRD-026 at 1; Tr. at 2247.

<sup>394</sup> Ex. NRC-001-R at 65.

have involved “communications and consultations with the history of the site and talk to Tribal Elders.”<sup>395</sup>

While we do not dispute Mr. Goodman’s good-faith belief in this regard, there is no record evidence to support Mr. Goodman’s purported reasons for selecting and designing the open site approach. Insofar as there is evidence available, it points in the opposite direction.

This is clear from the TCP survey approaches that were being considered by the parties in the time period between their February 2012 meetings and the November 2012 TCP survey. Initially, the parties had established a protocol in which each side — Crow Butte and the Indian tribes — would submit a proposed statement of work, after which the NRC Staff would establish a joint approach with input from all parties.<sup>396</sup> Crow Butte’s first proposed statement of work: (1) utilized an hourly rate concept for the field report and presentation, without any honorarium or flat fee;<sup>397</sup> (2) defined a specific level of effort, including time for field identification and services of outside experts;<sup>398</sup> (3) defined the required work products, and stated that assessments of the significance of identified cultural resources would adhere to the National Register 30 C.F.R. § 60.4 criteria and National Register Bulletins 15 and 38;<sup>399</sup> (4) included provisions for access and safety on the site under conditions considered acceptable to Crow Butte;<sup>400</sup> and (5) covered only 15% of the license area that was affected by operations.<sup>401</sup>

Crow Butte subsequently updated its proposed statement of work on August 7, 2012.<sup>402</sup> While there was no specific testimony provided by Crow Butte or the NRC Staff about the circumstances that elicited these changes, they appear to have been made in anticipation of a scheduled August 9, 2012 teleconference.<sup>403</sup> This update of Crow Butte’s original proposed statement of work is similar in many respects to the prior version, although the level of effort was increased (the March 8, 2012 proposal covered only the license area and North Trend

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<sup>395</sup> See Tr. at 2021-23.

<sup>396</sup> Ex. BRD-021.

<sup>397</sup> Ex. BRD-024, Draft Scope of Work, Identification of Properties of Religious and Cultural Significance, Cameco Resources Crow Butte License Renewal and North Trend License Agreement at 3 (Mar. 8, 2013); Tr. at 2228-29.

<sup>398</sup> Ex. BRD-024 at 3.

<sup>399</sup> See *supra* Sections II.B, III.C.1 for a discussion of the National Register criteria and the two National Register Bulletins.

<sup>400</sup> Ex. BRD-024 at 3.

<sup>401</sup> *Id.* at 2.

<sup>402</sup> Tr. at 2229.

<sup>403</sup> Ex. BRD-025, Draft Scope of Work, Identification of Properties of Religious and Cultural Significance, Cameco Resources Crow Butte License Renewal and North Trend, Marsland and Three Crow Amendment Areas at 1 (Aug. 7, 2012).

expansion area,<sup>404</sup> while the August 7, 2012 proposal covered all three Crow Butte expansion sites as well as the license area<sup>405</sup>, and the allowable compensation was increased.<sup>406</sup> In addition, the assumptions, expected work products, safety and access were specified in greater detail, indicating a highly structured survey approach with multiple field crews, along with resources provided by Crow Butte.<sup>407</sup> Crow Butte's August 7, 2012 proposal increased by nearly fourfold the portion of the license area that would be covered by the TCP survey.<sup>408</sup> Crow Butte estimated the level of effort would entail 50 person-days to survey the license area alone.<sup>409</sup>

Along with these two Crow Butte proposals, a TCP survey proposal was submitted on behalf of several tribes (including the Oglala Sioux) by the Makoche Wowapi, dated September 27, 2012.<sup>410</sup> Though this proposal was nominally submitted for the Powertech site, at that time all parties were discussing — pursuant to the NRC Staff's instructions — a multisite, multitribe TCP survey.<sup>411</sup> Like the August 7, 2012 Crow Butte proposal, the Makoche Wowapi proposal included: (1) an hourly compensation rate;<sup>412</sup> (2) a highly structured TCP survey process that would require many weeks to complete; (3) field crews and equipment to be provided by Crow Butte; and (4) a detailed report that would be prepared by the Indian tribal survey team.<sup>413</sup>

Unfortunately, there is no evidence that the NRC Staff gave serious consideration to the Makoche Wowapi proposal.<sup>414</sup> Instead, the record indicates that only a few days later, Crow Butte submitted its open site proposal that was to encompass the license area and the Crow Butte expansion sites, but not the Powertech site.<sup>415</sup> This October 3, 2012 Crow Butte open site proposal included “an unconditional grant of \$5,000 to each tribe choosing to participate,”<sup>416</sup> and proposed that Crow Butte employees escort Indian tribe representatives to the project areas, but not

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<sup>404</sup> Ex. BRD-024 at 2.

<sup>405</sup> Ex. BRD-025 at 1-2.

<sup>406</sup> *Id.* at 4-5.

<sup>407</sup> *See generally id.*

<sup>408</sup> *See* Ex. BRD-024 at 2-3; Ex. BRD-025 at 1-3.

<sup>409</sup> *See* Ex. BRD-024 at 3; Ex. BRD-025 at 4.

<sup>410</sup> Tr. at 2255-56; *see also* Tr. at 2184-85, 2190.

<sup>411</sup> *See supra* Section III.B.2.a.

<sup>412</sup> Ex. BRD-022 at 1. Because the proposal contains proprietary cost information, BRD-022 is a redacted version of the proposal that the tribes made. *See* Staff Response to Board Document Request at 3.

<sup>413</sup> Ex. BRD-022 at 1.

<sup>414</sup> *See supra* Section III.B.2.a.

<sup>415</sup> Ex. BRD-026 at 1.

<sup>416</sup> *Id.*

interfere with the tribal representatives in their survey efforts.<sup>417</sup> In lieu of a highly structured survey program, two or three representatives from each participating tribe would be allowed onto the site to search independently for TCPs under an open site approach.<sup>418</sup> The proposal did not set specific dates for the survey, nor did it estimate how long the survey would take. Rather, it simply proposed that the Crow Butte facility would be open for 2 weeks in November for any tribes wishing to participate.<sup>419</sup>

Unlike the short shrift given to the Makoche Wowapi proposal,<sup>420</sup> the NRC Staff largely adopted Crow Butte's open site proposal as evidenced by the NRC Staff's October 31, 2012 invitation to the tribes to participate in the November 2012 TCP Survey. The invitation indicated that Crow Butte would: (1) eschew an hourly rate in favor for a flat grant of a \$10,000 "honorarium" to each participating tribe as the major form of compensation to be distributed to the individuals participating in the field work;<sup>421</sup> (2) eliminate a structured survey approach in favor of an open site approach,<sup>422</sup> and (3) limit participation to three representatives per participating tribe.<sup>423</sup> This November 2012 TCP Survey invitation had an extremely short turnaround, allowing only 14 days within which to respond, and it required that the open site TCP survey be conducted over 3 weeks in late November and early December.<sup>424</sup>

The evidence establishes that the NRC Staff's open site TCP survey approach was neither in the Indian tribes' best interests, nor that the tribes accepted it. Mr. Goodman testified that the NRC Staff had attempted to talk with the Oglala Sioux Tribe in August,<sup>425</sup> but he added that none of these calls were ever completed.<sup>426</sup> As a result, there is no evidence that the NRC Staff discussed this new survey approach with the Tribe (or for that matter, with any other Indian tribe), between October 3 — when Crow Butte made its new open site proposal to the NRC Staff — and October 31, 2012 — when the formal November 2012 TCP Survey invitation was issued.<sup>427</sup>

In the end, Mr. Goodman's claim that an open site was in the tribes' best interest can only be supported, if at all, by internal communications among NRC

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<sup>417</sup> *Id.*

<sup>418</sup> *See id.*

<sup>419</sup> *Id.*

<sup>420</sup> *See supra* Section III.B.2.a.

<sup>421</sup> Ex. BRD-023 at 2.

<sup>422</sup> Ex. BRD-026 at 2.

<sup>423</sup> *See* Ex. BRD-023 at 1-2.

<sup>424</sup> *Id.*

<sup>425</sup> Tr. at 2234.

<sup>426</sup> Tr. at 2234-35.

<sup>427</sup> *See* EA § 3.9.8; NRC Staff Communications Log at 4 (entry 27); Ex. BRD-023.

Staff members,<sup>428</sup> none of which were offered in evidence here. However, there is evidence regarding what the tribes viewed as the best method of identifying TCPs, and it is contrary to the open site approach adopted by the NRC Staff.

Thus, on February 20, 2013, the Standing Rock Sioux Tribe's Tribal Historic Preservation Office heavily criticized a substantially similar open site approach with a \$10,000 honorarium, calling it "just short of a bribe disguised as a token identification effort."<sup>429</sup> Mr. CatchesEnemy adopted this criticism,<sup>430</sup> testifying that the Oglala Sioux Tribe and other Indian tribes would have preferred a more structured approach, with teams consisting of spiritual advisors and elders, and significant time commitments so as not to rush any of the elders.<sup>431</sup> Dr. Nickens, the NRC Staff's own expert, actually acknowledged that a more structured process, with the involvement of tribal elders is a better TCP survey approach.<sup>432</sup> He further stated "[a]nd I agree with [Mr. CatchesEnemy] that a proper TCP survey, as I've stated previously, involves elders and bringing the elders to the field as possible and so forth."<sup>433</sup>

In contrast, and as Mr. Goodman acknowledged, the open site approach that the NRC Staff adopted, included a compensation scheme that incentivized attendance over effort because compensation would have been awarded once the tribal members showed up regardless of how much scrutiny they gave to TCPs on site.<sup>434</sup> Likewise, this open site approach made no effort to encourage tribal elders to participate.

We certainly recognize that the intensive TCP survey preferred by the tribes may well have been infeasible on a cost basis. At the same time, however, we do not agree with the NRC Staff's argument that suddenly scrapping the TCP survey approach, on which it had been working with the Indian tribes for over a year, was done for the benefit of the Indian tribes.<sup>435</sup> Even though this proceeding had then been pending for over 4 years, and even though the NRC Staff took 2 more years to complete its EA, the NRC Staff adopted the Crow Butte TCP survey proposal in less than a month, without any effort to consult with the Tribe about this change, and then pushed a timeline for site reviews to be completed in less than a month thereafter.<sup>436</sup>

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<sup>428</sup> See Tr. at 2247-48.

<sup>429</sup> Ex. INT-037 at 2-3.

<sup>430</sup> Ex. INT-031 ¶ 21.

<sup>431</sup> Tr. at 2244-45, 2276; *see also* Ex. INT-031 ¶¶ 19-21.

<sup>432</sup> Tr. at 2023, 2280.

<sup>433</sup> Tr. at 2280.

<sup>434</sup> Tr. at 2232-33.

<sup>435</sup> Tr. at 2104-05.

<sup>436</sup> NUREG-2173 emphasizes the need for patience when working with Indian tribes, who are short-staffed and overstretched. NUREG-2173 § 2.H.



*b. The Surveyors Were Inappropriate for the Task*

Even setting aside all of these considerations, however, the November 2012 TCP Survey still cannot satisfy the NRC Staff's Identification Obligations under the NHPA because the TCP surveyors were not appropriate for the task. As discussed above, neither the Crow Nation nor the Santee Sioux Nation, the two groups participating in the November 2012 TCP Survey, are Lakota tribes and neither has a sufficient relationship to the license area.<sup>437</sup> In fact, the Crow Nation had previously advised Crow Butte's contractor of its lack of connection to the license area, a fact that was passed on to the NRC Staff.<sup>438</sup>

We do not dispute that Mr. Goodman and others on the NRC Staff genuinely believed that the Santee Sioux and the Crow Nation could identify the TCPs of tribes other "than just the Santee Sioux Nation and the Crow Nation."<sup>439</sup> But the evidence does not support any such belief. Indian tribes are distinct nations — a concept recognized in the NRC Staff's own NUREG-2173, which notes that each Indian tribe has a unique history and experience "with its own customs, culture, concerns, interests and needs."<sup>440</sup>

Significantly here, the Crow Nation is not a Sioux nation, and therefore it is neither Lakota nor Dakota.<sup>441</sup> Moreover, the Crow Nation reservation is located in southern Montana.<sup>442</sup> Dr. Nickens, the NRC Staff's own expert, acknowledged that, unlike the Oglala Sioux Tribe, which considers the area in and around the Black Hills its ancestral homeland,<sup>443</sup> the Crow Nation had little involvement in Nebraska.<sup>444</sup>

Similarly, although the Santee Sioux Nation is a Sioux nation, and a Dakota tribe, it is not a Lakota tribe.<sup>445</sup> Moreover, the Santee Sioux reservation area is located on the opposite end of Nebraska,<sup>446</sup> 300 miles from the license area,<sup>447</sup> and

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<sup>437</sup> *Supra* Section III.B.2.c.

<sup>438</sup> Ex. CBR-029 at 7.

<sup>439</sup> Tr. at 2306.

<sup>440</sup> NUREG-2173 at 7.

<sup>441</sup> As described in the EA, the Crow Nation was a historical enemy of the Lakota peoples. EA § 3.9.8. Dr. Nickens explained that their only involvement in the area near the license area occurred in the form of raids. Tr. at 2302-03.

<sup>442</sup> Ex. BRD-027, Excerpt from 2010 Census Map of American Indian & Alaska Native Reservations, available at [http://www.2.census.gov/geo/maps/special/AIANWall2010/AIAN\\_US\\_2010.pdf](http://www.2.census.gov/geo/maps/special/AIANWall2010/AIAN_US_2010.pdf); Tr. at 2294.

<sup>443</sup> Tr. at 2302. Dr. Nickens concurred with this statement. Tr. at 2303.

<sup>444</sup> Tr. at 2302-03.

<sup>445</sup> Tr. at 2299-2300.

<sup>446</sup> Ex. BRD-027; Tr. at 2294.

<sup>447</sup> Ex. BRD-027.

as Dr. Nickens explained, the Santee Sioux originated in Minnesota.<sup>448</sup> Although it moved westward from Minnesota, it did not move into Nebraska until it was settled on a reservation in the far eastern part of the state.<sup>449</sup>

*c. The Survey Left Out the License Area*

But even were either tribe capable of conducting a TCP survey, neither actually surveyed the license area — and this alone renders the November 2012 TCP Survey deficient. The EA states that the Crow Nation and Santee Sioux “concluded that there were no eligible sites of cultural or religious significance to the Tribes at the CBR [Crow Butte] facility.”<sup>450</sup> We find this to be an incorrect statement with respect to the license area because no physical inspection was made,<sup>451</sup> a critical fact not even mentioned in the EA.<sup>452</sup> As Mr. Goodman and Dr. Nickens testified, the Crow Nation representatives determined that the “current lease area was so disturbed by past agricultural and other historic land uses, including the ongoing mining operations, that there were essentially no areas that had not been disturbed by previous activities.”<sup>453</sup> Additionally, it appears the Santee Sioux Nation never visited the license area and simply adopted the Crow Nation’s determination.<sup>454</sup> The decision to eschew a survey of the license area because of ground disturbance cannot be equated to a determination that the license area lacks potential TCPs or historic properties.

Furthermore, the NRC Staff’s reliance on the Crow and Santee Sioux assessment that the ground was disturbed<sup>455</sup> cannot stand as the determining factor as to whether an actual field investigation was needed for the license area.<sup>456</sup> Certainly, this is inconsistent with National Register Bulletin 15, which explains that, even where TCPs have already been disturbed, there nonetheless may be information they can provide about prehistory or history.<sup>457</sup> Likewise, National

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<sup>448</sup> Tr. at 2303; *see also* Tr. at 995-96 (Dr. Redmond opined that the Oglala Sioux Tribe used the area around the license area far more than either the Crow Nation or the Santee Sioux Nation.).

<sup>449</sup> Tr. at 2303.

<sup>450</sup> EA § 3.9.8 (emphasis added).

<sup>451</sup> Dr. Nickens testified that some members of the Crow Nation may have stepped out onto the license area, but even if they did so, as will be seen, it was solely for the purpose of ascertaining how much disturbance had occurred on the site. Tr. at 2309. Dr. Nickens specifically testified that the Crow Nation never attempted to conduct a survey for the purpose of identifying TCPs on the license area. *See id.*

<sup>452</sup> *See* EA § 3.9.8.

<sup>453</sup> Ex. NRC-001-R at 74.

<sup>454</sup> *Id.*

<sup>455</sup> Tr. at 2304-05.

<sup>456</sup> NRC Staff’s Rebuttal Statement of Position at 25 (June 8, 2015).

<sup>457</sup> National Register Bulletin 15 at 23; 10 C.F.R. § 60.4(d).

Register Bulletin 38 explains that even somewhat damaged TCPs often deserve a closer look, and notes that “a property whose cultural significance has been lost through disturbance may still retain archeological deposits of significance for their information content.”<sup>458</sup> Certainly, there was no evidence presented that the license area was so disturbed as to render it an archeological wasteland. Based on the record as a whole, it is at least plausible that there are TCPs within the license area requiring identification and protection — either those waiting to be discovered, or those that were evaluated previously but incorrectly.<sup>459</sup>

Moreover, the NRC Staff’s open site approach involved no independent evaluation by the NRC Staff of any decisions the Crow Nation or the Santee Sioux Nation reached as to where to survey.<sup>460</sup> While the use of contractors is by no means prohibited under NEPA,<sup>461</sup> a federal agency cannot impermissibly delegate important NHPA administrative determinations to private parties.<sup>462</sup> In the end, the NRC Staff must make the final determination as to whether there are TCPs and historic properties within the license area other than those identified by the Bozell & Pepperl Survey, and that determination requires a genuine, reasonable effort to look for them. To date, this has not been done.

While the NRC Staff witnesses noted that Crow Butte is not conducting new mining activities in the license area,<sup>463</sup> this does not permit the NRC Staff to abdicate its responsibilities under the NHPA. Crow Butte has received a 10-year renewed license that does not prohibit future development of the site. In fact, as Crow Butte adds expansion sites near the license area, it has indicated it will continue to use the license area as a centralized processing site.<sup>464</sup> Reclamation activities also present another opportunity to harm unprotected TCPs.<sup>465</sup> No evidence was presented as to the level of environmental or cultural resources review the NRC Staff would give, if any, before such actions commence.<sup>466</sup>

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<sup>458</sup> National Register Bulletin 38 at 16.

<sup>459</sup> *Supra* Section III.C.1, note 358.

<sup>460</sup> Tr. at 2305, 2307, 2309.

<sup>461</sup> *See, e.g.*, 40 C.F.R. § 1506.5(c).

<sup>462</sup> *See U.S. Telecom Ass’n v. Federal Communications Commission*, 359 F.3d 554, 568 (D.C. Cir. 2004) (prohibiting agency subdelegation to private actors and stating that “a federal agency may turn to an outside entity for advice and policy recommendations, provided the agency makes the final decisions itself”).

<sup>463</sup> NRC-076-R2 at 54.

<sup>464</sup> EA § 1.5.1.

<sup>465</sup> *See* LRA §§ 6.2.1 to 6.2.2. Crow Butte explains that the goal of its restoration efforts is to reestablish original slope and topography, and “present a natural appearance.” LRA § 6.2.1.

<sup>466</sup> License Condition 9.8 requires a cultural resources survey only before disturbing previously *unsurveyed* sites, which would exclude those areas already encompassed by the surveys discussed herein. Ex. NRC-012 § 9.8.

## 5. Findings on NHPA's Identification Obligations

While the Bozell & Pepperl Survey was a good start, it fails to satisfy the NHPA's requirement to identify and protect Indian-origin historic properties. The NRC Staff's more general efforts, such as literature reviews and informal meetings, are unable to account for these TCPs and historic properties in the same way that a field investigation can. Because the NRC Staff's sole attempt to resurvey the site in 2012 failed on multiple grounds, potential TCPs and historic properties within the license area have not been identified and assessed, nor have attempts been made to mitigate potential impacts, in contravention of the NRC Staff's obligations under the NHPA.<sup>467</sup>

For the foregoing reasons, we find by a preponderance of the evidence that the NRC Staff's TCP survey of the Crow Butte License area did not meet its Identification Obligations under the NHPA.

## D. Meeting NEPA's Hard Look Requirement

The NHPA and NEPA both impose procedural steps to improve agency decisionmaking, and many of the NHPA's requirements overlap with those of NEPA.<sup>468</sup> Of particular importance here, NEPA requires each federal agency to undertake a "hard look" at the environmental impacts of each major federal action — which would include impacts of license renewal on TCPs. Satisfying NEPA means satisfying, at a minimum, the NHPA's Identification Obligations,<sup>469</sup> and even going further in certain cases.<sup>470</sup> For example, NEPA requires a look at intangible, not just tangible, properties,<sup>471</sup> and it is not limited to a focus on historic properties in the same way as the NHPA.

Initially, we note that the NRC Staff's failure to meet the NHPA's Identification Obligations renders the EA deficient. Moreover, the EA also indicates that short shrift was given to a review of tangible and intangible TCPs that do not rise to

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<sup>467</sup> See 36 C.F.R. § 800.4; *Hughes River*, 165 F.3d at 288. Because the NRC Staff has met its Consultation Obligations under the NHPA, it need not rely on the Oglala Sioux Tribe to meet its Identification Obligations under the NHPA. Although the evidence in this proceeding has provided a number of good reasons for the NRC Staff to avail itself of the expertise of the elders and other learned members of the Oglala Sioux Tribe, or other Lakota tribes, in surveying potential TCPs within the license area, the NRC Staff's primary requirement at this point is to locate and utilize experts who are knowledgeable about Lakota culture and TCPs.

<sup>468</sup> See *Powertech*, LBP-15-16, 81 NRC at 654-55.

<sup>469</sup> See *Pit River Tribe v. U.S. Forest Service*, 469 F.3d 768, 788 (9th Cir. 2006).

<sup>470</sup> *Powertech*, LBP-15-16, 81 NRC at 654-55 (citing *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-05-26, 62 NRC 442, 472 (2005); *Te-Moak Tribe*, 608 F.3d at 606, 610).

<sup>471</sup> *People Against Nuclear Energy v. NRC*, 678 F.2d 222, 228-29 (D.C. Cir. 1982).

the level of historic properties under the NHPA. Although the EA's literature review does briefly discuss the general background and the cultural importance of the license area,<sup>472</sup> it makes little effort to acknowledge, let alone evaluate, the specific TCPs that were identified on the site by the Bozell & Pepperl Survey but that were not categorized at that time as potential historic properties. Also absent is any discussion of the sign-or-starve encampments or of the NRC Staff's efforts in attempting to locate them. Particularly where, as here, intervening parties proffer admissible contentions challenging the conclusions in the EA that underpin a FONSI determination, the EA must provide a reasonable defense of the NRC Staff's position,<sup>473</sup> or, failing that, the NRC Staff must present credible arguments to cure its deficient EA at an evidentiary hearing.<sup>474</sup>

Dr. Nickens' independent examinations and interviews with experts could help resolve this deficiency, but his notes from his site visit<sup>475</sup> do not cure the EA. In order to ensure that an agency can "respond[] to all legitimate concerns that are raised" under the "hard look" requirement, NEPA insists that high-quality environmental information be available to public officials and citizens before decisions are made and before actions are taken.<sup>476</sup> Consistent with this need to make such information available, the NRC Staff's guidance for materials licensing actions explicitly provides that analyses made in conjunction with a NEPA document should be disclosed to the public.<sup>477</sup> Furthermore, NUREG-1748 states that: "The NEPA document must be able to stand alone and provide sufficient analysis to allow the decision maker to arrive at a conclusion."<sup>478</sup>

The NRC Staff's response to comments filed by the participating Indian tribes after the 2012 TCP Survey, deficient under both the NHPA and NEPA, represent a failure to disclose fully in the EA the cultural resource questions at issue in the license renewal. The EA acknowledged that comments were received objecting to the open site TCP survey, and promised "[a] detailed assessment of the report and the comments in the Environmental Impacts section of the EA."<sup>479</sup> Yet the Environmental Impacts section of the EA did not discuss these comments by Indian tribes in opposition to the open site TCP Survey approach taken.<sup>480</sup> Instead, the EA cited to an NRC response, which is nothing more than a form letter

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<sup>472</sup> EA § 3.9.3.

<sup>473</sup> See *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-01-9, 53 NRC 239, 249 (2001).

<sup>474</sup> *Claiborne*, CLI-98-3, 47 NRC at 89.

<sup>475</sup> See generally Ex. NRC-056.

<sup>476</sup> 40 C.F.R. § 1500.1(b).

<sup>477</sup> See NUREG-1748 §§ 5.4.4, 5.4.6, 5.4.7.

<sup>478</sup> *Id.* § 1.6.4.

<sup>479</sup> See EA § 3.9.8.

<sup>480</sup> See EA §§ 4.8, 4.13.8.

acknowledging receipt of the comment.<sup>481</sup> The EA devotes even less attention to Indian tribal comments on the overall NHPA review process, merely positing that such comments “were general in nature,” neglecting even to offer citations for those comments.<sup>482</sup>

At a minimum, the NRC Staff was obligated to consider the Indian tribes’ views on the TCP survey process and results, instead of disregarding them. This failure supports the conclusion that the NRC Staff did not take a hard look at the Indian tribes’ opposing views on how to conduct a TCP survey.<sup>483</sup> As the Commission has recently emphasized, “responding with appropriate scrutiny and reasoned explanations to ‘opposing views,’” is a NEPA requirement “which includes being able to explain and make available underlying assumptions in our environmental analyses.”<sup>484</sup>

#### ***1. Findings on NEPA’s Hard Look Requirement***

We previously found by a preponderance of the evidence that the NRC Staff failed to meet its Identification Obligations under the NHPA. We further find, by a preponderance of the evidence, that the EA is deficient for failing to take a hard look at potential TCPs within the Crow Butte license area, including the EA’s failure to analyze the objections raised by the tribes with respect to the inadequacy of the open site TCP survey.

### **IV. NRC STAFF EVIDENTIARY MOTIONS**

#### **A. Objections to Board Exhibits**

The NRC Staff filed objections to eighteen of the fifty-nine Board exhibits<sup>485</sup> admitted in this proceeding, Ex. BRD-011, Ex. BRD-012, Ex. BRD-014, Ex. BRD-015, Ex. BRD-016, and Ex. BRD-018 through Ex. BRD-029. We *overrule* these objections with respect to Ex. BRD-018 through Ex. BRD-029 for the reasons set forth below. However, we defer ruling on the NRC Staff objections with respect to Ex. BRD-011, Ex. BRD-012, Ex. BRD-014, Ex. BRD-015, and Ex. BRD-016 because they pertain to contentions other than Contention 1 and can

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<sup>481</sup> EA § 4.13.8.

<sup>482</sup> EA § 3.9.8.

<sup>483</sup> See also 10 C.F.R. § 51.71(b).

<sup>484</sup> *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-16-7, 83 NRC 293, 328 (2016).

<sup>485</sup> See generally NRC Staff’s Response to Board’s September 10 Order (Sept. 14, 2015) [hereinafter “Staff Objection to Board Exhibits”].

best be resolved in conjunction with our disposition of those other contentions in a subsequent Partial Initial Decision.

Central to the NRC Staff's objections to these exhibits is this assertion: "[T]he responsibility for developing an adequate record for decision is on the parties, not the presiding officer."<sup>486</sup> Such a claim must be balanced against the Commission's directive that it "expect[s] our licensing boards to examine cited materials" for verification that those materials do, in fact, support a party's claim.<sup>487</sup> "The Board is required to consider, probe, and understand the evidence offered in the proceeding."<sup>488</sup> Licensing boards are not bound by formal rules of evidence,<sup>489</sup> and Congress specifically created licensing boards to serve as a "panel of experts"<sup>490</sup> that brings "all of the accumulated knowledge possessed by both technical members" to bear on the questions before it.<sup>491</sup> In lieu of a hearing process bogged down by time-consuming evidentiary motions of questionable value,<sup>492</sup> the Commission has instead instructed licensing boards simply to "ensure that [the case record] has adequate information to issue a reasoned decision on the contested matters."<sup>493</sup> Developing a complete and accurate record is especially important and helpful to the agency and public when dealing with NEPA questions that may necessitate a licensing board developing an adjudicatory record that can cure a defective EA, EIS, or FONSI determination.<sup>494</sup>

Here, we used certain exhibits for the purpose of clarifying and verifying the NRC Staff's testimony on several issues,<sup>495</sup> which is in keeping with a Board's duty to "oversee the development of the case record and to ensure that it has adequate information to issue a reasoned decision on the contested matters."<sup>496</sup>

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<sup>486</sup> *Id.* at 1-2 (quoting 69 Fed. Reg. at 2213) (quotation marks omitted).

<sup>487</sup> *USEC Inc. (American Centrifuge Plant)*, CLI-06-10, 63 NRC 451, 457 (2006).

<sup>488</sup> *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 50 (2010).

<sup>489</sup> 10 C.F.R. § 2.319(d).

<sup>490</sup> *Vt. Yankee*, CLI-10-17, 72 NRC at 49 (citing 42 U.S.C. § 2241(a)).

<sup>491</sup> *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-222, 8 AEC 229, 236 (1974); *see also Vt. Yankee*, CLI-10-17, 72 NRC at 49-50.

<sup>492</sup> *See GE-Hitachi Global Laser Enrichment LLC* (GLE Commercial Facility), LBP-12-21, 76 NRC 218, 248 n.171 (2012); *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-12-19, 76 NRC 184, 200 (2012); Proposed Rule: "Changes to Adjudicatory Process," 66 Fed. Reg. 19,610, 19,616 (Apr. 16, 2001).

<sup>493</sup> *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-12-18, 76 NRC 371, 376 (2012); *see also* 69 Fed. Reg. at 2213.

<sup>494</sup> *Supra* notes 42-43.

<sup>495</sup> These documents were marked and distributed at the hearing, offering the parties a chance to verify the documents' accuracy. Moreover, the parties were afforded an opportunity to submit proposed questions on these documents, but the NRC Staff did not pose any questions challenging the accuracy of the documents.

<sup>496</sup> *Indian Point*, CLI-12-18, 76 NRC at 376.

Licensing boards have long introduced and relied on these types of exhibits to provide additional context necessary for a well-reasoned decision.<sup>497</sup> Most particularly is this so where the documents at issue were authored by the very party interposing such objections, i.e., the NRC Staff itself.<sup>498</sup>

### ***1. Exhibits Cited in NRC Staff Communications Log***

We overrule the NRC Staff's objections to Ex. BRD-018, Ex. BRD-019, Ex. BRD-020, Ex. BRD-021, and Ex. BRD-023, all of which were documents that the NRC Staff sent to Tribal Historic Preservation Officers. Not only were these documents publicly available on ADAMS, they were all cited by the NRC Staff as evidence of consultation with the Oglala Sioux Tribe in the NRC Staff Communications Log.<sup>499</sup> That NRC Staff Communications Log included only a cryptic description of the subject communication with nothing more than that document's ADAMS accession number provided as a source to verify the NRC Staff's statements. Consistent with our responsibility to examine the record and verify cited materials,<sup>500</sup> we reviewed the cited documents in the NRC Staff Communications Log and marked those as Board exhibits that warranted further consideration at the evidentiary hearing.

The NRC Staff argues that it would be improper to admit these Board Exhibits because it "had no notice prior to the hearing that the Board would be supplying these exhibits or questioning witnesses on them."<sup>501</sup> The NRC Staff's argument fails because of two critical facts: (1) the NRC Staff itself provided the citations to these documents as factual support for its own witnesses' testimony and exhibits; and (2) the NRC Staff witnesses oversaw the very process that produced these

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<sup>497</sup> See, e.g., *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-519, 9 NRC 42, 43 n.3 (1979); *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-13-4, 77 NRC 107, 117 (2013); *Commonwealth Edison Co.* (Dresden Station, Units 2 and 3), LBP-81-37, 14 NRC 708, 726 (1981); *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), LBP-78-2, 7 NRC 83, 85 (1978).

<sup>498</sup> See, e.g., *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-807, 21 NRC 1195, 1200 n.12 (1985); *Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), LBP-07-9, 65 NRC 539, 583 (2007); *Washington Public Power Supply System* (WPPSS Nuclear Project No. 4), LBP-78-8, 7 NRC 254, 261 (1978) (citing *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 340 (1973)).

<sup>499</sup> As provided in the "List of NRC Staff Communications with the Oglala Sioux Tribe as Part of Section 106 Consultation for the Crow Butte License Renewal," Ex. BRD-018, Ex. BRD-019, Ex. BRD-020, Ex. BRD-021, and Ex. BRD-023 are available at ADAMS Accession Nos. ML120330066, ML120320436, ML120670079, ML12130A067, and ML12311A501. See NRC Staff Communications Log at 3-4.

<sup>500</sup> See *Am. Centrifuge*, CLI-06-10, 63 NRC at 458.

<sup>501</sup> Staff Objection to Board Exhibits at 2.



exhibits. Moreover, our examination of these witnesses at the hearing verified that they were quite familiar with these exhibits.<sup>502</sup>

## **2. Exhibits to Examine Development of November 2012 TCP Survey**

We overrule the NRC Staff's objections to the introduction of Ex. BRD-022, Ex. BRD-024, Ex. BRD-025, and Ex. BRD-026. These exhibits are likewise publicly available on ADAMS and they provided needed context for the NRC Staff's testimony concerning surveys of cultural resources.<sup>503</sup> Ex. BRD-022 is a proposed scope of work for the Powertech site<sup>504</sup> that according to Intervenor, explains much of the confusion and misunderstanding with respect to the NRC Staff's efforts to develop a TCP survey for the Crow Butte license renewal.<sup>505</sup> Ex. BRD-024, Ex. BRD-025, and Ex. BRD-026 are the three draft scopes of work provided by Crow Butte<sup>506</sup> that ultimately produced the November 2012 TCP Survey.<sup>507</sup> Of special importance, the "open site" approach adopted by the NRC Staff<sup>508</sup> originated from Crow Butte's proposal in Ex. BRD-026.<sup>509</sup> These exhibits provided relevant and necessary context for our examination of NRC Staff witnesses regarding the TCP surveys that were undertaken at Crow Butte,<sup>510</sup> helped clarify what the "open site" approach meant to the parties and how it came about,<sup>511</sup> and assisted us in examining and verifying the respective parties' claims as to whether this "open site" survey was consistent with the Tribe's views.<sup>512</sup>

Introduction of these exhibits in order to question the witnesses and better understand their testimony falls within the Board's general authority to regulate

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<sup>502</sup> See, e.g., Tr. at 2014-15, 2088, 2090-91, 2160, 2222.

<sup>503</sup> As explained in the Parties' Joint Response to the Board's July 31, 2015 Order Regarding Redaction of Documents (Aug. 10, 2015), the documents that were introduced as Ex. BRD-022, Ex. BRD-024, Ex. BRD-025, and Ex. BRD-026 are available at ADAMS Accession Nos. ML12278A189, ML15222B281, ML15222B289, and ML15264A912. Ex. BRD-029 is Volume 1 of the ISL Mining GEIS.

<sup>504</sup> Ex. BRD-022.

<sup>505</sup> See Tr. at 2180-84.

<sup>506</sup> Ex. BRD-024, NRC Staff Draft Scope of Work, Identification of Properties of Religious and Cultural Significance, Cameco Resources Crow Butte License Renewal and North Trend License Amendment (Mar. 8, 2012); Ex. BRD-025, NRC Staff Draft Scope of Work, Identification of Properties of Religious and Cultural Significance, Cameco Resources Crow Butte License Renewal and North Trend, Marsland and Three Crow Amendment Areas (Aug. 7, 2012).

<sup>507</sup> *Supra* Section III.C.4.

<sup>508</sup> See, e.g., Ex. NRC-001-R at 65, 68.

<sup>509</sup> Tr. at 2247.

<sup>510</sup> See, e.g., Tr. at 2228-47.

<sup>511</sup> *Supra* Sections III.B.2.c, III.C.4.a.

<sup>512</sup> *Supra* Section III.C.4.a.

the course and conduct of the proceeding.<sup>513</sup> Certainly, the NRC Staff does not have any legitimate claim to being surprised by questions on these exhibits. First, the NRC Staff cultural resource witnesses were involved first-hand in the process that produced these exhibits, and so they had first-hand knowledge of the exhibits based on their personal experience.<sup>514</sup> Second, the Board requested copies of these exhibits prior to the evidentiary hearing and explicitly stated that it “may have occasion to use [the requested] documents at the upcoming August 24, 2015 evidentiary hearing,”<sup>515</sup> and the NRC Staff interposed no objection at that time.<sup>516</sup>

### **3. *Exhibits to Examine Survey Efforts of Crow Nation and Santee Sioux Nation***

We overrule the NRC Staff’s objections to Ex. BRD-027 and Ex. BRD-028. These exhibits provide basic, background information (none of which is disputed by any party hereto) about American Indian populations and which was necessary for examining the NRC Staff witnesses’ assertion that two non-Lakota tribes — the Crow and Santee Sioux Nations — could perform a meaningful search within the license area for Lakota artifacts.<sup>517</sup> Congress specifically created the Atomic Safety and Licensing Boards to serve as a “panel of experts,”<sup>518</sup> and thus the Commission expects the Board to bring its expertise to bear on technical questions.<sup>519</sup> Part of that technical expertise is the ability to synthesize relevant background information that is undisputed by the parties,<sup>520</sup> and to assess the witnesses’ testimony and relevant knowledge.<sup>521</sup> The NRC Staff witnesses, presented as experts on NHPA and cultural resource reviews,<sup>522</sup> acknowledged

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<sup>513</sup> See 10 C.F.R. § 2.319; *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-08-7, 67 NRC 187, 192 (2008).

<sup>514</sup> NRC Staff witnesses’ familiarity with the documents was explored in detail for these exhibits. See Tr. at 2215-47.

<sup>515</sup> Licensing Board Order (Redaction of Documents) at 1 (July 31, 2015) (unpublished).

<sup>516</sup> See Staff Response to Board Document Request.

<sup>517</sup> See, e.g., NRC-001-R at 73-74; Tr. at 2306.

<sup>518</sup> *Vt. Yankee*, CLI-10-17, 72 NRC at 49 (citing 42 U.S.C. § 2241(a)).

<sup>519</sup> *Id.* at 49-50; see also *Zion Station*, ALAB-222, 8 AEC at 236.

<sup>520</sup> See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-644, 13 NRC 903, 915 & n.24 (1981).

<sup>521</sup> See *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), LBP-82-48, 15 NRC 1549, 1567 (1982).

<sup>522</sup> Before the hearing commenced, we advised the parties of our understanding that all the witnesses empaneled were to be treated as expert witnesses. See Licensing Board Order (Governing Evidentiary Hearing) at 1-2 (July 13, 2015) (unpublished). The parties provided no indication otherwise, either before or at the hearing.

that they were aware of these foundational facts.<sup>523</sup> Furthermore, by introducing this potentially relevant background information in Board exhibits, we ensured that this information is easily available for public and appellate review, fulfilling the spirit of NEPA's disclosure goals and the NRC's transparency requirements.<sup>524</sup>

## **B. Objections to Testimony**

The NRC Staff raised certain objections to testimony presented during the hearing. Although for the most part these were addressed at the hearing, we resolve here only the one testimony objection that pertains to Contention 1. We defer ruling on all other objections because they pertain to contentions other than Contention 1 and can best be resolved in conjunction with our disposition of those other contentions in a subsequent Partial Initial Decision.

The NRC Staff objected to our examination of any witness regarding the circumstances surrounding the NRC Staff's providing a copy of the draft EA to NDEQ, on the grounds that it was outside the scope of the cultural resources issues at play in Contention 1. As already discussed, we find that the publication of the draft EA and providing a copy to NDEQ but not to the Oglala Sioux Tribe is relevant to whether the NRC Staff respected the government-to-government relationship due the Tribe, a core part of its obligations under the NHPA. Moreover, the NRC Staff witnesses should have been well prepared to speak about this event, as both Intervenor cultural resource expert witnesses, Mr. CatchesEnemy and Mr. Yellow Thunder, raised this issue in their initial prehearing testimony. For this reason, the objection is overruled.

## **C. Motions in Limine**

We turn now to the Intervenor exhibits that precipitated a motion in limine from the NRC Staff.<sup>525</sup> Both the Oglala Sioux Tribe and Consolidated Intervenor filed replies.<sup>526</sup> Before the hearing commenced, we struck five of these exhibits

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<sup>523</sup> See Tr. at 2299-2301.

<sup>524</sup> See *supra* Section II.A.1; see also *Kerr-McGee Chemical Corp.* (Kress Creek Decontamination), ALAB-885, 27 NRC 59, 69 (1988).

<sup>525</sup> NRC Staff's Motion in Limine to Exclude Certain Exhibits Filed by Consolidated Intervenor and the Oglala Sioux Tribe (June 15, 2015) [hereinafter "Staff Motion in Limine"].

<sup>526</sup> The Oglala Sioux Tribe's Response to NRC Staff's Motion in Limine to Exclude Certain Exhibits Filed by Consolidate[d] Intervenor and the Oglala Sioux Tribe (May 1, 2015).

in response to the NRC Staff's motions,<sup>527</sup> and deferred ruling on the remaining exhibits.<sup>528</sup> Herein we decide the following:

1. We continue to defer ruling on the NRC Staff's motion to strike Ex. INT-002, Ex. INT-004, Ex. INT-005, Ex. INT-046, Ex. INT-047, Ex. INT-048, Ex. INT-049, Ex. INT-069, Ex. INT-070, Ex. INT-071, Ex. INT-082, Ex. INT-084, Ex. INT-085, and Ex. OST-001 because they pertain to contentions other than Contention 1 and can best be resolved in conjunction with our disposition of those other contentions in a subsequent Partial Initial Decision; and
2. We *grant* the NRC Staff's motion to strike Ex. INT-023, Ex. INT-024, Ex. INT-025, Ex. INT-027, Ex. INT-028 (in part), and Ex. INT-029.

The first three of these exhibits, Ex. INT-023, Ex. INT-024, and Ex. INT-025, are testimony from witnesses who were not called by Intervenor in this proceeding. In addition, that testimony concerned historical treaty matters between the United States and the Oglala Sioux Tribe — a subject that, as noted repeatedly during the course of this proceeding, is not relevant here.

Ex. INT-027, Ex. INT-028, and Ex. INT-029 are statements that were obtained for a different but related proceeding, the *Powertech* proceeding. Ex. INT-027 and Ex. INT-028 include statements made by Mr. CatchesEnemy and Dr. Redmond, both of whom were called as witnesses in this proceeding, and Ex. INT-029 concerns a sworn declaration made by Mr. Wilmer Mesteth, a Tribal Historical Preservation Officer for the Oglala Sioux Tribe who passed away before our hearing commenced.<sup>529</sup>

Sworn testimony from previous, related proceedings may be admitted where the same witness appears in the current proceeding<sup>530</sup> (as is the case with Mr. CatchesEnemy and Dr. Redmond), or when a witness passes before the hearing commences<sup>531</sup> (as is the case with Mr. Mesteth). However, the NRC Staff has not interposed objections to these exhibits simply because they were from a prior proceeding — for example, the NRC Staff in its motion left in the record two pages of INT-028 (the transcript from the *Powertech* proceeding).<sup>532</sup>

Rather, the gravamen of the NRC Staff's objection is that these documents

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<sup>527</sup> Licensing Board Order (Memorializing Admitted Exhibits and Providing Final Exhibit List) (Aug. 19, 2015) (unpublished).

<sup>528</sup> *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-520, 9 NRC 48, 50 n.2 (1979).

<sup>529</sup> Tr. at 2081.

<sup>530</sup> Fed. R. Civ. P. 32(a)(8).

<sup>531</sup> Fed. R. Evid. 804(a)(4), (b)(1).

<sup>532</sup> Staff Motion in Limine at 9.

are not relevant because they discuss the cultural resources review for a different site.<sup>533</sup> We agree. Although certain aspects of the *Powertech* proceeding are clearly related to the instant proceeding, especially in terms of the cultural resources review, these three exhibits either make generic statements that repeat what is already in the record of this proceeding,<sup>534</sup> or they make specific statements about the Powertech site that lack a substantial relationship to the Crow Butte license area.<sup>535</sup> Moreover, Intervenor's witnesses themselves made no effort to connect statements in these three exhibits to the current proceeding. Finally, insofar as questions arose regarding how the *Powertech* proceeding related to Contention 1, we obtained the necessary testimony by examining the witnesses empaneled during August 24-28, 2015, and had no need to refer to these three exhibits.

## V. SUMMARY FINDINGS OF FACT

Based on the evidence adduced in this proceeding, and as discussed herein, we make the following findings of fact:

1. We find by a preponderance of the evidence that the NRC Staff made a genuine effort to consult with the Oglala Sioux Tribe with respect to the Crow Butte License area, and so it met its Consultation Obligations under the NHPA;
2. We find by a preponderance of the evidence that the NRC Staff's TCP survey of the Crow Butte License area did not meet its Identification Obligations under the NHPA;
3. Having found by a preponderance of the evidence that the NRC Staff failed to meet its Identification Obligations under the NHPA, we further find, by a preponderance of the evidence, that the EA is deficient under NEPA because it fails to take a "hard look" at potential TCPs within the Crow Butte License area, including failing to analyze the objections raised by the tribes with respect to the inadequacy of the open site TCP survey;
4. Having found by a preponderance of the evidence that the NRC Staff met its Consultation Obligations under the NHPA, we further find, by

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<sup>533</sup> *Id.*

<sup>534</sup> See, e.g., Ex. INT-027, Excerpt from Official Transcript of Proceedings, *Powertech USA, Inc.* (Dewey-Burdock In Situ Uranium Recovery Facility), No. 40-9075-ML, at 809 (Aug. 19, 2014); Ex. INT-028, Official Transcript of Proceedings, *Powertech USA, Inc.* (Dewey-Burdock In Situ Uranium Recovery Facility), No. 40-9075-ML, at 767 (Aug. 19, 2014).

<sup>535</sup> See, e.g., Ex. INT-029, Declaration of Wilmer Mesteth ¶ 8 (Apr. 1, 2010).

a preponderance of the evidence, that while the EA was deficient in its description of how the NRC Staff met those Consultation Obligations under the NHPA, the evidence in the record of this adjudicatory proceeding cures those deficiencies in the EA, and accordingly, the NRC Staff need do nothing further in this regard.

## VI. CONCLUSIONS OF LAW

With respect to Contention 1, the Board rules that the NRC Staff failed to comply with the NHPA and NEPA.

## VII. REMEDIES

In materials licensing proceedings, licensing boards are empowered to make “findings of fact and conclusions of law on the matters put into controversy by the parties.”<sup>536</sup> After a licensing board has issued an initial decision on those matters, the Director of the NMSS “shall issue, deny, or appropriately condition the permit, license, or license amendment in accordance with the presiding officer’s initial decision.”<sup>537</sup> Although the NRC’s regulations allow the NRC Staff to issue a license before an adjudicatory proceeding is concluded,<sup>538</sup> the Director of NMSS must thereafter deny, or insert appropriate conditions, if any, in the license based on the determinations of the licensing board and the Commission.<sup>539</sup>

We have found that the NRC Staff satisfied neither the NHPA’s requirement to identify, assess, and to attempt to mitigate impacts on TCPs within the license area, nor NEPA’s requirement to take a hard look at cultural resources within the license area. This failure prevents us from determining whether renewal of the license will result in “no significant impacts,” and therefore places the NRC Staff’s FONSI determination in doubt.<sup>540</sup> The question we face here is what actions are possible to address this deficiency.

Where an agency fails to comply with procedural statutes such as NEPA or the NHPA, an injunction is sometimes the proper recourse.<sup>541</sup> The equivalent of

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<sup>536</sup> 10 C.F.R. § 2.340(e)(1); *see also id.* § 2.321(a).

<sup>537</sup> *Id.* § 2.340(e)(2).

<sup>538</sup> *Id.* §§ 2.340(e)(2)(ii), 2.1202(a).

<sup>539</sup> *See id.* §§ 2.340(e)(2)(ii), 2.1210(c)(2)-(3); *see also id.* § 40.41(e).

<sup>540</sup> *See* LBP-15-11, 81 NRC at 415.

<sup>541</sup> *See, e.g., Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 156-57 (2010); *League of Wilderness Defenders/Blue Mountains Biodiversity Project v. Connaughton*, 752 F.3d 755, 761, 767 (9th Cir. 2014); *Neighborhood Ass’n of the Back Bay, Inc. v. Federal Transit Administration*, 463 F.3d 50, 58 (1st Cir. 2006).

an injunction here would be not granting the license extension. The United States Supreme Court has made clear that such injunctive relief is only warranted when the traditional test justifying it is met, i.e.,

(1) that [Intervenors have] suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between [Intervenors] and [Crow Butte], a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.<sup>542</sup>

We first examine monetary damages. Monetary remedies are not possible in the NRC licensing context, and a failure to comply with NEPA presumptively implies environmental harms that money cannot fix.<sup>543</sup> The loss of historic properties represents irreversible damage to our “American heritage,”<sup>544</sup> and damages to TCPs are “deeply offensive” to Indian tribes.<sup>545</sup> Accordingly, this prong weighs toward the Intervenors.

The irreparable injury and balance-of-hardships prongs, however, weigh against Intervenors. The Supreme Court in *Winter v. Natural Resources Defense Council* explained that irreparable injury must be likely, not merely possible, without an injunction.<sup>546</sup> We find that, while the site’s condition and status as an already-operating mine do not excuse a meaningful search for historic properties and other TCPs as Intervenors seek under Contention 1, the site’s condition can inform the NRC Staff about the likelihood of damage to TCPs. Intervenors have presented no evidence that imminent harm would result from granting the license extension before the NRC Staff fulfills its NEPA and NHPA requirements.

The third prong, balance of hardships, also weighs against Intervenors in light of their unwillingness to continue to participate in the consultation process. Moreover, we recognize that the Commission has disfavored imposing “a draconian remedy when less drastic relief will suffice.”<sup>547</sup> Not granting the license extension appears not only to be an undue hardship, but also unnecessary to cure the potential harms at issue. In *Powertech*, the licensing board similarly declined to stay the effectiveness of a license upon a showing of a NEPA and NHPA violation, instead expressing confidence that the NRC Staff would take steps to rectify the

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<sup>542</sup> *Monsanto*, 561 U.S. at 156-57; *Winter v. Natural Resources Defense Council, Inc.*, 555 U.S. 7, 20 (2008).

<sup>543</sup> *Sierra Club v. U.S. Army Corps of Engineers*, 645 F.3d 978, 995 (8th Cir. 2011); *Davis v. Mineta*, 302 F.3d 1104, 1114 (10th Cir. 2002).

<sup>544</sup> National Register Bulletin 15 at i.

<sup>545</sup> National Register Bulletin 38 at 6.

<sup>546</sup> *Winter*, 555 U.S. at 8.

<sup>547</sup> *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-00-8, 51 NRC 227, 241 (2000).

deficiency and suggesting that “promptly initiating a government-to-government consultation” would achieve these results.<sup>548</sup> Because of our conviction that the NRC Staff will act with dispatch to cure these NEPA and NHPA deficiencies, we likewise conclude that it would not be appropriate under the circumstances either to lift the effectiveness of the NRC Staff’s action granting the Crow Butte license extension, in accordance with section 2.1213, or to direct that the NMSS Director deny the Crow Butte license extension, in accordance with section 2.340(e)(2).

While this Partial Initial Decision makes clear that the NRC Staff has not complied with its obligations under NEPA and the NHPA, we do not direct the NRC Staff regarding the specifics as to how it should achieve such compliance. In our estimation, however, the most efficient method for curing these NEPA and NHPA deficiencies would be for the NRC Staff to publicly supplement its EA with additional analyses and findings with respect to possible TCPs and historic properties within the license area, as well as to correct any inaccurate statements about either the consultation process or the identification of TCPs and cultural resources within the license area. And certainly, insofar as the NRC Staff performs additional analyses and surveys, any failure to amend or supplement the EA to incorporate these findings could violate the disclosure goals of NEPA and the transparency goals of the NRC. Nonetheless, we leave it to the NRC Staff to identify how it wishes to proceed in light of our rulings herein.

And to that end, we will convene a conference call at a time and date to be determined to discuss with the NRC Staff and the other parties the next steps in addressing the concerns we outline in this decision. Moreover, once the NRC Staff revises or supplements its EA, Intervenor will be afforded an opportunity to file new contentions to contest the adequacy of the NRC Staff’s chosen actions, including any revised EA (or EA supplement), and any new information that may result from the NRC Staff’s actions, with additional adjudication before the Board thereafter as is necessary to resolve any admitted contentions. Any new contentions must comply with applicable timeliness and contention admissibility requirements set forth in 10 C.F.R. § 2.309.

Whenever the NRC Staff makes public its curative actions relating to Contention 1, including any revised EA (or EA supplement), it shall notify the Board and parties by letter through the Electronic Hearing Docket. We shall retain jurisdiction for this limited purpose, until the Commission “orders otherwise,” or “when the period within which the Commission may direct that the record be certified to it for final decision expires, [or] when the Commission renders a final decision.”<sup>549</sup> And until its curative actions regarding Contention 1 are completed, the NRC Staff shall provide monthly status reports on the first day of every month

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<sup>548</sup> *Powertech*, LBP-15-16, 81 NRC at 657-58.

<sup>549</sup> 10 C.F.R. § 2.318; see also *Powertech*, LBP-15-16, 81 NRC at 710 (taking a similar approach).



updating the Board and the parties as to its activities, including the status of any revised EA (or EA supplement).

### **VIII. ORDER**

Pursuant to 10 C.F.R. § 2.1210(a), the Board directs the following:

- A. Contention 1 is resolved in favor of Intervenor. The NRC Staff has not met its Identification Obligations under the NHPA, nor has the NRC Staff in its EA undertaken a hard look under NEPA at cultural resources within the license area, as described above. While the NRC Staff attempts to remedy its noncompliance with the dictates of NEPA and the NHPA, as outlined in this decision, or until the Commission directs otherwise, this remains an open matter before the Board.
- B. The NRC Staff's objections and motions in limine regarding Contention 1 are granted or denied, as discussed above, with resolution of the balance of the NRC Staff's evidentiary objections deferred until issuance of a subsequent Partial Initial Decision.
- C. The parties shall jointly propose by June 10, 2016, three possible dates for a telephone conference with the Board to discuss the NRC Staff's plan for going forward relative to addressing the deficiencies associated with Contention 1 in accordance with this decision, including any NRC Staff plans to revise or supplement the EA for this proceeding.

In accordance with 10 C.F.R. § 2.1210, this Partial Initial Decision will constitute a final decision of the Commission 120 days from the date of issuance, May 26, 2016.<sup>550</sup> Any party may petition for review of this Partial Initial Decision pursuant to 10 C.F.R. § 2.341(b)(4).<sup>551</sup> NRC regulations require that any petition for review must be filed within 25 days from service of this Partial Initial Decision, which is June 20, 2016.<sup>552</sup> Unless otherwise authorized by law, the filing of a petition for review is mandatory for a party to have exhausted its administrative remedies before seeking judicial review.<sup>553</sup>

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<sup>550</sup> This Partial Initial Decision has been served this date by the Office of the Secretary on those designated in the accompanying service list through the agency's E-Filing system and by e-mail.

<sup>551</sup> Partial initial decisions are reviewable under 10 C.F.R. § 2.341(b)(1) because they are considered final decisions. *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), CLI-11-10, 74 NRC 251, 255 (2011); *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-08-2, 67 NRC 31, 34-35 (2008).

<sup>552</sup> 10 C.F.R. § 2.341(b)(1).

<sup>553</sup> *Id.*

The Board expects to issue a subsequent Partial Initial Decision on the remaining contentions later this year.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD<sup>554</sup>

Michael M. Gibson, Chairman  
ADMINISTRATIVE JUDGE

Dr. Richard E. Wardwell  
ADMINISTRATIVE JUDGE

Brian K. Hajek  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
May 26, 2016

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<sup>554</sup> Judge Alan Rosenthal was a special assistant to this Licensing Board from its inception, and participated in all of its decisions up to and including the August 2015 evidentiary hearing. He passed away on September 25, 2015. Judge Rosenthal had a long and distinguished tenure as a governmental lawyer and an NRC administrative judge. After his service in World War II, he attended Yale Law School. After graduating in 1951, he began his legal career at the Appellate Section of the Civil Division at the U.S. Department of Justice (“DOJ”), where he helped prepare the Federal Government’s Supreme Court briefs in the landmark case of *Brown v. Board of Education*. During his 20 years of service at DOJ, Judge Rosenthal presented nine arguments in the U.S. Supreme Court and over 200 arguments in U.S. Courts of Appeals. In 1972, he was appointed by the Atomic Energy Commission to be the Chairman of the agency’s appellate tribunal, the Atomic Safety and Licensing Appeal Panel (Appeal Panel). With the NRC’s creation in 1975, he continued in that position until his retirement from full-time service in 1988 — although he served as a part-time Appeal Panel judge until the Panel’s abolition in 1991. In 1999, Judge Rosenthal returned to the NRC as a part-time judge on the Atomic Safety and Licensing Board Panel, a position he held at the time of his death. During Judge Rosenthal’s 35 years of service as an NRC judge, not only was he an intellectual force in the development of NRC’s jurisprudence, he was at all times an eminently fair adjudicator who could be counted on to deliver a succinct, well-reasoned judgment. He will be greatly missed.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Michael M. Gibson**, Chairman  
**Dr. Michael F. Kennedy**  
**Dr. William W. Sager**

**In the Matter of**

**Docket Nos. 50-250-LA  
50-251-LA  
(ASLBP No. 15-935-02-LA-BD01)**

**FLORIDA POWER & LIGHT  
COMPANY  
(Turkey Point Nuclear Generating  
Plant, Units 3 and 4)**

**May 31, 2016**

In August 2014, the NRC issued license amendments to Florida Power & Light Company (FPL) that increased the ultimate heat sink water temperature limit for the cooling canals at Turkey Point Nuclear Generating Units 3 and 4. Citizens Allied for Safe Energy, Inc. (CASE) then challenged the adequacy of the NRC's 2014 Environmental Assessment (2014 EA) associated with the granting of these license amendments. After a 2-day evidentiary hearing, the Licensing Board concluded that the 2014 EA failed to satisfy the requirements of NEPA because of its deficient discussion of saltwater migration, saltwater intrusion, and aquifer withdrawals. The Board further concluded that the NRC Staff did not need to revise the 2014 EA because evidence developed in the adjudicatory proceeding cured the identified deficiencies.

**NEPA: HARD LOOK; NRC RESPONSIBILITY**

In reviewing an intervenor's challenge, a Licensing Board must determine

whether the NRC Staff took a “hard look” at the potential environmental impacts of the licensing actions and also whether the NRC Staff adequately justified its conclusions in this regard. The NRC Staff bears the ultimate burden of proof for showing that it complied with NEPA.

#### **LICENSING BOARD(S): FACTUAL FINDINGS**

Where there is an evidentiary dispute, Licensing Boards make any necessary factual findings based on a preponderance of the evidence.

#### **NEPA: INCORPORATION BY REFERENCE**

Incorporation by reference requires a clear description of the incorporated material and specific references thereto. 40 C.F.R. § 1502.21; 10 C.F.R. Part 51, Subpart A, App. A, § 1(b).

#### **NEPA: INCORPORATION BY REFERENCE**

Incorporating past environmental analyses by reference into NEPA documents without citing to, and adequately explaining, the particular sections of those incorporated documents on which the NRC Staff intends to rely disregards the clearly prescribed methods for incorporation by reference and, ultimately, vitiates the underlying purpose of NEPA.

#### **NEPA: REQUIREMENTS; ENVIRONMENTAL ASSESSMENT**

While an EA should not amass needless detail, it must permit members of the public to weigh in with their views and thus inform the agency decisionmaking process as well as provide sufficient evidence and analysis to determine the reasonableness of the decision not to prepare an Environmental Impact Statement.

#### **NEPA: REQUIREMENTS**

One of the primary purposes of NEPA is to ensure that the public understands why an agency made a particular decision; an environmental assessment deprives the public of that opportunity if it fails to disclose the agency’s underlying rationale for its conclusions.

#### **NEPA: CUMULATIVE IMPACTS ANALYSIS**

Council on Environmental Quality regulations require agencies to consider

environmental effects that “result[] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” with the goal of making sure that “individually minor but collectively significant” actions are properly analyzed. 40 C.F.R. § 1508.7; *see* 10 C.F.R. § 51.14(b).

**NEPA: MITIGATION MEASURES**

To rely on beneficial environmental effects of mitigation measures, without also evaluating potential negative effects of those same measures, runs directly counter to the twin aims of NEPA — review and disclosure.

**NEPA: REQUIREMENTS**

Under NEPA, an agency not only must evaluate all significant impacts, but also must “inform the public that the agency has considered environmental concerns in its decisionmaking process.” *Weinberger v. Catholic Action of Hawaii/Peace Education Project*, 454 U.S. 139, 143 (1981).

**NEPA: RECORD OF DECISION**

Despite deficiencies in the NRC Staff’s NEPA documents, a licensing board may nonetheless uphold the NRC Staff’s proposed action if sufficient evidence is developed in an adjudicatory proceeding concerning the environmental impacts of the proposed action. In such situations, the licensing board’s findings and conclusions are deemed to amend the NRC Staff’s NEPA documents and become the agency record of decision on those matters.

**NEPA: RECORD OF DECISION**

A Licensing Board’s decision that becomes the agency record of decision satisfies the disclosure purpose of NEPA through the public vetting of environmental issues at an evidentiary hearing and, as a consequence, the NRC Staff is not required to supplement or amend its NEPA documents.

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## INITIAL DECISION

### I. INTRODUCTION

Pursuant to 10 C.F.R. § 50.91(a)(4), in August 2014, the Nuclear Regulatory Commission (NRC) issued license amendments to Florida Power & Light Company (FPL) that increase the ultimate heat sink water temperature limit for the cooling canals at Turkey Point Nuclear Generating Units 3 and 4, located approximately 25 miles south of Miami.<sup>1</sup> Citizens Allied for Safe Energy, Inc. (CASE) has challenged the adequacy of the 2014 Environmental Assessment (2014 EA) associated with the granting of these license amendments.<sup>2</sup> We conclude that the 2014 EA fails to satisfy the requirements of the National Environmental Policy Act (NEPA) because of its deficient discussion of saltwater migration, saltwater intrusion,<sup>3</sup> and aquifer withdrawals. Nevertheless, we further conclude that the

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<sup>1</sup> See License Amendment; Issuance, Opportunity to Request a Hearing, and Petition for Leave to Intervene, 79 Fed. Reg. 47,689, 47,689-90 (Aug. 14, 2014); *see also* LBP-15-13, 81 NRC 456, 459-60, *aff'd*, CLI-15-25, 82 NRC 389, 407 (2015).

<sup>2</sup> [CASE] Petition to Intervene and Request for a Hearing (Oct. 14, 2014) [hereinafter Petition]; *see* Environmental Assessment and Final Finding of No Significant Impact, Issuance, 79 Fed. Reg. 44,464, 44,466 (July 31, 2014) [hereinafter 2014 EA]. The NRC Staff also provided the 2014 EA as Ex. NRC-009.

<sup>3</sup> Saltwater intrusion describes the movement of saltwater into a freshwater aquifer. In this proceeding, saltwater intrusion refers to the potential inland/westward movement of the freshwater/saltwater interface. *See* Ex. NRC-001, NRC Staff Testimony of Audrey L. Klett, Briana A. Grange, William Ford, and Nicholas P. Hobbs Concerning Contention 1, at 23 (Nov. 10, 2015) [hereinafter Ex. NRC-001, Staff Written Testimony]; Ex. NRC-036, Scott T. Prinos et al., Origins and Delineation  
(Continued)

NRC Staff will not need to revise the 2014 EA because record evidence developed in this adjudicatory proceeding cures the identified deficiencies in the 2014 EA.<sup>4</sup>

## II. BACKGROUND

Turkey Point Units 3 and 4 employ a cooling canal system as their ultimate heat sink.<sup>5</sup> After being discharged from the plant into the cooling canal system, heated water flows over a 13-mile loop before returning to the plant, where the water is recirculated for cooling purposes and the entire process is repeated.<sup>6</sup> The operating licenses for Units 3 and 4 were renewed in 2002.<sup>7</sup> Those licenses included Technical Specifications that set an ultimate heat sink water temperature limit of 100 degrees Fahrenheit (°F) in the cooling canals,<sup>8</sup> as measured at the point of intake back into the component cooling water system.<sup>9</sup> In the event FPL exceeded this temperature limit, these renewed licenses required FPL to shut down Units 3 and 4.<sup>10</sup>

In early July 2014, the water temperature in the cooling canals began to approach the permissible limit. Consequently, on July 10, 2014, FPL sought license amendments to raise the limit to 104°F.<sup>11</sup> A week later, as water temperatures continued to rise, FPL asked the NRC Staff to respond to its amendment request on an emergency basis “to avoid a dual unit shutdown that could affect grid reliability.”<sup>12</sup> FPL did not submit an Environmental Report with its amendment

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of Saltwater Intrusion in the Biscayne Aquifer and Changes in the Distribution of Saltwater in Miami-Dade County, Florida, at 2 (Feb. 2014); *see also* Ex. FPL-001, Initial Written Testimony of [FPL] Witnesses Steve Scroggs, Jim Bolleter, and Pete Andersen on Contention 1, at 47-48 (Nov. 10, 2015) [hereinafter Ex. FPL-001, FPL Written Testimony].

<sup>4</sup> *See* Notice of Hearing, 80 Fed. Reg. 76,324, 76,324 (Dec. 8, 2015); Tr. at 259-571.

<sup>5</sup> 2014 EA, 79 Fed. Reg. at 44,465. Plants must provide an ultimate heat sink to transfer heat from structures, systems, and components that are important to safety. *See* 10 C.F.R. Part 50, App. A (referencing Criterion 44 of General Design Criteria for Nuclear Power Plants).

<sup>6</sup> 2014 EA, 79 Fed. Reg. at 44,466.

<sup>7</sup> Florida Power and Light Company, Turkey Point Nuclear Generating Units Nos. 3 and 4; Notice of Issuance of Renewed Facility Operating Licenses Nos. DPR-31 and DPR-41 for an Additional 20-Year Period, 69 Fed. Reg. 40,754, 40,754 (June 13, 2002).

<sup>8</sup> 2014 EA, 79 Fed. Reg. at 44,465; *see also* 79 Fed. Reg. at 47,690.

<sup>9</sup> 2014 EA, 79 Fed. Reg. at 44,465-66.

<sup>10</sup> *Id.* at 44,466.

<sup>11</sup> *Id.* at 44,465; *see* Ex. FPL-008, Letter from Michael Kiley, Vice President, Turkey Point Nuclear Plant, to NRC, License Amendment Request No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit (July 10, 2014) [hereinafter Ex. FPL-008, LAR].

<sup>12</sup> 79 Fed. Reg. at 47,690 (referencing Letter from Michael Kiley, Vice President, Turkey Point Nuclear Plant, to NRC, License Amendment Request No. 231, Application to Revise Ultimate Heat Sink Temperature Limit (July 10, 2014)).

(Continued)

request. FPL instead invoked a categorical exclusion<sup>13</sup> from the environmental review process.<sup>14</sup>

While the NRC Staff was considering FPL's license amendment request, the cooling canals exceeded the 100 °F water temperature limit on July 20, 2014.<sup>15</sup> FPL sought and received a "Notice of Enforcement Discretion" authorizing the plant to operate with cooling canal water temperatures up to 103 °F for 20 days<sup>16</sup> while the NRC Staff continued its review of FPL's license amendment request.<sup>17</sup>

On July 30, 2014, the NRC Staff published a notice in the *Federal Register* advising that the license amendments involved no significant hazards considerations.<sup>18</sup> That notice also indicated that, because of the risk of a dual-unit shutdown, the NRC would be foregoing its customary 30 days for public comment before acting on FPL's application.<sup>19</sup> Rather than invoking the categorical exclusion suggested by FPL, on July 31, 2014, the NRC Staff issued the 2014 EA, which concluded there would be no significant environmental impacts associated with approving the license amendments.<sup>20</sup>

The NRC Staff granted the license amendments on August 8, 2014.<sup>21</sup> Six days

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Sink Temperature Limit — Request for Emergency Approval at 1 (July 17, 2014) (ADAMS Accession No. ML14202A392)).

<sup>13</sup> Under the agency's regulations implementing NEPA, a categorical exclusion "means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which the Commission has found to have no such effect . . . and for which, therefore, neither an environmental assessment nor an environmental impact statement is required." 10 C.F.R. § 51.14.

<sup>14</sup> Ex. FPL-008, LAR at 16-17.

<sup>15</sup> Ex. NRC-025, NextEra Energy, Turkey Point Canal Temperature Exceeded 100 degrees F (Nov. 21, 2014), Attach. at 2 [hereinafter Ex. NRC-025, Root Cause Evaluation].

<sup>16</sup> See Ex. NRC-018, Letter from Victor McCree, Regional Administrator, NRC Region II, to Michael Kiley, Turkey Point Nuclear Plant Vice President, Extension of Notice of Enforcement Discretion (NOED) for [FPL] Regarding Turkey Point Nuclear Generating Station Units Nos. 3 and 4 [NOED No. 14-2-001], at 1 (July 31, 2014). On July 20, 2014, the NRC granted FPL a Notice of Enforcement discretion that expired 10 days later on July 30. *Id.* The NRC Staff later extended the expiration date to August 9, 2014. *Id.* at 2.

<sup>17</sup> *Id.* at 1.

<sup>18</sup> See License Amendment Application; Opportunity to Comment, Request a Hearing, and Petition for Leave to Intervene, 79 Fed. Reg. 44,214, 44,215 (July 30, 2014).

<sup>19</sup> *Id.* Pursuant to the July 30, 2014 *Federal Register* Notice, interested members of the public were directed to submit comments by August 13, 2014, and to submit requests for a hearing or petition for leave to intervene by September 29, 2014. *Id.* at 44,214. However, once the NRC granted the license amendments on August 8, 2014, the NRC published a second notice of opportunity to intervene in the *Federal Register* on August 14, 2014. See 79 Fed. Reg. at 47,690. In this notice, the NRC reset the period to request a hearing or petition for leave to intervene because the original July 30, 2014 *Federal Register* notice had been superseded by FPL's license amendment supplement. See *id.*

<sup>20</sup> 2014 EA, 79 Fed. Reg. at 44,469.

<sup>21</sup> Ex. NRC-006, Letter from Audrey Klett, Project Manager, NRC, to Mano Nazar, President  
(Continued)



later, the NRC published a notice in the *Federal Register* informing the public of the opportunity to request a hearing.<sup>22</sup> In response, CASE filed a petition to intervene and proffered four contentions challenging the license amendments.<sup>23</sup> After this Board was established on October 21, 2014,<sup>24</sup> we heard oral argument on January 14, 2015, in Homestead, Florida, to consider the admissibility of CASE's four contentions.<sup>25</sup>

We granted CASE's hearing request on March 23, 2015, and admitted one of CASE's four proffered contentions.<sup>26</sup> As reformulated by the Board, the admitted contention states:

The NRC's environmental assessment, in support of its finding of no significant impact related to the 2014 Turkey Point Units 3 and 4 license amendments, does not adequately address the impact of increased temperature and salinity in the CCS [cooling canal system] on saltwater intrusion arising from (1) migration out of the CCS; and (2) the withdrawal of fresh water from surrounding aquifers to mitigate conditions within the CCS.<sup>27</sup>

In admitting this contention, we explained that CASE had demonstrated there is a genuine dispute as to whether the NRC Staff considered both the potential migration of saltwater from the canals into nearby groundwater and the effects of aquifer withdrawals on the aquifers themselves, as well as the impact of such migration and withdrawals on the saltwater/freshwater interface.<sup>28</sup>

In accordance with the Board's orders regarding evidentiary hearing-associated scheduling,<sup>29</sup> in October and November 2015, the parties timely filed their written testimony, exhibits, and statements of position concerning the admitted con-

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and Chief Nuclear Officer, NextEra Energy, Turkey Point Nuclear Generating Units Nos. 3 and 4 — Issuance of Amendments Under Exigent Circumstances Regarding Ultimate Heat Sink and Component Cooling Water Technical Specifications (Aug. 8, 2014).

<sup>22</sup> 79 Fed. Reg. at 47,690.

<sup>23</sup> Petition at 5; *see also* NRC Staff's Answer to [CASE's] Petition for Leave to Intervene and Request for Hearing (Nov. 10, 2014); FPL's Answer to [CASE's] Petition to Intervene and Request for a Hearing (Nov. 10, 2014); [CASE's] Reply to FPL and to NRC Staff Answers to Its Petition to Intervene and Request for a Hearing (Nov. 17, 2014).

<sup>24</sup> [FPL]: Establishment of Atomic Safety and Licensing Board, 79 Fed. Reg. 64,840, 64,840 (Oct. 31, 2014).

<sup>25</sup> Tr. at 1-210.

<sup>26</sup> LBP-15-13, 81 NRC at 476.

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

<sup>28</sup> *Id.* at 473-75.

<sup>29</sup> Licensing Board Initial Scheduling Order (May 8, 2015) at 8 (unpublished); *see* Licensing Board Order (Granting Request for Extension of Time) (Oct. 19, 2015) (unpublished).

tention.<sup>30</sup> The parties also filed several prehearing motions.<sup>31</sup> Those motions were resolved in a December 22, 2015 order.<sup>32</sup> During a January 4, 2016 teleconference, the Board admitted most of the parties' proffered exhibits.<sup>33</sup>

On January 11-12, 2016, the Board held an evidentiary hearing in Homestead, Florida, using the procedures set forth in 10 C.F.R. Part 2, Subpart L.<sup>34</sup> Briana Grange, a biologist,<sup>35</sup> Audrey Klett, the Project Manager for Turkey Point Units 3 and 4,<sup>36</sup> William Ford, a geologist,<sup>37</sup> and Nick Hobbs, a nuclear engineer,<sup>38</sup> testified on behalf of the NRC Staff. Steven Scroggs, FPL's senior director of project management,<sup>39</sup> and two civil engineers, Jim Bolleter<sup>40</sup> and Peter Andersen,<sup>41</sup> testified for FPL. Dr. Philip Stoddard, a biologist,<sup>42</sup> testified for CASE. The Board examined the parties' witnesses and afforded the parties an opportunity to

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<sup>30</sup> Ex. INT-000, [CASE] Initial Statement of Position, Testimony, Affidavits and Exhibits (Oct. 9, 2015) [hereinafter CASE Statement of Position]; Ex. NRC-049, NRC Staff's Initial and Rebuttal Statement of Position Regarding Contention 1 (Nov. 10, 2015) [hereinafter Staff Statement of Position]; [FPL's] Initial Statement of Position (Nov. 10, 2015) [hereinafter FPL Statement of Position].

<sup>31</sup> See [FPL's] Motion to Strike Portions of [CASE Statement of Position] or, in the Alternative, Motion In Limine to Exclude It and Its Cited Documents from Evidence (Oct. 19, 2015); [FPL's] Motion to Dismiss CASE Contention 1 or, in the Alternative, for Summary Disposition (Dec. 3, 2015); CASE Second Motion Requesting Subpoenas for Expert Witnesses for January, 2016 (Dec. 9, 2015); NRC Staff's Motion in Limine to Exclude Portions of the Prefiled Rebuttal Testimony or in the Alternative Strike Portions of the Prefiled Rebuttal Testimony and Rebuttal Statement of Position (Dec. 14, 2015); see also CASE Motion Requesting Subpoenas for Expert Witnesses for January, 2016 Evidentiary Hearing (Nov. 3, 2015).

<sup>32</sup> Licensing Board Order (Denying Application for Subpoenas, Denying Motion for Summary Disposition, and Granting in Part and Denying in Part Motions to Strike) (Dec. 22, 2015) (unpublished); see also Licensing Board Order (Denying CASE's Application for Subpoenas) (Nov. 12, 2015) (unpublished).

<sup>33</sup> Tr. at 244-52; see Licensing Board Order (Admitting Exhibits) (Jan. 4, 2016) (unpublished).

<sup>34</sup> Tr. at 259-571; Licensing Board Initial Scheduling Order (May 8, 2015) at 2 (unpublished).

<sup>35</sup> Ex. NRC-003, Statement of Professional Qualifications of Briana A. Grange (Nov. 10, 2015).

<sup>36</sup> Ex. NRC-002, Resume of Audrey L. Klett (Nov. 10, 2015).

<sup>37</sup> Ex. NRC-004, Statement of Professional Qualifications of William H. Ford (Nov. 10, 2015).

<sup>38</sup> Ex. NRC-005, Resume of Nick Hobbs (Nov. 10, 2015).

<sup>39</sup> Ex. FPL-002, Declaration of Steven D. Scroggs (Nov. 10, 2015).

<sup>40</sup> Ex. FPL-003, Declaration of Jim M. Bolleter (Nov. 10, 2015).

<sup>41</sup> Ex. FPL-004, Declaration of Peter F. Andersen (Nov. 10, 2015).

<sup>42</sup> Tr. at 277; see [CASE's] Joint Rebuttal to NRC Staff's and FPL's Initial Statements of Position, Exhibit List and Exhibits at 4 (Dec. 1, 2015).

submit proposed cross-examination questions.<sup>43</sup> Following the hearing, the parties submitted their proposed findings of fact and conclusions of law.<sup>44</sup>

### III. PARTIES' POSITIONS

#### A. Factual Positions

The parties dispute few of the underlying facts regarding the cooling canal system's interaction with groundwater or the State of Florida's regulatory efforts to reduce the inland migration of saltwater from the cooling canals. We set forth the undisputed facts immediately below.

##### *1. Cooling Canal Interactions with Groundwater*

The saltwater in the canals cools through evaporation, leaving behind salt that both makes the canals increasingly more saline and eventually sinks into the groundwater.<sup>45</sup> Higher water temperatures in the cooling canals also result in higher evaporation rates, which in turn lead to even higher salinity levels.<sup>46</sup> Over the past four decades of operation, the canal water has gone from approximately 34 practical salinity units (psu), essentially the same salinity as the ocean water in nearby Biscayne Bay, to a hypersaline state, i.e., salinity above 40 psu. At times, the canal's salinity has reached concentrations that are more than twice that of Biscayne Bay.<sup>47</sup>

Although the saltwater in FPL's unlined cooling canals does not discharge

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<sup>43</sup> The Board will provide these questions by separate order "for inclusion in the official record of the proceeding." 10 C.F.R. § 2.1207(a)(3)(iii).

<sup>44</sup> NRC Staff's Proposed Findings of Fact and Conclusions of Law Concerning Contention 1 (Mar. 28, 2016) [hereinafter Staff Proposed Findings]; [FPL's] Proposed Findings of Fact and Conclusions of Law (Mar. 28, 2016) [hereinafter FPL Proposed Findings]; [CASE] Proposed Findings of Facts and Conclusions of Law Regarding the August 14, 2014 NRC EA and FONSI (Mar. 28, 2016) [hereinafter CASE Proposed Findings]; *see also* Staff's Reply Findings of Fact and Conclusions of Law Concerning Contention 1 (Apr. 12, 2016); [FPL's] Reply Findings of Fact and Conclusions of Law (Apr. 12, 2016).

<sup>45</sup> Tr. at 352-55, 462-63; *see* FPL Proposed Findings ¶ 53; Staff Proposed Findings ¶ 5.48; CASE Proposed Findings ¶¶ 32, 68.

<sup>46</sup> Ex. NRC-001, Staff Written Testimony at 50; *see* FPL Proposed Findings ¶¶ 53, 70; Staff Proposed Findings ¶ 2.16; CASE Proposed Findings ¶¶ 23, 34.

<sup>47</sup> Tr. at 310; Ex. FPL-001, FPL Written Testimony at 13, 28; Ex. NRC-001, Staff Written Testimony at 27-28; *see* FPL Proposed Findings ¶ 53; Staff Proposed Findings ¶ 5.66; CASE Proposed Findings ¶ 32. Salinity can be expressed in several ways: 1 psu is equivalent to 1 part per thousand or 1000 milligrams per liter. FPL Written Testimony at 13 n.1.

directly into fresh or marine surface waters, it does interact with groundwater.<sup>48</sup> The direction of the flow varies based on the hydraulic pressure of water in the cooling canals, which is influenced by salinity levels, temperature, and the depth of the water in the canals.<sup>49</sup> When the water levels of the cooling canals are low, groundwater flow into the canals helps replace water lost from evaporation.<sup>50</sup> In other instances, dense saline water from the cooling canals seeps into the underlying Biscayne Aquifer,<sup>51</sup> and once it reaches the base of the Biscayne Aquifer, it begins to spread laterally.<sup>52</sup> Higher salinity in the cooling canals could increase the spread of the hypersaline plume beneath the cooling canals because the greater dissolved solids content increases canal water density, causing a greater negative buoyancy and a tendency for the canal water to sink into the Biscayne Aquifer below.<sup>53</sup> Since the cooling canal system began operation in the 1970s, hypersaline water that originated in the cooling canal system has migrated at least 3 miles west of the cooling canal system.<sup>54</sup>

## 2. *Regulatory Oversight of the Cooling Canal System*

Before constructing the cooling canal system in the 1970s, FPL consulted with the South Florida Water Management District (the Water District<sup>55</sup>) regarding how it might limit the potential for hypersaline water to spread inland and thereby

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<sup>48</sup> Tr. at 426-27; Ex. NRC-001, Staff Written Testimony at 26, 28; *see* FPL Proposed Findings ¶ 58; Staff Proposed Findings ¶ 5.46; CASE Proposed Findings ¶ 33.

<sup>49</sup> Tr. at 357-58, 435-46, 501; *see* FPL Proposed Findings ¶¶ 58, 77; Staff Proposed Findings ¶ 5.57; CASE Proposed Findings ¶ 50.

<sup>50</sup> Tr. at 367-68; Ex. FPL-001, FPL Written Testimony at 35; *see* FPL Proposed Findings ¶ 58; Staff Proposed Findings ¶¶ 2.16, 5.76; CASE Proposed Findings ¶ 23.

<sup>51</sup> Tr. at 355; *see* FPL Proposed Findings ¶ 58; Staff Proposed Findings ¶¶ 5.57, 5.59; CASE Proposed Findings ¶ 50.

<sup>52</sup> Tr. at 310, 347-48, 519; *see* FPL Proposed Findings ¶¶ 58-59; Staff Proposed Findings ¶ 5.57; CASE Proposed Findings ¶ 58.

<sup>53</sup> Tr. at 310; *see* FPL Proposed Findings ¶ 59; CASE Proposed Findings ¶ 58.

<sup>54</sup> Ex. INT-004, Florida Department of Environmental Protection, Administrative Order, OGC No. 14-0741, ¶ 23 (Dec. 23, 2014) [hereinafter Ex. INT-004, FDEP Administrative Order]; Ex. FPL-001, FPL Written Testimony at 29; Ex. FPL-037, State of Florida Division of Administrative Hearing, Recommended Order at 8 (Dec. 31, 2015) [hereinafter Ex. FPL-037, State L-31E Canal System Order]; *see* FPL Proposed Findings ¶ 59; CASE Proposed Findings ¶¶ 54, 58, 97.

<sup>55</sup> The Water District “is a regional governmental agency that manages the water resources in the southern half of [Florida], covering 16 counties from Orlando to the Florida Keys and serving a population of 8.1 million residents.” South Florida Water Management District, About Us, <http://www.sfwmd.gov/portal/page/portal/xweb%20about%20us/sfwmd%20about%20us> (last visited May 31, 2016). As used here, the Water District includes not only the South Florida Water Management District, but all of its predecessor agencies.

threaten freshwater drinking supplies.<sup>56</sup> As a result of those discussions with the Water District, FPL agreed to build and operate an interceptor ditch to a depth of 18 feet that would run along the west side of the cooling canals in order to restrict the inland movement of saline water in the Biscayne Aquifer.<sup>57</sup> This agreement has been updated several times. The most recent of these updates occurred on October 16, 2009, when FPL and the Water District executed their Fifth Supplemental Agreement.<sup>58</sup> It provides for an extensive monitoring program for the cooling canal system<sup>59</sup> and requires FPL to reduce the westward spread of all hypersaline water except for “those amounts which would occur without the existence of the cooling canal system.”<sup>60</sup>

In 2010, when FPL sought permission from the NRC for an extended power uprate, both FPL and the NRC Staff examined the uprate’s potential environmental impact on the cooling canal system.<sup>61</sup> FPL and the NRC Staff claim that they expected the power uprate to increase the average temperature in the cooling canal system by 2.5 °F and to increase the salinity of the cooling canals by approximately 2 to 3 parts per thousand (ppt).<sup>62</sup> In its 2012 Uprate EA, the NRC Staff concluded that there would be no significant environmental impacts from such minor increases in temperature and salinity it anticipated from the uprate.<sup>63</sup>

On April 16, 2013, based on the results of FPL’s 2012 Comprehensive Pre-Uprate Monitoring Report,<sup>64</sup> the Water District determined that water from the

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<sup>56</sup> Tr. at 543-45; Ex. INT-006, Consent Agreement Between Miami-Dade County’s Division of Environmental Resources Management and FPL at 2 (Oct. 6, 2015) [hereinafter Ex. INT-006, Consent Agreement]; Ex. FPL-001, FPL Written Testimony at 24-25; *see* FPL Proposed Findings ¶ 60; Staff Proposed Findings ¶ 5.44; CASE Proposed Findings ¶ 79.

<sup>57</sup> Tr. at 518; Ex. INT-006, Consent Agreement at 2; *see* FPL Proposed Findings ¶ 60; Staff Proposed Findings ¶¶ 5.44, 5.48; CASE Proposed Findings ¶ 58.

<sup>58</sup> Ex. NRC-033, Fifth Supplemental Agreement Between the [Water District] and [FPL] at 1-2 (Oct. 16, 2009) [hereinafter Ex. NRC-033, Fifth Supplemental Agreement]; *see* FPL Proposed Findings ¶ 164; Staff Proposed Findings ¶ 6.35; CASE Proposed Findings ¶¶ 58, 79, 119.

<sup>59</sup> Ex. NRC-033, Fifth Supplemental Agreement, Ex. B, FPL Turkey Point Power Plant Groundwater, Surface Water and Ecological Monitoring Plan (Oct. 14, 2009). Although the monitoring plan incorporated into the Fifth Supplemental Agreement predates FPL’s 2010 request for an extended power uprate, in its pleadings in this proceeding, FPL refers to these monitoring requirements as the “Uprate Monitoring Plan.” *See, e.g.*, Ex. FPL-001, FPL Written Testimony at 26.

<sup>60</sup> Ex. NRC-033, Fifth Supplemental Agreement at 3; *see* FPL Proposed Findings ¶ 164; Staff Proposed Findings ¶ 6.23 n.37; CASE Proposed Findings ¶ 119.

<sup>61</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062-63; *see* FPL Proposed Findings ¶¶ 61, 164; Staff Proposed Findings ¶ 6.23 n.37.

<sup>62</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062; *see* FPL Proposed Findings ¶ 61; Staff Proposed Findings ¶ 2.12.

<sup>63</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062, 20,070; *see* FPL Proposed Findings ¶ 61; Staff Proposed Findings ¶ 5.48.

<sup>64</sup> Exs. FPL-014A to FPL-014F, Comprehensive Pre-Uprate Monitoring Report (Oct. 31, 2012).

cooling canals had migrated outside the geographic boundaries of the cooling canal system in violation of the Fifth Supplemental Agreement.<sup>65</sup> After the Water District and FPL consulted for nearly 2 years about this migration, the Florida Department of Environmental Protection (FDEP) issued an Administrative Order in December 2014.<sup>66</sup> The FDEP Administrative Order found that the interceptor ditch, though effective at restricting the inland movement of saline water in the upper portion of the Biscayne Aquifer, had failed to restrict the movement of the hypersaline water in the deeper portions of that aquifer.<sup>67</sup> To minimize any further migration of hypersaline water, FDEP required FPL to submit a salinity management plan to reduce salinity in the cooling canals to no more than 34 psu within 4 years.<sup>68</sup>

FPL did not challenge the FDEP Administrative Order and agreed to comply with it by pumping up to 14 million gallons per day (MGD) of water from the Upper Floridan Aquifer into the cooling canals.<sup>69</sup> A third party challenged the FDEP Administrative Order, alleging that it did not provide adequate protection for other aquifer users near the plant.<sup>70</sup> In April 2016, FDEP effectively dismissed the challenge<sup>71</sup> and the FDEP Administrative Order is currently in effect.

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<sup>65</sup> Tr. at 347-48; Ex. FPL-026, Letter from Melissa L. Meeker, Executive Director, Water District, to Barbara Linkiewicz, Senior Director, Environmental Licensing & Permitting, FPL & NextEra Energy Resources, Consultation Pursuant to the October 14, 2009 Fifth Supplemental Agreement Between the [Water District] and [FPL] at 1 (Apr. 16, 2013) [hereinafter Ex. FPL-026, April 16, 2013 Letter]; see FPL Proposed Findings ¶ 63; Staff Proposed Findings ¶ 6.23; CASE Proposed Findings ¶ 119.

<sup>66</sup> Ex. INT-004, FDEP Administrative Order ¶¶ 26-33; see FPL Proposed Findings ¶ 63; Staff Proposed Findings ¶ 6.23; CASE Proposed Findings ¶ 119.

<sup>67</sup> Ex. INT-004, FDEP Administrative Order ¶ 24.

<sup>68</sup> *Id.* ¶ 37(b).

<sup>69</sup> *Id.* FPL's authorization to withdraw 14 MGD from the Upper Floridan Aquifer was upheld after challenge. [FPL] Turkey Point Power Plant Units 3-5 Modification to Conditions of Certification, Case No. 15-1559EPP, Recommended Order (Fla. Div. of Admin. Hearings Jan. 25, 2016) at 24-25 (ADAMS Accession No. ML16026A619) [hereinafter Upper Floridan Aquifer Order].

<sup>70</sup> Licensing Board Order (Taking Official Notice and Ordering Briefing) (Feb. 26, 2016) (unpublished), Attach. A, *Atlantic Civil, Inc. v. Florida Power & Light Co. & Department of Environmental Protection*, Fla. Admin. Orders, Nos. 15-1746 & 15-1747 (Fla. Div. of Admin. Hearings Feb. 15, 2016) at 18-19 [hereinafter Feb. 15, 2016 State Administrative Decision]; see also Licensing Board Order (Clarifying Scope of Official Notice) (Mar. 10, 2016) (unpublished).

<sup>71</sup> After an evidentiary hearing on that challenge, an Administrative Law Judge of the Florida Division of Administrative Hearings issued a Recommended Order on February 15, 2016, that found certain procedural infirmities in the FDEP Administrative Order. Feb. 15, 2016 State Administrative Decision at 3-5; see also FPL Proposed Findings ¶¶ 64-65; Staff Proposed Findings ¶ 6.27; CASE Proposed Findings ¶¶ 121-26. Because FPL had not been charged with a violation of state water quality standards and was not required to come into compliance with those standards, the Administrative Law Judge ruled that the FDEP Administrative Order was an unreasonable exercise of enforcement discretion, and so recommended that FDEP either rescind or amend the Administrative Order. Feb. 15,

(Continued)

In addition to the FDEP Administrative Order, Miami-Dade County issued a Notice of Violation to FPL on October 2, 2015, that charged FPL with exceeding the County's groundwater standards for chlorides.<sup>72</sup> To resolve this Notice of Violation, FPL entered into a Consent Agreement with Miami-Dade County<sup>73</sup> in which FPL acknowledged its plan to freshen the cooling canal system through additions of Upper Floridan Aquifer water.<sup>74</sup> The Consent Agreement with Miami-Dade County also requires FPL to install monitoring wells and to implement a remediation program to ensure saltwater levels are reduced without adverse impacts.<sup>75</sup>

## **B. Legal Arguments**

CASE primarily argues that the 2014 EA is inadequate under NEPA because it erroneously assumed that the cooling canals were a closed system with no impact on groundwater.<sup>76</sup> In support of this claim, CASE relies on an analysis from Miami-Dade County that purportedly shows the spread of tritium from the canals to nearby groundwater.<sup>77</sup> CASE asserts that the reactors for Units 3 and 4 are the sole source of tritium, and so its presence in the groundwater necessarily shows that the cooling canal system not only interacts with the groundwater but has created a hypersaline plume that threatens to increase the rate of saltwater intrusion.<sup>78</sup> CASE further points to the findings from the FDEP Administrative Order, which indicates cooling canal water that has seeped into groundwater has traveled at least 3 miles west of the cooling canals and has exacerbated the rate

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2016 State Administrative Decision at 28-31. However, in its Final Order, FDEP rejected the Administrative Law Judge's reasoning and approved the FDEP Administrative Order. *See* FPL's Third Notice to the Board Regarding State Administrative Proceeding, Attach. 1, FDEP, Final Order, OGC Case No. 14-0741, at 26-27 (Apr. 21, 2016); *see also* Fla. Stat. § 120.57(1)(I) (2015) ("The agency may adopt the recommended order as the final order of the agency. The agency in its final order may reject or modify the conclusions of law over which it has substantive jurisdiction and interpretation of administrative rules over which it has substantive jurisdiction.").

<sup>72</sup> Ex. INT-005, Miami-Dade County, Notice of Violation and Orders for Corrective Action at 1 (Oct. 2, 2015); *see* FPL Proposed Findings ¶ 67; Staff Proposed Findings ¶ 6.22; CASE Proposed Findings ¶ 79. The chlorine ion is a major component of dissolved salt in seawater and is an indicator of salinity. Ex. FPL-001, FPL Written Testimony at 14.

<sup>73</sup> Ex. INT-006, Consent Agreement at 1.

<sup>74</sup> Ex. INT-006, Consent Agreement at 4; *see* FPL Proposed Findings ¶ 67; Staff Proposed Findings ¶ 6.22; CASE Proposed Findings ¶ 79.

<sup>75</sup> Ex. INT-006, Consent Agreement at 5-6, 8; *see* FPL Proposed Findings ¶ 67; Staff Proposed Findings ¶ 6.22; CASE Proposed Findings ¶ 79.

<sup>76</sup> CASE Statement of Position at 7, 9-10.

<sup>77</sup> *Id.* at 9-10, 44-45.

<sup>78</sup> *Id.* at 10, 45.

of saltwater intrusion.<sup>79</sup> CASE argues the 2014 EA inadequately considered the environmental impact of mitigation measures mandated by the FDEP Administrative Order.<sup>80</sup> Noting the complex hydrogeology of the area and the proximity of the freshwater/saltwater interface, CASE also asserts that the NRC Staff had a duty under NEPA to consider whether the aquifer withdrawals would exacerbate saltwater intrusion in the area.<sup>81</sup>

The NRC Staff disputes CASE's allegations, maintaining that the 2014 EA adequately addressed both saltwater migration and the aquifer withdrawals.<sup>82</sup> In support of this assertion, the NRC Staff primarily relies on three documents it claims were incorporated by reference in the 2014 EA:<sup>83</sup> (1) the Atomic Energy Commission's 1972 Final Environmental Statement (1972 FES) associated with the grant of the initial operating licenses for the Turkey Point Units 3 and 4;<sup>84</sup> (2) the 2002 Turkey Point License Renewal Supplemental Environmental Impact Statement (2002 SEIS);<sup>85</sup> and (3) the 2012 Environmental Assessment and Finding of No Significant Impact for the Turkey Point extended power uprate (2012 Uprate EA).<sup>86</sup> According to the NRC Staff, the 2014 EA — read in conjunction with these three documents — adequately addresses saltwater migration from the canals to the groundwater and makes clear that Units 3 and 4 have not affected the saltwater/freshwater interface.<sup>87</sup> The NRC Staff also asserts that increasing the temperature limit from 100° to 104 °F will have no significant environmental effect because of the short duration of high temperatures and certain mitigation measures imposed by FDEP.<sup>88</sup>

FPL likewise argues that the 2014 EA provides an adequate analysis of

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<sup>79</sup> *Id.* at 13-14, 31-32 (citing Ex. INT-004, FDEP Administrative Order ¶ 37a).

<sup>80</sup> *Id.* at 52, 56-58.

<sup>81</sup> *Id.* at 52-54, 72-75.

<sup>82</sup> Staff Statement of Position at 11-19.

<sup>83</sup> Tr. at 329-30, 350, 418-19, 427-30, 433, 435, 438-40, 517-20, 524, 545-46. The NRC Staff did not discuss incorporations by reference in either the Staff Statement of Position or the 2014 EA. The NRC Staff first raised this argument at the evidentiary hearing. Tr. at 517-19.

<sup>84</sup> Final Environmental Statement Related to Operation of Turkey Point Plant (July 1972) (Adams Accession No. ML092030310) [hereinafter 1972 FES]. The NRC Staff provided only the executive summary, table of contents, and Appendix C of the 1972 FES as Ex. NRC-047.

<sup>85</sup> Office of Nuclear Reactor Regulation, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 5, Regarding Turkey Point Units 3 and 4, NUREG-1437 (Jan. 2002) (ADAMS Accession No. ML020280236) [hereinafter 2002 SEIS]. A 33-page excerpt of this document was provided by the NRC Staff as Ex. NRC-024.

<sup>86</sup> License Amendment to Increase the Maximum Reactor Power Level, [FPL] Turkey Point, Units 3 and 4: Final Environmental Assessment and Finding of No Significant Impact, 77 Fed. Reg. 20,059, 20,059 (Apr. 3, 2012) [hereinafter 2012 Uprate EA].

<sup>87</sup> Staff Proposed Findings ¶¶ 2.12, 5.58.

<sup>88</sup> Staff Statement of Position at 14-15, 19-20.



groundwater issues.<sup>89</sup> In addition to the arguments made by the NRC Staff, FPL asserts that the groundwater modeling it conducted as part of state administrative proceedings shows that its aquifer withdrawals are not contributing to saltwater intrusion.<sup>90</sup> FPL also asserts that its increased aquifer withdrawals are sufficiently similar to those considered in the 2014 EA and so there is no “new information” that would require supplementing the 2014 EA.<sup>91</sup>

## IV. DISCUSSION

In reviewing CASE’s challenge, the Board must determine whether the NRC Staff took a “hard look” at the potential environmental impacts of the licensing actions and also whether the NRC Staff adequately justified its conclusions in this regard.<sup>92</sup> The NRC Staff bears the ultimate burden of proof for showing that it complied with NEPA.<sup>93</sup> Where there is an evidentiary dispute, we make any necessary factual findings based on a preponderance of the evidence.<sup>94</sup>

### A. Adequacy of the Staff’s Environmental Review

#### 1. Incorporation by Reference

We reject the NRC Staff’s argument that the 2014 EA adequately addressed impacts on groundwater from the 2014 license amendments because (1) the 2014 EA referred to three previous environmental reviews that were conducted in 1972, 2002, and 2012 and (2) these earlier studies adequately addressed impacts on groundwater.<sup>95</sup> To be sure, the NRC Staff may in certain circumstances incorporate by reference previous work that addresses a particular environmental issue. Here, however, any purported incorporation by reference in the 2014 EA fails for three separate reasons: (1) it contains no specific references to the material it allegedly incorporated; (2) it does not consider environmental changes that occurred after

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<sup>89</sup> FPL Statement of Position at 13-23.

<sup>90</sup> *Id.* at 21-23.

<sup>91</sup> *Id.* at 24-27.

<sup>92</sup> *Sierra Club v. U.S. Army Corps of Engineers*, 803 F.3d 31, 37 (D.C. Cir. 2015) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-51 (1989)); see *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005); *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998).

<sup>93</sup> *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1049 (1983).

<sup>94</sup> *Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 521 (2008); see also *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 388 n.258 (2015).

<sup>95</sup> See Tr. at 329-30, 350, 418-19, 427-30, 433, 435, 438-40, 517-20, 524, 545-46.

2012; and (3) it fails to consider the environmental effects of the specific license action at issue.

First, incorporation by reference requires a clear description of the incorporated material and specific references thereto. The NRC has adopted the regulations of the Council on Environmental Quality (CEQ) pertaining to incorporation by reference.<sup>96</sup> CEQ's regulations state that the referenced material must "be cited in the statement and its content briefly described" and that "[n]o material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment."<sup>97</sup> The NRC Staff's guidance on environmental reviews for nuclear power plants clarifies these CEQ regulations by noting that incorporation by reference "may be used as appropriate to aid in the presentation of issues, eliminate repetition, or reduce the size of an EIS."<sup>98</sup> The 2014 EA, however, meets none of these criteria for incorporation by reference.

The NRC's own guidance instructs those drafting NEPA documents to "summarize the discussion in the referenced document and *provide specific section references to ensure that the public has easy access to relevant information.*"<sup>99</sup> That was not done here.

Nevertheless, the NRC Staff has argued that the following two sentences from the 2014 EA are sufficient to allow incorporation by reference of these three previous documents:

The U.S. Atomic Energy Commission (AEC), the NRC's predecessor agency, and the NRC have previously conducted environmental reviews of Turkey Point in several documents, and the descriptions therein continue to accurately depict the Turkey Point site and environs. Those documents include the AEC's July 1972 Final Environmental Statement (FES); the NRC's January 2002 Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Turkey Point Units 3 and 4 — Final Report (NUREG-1437, Supplement 5) (ADAMS Accession

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<sup>96</sup> 10 C.F.R. Part 51, Subpart A, App. A, § 1(b) (adopting "[t]he techniques of tiering and incorporation by reference described respectively in 40 CFR 1502.20 and 1508.28 and 40 CFR 1502.21 of CEQ's NEPA regulations" (footnote omitted)).

<sup>97</sup> 40 C.F.R. § 1502.21.

<sup>98</sup> Office of Nuclear Reactor Regulation, Standard Review Plans for Environmental Reviews for Nuclear Power Plants, NUREG-1555 at A.1 (Oct. 1999) [hereinafter NUREG-1555]. Although the regulations and guidance refer only to an EIS, incorporation by reference appears to be just as appropriate for an EA. *See Jones v. Nat'l Marine Fisheries Serv.*, 741 F.3d 989, 998 (9th Cir. 2013) ("[A]n agency may incorporate data underlying an EA by reference."); *Theodore Roosevelt Conservation P'ship v. Salazar*, 616 F.3d 497, 511 (D.C. Cir. 2010) (ruling that "an agency preparing an environmental assessment for a" permit may "incorporate by reference the general discussions of prior, broader environmental impact statements."). As a guidance document, NUREG-1555 is "entitled to special weight" in our proceedings. *Indian Point*, CLI-15-6, 81 NRC at 356.

<sup>99</sup> NUREG-1555, at A.1 (emphasis added).

No. ML020280236); and the NRC's March 2012 environmental assessment and final [Finding of No Significant Impact] for the Turkey Point extended power uprate (EPU) (ADAMS Accession No. ML12074A251).<sup>100</sup>

During the hearing, NRC Staff witnesses Ms. Grange, Ms. Klett, and Mr. Ford testified that the 2014 EA relied on these "incorporated" documents to explain its silence on, among other things: (1) the location and nature of the saltwater/freshwater interface in the Biscayne Aquifer;<sup>101</sup> (2) the saltwater migration from the canals into the surrounding groundwater;<sup>102</sup> (3) the full extent of the State of Florida's monitoring effort on saltwater intrusion in the area surrounding Turkey Point;<sup>103</sup> (4) the basic hydrogeology of the relevant aquifers, including the nature of the confining layer between the Biscayne Aquifer and Upper Floridan Aquifer;<sup>104</sup> and (5) the 2014 EA's use of the term "closed cycle cooling system" as not meaning "closed in the colloquial sense, but instead" that the canals do "not interact directly with surface waters."<sup>105</sup>

In addition, NRC Staff witness Ms. Grange asserted that the 2014 EA relied on the discussion of groundwater degradation in a 1996 Staff guidance document, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (1996 GEIS).<sup>106</sup> Although the 2014 EA makes no mention of the 1996 GEIS, Ms. Grange noted that the 2002 SEIS, which is mentioned in the 2014 EA, in turn incorporates by reference the 1996 GEIS.<sup>107</sup> She added that the 1996 GEIS was updated in 2013 and that the 2013 update (also not mentioned in the 2014 EA) found the impact on groundwater quality degradation from saltwater migration into groundwater to be small for a site such as Turkey Point "with cooling ponds in salt marshes."<sup>108</sup>

Such a Rube Goldberg attempt at incorporation by reference disregards the clearly prescribed methods for incorporation, and ultimately, vitiates the underlying purpose of NEPA. First, in contravention of CEQ regulations governing incorporation by reference, the NRC Staff did not adequately describe the con-

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<sup>100</sup> 2014 EA, 79 Fed. Reg. at 44,465.

<sup>101</sup> Tr. at 449, 517-18.

<sup>102</sup> Tr. at 438-39, 518-19.

<sup>103</sup> Tr. at 350-51.

<sup>104</sup> Tr. at 428-31.

<sup>105</sup> Tr. at 329-30.

<sup>106</sup> Tr. at 519, 524; *see* Division of Regulatory Applications, Office of Nuclear Regulatory Research, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (Vol. 1 May 1996) [hereinafter 1996 GEIS].

<sup>107</sup> Tr. at 519.

<sup>108</sup> Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 78 Fed. Reg. 37,282, 37,300-01 (June 20, 2013) [hereinafter 2013 GEIS]; *see* Tr. at 527-28.

tents of the documents allegedly incorporated.<sup>109</sup> Second, in contravention of the NRC Staff's own guidance, the 2014 EA fails to cite a specific section or page number in any of the so-called "incorporated" documents.<sup>110</sup> The Commission addressed the necessity of making specific page references in *NextEra Energy Seabrook, LLC*.<sup>111</sup> There, petitioners at the contention admissibility stage cited to a large document but failed to provide a specific page reference. The Commission rejected the proposed wholesale adoption of the document and made clear that specificity is needed to ensure that readers are not forced to sift through large volumes of material "in search of asserted factual support."<sup>112</sup> This reasoning applies with at least equal force to the NRC Staff's NEPA analysis here, where the three documents listed in the 2014 EA total over 1000 pages.<sup>113</sup> Without any guidance on what to look for in these documents, or where, no reasonable person would be able to find the precise provisions in these documents that the NRC Staff claims the 2014 EA incorporated.<sup>114</sup> While an EA should not "amass[ ] needless

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<sup>109</sup> 40 C.F.R. § 1502.21. Some federal district courts have disallowed agencies' attempted incorporation by reference on this ground alone. See, e.g., *Recent Past Preservation Network v. Latschar*, 701 F. Supp. 2d 49, 58-59 (D. D.C. 2010); *Natural Resources Defense Council Inc. v. Duvall*, 777 F. Supp. 1533, 1538-39 (E.D. Cal. 1991); *Association Concerned About Tomorrow, Inc. v. Dole*, 610 F. Supp. 1101, 1109 (N.D. Tex. 1985) ("Although the EIS may make reference to detailed studies done elsewhere, and generally available upon request, the cursory reference [to a Route Study Report] falls far short of the regulations governing incorporation by reference. No proper adoption or other incorporation by reference of the Route Study Report by the federal agency, charged with primary NEPA responsibility, appears in the record. No explanation or hint is given as to what one could find by reading the Route Study Report." (citations omitted)).

<sup>110</sup> See NUREG-1555 at A.1.

<sup>111</sup> *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301 (2012); see also *Consolidated Edison Co. of New York* (Indian Point, Units 1 and 2), CLI-01-19, 54 NRC 109, 133 (2001) ("Nor will we permit wholesale incorporation by reference by a petitioner who, in a written submission, merely establishes standing and attempts, without more, to incorporate the issues of other petitioners."); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-3, 29 NRC 234, 240-41 (1989) (noting lack of "any statement that would have pointed us clearly in the direction that the [Intervenor] would now have us follow.").

<sup>112</sup> *Seabrook*, CLI-12-5, 75 NRC at 332.

<sup>113</sup> Using the accession numbers provided by the NRC Staff, the 2014 EA is 39 pages long, the 2002 SEIS is 669 pages, and the 1972 FES is 368 pages.

<sup>114</sup> See *League of Wilderness Defenders/Blue Mountains Biodiversity Project v. Connaughton*, No. 3:12-CV-02271-HZ, 2014 WL 6977611, at \*16 (D. Or. Dec. 9, 2014) ("[A]n agency may not discharge its obligation to provide the public with analysis of the environmental impacts of a project simply by incorporating documents by reference."); see also *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 99 n.12 (1983) ("We do not deny the value of an EIS that can be understood without extensive cross-reference."); *Isle Royale Boaters Ass'n v. Norton*, 154 F. Supp. 2d 1098, 1128 (W. D. Mich. 2001), *aff'd*, 330 F.3d 777 (6th Cir. 2003) ("[A]n EIS may rely upon external materials provided that the materials are reasonably available, that statements in the Final Statement are understandable without undue cross-reference, and that incorporation by reference meets a general standard of reasonableness" (internal quotation marks omitted)).

detail,”<sup>115</sup> at the same time it must “permit members of the public to weigh in with their views and thus inform the agency decision-making process”<sup>116</sup> as well as “provide sufficient evidence and analysis to determine the reasonableness of the decision not to prepare an EIS.”<sup>117</sup>

Separate and apart from the 2014 EA’s failure to apprise the public of the referenced material, it is improper for the NRC Staff to rely solely on environmental documents that predate the temperature issue that precipitated the 2014 license amendments without any further explanation of the relevance of the referenced materials to the current circumstances.<sup>118</sup> As NRC Staff witness Ms. Grange acknowledged at the hearing,

[E]ach document is evaluating a different proposed action. And so each document is looking at each resource in the level of detail that the staff found at the time was appropriate to describe the environment and then evaluate the impacts that might occur from that specific proposed action.<sup>119</sup>

These critical differences between the prior documents and current circumstances are illustrated by the discussion of salinity levels in the cooling canals. The 2002 SEIS pegs the salinity of the cooling canals at a range of 36 to 46 ppt,<sup>120</sup> whereas the 2012 EA indicates that the range is 40 to 60 ppt.<sup>121</sup> Not only did the 2014 EA fail to account for this near doubling in the range of salinity levels in only 10 years, but, even worse, it failed to note that the salinity discussed in these previous documents is far below the high of 94.7 ppt that the cooling canals experienced in 2014.<sup>122</sup>

Similarly, the previous documents do not consistently specify whether they are discussing groundwater or surface water exchange. For example, the 2002

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<sup>115</sup> 40 C.F.R. § 1500.1(b).

<sup>116</sup> *Bering Strait Citizens for Responsible Resource Development v. U.S. Army Corps of Engineers*, 524 F.3d 938, 953 (9th Cir. 2008); see *Balt. Gas & Elec. Co.*, 462 U.S. at 97 (NEPA “ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process”).

<sup>117</sup> *Friends of the Wild Swan v. Weber*, 767 F.3d 936, 942 (9th Cir. 2014); see *Sierra Club v. U.S. Forest Service*, 46 F.3d 835, 840 (8th Cir. 1995).

<sup>118</sup> See *Balt. Gas & Elec. Co.*, 462 U.S. at 99 n.12 (“NEPA requires an agency to do more than to scatter its evaluation of environmental damage among various public documents . . . .” (internal quotation marks omitted)); *Defenders of Wildlife v. North Carolina Department of Transportation*, 762 F.3d 374, 396 (4th Cir. 2014); *‘Ilio‘ulaokalani Coal v. Rumsfeld*, 464 F.3d 1083, 1101 (9th Cir. 2006).

<sup>119</sup> Tr. at 535.

<sup>120</sup> 2002 SEIS, App. E, at E-25.

<sup>121</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062.

<sup>122</sup> Ex. FPL-001, FPL Written Testimony at 13.

SEIS states that “[t]he canal system does not withdraw or discharge waters to or from other water bodies.”<sup>123</sup> Conversely, the 2012 Uprate EA states that “because the [Turkey Point] canals are unlined, there is an exchange of water between the [Turkey Point] canal system and local groundwater and Biscayne Bay.”<sup>124</sup> When asked about this apparent inconsistency at the hearing, Ms. Grange testified that “the [2002 SEIS] is talking about surface water connections, direct connections, which there are none. . . . [and the 2012 Uprate EA] is talking about groundwater exchange.”<sup>125</sup> In essence, the NRC Staff is asserting that, after reviewing the 2014 EA, an interested reader should be able to: (1) understand that the NRC Staff incorporated by reference the entirety of the 2002 SEIS and 2012 Uprate EA from a one-sentence general citation; (2) sift through hundreds of pages in these documents to find the specific language that discusses the cooling canal system’s interaction with surrounding waters; and then (3) understand that, despite contradictory descriptors, “in context,” the 2002 SEIS was apparently discussing only “surface waters,” while the 2012 Uprate EA was discussing “groundwater.” This is not how incorporation by reference is to be done.

Certainly, we recognize that these previous documents are not at issue in this proceeding, and we are mindful that any “prior environmental analyses are not appropriately revisited in the context of this licensing action.”<sup>126</sup> Moreover, as Ms. Grange testified, many of the apparent inconsistencies can be attributed to the fact that each document was written at a different time, by a different author, and for a different purpose.<sup>127</sup>

At the same time, however, Ms. Grange’s acknowledgment that each of these previous environmental documents was drafted to address a different purpose simply underscores the problem of attempting to rely completely on previous documents to address the present and future environmental impacts of the current license amendments. The issue before us here is not the validity of previous environmental documents themselves, but rather the NRC Staff’s wholesale reliance on documents with conflicting information and dramatically lower salinity levels to justify a cursory, one-sentence conclusion “that the proposed action would result in no significant impact on . . . groundwater resources.”<sup>128</sup> Of particular importance here, the 2014 EA does not explain how the NRC Staff allegedly used these previous environmental analyses to conclude that an increase in the maximum water temperature (with a corresponding increase in salinity) would not impact the surrounding groundwater resources. This absence is especially

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<sup>123</sup> 2002 SEIS, App. E, at E-25.

<sup>124</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062.

<sup>125</sup> Tr. at 532.

<sup>126</sup> CLI-15-25, 82 NRC at 404.

<sup>127</sup> Tr. at 533, 535.

<sup>128</sup> 2014 EA, 79 Fed. Reg. at 44,466.

notable given the NRC Staff's acknowledgment that hypersaline water from the canals enters the Biscayne Aquifer.<sup>129</sup> Put simply, there is nothing in the 2014 EA to inform the public that the NRC Staff has adequately considered groundwater concerns associated with the specifics of the FPL license amendments in its decisionmaking process.<sup>130</sup>

The NRC Staff's alleged reliance on previous environmental documents is particularly difficult to understand in light of the fact that the NRC Staff was aware in 2013 of important new information about groundwater impacts — never previously addressed — that were associated with saltwater migration out of the cooling canal system. This is reflected in an April 16, 2013 letter from the Water District notifying FPL of the Water District's concerns regarding increased saltwater migration out of the cooling canals:

Based on technical evaluation of all available information, the [Water District] has determined that saline water from FPL's Turkey Point Power Plant cooling canal system (CCS) has moved westward of the L-31E Levee in excess of those amounts that would have occurred without the existence of the CCS and has moved into the water resources outside the plant's property boundaries . . . . [T]he [Water District] is providing this written notice to FPL . . . to begin consultation with the [Water District] to identify measures to mitigate, abate, or remediate the movement of saline water.<sup>131</sup>

While Ms. Grange was unsure whether she had actually seen this April 16, 2013 letter, her testimony established that she was nevertheless well aware of the very issue that the letter addressed — namely, that saltwater from the cooling canals had migrated at least 3 miles west of the cooling canal system.<sup>132</sup>

Yet, despite the NRC Staff's awareness of this saltwater migration in 2013 — well before the time that the 2014 EA was written — there is nothing in the 2014 EA to suggest that the NRC Staff compared the cooling canal and groundwater conditions in 2014 against those prevailing at the time of the previous environmental documents on which the NRC Staff now seeks to rely. In fact, it is undisputed that, after the most recent NRC Staff environmental review in 2012, the water quality of the cooling canals continued to worsen, with increased salinity

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<sup>129</sup> Ex. NRC-001, Staff Written Testimony at 26, 28.

<sup>130</sup> See *Izaak Walton League of America v. Marsh*, 655 F.2d 346, 368-69 (D.C. Cir. 1981) ("The impact statement must be 'sufficient to enable those who did not have a part in its compilation to understand and consider meaningfully the factors involved.'" (quoting *Environmental Defense Fund, Inc. v. U.S. Army Corps of Engineers*, 492 F.2d 1123, 1136 (5th Cir. 1974))).

<sup>131</sup> Ex. FPL-026, April 16, 2013 Letter at 1; see also Ex. INT-006, Consent Agreement at 2.

<sup>132</sup> Tr. at 348, 458-59.

and algae blooms.<sup>133</sup> And, as indicated above, this rise in salinity in the cooling canals pushed more hypersaline water into the Biscayne Aquifer, exacerbating the westward migration of hypersaline water toward the saltwater/freshwater interface — as documented in the Water District’s April 16, 2013 letter.<sup>134</sup> Further evidence of deteriorating conditions continued to accumulate later that year with monitoring well cluster TPGW-7 (which is on the freshwater side of the saltwater/freshwater interface)<sup>135</sup> “experiencing an increasing trend in salinity . . . beginning in September 2013.”<sup>136</sup> Yet, none of these troubling changes are mentioned in the 2014 EA — or, obviously, in any of the previous environmental analyses on which the 2014 EA purportedly relied.

Nor does the 2014 EA acknowledge the impact of aquifer withdrawals on the aquifers themselves. Making the same hollow claim they asserted with regard to increased salinity in the canals, NRC Staff witnesses Ms. Grange and Mr. Ford testified that they had relied on the previous environmental documents to address the issue of groundwater quality degradation.<sup>137</sup> Yet, we found nothing in these previous documents that evaluated the possibility of aquifer withdrawals of the magnitude currently taking place at Turkey Point. Specifically, at the time of the 2002 SEIS, “groundwater use [was] less than 0.0068 m<sup>3</sup>/s (100 [gallons per minute (gpm)]),”<sup>138</sup> which was the same level evaluated in the 1996 GEIS.<sup>139</sup> As a result, the 2002 SEIS concluded that there would be “no groundwater use conflicts during the renewal term beyond those discussed in the GEIS.”<sup>140</sup> The 2012 Uprate EA reached the same conclusion because “[t]he licensee is not requesting an increase in water supply under the proposed [Extended Power Uprate]. Therefore, no significant impacts to offsite users of the Miami-Dade public water supply are expected.”<sup>141</sup> Nor did the 2013 GEIS find any impact because “[p]lants that withdraw less than 100 gpm are not expected to cause any groundwater use conflicts.”<sup>142</sup>

Relying on these prior analyses, NRC Staff witness Ms. Grange maintained at the hearing that the 2014 EA need not include a detailed analysis of either

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<sup>133</sup> See Tr. at 410, 501; Ex. NRC-001, Staff Written Testimony at 39-40; Ex. FPL-001, FPL Written Testimony at 15, 55.

<sup>134</sup> Ex. FPL-026, April 16, 2013 Letter at 1.

<sup>135</sup> Ex. FPL-014A, at 1-18 (showing that well cluster TPGW-7 is west of the estimated extent of saltwater intrusion).

<sup>136</sup> Ex. INT-004, FDEP Administrative Order ¶ 10.

<sup>137</sup> Tr. at 428-29, 438-39.

<sup>138</sup> 2002 SEIS at 4-31.

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

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

<sup>141</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,063.

<sup>142</sup> 2013 GEIS, at 37,319, tbl. B-1.



groundwater quality degradation or saltwater intrusion because both the 1996 GEIS and the 2013 GEIS deem groundwater impacts a Category 1 issue.<sup>143</sup> Category 1 issues are “those issues that the Commission has categorized and assessed generically because the environmental effects of those issues are essentially similar for all plants.”<sup>144</sup> In contrast, Category 2 issues require “a plant-specific review of all environmental issues for which the Commission was not able to make environmental findings on a generic basis.”<sup>145</sup> However, such distinctions between Category 1 and Category 2 issues for license *renewals* have no bearing on the present license *amendments*. The distinction between “Category 1” and “Category 2” issues during a license renewal is “based on an extensive study of potential environmental consequences of operating a nuclear power plant for an additional 20 years,”<sup>146</sup> combined with the underlying assumption that the nuclear power plant will continue operating under its current license requirements, including license conditions and technical specifications.<sup>147</sup> Neither reason applies here because a license amendment changes the license requirements and the NRC has not conducted an extensive study of the potential environmental consequences of the present licensing action.

Nonetheless, even were such distinctions implicated in the present license amendments, the NRC Staff’s argument would still fail because the NRC Staff is obligated to address any new and significant information relating to Category 1 issues.<sup>148</sup> In this regard, the situation facing the NRC Staff at the time of the 2014 license amendments was dramatically different from that considered in the earlier environmental evaluations. Specifically, at the time the 2014 EA was published, the NRC Staff was aware that (1) FPL was authorized to withdraw approximately 5 MGD (3472 gpm) from the Upper Floridan Aquifer;<sup>149</sup> (2) FPL had also received temporary approval to withdraw 30 MGD (20,833 gpm) from the Biscayne Aquifer;<sup>150</sup> and (3) FDEP was considering the issuance of an Administrative Order that would require FPL to install new wells to pump approximately 14 MGD (9722 gpm) from the Upper Floridan Aquifer.<sup>151</sup>

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<sup>143</sup> Tr. at 518-19, 524-29.

<sup>144</sup> *Nuclear Management Co., LLC* (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 734 n.29 (2006).

<sup>145</sup> *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 11 (2001); *see also* 10 C.F.R. Part 51, Subpart A, App. B.

<sup>146</sup> *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 290 (2002).

<sup>147</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-14, 71 NRC 449, 453-54 (2010); *Turkey Point*, CLI-01-17, 54 NRC at 9.

<sup>148</sup> *See* 10 C.F.R. § 51.92(a)(2).

<sup>149</sup> 2014 EA, 79 Fed. Reg. at 44,468.

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

<sup>151</sup> *Id.*; Tr. at 366.

Considered together, then, at the time the 2014 EA was published, the NRC Staff knew that FPL had been authorized to withdraw over 200 times the 100-gallons-per-minute rate that had been evaluated in each of the previous environmental studies — and there was a realistic possibility that FPL could be authorized to withdraw even more.<sup>152</sup> It is difficult to comprehend how the NRC Staff could deem this dramatic increase to have no practical environmental significance. Withdrawals of such magnitude were identified as a potential problem as far back as the 1996 GEIS (which cautioned that “[g]roundwater usage impact may be important at those sites where a power plant’s usage rate exceeds 0.0063 m<sup>3</sup>/s (100 gpm)”).<sup>153</sup> Similarly, the 2013 GEIS had warned that a withdrawal rate of “more than 100 gpm could cause groundwater use conflicts with nearby groundwater users.”<sup>154</sup> Moreover, the 2013 GEIS explicitly stated that insofar as such groundwater use conflicts were to arise, the NRC Staff should elevate groundwater withdrawals from a Category 1 issue to a Category 2 issue.<sup>155</sup>

In sum, the NRC Staff’s incorporation-by-reference argument is flawed on multiple levels. Not only did the 2014 EA fail to incorporate by reference in accordance with applicable regulatory requirements, but it was unreasonable for the NRC Staff to rely wholesale on outdated environmental documents in its evaluation of the site-specific groundwater impacts related to the *present* proposed action. Further, there is nothing in the 2014 EA (and, certainly, nothing in these previous documents purportedly incorporated by reference) that considers the important new information that saltwater from the cooling canals had migrated further inland and that FPL had substantially increased its aquifer withdrawals after the NRC Staff’s environmental review of the uprate for Turkey Point Units 3 and 4 in 2012.<sup>156</sup>

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<sup>152</sup>In its witnesses’ written testimony, the NRC Staff maintained that the ultimate heat sink temperature increase would reduce “the plants’ need to consume additional water.” Ex. NRC-001, Staff Written Testimony at 45. When pressed on this point at the hearing, the NRC Staff witnesses conceded that FPL might need to consume additional water as a result of the increased temperature because of its obligation to reduce salinity under the FDEP Administrative Order. Tr. at 375. NRC Staff witness Mr. Hobbs further testified that the notion the increased temperature limit would reduce the plant’s need to consume additional water is premised on a scenario in which FPL does not need to pump water to reduce salinity. Tr. at 376. As Mr. Hobbs conceded at the hearing, however, this argument is purely “hypothetical.” Tr. at 377.

<sup>153</sup>1996 GEIS § 4.8.1.

<sup>154</sup>2013 GEIS at 37,300, 37,319, tbl. B-1.

<sup>155</sup>*Id.* In the license renewal context, Category 2 issues require “additional plant-specific review.” 10 C.F.R. Part 51, Subpart A, App. B n.2.

<sup>156</sup>*See Arkansas Wildlife Federation v. U.S. Army Corps of Engineers*, 431 F.3d 1096, 1104 (8th Cir. 2005) (“When new information is presented, the agency is obligated to consider and evaluate it and to make a reasoned decision as to whether it shows that any proposed action will affect the environment in a significant manner not already considered.”).

## 2. *The 2014 EA*

Not only does the 2014 EA fail to incorporate by reference any previous evaluation of groundwater impacts that bear on the *present* proposed action, but within the four corners of the 2014 EA there is no evaluation of groundwater impacts. The 2014 EA includes only two references to impacts on groundwater resources,<sup>157</sup> both stating that there would be “no significant impact” or “no effect.”<sup>158</sup> The 2014 EA provides no technical analysis that would justify either of these conclusions, nor does the 2014 EA even acknowledge the potential migration of hypersaline water from the unlined cooling canal system into the groundwater beneath the canals.<sup>159</sup> Consequently, the 2014 EA does not satisfy the “hard look” standard required under NEPA with respect to groundwater resources.<sup>160</sup>

Licensing boards are obligated to ensure that the NRC Staff’s NEPA documents come to grips with potentially significant environmental impacts and fully justify any conclusions in this regard.<sup>161</sup> Here, there is no analysis in the 2014 EA itself, nor is there any specific reference to another document that could justify the NRC Staff’s conclusions about the absence of impacts to groundwater resources. Nonetheless, the NRC Staff witnesses pointed to two claims advanced in the 2014 EA that, according to the NRC Staff, adequately justified the EA’s finding of no significant impact on groundwater resources: (1) the cooling canals system was expected to exceed the previous temperature limit for only a short duration, and (2) FDEP had already directed FPL to address the issue of rising salinity in the canals.<sup>162</sup> We address the sufficiency of these NRC Staff claims below and conclude that they likewise are insufficient to establish that the 2014 EA satisfies NEPA’s “hard look” requirement.

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<sup>157</sup> See 2014 EA, 79 Fed. Reg. at 44,466 (“[T]he NRC concludes that the proposed action would result in no significant impact on . . . groundwater resources . . . .”); see also *id.* at 44,467 (“The proposed action would have no effect on the remaining resources (i.e., land use, visual resources, air quality, noise, the geologic environment, groundwater resources . . . .”).

<sup>158</sup> *Id.* at 44,466-67.

<sup>159</sup> The 2014 EA does, however, recognize that groundwater flows into the canals. *Id.*

<sup>160</sup> See *Pa’ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 69, 85 (2010) (affirming licensing board’s conclusion that the NRC Staff had to consider alternative sites to satisfy the ‘hard look’ standard required by NEPA); *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, NM 87313), CLI-06-29, 64 NRC 417, 426 (2006) (concluding that EIS had discussed mitigation measures in sufficient detail to satisfy “hard look” standard).

<sup>161</sup> *Clinton ESP Site*, CLI-05-29, 62 NRC at 811; see also *Nevada v. Department of Energy*, 457 F.3d 78, 93 (D.C. Cir. 2006).

<sup>162</sup> Ex. NRC-001, Staff Written Testimony at 45.

*i. Limited Temperature Duration*

The NRC Staff provided no technical support for concluding that temperature increases above 100 °F would be “short in duration,” nor did it provide any analysis that establishes that short durations of high temperatures produce no significant impacts to groundwater resources. Under NEPA, agencies must consider every significant aspect of a proposed action’s environmental impact and must provide a reasoned explanation for the agency’s conclusions.<sup>163</sup> Although NRC Staff witness Mr. Ford testified that the short duration of high temperatures was the “dominant” factor in the NRC Staff’s conclusion that there would be no significant impact on groundwater resources,<sup>164</sup> the 2014 EA’s one-paragraph discussion of temperature durations certainly does not tie this analysis to any conclusion about groundwater impacts:

Under the proposed action, the [cooling canal system] could experience temperatures between 100 °F and 104 °F at the [intake] monitoring location near the north end of the system for short durations during periods of peak summer air temperatures and low rainfall. Such conditions may not be experienced at all depending on site and weather conditions. Temperature increases would also increase [cooling canal system] water evaporation rates and result in higher salinity levels. This effect would also be temporary and short in duration because salinity would again decrease upon natural freshwater recharge of the system (i.e., through rainfall, stormwater runoff, and groundwater exchange). No other onsite or offsite waters would be affected by the proposed [ultimate heat sink] temperature limit increase.<sup>165</sup>

Although this statement in the 2014 EA asserts that the temperature and salinity increases will be temporary in the cooling canal system itself, there is no evaluation of the impacts these changes might have on other onsite or offsite waters. As such, this paragraph falls far short of the “reasoned explanation” required by NEPA.

This statement is also deficient because the 2014 EA never defines the term “short in duration.” A reader cannot infer whether a “short” duration means hours, days, or even weeks. In his testimony, Mr. Ford clarified that this “short” duration in the 2014 EA means “a few weeks.”<sup>166</sup> He further testified that he did not mean to suggest there would be a few weeks of constant temperatures above 100 °F, but rather that he expected a few weeks of high temperatures that would last

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<sup>163</sup> *Balt. Gas & Elec. Co.*, 462 U.S. at 97; *Marble Mountain Audubon Society v. Rice*, 914 F.2d 179, 182 (9th Cir. 1990) (“An agency must set forth a reasoned explanation for its decision and cannot simply assert that its decision will have an insignificant effect on the environment.”).

<sup>164</sup> Tr. at 395-96. Mr. Ford later clarified that the NRC Staff did not rank the factors, and considered multiple factors in reaching its conclusion. Tr. at 397.

<sup>165</sup> 2014 EA, 79 Fed. Reg. at 44,466-67.

<sup>166</sup> Ex. NRC-001, Staff Written Testimony at 50.

only for a portion of individual days, because of nightly cooling periods.<sup>167</sup> Mr. Ford's testimony describes conditions that closely resemble the temperatures that actually occurred at Turkey Point in the summer of 2014 — when the intake water temperature exceeded 100 °F on at least 13 days between July 20 and August 23, 2014, but dropped below 100 °F at night.<sup>168</sup> However, the remaining NRC Staff testimony muddles this timeline, with various witnesses, including Mr. Ford, asserting that temperatures exceeded 100 °F for “a few days” during the summer of 2014.<sup>169</sup> The lack of consistency in the NRC Staff testimony, not to mention in the 2014 EA, does little to clarify the meaning of a “short duration” in the 2014 EA — any more than it establishes how this term corresponds to the actual temperatures experienced at Turkey Point.

The 2014 EA also fails to describe how the NRC Staff concluded that temperatures above 100 °F would not last more than a few weeks. At the hearing, NRC Staff witness Ms. Grange testified that the NRC Staff concluded that temperatures above 100 °F would not last more than a few weeks based on an examination of data collected during the summer of 2014 when, according to the NRC Staff witnesses, there was a “unique” combination of factors such as drought conditions and extensive algae blooms in the cooling canals.<sup>170</sup> To be sure, both the algal blooms and the drought are mentioned in the 2014 EA,<sup>171</sup> but nowhere is there any characterization of the summer 2014 temperatures as being unique, much less is there any explanation to justify such a characterization.

Each of these factors related to temperature durations is critical information needed to justify the 2014 EA's finding of no significant impact. One of the primary purposes of NEPA is to ensure that the public understands why an agency made a particular decision;<sup>172</sup> the 2014 EA deprived the public of that opportunity

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<sup>167</sup> Tr. at 391-92 (“[High temperatures] would be of short duration because there's a big temperature swing from day to night.”).

<sup>168</sup> Tr. at 400-01 (“Before we issued the amendment, I believe [the intake temperature] went above 100 degrees on five occasions and, on each of those occasions, it was less than eight hours in duration.”); Ex. NRC-025, Root Cause Evaluation at 5 (noting that temperatures first exceeded 100 °F on July 20, 2014); Ex. FPL-011, 60-day Peak Canal Temperature Trend 2014 & 2015 (showing that peak temperatures exceeded 100 °F on at least 8 days between August 8, 2014, and August 24, 2014).

<sup>169</sup> Ex. NRC-001, Staff Written Testimony at 40 (“During Summer 2014, the temperature exceeded 100 °F for a few days, which was concurrent with an algae bloom.”); *id.* at 47 (“By contrast, CCS inlet temperatures greater than 100 °F have not occurred outside of a few days in the summer of 2014.”); *id.* at 51 (“In 2014, the intake water temperature exceeded 100 °F for a few days, most of which were nonconsecutive (the temperature typically dropped below 100 °F at night).”).

<sup>170</sup> Tr. at 422.

<sup>171</sup> 2014 EA, 79 Fed. Reg. at 44,466, 44,468.

<sup>172</sup> See *Communities Against Runway Expansion, Inc. v. Federal Aviation Administration*, 355 F.3d 678, 687 (D.C. Cir. 2004) (“One of the principal purposes of NEPA is to ensure public disclosure of  
(Continued)

by failing to disclose the NRC Staff's underlying rationale for its conclusions regarding temperature durations.<sup>173</sup>

Furthermore, in focusing so narrowly on the fact that the increased temperatures in the canals would be of a "short duration," the NRC Staff failed to consider the cumulative effect of increased temperatures on the much larger salinity issue that has been building for 40 years. Since its construction in the 1970s, the cooling canal system has also functioned like a salt collector.<sup>174</sup> FPL uses saltwater in the canals; the water cools through evaporation, leaving behind salt that either remains in the canals — making the canals more saline — or sinks into the groundwater, creating a hypersaline plume beneath the cooling canal system.<sup>175</sup> As the canals have experienced ever-increasing salinity levels, the hypersaline plume has pushed further inland into the Biscayne Aquifer, so that it eventually extended below and beyond the interceptor dish that was installed precisely to prevent this westward migration of saltwater.<sup>176</sup> The FDEP Administrative Order found that the plume had travelled 3 to 4 miles inland, moving westward at an average rate of 1 mile every 9 years.<sup>177</sup>

Thus, the cumulative effects analysis section of the 2014 EA fails because, after noting the likelihood of higher salinity,<sup>178</sup> it offers no analysis of how this might impact the preexisting saltwater plume. Although the increase in the temperature limit is, by itself, not a large change, the purpose of a cumulative effects analysis is to consider whether a small change will worsen an already bad

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information relevant to federal decisions significantly affecting the environment."); *Dubois v. U.S. Department of Agriculture*, 102 F.3d 1273, 1291 (1st Cir. 1996) (explaining that one purpose of NEPA review is "to assure that the public who might be affected by the proposed project be fully informed of the proposal, its impacts and all major points of view").

<sup>173</sup> *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-16-7, 83 NRC 293, 328 (2016) (noting that NEPA documents must "respond[] with appropriate scrutiny and reasoned explanations to 'opposing views,' which includes being able to explain and make available underlying assumptions in [the NRC's] environmental analyses." (footnote omitted)).

<sup>174</sup> See Tr. at 355 ("[I]f salt's going to move out of the [cooling canal system], it's going to move out into the Biscayne Aquifer."); Tr. at 462-63 (explaining that salinity in the cooling canals increased over time because "it essentially generates salt or leaves behind salt as a result of evaporation. And so there is that slow buildup that takes place.").

<sup>175</sup> See Tr. at 352-55, 462-63.

<sup>176</sup> Ex. INT-004, FDEP Administrative Order ¶¶ 24-25.

<sup>177</sup> *Id.* ¶ 23 ("FPL reported [cooling canal system] groundwater near the base of the aquifer at 20,000 feet [3.8 miles] west of the [cooling canal system] around G-21 and 25,000 feet [4.7 miles] from the [cooling canal system] west of G-28. Given that the [cooling canal system] has been in operation since 1974 (approximately 38 years), the average rate of migration to the west is estimated between 525 [0.1 mile/yr] (northern part) and 660 [0.125 mile/yr] (southern part) feet per year.").

<sup>178</sup> 2014 EA, 79 Fed. Reg. at 44,466-67.

situation, like the proverbial straw that broke the camel's back.<sup>179</sup> For this reason, CEQ regulations require agencies to consider environmental effects that “result[ ] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” with the goal of making sure that “individually minor but collectively significant” actions are properly analyzed.<sup>180</sup> This analysis includes “small and unrelated decisions.”<sup>181</sup>

Here, the 2014 EA failed to consider the cumulative impact of the increase in the maximum water temperature on the hypersaline plume. While the 2014 EA notes that it is reasonably foreseeable that the higher temperatures permitted by the license amendments will lead to higher salinity in the cooling canals, likely during the hottest summer months,<sup>182</sup> it fails to consider whether it is also reasonably foreseeable that the temporary increase in salinity during these periods will — in an individually minor, but cumulatively significant, manner — further exacerbate the westward migration of the saltwater plume. In this regard, the EA is deficient.

#### ii. State Mitigation Measures

Next, the NRC Staff argues that the 2014 EA correctly concluded there would be no significant adverse groundwater impacts because the state was already directing FPL to address salinity within the cooling canals.<sup>183</sup> Specifically, the 2014 EA references the FDEP Administrative Order that required FPL to reduce the salinity of the canals to 34 psu,<sup>184</sup> and notes that FPL planned to comply with

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<sup>179</sup> See *Hanly v. Kleindienst*, 471 F.2d 823, 831 (2d Cir. 1972) (“[E]ven a slight increase in adverse conditions that form an existing environmental milieu may sometimes threaten harm that is significant. One more factory polluting air and water in an area zoned for industrial use may represent the straw that breaks the back of the environmental camel.”).

<sup>180</sup> 40 C.F.R. § 1508.7; 10 C.F.R. § 51.14(b) (adopting the definitions set forth in 40 C.F.R. § 1508.7); see also *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 60 (2001).

<sup>181</sup> *Delaware Riverkeeper Network v. Federal Energy Regulatory Commission*, 753 F.3d 1304, 1314 (D.C. Cir. 2014) (quoting *Natural Resources Defense Council v. Callaway*, 524 F.2d 79, 88 (2d Cir. 1975)); see *Kern v. U.S. Bureau of Land Management*, 284 F.3d 1062, 1078 (9th Cir. 2002) (warning that “a restricted analysis would impermissibly subject the decisionmaking process contemplated by NEPA to the tyranny of small decisions” (internal quotation marks omitted)).

<sup>182</sup> 2014 EA, 79 Fed. Reg. at 44,466-67.

<sup>183</sup> Ex. NRC-001, Staff Written Testimony at 45.

<sup>184</sup> 2014 EA, 79 Fed. Reg. at 44,468; Ex. INT-004, FDEP Administrative Order ¶ 37a.

this order both by pumping 14 MGD from the Upper Floridan Aquifer<sup>185</sup> and by withdrawing water from the Biscayne Aquifer.<sup>186</sup>

But that is all the 2014 EA says in this regard. It does not evaluate the potential for negative environmental impacts of the withdrawals on the aquifers themselves.<sup>187</sup> NRC Staff witness Ms. Grange asserted, however, that the 2014 EA did not need to consider the potential negative environmental impacts of FPL's aquifer withdrawals because the withdrawals "would have happened regardless of the proposed action."<sup>188</sup> This assertion misses the mark because it ignores FPL's potential need to consume additional water during high-temperature periods to reduce salinity as required by the FDEP Administrative Order.<sup>189</sup> To be sure, FPL witness Mr. Andersen asserted that, even though salinity increased in the Upper Floridan Aquifer once FPL initiated such withdrawals,<sup>190</sup> "any salinity increase in the [Upper Floridan Aquifer] will be minimal and localized to the FPL production wells."<sup>191</sup> But the 2014 EA itself makes no mention of this explanation, nor does it evaluate in any way potential increases in salinity or the potential for saltwater intrusion.

To rely on beneficial environmental effects of mitigation measures, as the NRC Staff seeks to do here,<sup>192</sup> without also evaluating potential negative effects of those same measures, runs directly counter to the twin aims of NEPA — review and disclosure.<sup>193</sup> Under NEPA, an agency not only must evaluate all significant impacts, but also must "inform the public that the agency has considered environmental concerns in its decisionmaking process."<sup>194</sup> By failing to review and

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<sup>185</sup> 2014 EA, 79 Fed. Reg. at 44,468.

<sup>186</sup> *Id.* FPL also withdrew water from the L-31E canal system, but these withdrawals were not mentioned in the 2014 EA. *See infra* notes 273-276 and accompanying text.

<sup>187</sup> *See* Tr. at 335-37.

<sup>188</sup> Tr. at 333 ("My understanding of the withdrawals were that they were part of a larger action to mitigate cooling canal system conditions, which included salinity as well as temperature and that they would have happened regardless of the proposed action.").

<sup>189</sup> *See* Tr. at 375 (acknowledging possible need for additional pumping). The Administrative Order also finds that lower temperatures would contribute to lower salinity. Ex. INT-004, FDEP Administrative Order ¶ 35.

<sup>190</sup> Ex. FPL-001, FPL Written Testimony at 50 (noting increase in salinity of withdrawals from Upper Floridan Aquifer, from 2.1 to 2.6 psu, as a result of 10 years of pumping).

<sup>191</sup> *Id.*

<sup>192</sup> 2014 EA, 79 Fed. Reg. at 44,468 ("Aquifer withdrawals would result in beneficial impacts to [cooling canal system] aquatic resources and the crocodiles inhabiting the Turkey Point site.").

<sup>193</sup> *Indian Point*, CLI-16-7, 83 NRC at 307 (concluding "that NEPA's information-disclosure purpose was not satisfied" because "input values were not meaningfully addressed in the final supplemental environmental impact statement (FSEIS) or the Board's decision").

<sup>194</sup> *Weinberger v. Catholic Action of Hawaii/Peace Education Project*, 454 U.S. 139, 143 (1981); *see Robertson*, 490 U.S. at 349 (noting that agency's environmental review document "provides a springboard for public comment").



discuss the full consequences of the state-mandated mitigation measures on which the NRC Staff relied, the NRC Staff abdicated this core NEPA responsibility.<sup>195</sup> Because of these glaring absences, the 2014 EA failed to take an adequate “hard look” and is deficient.

## **B. Significance of the Environmental Effects**

Despite deficiencies in the NRC Staff’s NEPA documents, a licensing board may nonetheless uphold the NRC Staff’s proposed action if sufficient evidence is developed in an adjudicatory proceeding concerning the environmental impacts of the proposed action.<sup>196</sup> In such situations, the licensing board’s findings and conclusions are deemed to amend the NRC Staff’s NEPA documents and become the agency record of decision on those matters.<sup>197</sup> In that instance, a licensing board decision satisfies the disclosure purpose of NEPA through the public vetting of environmental issues at an evidentiary hearing,<sup>198</sup> and, as a consequence, the NRC Staff is not required to supplement or amend its NEPA documents. As set forth below, we conclude there is sufficient record evidence in this proceeding to cure the NRC Staff’s deficient 2014 EA.

### ***1. Saltwater Migration and Intrusion***

In the first part of Contention 1, CASE asserts that the 2014 EA “does not adequately address the impact of increased temperature and salinity in the CCS on saltwater intrusion arising from . . . migration out of the CCS.”<sup>199</sup> While CASE is certainly correct that the discussion in the 2014 EA is inadequate,<sup>200</sup> the record evidence establishes that the occasions when the temperature in the canals will exceed 100 °F are limited to a few hours per day over the period of a few weeks. In addition, after examining the findings of state administrative tribunals, we find

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<sup>195</sup> See *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 378 (1989) (explaining that judicial review requires courts to “ensure that agency decisions are founded on a reasoned evaluation of the relevant factors”) (internal quotation marks omitted).

<sup>196</sup> *Indian Point*, CLI-15-6, 81 NRC at 388 (“We therefore affirm the Board’s ruling that the environmental record of decision may be supplemented by the hearing and relevant Board and Commission decisions.”).

<sup>197</sup> *Id.* at 387-88; see *Friends of the River v. Federal Energy Regulatory Commission*, 720 F.2d 93, 106 (D.C. Cir. 1983) (declining to remand NEPA case where the Federal Energy Regulatory Commission had issued a public order during the adjudicatory process that cured the deficiencies in the Environmental Impact Statement).

<sup>198</sup> See *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-262, 1 NRC 163, 197 n.54 (1975).

<sup>199</sup> LBP-15-13, 81 NRC at 476.

<sup>200</sup> *Supra* notes 157-160 and accompanying text.

it more likely than not that the State-ordered mitigation efforts entailing increased aquifer withdrawals will reduce salinity levels in the cooling canals far below any slight increase that would be attributable to increased temperatures, and that such efforts will not cause significant negative cumulative impacts on the aquifers themselves.<sup>201</sup>

We turn first to the 2014 EA's claim that temperature increases above 100 °F would be "short in duration." As noted above,<sup>202</sup> not only did the 2014 EA fail to provide any technical support for this assertion, but the NRC Staff's witnesses further muddled the 2014 EA's lack of analysis by using several different notions of what constitutes a "short duration."<sup>203</sup> Nonetheless, as a result of testimony presented at the hearing, it is clear that future instances of temperatures in the cooling canals exceeding the previous limit of 100 °F are likely to be infrequent. The temperature of the cooling canals varies daily and seasonally based on a number of conditions, including air temperature and humidity, sun exposure, and rainfall.<sup>204</sup> Thus, peak temperatures in the cooling canals would most likely occur during the hottest summer months of July and August,<sup>205</sup> particularly during periods of low rainfall.<sup>206</sup> FPL provided expert testimony that in the year after FPL received the August 2014 license amendments, the sampling station located closest to the plant intake experienced temperatures above 100 °F for a total of 61 hours.<sup>207</sup> Furthermore FPL's expert testified that in the summer of 2015, the maximum sampled temperature did not even reach the previous 100 °F limit.<sup>208</sup>

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<sup>201</sup> See *National Parks Conservation Ass'n v. Jewell*, 965 F. Supp. 2d 67, 75 (D. D.C. 2013) ("NEPA does not demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act or a detailed explanation of specific measures which *will* be employed to mitigate the adverse impacts of a proposed action . . . . Instead, an agency's discussion of potential mitigation measures in an EIS must include sufficient detail to ensure that environmental consequences have been fairly evaluated." (internal citation and quotation marks omitted)); *Theodore Roosevelt Conservation Partnership v. Salazar*, 744 F. Supp. 2d 151, 164 (D. D.C. 2010), *aff'd*, 661 F.3d 66 (D.C. Cir. 2011) ("[A]n agency's discussion of mitigation measures need only be 'reasonably complete.'" (quoting *Robertson*, 490 U.S. at 352)).

<sup>202</sup> *Supra* Section IV.A.2.i.

<sup>203</sup> Compare Ex. NRC-001, Staff Written Testimony at 50 (Mr. Ford testifying that "short duration" in the 2014 EA means "a few weeks"), with *id.* at 40 ("During Summer 2014, the temperature exceeded 100 °F for a few days, which was concurrent with an algae bloom.").

<sup>204</sup> Tr. at 392; Ex. NRC-001, Staff Written Testimony at 51.

<sup>205</sup> Ex. NRC-025, Root Cause Evaluation at 9-10.

<sup>206</sup> Tr. at 412-13; Ex. NRC-001, Staff Written Testimony at 51.

<sup>207</sup> Ex. FPL-001, FPL Written Testimony at 60-62; Ex. FPL-036, Temperature Analysis Using CCS-6 as a Surrogate for the [Technical Specifications] Monitoring Location, at 1-2, tbl. 1.

<sup>208</sup> See Ex. FPL-001, FPL Written Testimony at 19 ("FPL was able to maintain continuous operations during the summer of 2015 with a maximum intake temperature of 98.5 °F, compared to a maximum intake temperature of 102.5 °F in 2014.").

This, however, is not the end of our inquiry, for both FPL and the NRC Staff witnesses acknowledge that temperature increases could result in higher salinity within the cooling canals.<sup>209</sup> This higher salinity, in turn, could contribute to saltwater migration and intrusion by increasing hydraulic pressure.<sup>210</sup> As a result, NEPA obligates the NRC Staff to examine the environmental impacts of this increase in salinity, which, as discussed above, the 2014 EA does not consider. It is essential there be an examination of how increased temperatures would contribute to the cumulative effect of a much larger salinity issue that has been worsening for 40 years.<sup>211</sup> Although the expanding hypersaline plume beneath the canals failed to make it into the 2014 EA, state and county officials were sufficiently concerned with this matter that they took a number of steps to address the saltwater plume.<sup>212</sup> These state and county mitigation efforts, in turn, must be considered as part of the 2014 EA's cumulative impacts analysis associated with the license amendments.<sup>213</sup>

As noted earlier, the 2014 EA did not adequately address the state's mitigation measures because it improperly relied solely on the beneficial environmental effects of the mitigation measures without also evaluating the potential negative effects of those same measures.<sup>214</sup>

Although we address in detail the possible negative environmental impacts of FPL's aquifer withdrawals in Section IV.B.2, we must note here that the State-ordered actions adequately mitigate the potential cumulative environmental impacts of the temperature limit increase and so cure the 2014 EA's deficient cumulative impacts analysis. Of particular significance in this regard are the Fifth Supplemental Agreement, which requires FPL to prevent the westward spread of hypersaline water,<sup>215</sup> and FPL's Consent Agreement with Miami-Dade County, which acknowledged FPL's planned withdrawals from the Upper

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<sup>209</sup> FPL Proposed Findings ¶ 75 ("But for short periods of time, temperature increases could result in higher salinity within the [cooling canal system]"); Ex. NRC-001, NRC Staff Written Testimony at 52 ("For short periods of time, temperature increases could result in higher temperature increases and higher salinity levels within the [cooling canal system].").

<sup>210</sup> See Tr. at 357-58, 435-46, 501.

<sup>211</sup> See *supra* notes 174-181 and accompanying text.

<sup>212</sup> See Ex. INT-004, FDEP Administrative Order ¶¶ 24, 26-29, 37; Ex. INT-006, Consent Agreement at 1, 3-4.

<sup>213</sup> See *C.A.R.E. Now, Inc. v. Federal Aviation Administration*, 844 F.2d 1569, 1575 (11th Cir. 1988) (concluding that it was appropriate for agency to determine that voluntary programs at airport to reduce noise levels were sufficient to "reduce the potential environmental impact to an insignificant level"); see also *Cabinet Mountains Wilderness v. Peterson*, 685 F.2d 678, 683 (D.C. Cir. 1982) ("Although the [Fish and Wildlife Service] concluded that the drilling program was likely to jeopardize the bears, it set forth a number of measures which were designed to avoid this result.").

<sup>214</sup> See *supra* notes 187-195 and accompanying text.

<sup>215</sup> Ex. NRC-033, Fifth Supplemental Agreement at 3.

Floridan Aquifer.<sup>216</sup> Because FPL has indicated that it will comply with the terms of both of these agreements,<sup>217</sup> we find that it is more likely than not that FPL will continue to freshen the cooling canals using withdrawals from the Upper Floridan Aquifer.

We reach this conclusion after evaluating FPL's computer modeling, which demonstrates that these relatively fresh withdrawals from the Upper Floridan Aquifer are likely to reduce the salinity of the cooling canals to about 34 psu — the equivalent of the salinity of Biscayne Bay.<sup>218</sup> This freshening of the cooling canals will make it less likely that temperatures in the cooling canals will approach the 104 °F temperature limit permitted under the NRC Staff-approved 2014 license amendments because the cooler, fresher water in the canals will increase the flow rate and provide additional surface area for cooling.<sup>219</sup> Moreover, by freshening the canals to a salinity in the range of 34 psu, the withdrawals from the Upper Floridan Aquifer are likely to reduce the spread of the hypersaline plume in the Biscayne Aquifer.<sup>220</sup>

Although the FDEP Administrative Order, which required FPL to freshen the cooling canals,<sup>221</sup> has recently been approved by FDEP after a challenge from a nearby aquifer user<sup>222</sup> that Administrative Order may still be the subject of continuing litigation.<sup>223</sup> Regardless, however, FPL's other legally binding agreements with Miami-Dade County and with the Water District require FPL to achieve even further reductions in the salinity of the cooling canals.<sup>224</sup> Accordingly, at a minimum, FPL appears destined to maintain the salinity of the canals at or below

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<sup>216</sup> Ex. INT-006, Consent Agreement at 4.

<sup>217</sup> See Ex. FPL-001, FPL Written Testimony at 37-40; see also *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-13-4, 77 NRC 107, 217-18 (2013) (“[A]bsent information to the contrary, NRC may properly assume that an applicant or licensee will comply with concrete and enforceable conditions and requirements imposed by statutes, regulations, licenses, or permits issued by competent federal, state, or local governmental entities.”).

<sup>218</sup> See Ex. FPL-027, Letter from Matthew J. Raffenberg, Director, Environmental Licensing and Permitting, FPL, to Justin Green, Program Administrator, FDEP, App. A, at 1, 3-4 (Sept. 5, 2014) [hereinafter Ex. FPL-027, FDEP Petition].

<sup>219</sup> *Id.*; Ex. FPL-001, FPL Written Testimony at 42, 60.

<sup>220</sup> See Ex. FPL-027, FDEP Petition, App. A, at 1, 3-4; see also Upper Floridan Aquifer Order at 17.

<sup>221</sup> Ex. INT-004, FDEP Administrative Order ¶ 37.

<sup>222</sup> See FPL's Third Notice to the Board Regarding State Administrative Proceeding, Attach. 1, at 26-27 (Apr. 21, 2016).

<sup>223</sup> *Id.* at 27 (“Any party to this proceeding has the right to seek judicial review of the Final Order under section 120.68, Florida Statutes, by filing of a Notice of Appeal . . . with the appropriate District Court of Appeal.”). FPL did not challenge the Administrative Order. Therefore, even if the current challengers appeal FDEP's final order and are successful on appeal, the result would be that the Administrative Law Judge's decision would stand and FPL would likely be required to implement even more restrictive measures than called for in the final FDEP Administrative Order.

<sup>224</sup> Ex. NRC-033, Fifth Supplemental Agreement at 3; Ex. INT-006, Consent Agreement at 2.

34 psu — which appears to be a level sufficient to reduce pressure on the existing hypersaline plume.<sup>225</sup> This freshening of the canals, in turn, will also ensure that the increase in the maximum allowable temperature will not exacerbate the legacy problem of hypersaline groundwater beneath the cooling canal system.

We previously determined that the 2014 EA failed to take a hard look at the environmental impacts, specifically saltwater migration or intrusion, associated with the license amendments for Units 3 and 4.<sup>226</sup> However, as a result of the record evidence developed in this proceeding, we also conclude that it is more likely than not that even though increases in the water temperature limit will increase salinity and thereby contribute to the westward migration of hypersaline water in the Biscayne Aquifer, the effects will be small because temperatures above 100 °F are reasonably likely to occur only during a few weeks per year and the effects of higher temperature will be counteracted by FPL’s aquifer withdrawals. Therefore, we find that the license amendments will not have a significant effect on saltwater migration or intrusion and that the agency record of decision, as supplemented by the Board, now provides the “hard look” required under NEPA.

## **2. *Aquifer Withdrawals***

The second part of Contention 1 states that the 2014 EA does not “adequately address the impact of increased temperature and salinity in the CCS on saltwater intrusion arising from . . . the withdrawal of fresh water from surrounding aquifers to mitigate conditions within the CCS.”<sup>227</sup> At issue are FPL’s authorizations to withdraw water from three separate sources: (1) the Upper Floridan Aquifer; (2) the Biscayne Aquifer; and (3) the L-31E canal system.<sup>228</sup> As explained above,

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<sup>225</sup> See Ex. FPL-001, FPL Written Testimony at 44 (“The net effect is that the proposed addition [from the Upper Floridan Aquifer] will reduce the rate of saltwater migration.”); Ex. FPL-027, FDEP Petition, App. A, at 1, 3-4; see also *Robertson*, 490 U.S. at 352-53 (“Since it is those state and local governmental bodies that have jurisdiction over the area in which the adverse effects need be addressed and since they have the authority to mitigate them, it would be incongruous to conclude that the Forest Service has no power to act until the local agencies have reached a final conclusion on what mitigating measures they consider necessary. Even more significantly, it would be inconsistent with NEPA’s reliance on procedural mechanisms — as opposed to substantive, result-based standards — to demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act.” (footnote omitted)).

<sup>226</sup> *Supra* Section IV.A.2.ii.

<sup>227</sup> LBP-15-13, 81 NRC at 476.

<sup>228</sup> Although the L-31E canal system is not an aquifer, CASE’s contention includes a challenge to the 2014 EA’s lack of analysis regarding the environmental impacts of the L-31E canal withdrawals. See Petition at 16-17; see also CLI-15-25, 82 NRC at 404-05 (“We agree that CASE has asserted a genuine

(Continued)

the 2014 EA fails to address the environmental impacts of these withdrawals on the aquifers themselves.<sup>229</sup> We examine below whether the record evidence developed in this proceeding nonetheless provides sufficient information to show that FPL's water withdrawals from the Upper Floridan Aquifer, Biscayne Aquifer, and L-31E canal will not have a significant impact on saltwater intrusion.

*i. Upper Floridan Aquifer Withdrawals*

With respect to the potential impact of FPL's planned withdrawals from the Upper Floridan Aquifer, FPL proposed to manage increasing temperature and salinity in the cooling canals in 2013 and 2014 through two separate measures: (1) constructing six new wells to pump 14 MGD from the Upper Floridan Aquifer, and (2) reallocating up to 5 MGD<sup>230</sup> of Upper Floridan Aquifer water from *existing* production wells associated with Unit 5, which is a natural gas-fired unit at Turkey Point.<sup>231</sup> However, because CASE did not challenge the 5-MGD reallocation withdrawal,<sup>232</sup> the only issue properly before us is FPL's proposal to pump 14 MGD from the *new* production wells.<sup>233</sup>

The 14-MGD withdrawal issue stems from the April 16, 2013 letter from the Water District that informed FPL it was in violation of its agreement regarding the westward movement of saline water from the cooling canal system.<sup>234</sup> In its

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dispute that additional water withdrawals [from the L-31E canal system] are likely, and that these withdrawals might result in environmental impacts that were not considered in the Environmental Assessment.”); LBP-15-13, 81 NRC at 474 & n.110. Moreover, because the L-31E canal system withdrawals are part of FPL's mitigation measures and were reasonably foreseeable at the time of the 2014 EA, the environmental impacts of these withdrawals need to be considered. *See infra* notes 273-276 and accompanying text.

<sup>229</sup> *Supra* notes 187-195 and accompanying text; *see also* Tr. at 335.

<sup>230</sup> The 2014 EA states that FPL was authorized to reallocate 5 MGD from the Unit 5 allowance. 2014 EA, 79 Fed. Reg. at 44,468. However, in its application to the FDEP, FPL requested permission to “re-allocate approximately 2.9 MGD (2,000 gpm) of Upper Floridan Aquifer water from Well No. 3 associated with Unit 5.” Ex. FPL-027, FDEP Petition at 7. Explaining this apparent discrepancy, FPL witness Mr. Andersen testified that although FPL was authorized to reallocate up to 5 MGD from Unit 5, in practice it used only 3 to 4 MGD. Tr. at 488.

<sup>231</sup> *See* 2014 EA, 79 Fed. Reg. at 44,465; Ex. FPL-027, FDEP Petition at 4, 7. FPL ultimately received permission to reallocate the water from Unit 5 to the cooling canal system and to construct one well to comply with NRC Order EA-12-049 (the Fukushima well). Tr. at 490. CASE did not challenge either of these projects and so they are not before us here.

<sup>232</sup> Nowhere in CASE's pleadings or evidence is there any mention of the 5-MGD reallocation of water from wells associated with Unit 5.

<sup>233</sup> *See* Tr. at 490; *see also* Upper Floridan Aquifer Order at 6-7.

<sup>234</sup> *See* Ex. INT-004, FDEP Administrative Order ¶¶ 28-29 (“On June 18, 2013, FPL presented the [Water] District and [FDEP] with a proposal to manage the CCS groundwater located west of the  
(Continued)

September 5, 2014 response, FPL formally petitioned FDEP to authorize FPL to withdraw 14 MGD from the Upper Floridan Aquifer.<sup>235</sup> After a challenge in a separate administrative proceeding,<sup>236</sup> on January 25, 2016, an Administrative Law Judge in the State of Florida's Division of Administrative Hearings issued a recommended order that FDEP grant FPL's application to withdraw 14 MGD from the Upper Floridan Aquifer.<sup>237</sup>

We received testimony about this planned withdrawal from several witnesses. FPL witness Mr. Andersen testified that FPL considers the 14 MGD from the Upper Floridan Aquifer to be "a long term solution" to address rising temperature and salinity in the cooling canal system.<sup>238</sup> He further testified that the Upper Floridan Aquifer withdrawals are a "desirable" source of water because the salinity of the withdrawals is relatively low at 2.5 psu.<sup>239</sup> Therefore, according to Mr. Anderson, "[t]he water in the [Upper Floridan Aquifer] is relatively fresh, compared to the water in the [cooling canal system], but is still salty enough that it must be treated prior to its use as drinking water."<sup>240</sup> FPL's groundwater modeling shows that the Upper Floridan Aquifer withdrawals will reduce the salinity of the cooling canals to about 34 psu, which is the equivalent of the salinity of Biscayne Bay.<sup>241</sup> FPL's modeling also shows that by freshening the cooling canals, the Upper Floridan Aquifer withdrawals will help reduce the hypersaline plume in the Biscayne Aquifer.<sup>242</sup> As part of the state's administrative review of FPL's proposal, the Water District conducted its own modeling of FPL's proposed withdrawals and ultimately concurred with FPL's modeling results.<sup>243</sup>

Additionally, beyond the indirect benefit that freshening the cooling canals will have on the Biscayne Aquifer, FPL and the NRC Staff also provided convincing evidence that FPL's withdrawals from the Upper Floridan Aquifer will not have a significant negative impact on the Biscayne Aquifer saltwater/freshwater interface due to the confining layer between the two aquifers. NRC expert witness Mr. Ford testified that "the Floridan Aquifer is isolated from the Biscayne Aquifer by

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L-31E Canal, and on July 15, 2013, FPL provided a technical memorandum and other documentation related to its proposal . . . . FPL estimated that the addition of 14 million gallons per day of upper Floridan aquifer water would be sufficient to reduce the CCS salinity levels at or below that of Biscayne Bay and that the rate of westward movement of CCS saline waters would be reduced over a 30 year operational period."); *see also* Ex. FPL-026, April 16, 2013 Letter at 1.

<sup>235</sup> Ex. FPL-027, FDEP Petition at 1.

<sup>236</sup> *See* Upper Floridan Aquifer Order at 2-3.

<sup>237</sup> *Id.* at 24-25.

<sup>238</sup> Ex. FPL-001, FPL Written Testimony at 47.

<sup>239</sup> Tr. at 500.

<sup>240</sup> Ex. FPL-001, FPL Written Testimony at 48.

<sup>241</sup> Ex. FPL-027, FDEP Petition at 7, App. A., at 3-4.

<sup>242</sup> *Id.* at 1, 3-4; Upper Floridan Aquifer Order at 17.

<sup>243</sup> Upper Floridan Aquifer Order at 17-18.

a thick confining unit . . . [that] acts as a barrier and isolates groundwater in the Floridan Aquifer from groundwater in the Biscayne Aquifer.”<sup>244</sup> While Mr. Ford maintained that there is no interaction between the two aquifers,<sup>245</sup> FPL expert Mr. Andersen testified that “there is an upward hydraulic gradient from the [Upper] Floridan [Aquifer] to the Biscayne [Aquifer].”<sup>246</sup> Therefore, in Mr. Andersen’s opinion, there is “flow from the [Upper] Floridan [Aquifer] into the Biscayne [Aquifer] and not vice-versa,”<sup>247</sup> but any interaction between the aquifers is “very limited.”<sup>248</sup> As to the nature of the confining unit, Mr. Andersen opined that the Upper Floridan Aquifer “is overlain by a sequence of limestone, dolomite, siltstone, claystone, sand and clay that form a semi-confining layer known as the Hawthorn Group that separates, both geographically and hydraulically the [Upper Floridan Aquifer] from the Biscayne Aquifer.”<sup>249</sup> CASE offered no evidence to dispute the opinions of these expert witnesses. Based on this testimony, the Board is satisfied that it is more likely than not that FPL’s planned Upper Floridan Aquifer withdrawals will not negatively impact the saltwater/freshwater interface in the Biscayne Aquifer.

Finally, FPL offered compelling evidence that any drawdown in the Upper Floridan Aquifer caused by its planned withdrawals will not have a significant impact either on the aquifer itself or on other users of the aquifer. Specifically, FPL’s technical memorandum quantified the expected drawdown and concluded that the withdrawals would not prevent nearby users from obtaining water.<sup>250</sup> The analysis documented in this technical memorandum used a groundwater model, East Coast Floridan Aquifer System Model-Phase 2, developed by the Water District.<sup>251</sup> However, because the Water District’s groundwater model “covers a very large area and does not provide the resolution required to accurately assess site-specific features and impacts,”<sup>252</sup> FPL recalibrated the model with site-specific information, including information gathered from two aquifer performance tests.<sup>253</sup> Ultimately, FPL’s groundwater modeling showed that only one

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<sup>244</sup> Ex. NRC-001, Staff Written Testimony at 26.

<sup>245</sup> *Id.* at 24, 26; *see also* Tr. at 433.

<sup>246</sup> Tr. at 434.

<sup>247</sup> *Id.*

<sup>248</sup> Ex. FPL-001, FPL Written Testimony at 51.

<sup>249</sup> *Id.* at 20.

<sup>250</sup> Ex. FPL-027, FDEP Petition, App. B, Evaluation of Drawdown in the Upper Floridan Aquifer Due to Proposed Salinity Reduction-Based Withdrawals at 10 (May 13, 2014); *see also* Ex. FPL-030, Peter F. Andersen and James L. Ross, Evaluation of Drawdown in the Upper Floridan Aquifer Due to Salinity Reduction-Based Withdrawals at 10 (Nov. 13, 2014) [hereinafter Ex. FPL-030, Drawdown Memorandum].

<sup>251</sup> Ex. FPL-030, Drawdown Memorandum at 1.

<sup>252</sup> *Id.* at 3.

<sup>253</sup> *Id.* at 1-3, 10; *see also* Tr. at 495-96.



of the nearby users would experience the maximum calculated drawdown of 2.26 feet.<sup>254</sup> Overall, according to FPL, “the impacts to off-site permitted wells are minor.”<sup>255</sup> FPL also noted its drawdown calculations are conservative (i.e., they project results that are greater than would be expected) “since the drawdown in the wellbore at each nearby user due to localized pumping is undersimulated by the coarse-gridded regional model.”<sup>256</sup> CASE offered no evidence that disputes the conclusions of FPL’s technical memorandum.

Accordingly, given the minor impact on a single user, we find it more likely than not that FPL’s Upper Floridan Aquifer withdrawals will not have a significant impact on the Upper Floridan Aquifer itself.<sup>257</sup>

In sum, we find that the supplemented record of decision regarding the 2014 FPL license amendments now contains sufficient information to establish that the requisite NEPA “hard look” has been taken regarding FPL’s Upper Floridan Aquifer withdrawals, and that the 2014 license amendments will not: (1) exacerbate the migration of saltwater from the cooling canals system into the surrounding groundwater because these withdrawals will help reduce the salinity of the cooling canals; (2) significantly impact the nearby saltwater/freshwater interface in the Biscayne Aquifer because there is very limited interaction between the two aquifers; or (3) significantly impact other legal users of the Upper Floridan Aquifer through the projected drawdown caused by the withdrawals.

## *ii. Biscayne Aquifer Withdrawals*

The second water source at issue involves FPL’s water withdrawals from the Biscayne Aquifer. On July 1, 2014, the Water District approved FPL’s request to pump 10 MGD from existing well PW-1 in the Biscayne Aquifer.<sup>258</sup> Subsequently, according to the testimony of FPL witness Mr. Scroggs, FPL received permission in June 2015 from Miami-Dade County’s Department of Health to construct two new wells to pump additional water from the Biscayne Aquifer.<sup>259</sup> In total,

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<sup>254</sup> Ex. FPL-030, Drawdown Memorandum at 10.

<sup>255</sup> *Id.*

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

<sup>257</sup> *See id.*; *see also* Tr. at 495-99.

<sup>258</sup> Ex. FPL-018, Letter from Sharon M. Trost, Director, Water District Regulation Division, to Stacy M. Foster, Manager, FPL Environmental Services at 1 (July 1, 2014) [hereinafter Ex. FPL-018, July 1, 2014 Water District Approval]; Ex. FPL-001, FPL Written Testimony at 16.

<sup>259</sup> Tr. at 480-81; *see* Ex. FPL-001, FPL Written Testimony at 16-17, 67. Mr. Scroggs testified that because FPL’s Biscayne Aquifer withdrawals had a salinity of about 34 psu, the water was classified as “marine water” and thus “is not a regulated water source.” For this reason, FPL “applied for well permits through the county Department of Health,” instead of through the Water District. Tr. at 481-82.

FPL was authorized to withdraw approximately 45 MGD from these wells.<sup>260</sup> Mr. Scroggs also testified that FPL ceased withdrawing water from the Biscayne Aquifer as of September 2015.<sup>261</sup>

After conceding that the Biscayne Aquifer is one of the primary sources of freshwater and drinking water in South Florida,<sup>262</sup> witnesses for both FPL and the NRC Staff offered convincing and unrefuted evidence that the actual withdrawals that FPL has made have a salinity equal to saltwater. Mr. Andersen explained that “[d]ue to the presence of Biscayne Bay and the Atlantic Ocean, the [Biscayne] aquifer is saline offshore and near the coast.”<sup>263</sup> Citing studies by the U.S. Geological Survey (USGS), Mr. Andersen also testified that the 1 psu saltwater/freshwater interface in the Biscayne Aquifer is approximately 6 to 8 miles inland of the Turkey Point site.<sup>264</sup> Therefore, because FPL’s Biscayne Aquifer wells are located to the east of this interface, FPL is not withdrawing freshwater from the aquifer.<sup>265</sup> FPL has also confirmed through water sampling that its withdrawals from the Biscayne Aquifer had a salinity of about 34 psu, which is comparable to the salinity of Biscayne Bay.<sup>266</sup> Moreover, when it authorized FPL to withdraw 10 MGD in July 2014, the Water District noted that FPL’s withdrawals met the District’s definition of seawater because the water had a salinity above 19 psu.<sup>267</sup>

In fact, the relatively high salinity of FPL’s Biscayne Aquifer withdrawals was the main reason that FPL discontinued its use of the Biscayne Aquifer to help control salinity in the cooling canals.<sup>268</sup> Mr. Andersen testified that FPL’s withdrawals from the Biscayne Aquifer were only “intended to be used as a bridging strategy until the 14 MGD from the [Upper Floridan Aquifer] is available for a long term solution.”<sup>269</sup>

Although CASE argues that FPL’s withdrawals from the Biscayne Aquifer will cause significant adverse environmental impacts and that the water withdrawn

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<sup>260</sup> Ex. FPL-001, FPL Written Testimony at 16-17.

<sup>261</sup> *Id.* at 17; *see also* Tr. at 480-81.

<sup>262</sup> Ex. NRC-001, Staff Written Testimony at 23; Ex. FPL-001, FPL Written Testimony at 19-20.

<sup>263</sup> Ex. FPL-001, FPL Written Testimony at 19-20.

<sup>264</sup> *Id.* at 20 (citing Ex. FPL-013, Excerpt from FPL Turkey Point Comprehensive Pre-Uprate Monitoring Report for Units 3 & 4 Uprate Project, Section 5, fig. 5.2-23, USGS Saltwater Intrusion Lines from 1951 through 2008 (Oct. 2012)).

<sup>265</sup> *Id.* at 22-23.

<sup>266</sup> *Id.* at 22; *see* Ex. FPL-017A, Turkey Point Exploratory Drilling and Aquifer Performance Test Program, tbl. 3.2 (Aug. 19, 2009) (showing the results of a 2014 aquifer performance test, including the salinity of water withdrawn from well PW-1).

<sup>267</sup> Ex. FPL-018, July 1, 2014 Water District Approval at 1.

<sup>268</sup> *See* Tr. at 481; Ex. FPL-001, FPL Written Testimony at 17.

<sup>269</sup> Ex. FPL-001, FPL Written Testimony at 47.

from the Biscayne Aquifer is freshwater,<sup>270</sup> CASE submitted no evidence to support this claim. Consequently, we find that the supplemented record of decision regarding the 2014 FPL license amendments now contains sufficient information to establish that the requisite NEPA “hard look” has been taken regarding FPL’s saltwater withdrawals from the Biscayne Aquifer and that those withdrawals will not have a significant impact on saltwater intrusion.

*iii. L31-E Canal System*

Lastly, as part of FPL’s plan to manage the temperature and salinity of the Turkey Point cooling canals, FPL received authorization to access freshwater from the L-31E canal system.<sup>271</sup> This canal system runs parallel to the South Central Biscayne Bay and is operated by the Water District for “reducing flood and storm surge damage as well as limiting saline water intrusion.”<sup>272</sup>

Notably, the 2014 EA makes no mention of the L-31E canal system withdrawals.<sup>273</sup> At the hearing, NRC Staff witness Ms. Grange testified that, even though the NRC Staff knew the proposed L-31E withdrawals “were a possibility,” the 2014 EA did not mention these withdrawals because the NRC Staff considered it unlikely that FPL would submit a request for the proposed L-31E withdrawals.<sup>274</sup> It is difficult to reconcile this hearing testimony with Ms. Grange’s written testimony, which states that “the Staff was aware that FPL was seeking authorization from the State to pump water from the L-31 canal system.”<sup>275</sup> Regardless, given that the NRC Staff was aware that FPL’s application to withdraw water from the L-31E canal system was imminent at the time the 2014 EA was being prepared, the NRC Staff erred in not discussing these reasonably foreseeable L-31E canal withdrawals in the 2014 EA.<sup>276</sup>

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<sup>270</sup> See, e.g., CASE Statement of Position at 14 (asserting that “the withdrawal of billions of gallons of freshwater from the Biscayne Aquifer for use in the canals . . . has exacerbated saltwater intrusion to the west of the CCS”).

<sup>271</sup> Ex. FPL-001, FPL Written Testimony at 51 (“The L-31E canal water is fresh, with chloride concentrations consistently below the drinking water criteria of 250 mg/L chloride, which is approximately equivalent to 0.5 psu.”).

<sup>272</sup> Ex. FPL-034, Governing Board of the [Water District], Emergency Final Order at 4 (May 19, 2015) [hereinafter Ex. FPL-034, 2015 Emergency Order]; Ex. FPL-001, FPL Written Testimony at 51.

<sup>273</sup> See Tr. at 391.

<sup>274</sup> See *id.*

<sup>275</sup> Ex. NRC-001, Staff Written Testimony at 49.

<sup>276</sup> See CLI-15-25, 82 NRC at 396 n.46 (“NEPA imposes upon the NRC a disclosure obligation — that the NRC publicly discuss its evaluation of the reasonably foreseeable effects of a proposed action.”).

FPL did in fact apply to the Water District for emergency authorization to pump up to 100 MGD from the L-31E canal system on August 27, 2014, less than 1 month after the publication of the 2014 EA.<sup>277</sup> One day later, on August 28, 2014, the Water District approved FPL's emergency request and authorized FPL to withdraw a maximum of 100 MGD from the canal system, subject to a number of restrictions (2014 Emergency Order).<sup>278</sup> One such restriction authorized FPL to withdraw water only when it exceeded the amount already reserved by state law for fish and wildlife in Biscayne Bay.<sup>279</sup> Consequently, the 2014 Emergency Order gave no assurance that "water will be available for FPL's withdrawal and use on any given day."<sup>280</sup> Despite these restrictions, FPL was able to withdraw approximately 44 MGD during a 21-day period in the fall of 2014.<sup>281</sup>

The 2014 Emergency Order terminated on October 15, 2014,<sup>282</sup> and on January 26, 2015, FPL applied for a consumptive use permit to withdraw excess water from the L-31E canal system.<sup>283</sup> The Water District granted FPL's request on April 10, 2015 (2015 Permit), allowing FPL to withdraw up to 100 MGD during two periods: June 1 through November 30, 2015, and June 1 through November 30, 2016.<sup>284</sup> Like the 2014 Emergency Order, the 2015 Permit prohibited FPL from withdrawing water reserved by state law for the protection of fish and wildlife.<sup>285</sup> However, FPL's authorization was stayed after an environmental group challenged the 2015 Permit.<sup>286</sup> In the interim, FPL sought and received another emergency authorization (2015 Emergency Order),<sup>287</sup> and was

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<sup>277</sup> Ex. FPL-031, Governing Board of the [Water District], Emergency Final Order at 6 (Aug. 28, 2014) [hereinafter Ex. FPL-031, 2014 Emergency Order].

<sup>278</sup> *Id.* at 13-22; see Ex. FPL-001, FPL Written Testimony at 52.

<sup>279</sup> See Ex. FPL-031, 2014 Emergency Order at 14. Specifically, the 2014 Emergency Order states that "FPL is prohibited from withdrawing and using water from the L-31 E Canal system that is reserved for fish and wildlife by Rule 40E-10.061, [Florida Administrative Code], for the Nearshore Central Biscayne Bay." *Id.* Under the water reservation rule, "surface water flowing into the Nearshore Central Biscayne Bay, as derived from various and listed contributing canal reaches, is reserved from allocation." *Id.* at 6.

<sup>280</sup> *Id.* at 15.

<sup>281</sup> Ex. FPL-001, FPL Written Testimony at 17.

<sup>282</sup> Ex. FPL-031, 2014 Emergency Order at 21.

<sup>283</sup> Ex. FPL-033, Governing Board of the [Water District], Final Order at 9 (Apr. 9, 2015) [Water District L-31E Canal System Order].

<sup>284</sup> *Id.* at 12 ("FPL may potentially withdraw water from June 1 to November 30 ('Calendar Constraint'). No withdrawals are authorized from December 1st through May 31st by this Order."); Ex. FPL-037, State L-31E Canal System Order at 10 ("The [2015] permit would allow FPL to withdraw up to 100 million gallons per day ('mgd').").

<sup>285</sup> Ex. FPL-033, Water District L-31E Canal System Order at 12.

<sup>286</sup> Ex. FPL-037, State L-31E Canal System Order at 31 n.1; Ex. FPL-034, 2015 Emergency Order at 9-10.

<sup>287</sup> Ex. FPL-034, 2015 Emergency Order at 10, 18.

able to withdraw approximately 43 MGD in September and October 2015.<sup>288</sup> That authorization terminated on November 30, 2015.<sup>289</sup> On December 31, 2016, a state Administrative Law Judge rejected the environmental group's challenges to the 2015 Permit and held that the Water District should issue the permit.<sup>290</sup> But because FPL has since received approval for the Upper Floridan Aquifer withdrawals,<sup>291</sup> it is more likely than not that FPL will have no need to seek further authorizations to withdraw from the L-31E canal system beyond 2016.<sup>292</sup>

In this proceeding, both FPL and the NRC Staff presented expert testimony that the freshwater withdrawals from the L-31E canal will not have a significant impact on saltwater intrusion because such withdrawals are limited to periods of high rainfall when such water would otherwise flow into Biscayne Bay — as opposed to into the groundwater.<sup>293</sup> As Mr. Andersen testified, “[s]ince the amount of water that is pumped to the [cooling canal system] is equivalent to the amount diverted to L-31E from the north, there is no net gain or loss of water from the L-31E west of the [cooling canals].”<sup>294</sup>

FPL also offered a technical memorandum that summarizes FPL's computer modeling regarding the projected impact of the L-31E canal withdrawals on salinity in the cooling canals.<sup>295</sup> This technical memorandum evaluates the addition of the L-31E canal system water in the cooling canal system in two scenarios.<sup>296</sup> Scenario A “assume[d] future conditions mimic those observed between November 1, 2010, and October 31, 2012,” before the cooling canal system experienced an increase in salinity in 2013.<sup>297</sup> Scenario B, on the other hand, assumed that future conditions of the cooling canals would mimic the dramatic increase in salinity experienced during 2013 and 2014.<sup>298</sup> This technical memorandum also evaluated the various impacts of adding 30 MGD, 60 MGD and 100 MGD from the L-31E canal system,<sup>299</sup> and concluded that, over a 25-month time frame, the

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<sup>288</sup> Ex. FPL-001, FPL Written Testimony at 17, 54.

<sup>289</sup> Ex. FPL-034, 2015 Emergency Order at 27.

<sup>290</sup> Ex. FPL-037, State L-31E Canal System Order at 27-30.

<sup>291</sup> See Upper Floridan Aquifer Order at 24-25 (recommending that FPL be allowed to withdraw 14 MGD from the Upper Floridan Aquifer subject to certain monitoring requirements).

<sup>292</sup> See Ex. FPL-001, FPL Written Testimony at 47 (describing the L-31E canal system withdrawals as a “bridging strategy until the 14 MGD from the [Upper Floridan Aquifer] is available for a long term solution,” and stating that the L-31E withdrawals “would not occur simultaneously with the 14 MGD [Upper Floridan Aquifer] freshening”).

<sup>293</sup> Ex. NRC-001, Staff Written Testimony at 49-50; Ex. FPL-001, FPL Written Testimony at 54-55.

<sup>294</sup> Ex. FPL-001, FPL Written Testimony at 55.

<sup>295</sup> Ex. FPL-033, Water District L-31E Canal System Order, Ex. D, at 1.

<sup>296</sup> *Id.* at 3.

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

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

<sup>299</sup> *Id.* at 5-6.

addition of even 30 MGD reduced the salinity in Scenario A by about 10 psu, and in Scenario B by about 25 psu.<sup>300</sup> Further, the Water District performed its own modeling of the proposed L-31E withdrawals and found that “freshening of the groundwater would occur rapidly in the upper portion of the Biscayne aquifer near the CCS.”<sup>301</sup>

We find FPL’s analysis, modeling, and technical conclusions to be sound.<sup>302</sup> Furthermore, CASE has provided no evidence contradicting any of the information provided in FPL’s evidence in this regard. Consequently, we find that the supplemented record of decision regarding the 2014 FPL license amendments now contains sufficient information to establish that the requisite NEPA “hard look” has been taken regarding FPL’s withdrawals from the L-31E canal system and that such withdrawals will not have a significant impact on saltwater intrusion in the Biscayne Aquifer.

## V. CONCLUSION

The Board concludes that, although the 2014 EA is deficient with respect to its discussion of saltwater migration, saltwater intrusion, and aquifer withdrawals, those deficiencies have been adequately remedied by the record evidence developed during this proceeding. This Initial Decision supplements the 2014 EA and thereby satisfies the NEPA obligation to take the requisite “hard look” and also justifies the finding of no significant environmental impact.

Any party may petition the Commission for review of this Initial Decision pursuant to 10 C.F.R. § 2.341(b)(1). NRC regulations require that any petition for review must be filed within 25 days from service of this Initial Decision.<sup>303</sup> Unless otherwise authorized by law, a party must file a petition for review to exhaust its administrative remedies before seeking judicial review.<sup>304</sup> If no petitions are filed and the Commission does not direct otherwise, this Initial Decision becomes the final decision of the Commission 120 days from the date of issuance.<sup>305</sup>

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<sup>300</sup> *Id.*, at 6, tbl. 2.

<sup>301</sup> Ex. FPL-037, State L-31E Canal System Order at 16.

<sup>302</sup> See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-94-35, 40 NRC 180, 192 (1994) (noting that Boards “include[ ] technical experts who can evaluate the factual material in the record and reach their own judgment as to its significance”).

<sup>303</sup> 10 C.F.R. § 2.341(b)(1). This Initial Decision has been served this date by the Office of the Secretary on those designated in the accompanying service list through the agency’s E-Filing system and by e-mail.

<sup>304</sup> 10 C.F.R. § 2.341(b)(1).

<sup>305</sup> *Id.* § 2.341(a)(2).

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Michael M. Gibson, Chairman  
ADMINISTRATIVE JUDGE

Dr. Michael F. Kennedy  
ADMINISTRATIVE JUDGE

Dr. William W. Sager  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
May 31, 2016





UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket No. 50-271-LA-3**

**ENTERGY NUCLEAR VERMONT  
YANKEE, LLC, and ENTERGY  
NUCLEAR OPERATIONS, INC.  
(Vermont Yankee Nuclear Power  
Station)**

**June 2, 2016**

**MOOTNESS**

Because the disputed license amendment request, which gave rise to the hearing opportunity, has been withdrawn, the case is now moot.

**MOOTNESS**

The “capable of repetition, yet evading review” exception to the mootness doctrine applies only to cases in which both the challenged action was in its duration too short to be litigated, *and* there is a reasonable expectation that the same complaining party will be subject to the same action again.

**VACATUR**

While unreviewed Board decisions do not create binding legal precedent, the Commission nonetheless customarily vacates such decisions as a prudential matter when appellate review is cut short by mootness.

## VACATUR

When vacating for mootness, the Commission takes no position on the underlying Board ruling.

## MEMORANDUM AND ORDER

The NRC Staff requests that we vacate LBP-15-24, in which the Atomic Safety and Licensing Board granted the State of Vermont's hearing request in this license amendment matter.<sup>1</sup> As discussed below, this proceeding became moot while LBP-15-24 was still subject to appeal. Therefore, in keeping with our established practice, we grant the Staff's motion and vacate LBP-15-24.

### I. BACKGROUND

As one of a number of activities associated with decommissioning the Vermont Yankee Nuclear Power Station, in September 2014 Entergy sought a license amendment to remove license conditions associated with the decommissioning trust fund for the facility.<sup>2</sup> Rather than following the license conditions, Entergy proposed to conform to the regulations in 10 C.F.R. § 50.75(h)(1)-(3).<sup>3</sup> Shortly thereafter, Entergy requested an exemption pursuant to 10 C.F.R. § 50.12.<sup>4</sup> The exemption request (which assumed approval of the license amendment request) sought to relieve Entergy from two of the requirements of section 50.75(h)(1)(iv).<sup>5</sup> First, Entergy requested an exemption from the requirement that trust disbursements are restricted to decommissioning expenses until final decommissioning has

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<sup>1</sup> NRC Staff Motion to Vacate LBP-15-24 (Oct. 26, 2015) (Staff Motion); LBP-15-24, 82 NRC 68 (2015).

<sup>2</sup> Letter from Christopher J. Wamser, Entergy, to NRC Document Control Desk (Sept. 4, 2014), at 1 (ADAMS Accession No. ML14254A405) (License Amendment Request).

<sup>3</sup> See Biweekly Notice; Applications and Amendments to Facility Operating Licenses and Combined Licenses Involving No Significant Hazards Considerations, 80 Fed. Reg. 8355, 8359 (Feb. 17, 2015) (Notice of Opportunity to Request a Hearing). At the time section 50.75 was promulgated, the NRC clarified that licensees had the option of either maintaining existing license conditions governing decommissioning trusts or submitting to the new regulatory requirements. See Final Rule: "Decommissioning Trust Provisions," 67 Fed. Reg. 78,332, 78,334-35 (Dec. 24, 2002).

<sup>4</sup> Letter from Christopher J. Wamser, Entergy, to NRC Document Control Desk (Jan. 6, 2015) (ADAMS Accession No. ML15013A171) (Exemption Request).

<sup>5</sup> *Id.* at 1-3. The exemption request also sought to relieve Entergy from 10 C.F.R. § 50.82(a)(8)(i)(A), allowing it to make withdrawals from the decommissioning trust fund for certain irradiated fuel management costs. *Id.* at 1-2.

been completed.<sup>6</sup> Second, Entergy requested an exemption from the requirement to provide 30 working days' advance notice to the NRC of intended disbursements.<sup>7</sup> Taken together, the requested exemptions and license amendment would allow Entergy to make withdrawals from the decommissioning trust fund for certain spent fuel management costs without providing prior notice.<sup>8</sup> The Staff determined that Entergy's exemption request met the requirements of 10 C.F.R. § 50.12 and granted the request on June 17, 2015.<sup>9</sup>

In response to a notice of opportunity to request a hearing on Entergy's license amendment request, Vermont requested a hearing.<sup>10</sup> Vermont proffered four contentions in its initial petition and later proposed a fifth contention.<sup>11</sup> Entergy and the Staff opposed admission of all five contentions.<sup>12</sup>

In August 2015, the Board issued LBP-15-24, in which it granted Vermont's hearing request and admitted Contentions I and V.<sup>13</sup> In September 2015, Entergy filed a motion to withdraw its license amendment request and to dismiss the proceeding without prejudice.<sup>14</sup> In LBP-15-28, the Board granted Entergy's motion

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<sup>6</sup> *Id.* at 2; *see* 10 C.F.R. § 50.75(h)(1)(iv).

<sup>7</sup> Exemption Request at 1; *see* 10 C.F.R. § 50.75(h)(1)(iv).

<sup>8</sup> *See* Exemption Request at 1.

<sup>9</sup> Entergy Nuclear Operations, Inc.; Vermont Yankee Nuclear Power Station, 80 Fed. Reg. 35,992 (June 23, 2015).

<sup>10</sup> Notice of Opportunity to Request a Hearing, 80 Fed. Reg. at 8356-58, 8359-60; State of Vermont's Petition for Leave to Intervene and Hearing Request (Apr. 20, 2015) (Hearing Request).

<sup>11</sup> Hearing Request at 3-31; State of Vermont's Motion for Leave to File a New Contention Including the Proposed New Contention and to Add Additional Bases and Support to Existing Contentions I, III, and IV (July 6, 2015) at 4-7.

<sup>12</sup> *See* NRC Staff Answer to State of Vermont Petition for Leave to Intervene and Hearing Request (May 15, 2015); Entergy's Answer Opposing State of Vermont's Petition for Leave to Intervene and Hearing Request (May 15, 2015); NRC Staff's Answer to the State of Vermont's Motion for Leave to File New and Amended Contentions (July 31, 2015); Entergy's Answer Opposing State of Vermont's New Contention V and Additional Bases for Pending Contentions I, III, and IV (July 31, 2015).

<sup>13</sup> LBP-15-24, 82 NRC at 104. As admitted, Contention I concerned Entergy's current license condition requiring 30-day notification for decommissioning trust fund withdrawals in light of Vermont's assertions that Entergy could otherwise improperly reduce the fund such that the plant cannot be maintained in a safe condition. *Id.* at 92. In particular, Vermont claimed that three categories of expenses violated NRC decommissioning regulations: "(1) the six line items from the [Post Shutdown Decommissioning Activities Report] that Vermont alleges to be nondecommissioning costs, (2) the legal costs associated with Entergy's reduction in emergency planning, and (3) the potential for unforeseen costs associated with radionuclide releases and indefinite storage of spent fuel." *Id.* (citations omitted). The Board admitted Contention V as a legal contention challenging the sufficiency of Entergy's license amendment request, in view of the exemptions that the Staff approved. *Id.* at 102, 104.

<sup>14</sup> Entergy's Motion to Withdraw Its September 4, 2014 License Amendment Request (Sept. 22, 2015) at 1 (Motion to Withdraw). At the same time, Entergy sought to extend the time for filing

(Continued)

to withdraw the license amendment request without prejudice and terminated the proceeding.<sup>15</sup> The Board imposed two conditions on the withdrawal. First, it directed Entergy to provide written notice to Vermont of any new license amendment application relating to the decommissioning trust fund at the time of the application.<sup>16</sup> Second, the Board directed Entergy to specify in the 30-day notices that it must provide before making disbursements from the decommissioning fund if any of the proposed disbursements are to be used for certain expenses to which Vermont objected in its admitted Contention I.<sup>17</sup> Following withdrawal of the license amendment request, Entergy may continue to make withdrawals from the decommissioning trust fund for spent fuel management expenses. But, Entergy still must provide 30 days' advance notice to the NRC of such withdrawals, given that the license condition requiring notice remains in effect.<sup>18</sup>

The Staff has now submitted a motion to vacate the Board decision granting Vermont's hearing request, LBP-15-24, as moot.<sup>19</sup> Vermont opposes the Staff's motion.<sup>20</sup>

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appeals until 10 days after the Board's ruling on its motion to withdraw. *See* Entergy's Unopposed Motion to Extend the Time to Appeal LBP-15-24 (Sept. 22, 2015); Order of the Secretary (Sept. 24, 2015) (unpublished) (granting the request).

<sup>15</sup> LBP-15-28, 82 NRC 233, 244 (2015).

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

<sup>17</sup> *Id.* These expenses are six line items in Entergy's Post Shutdown Decommissioning Activities Report and the legal costs associated with emergency planning. *Id.* at 242; LBP-15-24, 82 NRC at 86-87, 92; Hearing Request at 9-10; *see also* Site Specific Decommissioning Cost Estimate for the Vermont Yankee Nuclear Power Station, Rev. 0 (Dec. 2014), App. C (submitted as Attachment 1 to Entergy's Post Shutdown Decommissioning Activities Report, enclosed in the Letter from Christopher J. Wamser, Entergy, to NRC Document Control Desk (Dec. 19, 2014) (ADAMS Accession No. ML14357A110)). The six line items are (1) a five-million-dollar payment to Vermont as part of a settlement agreement; (2) emergency preparedness costs; (3) shipments of nonradiological asbestos waste; (4) insurance; (5) property taxes; and (6) replacement of structures during SAFSTOR, such as a bituminous roof. LBP-15-28, 82 NRC at 242. The Board referred to item 6 as "replacement of structures related to dry cask storage, such as a bituminous roof." *Id.* We clarify that the condition should reference the SAFSTOR period, as reflected in Vermont's petition. *See* Hearing Request at 9-10 (listing "items that the State believes fail to meet the NRC's definition of decommissioning, such as: . . . [r]eplacement of structures during SAFSTOR (*e.g.*, line 2b.1.4)"). The Board did not include unforeseen expenses related to radionuclide releases and spent fuel management, although Vermont objected to these expenses as part of Contention I. LBP-15-28, 82 NRC at 242; *see supra* note 13.

<sup>18</sup> *See* LBP-15-24, 82 NRC at 74.

<sup>19</sup> The Staff did not seek review of LBP-15-24. Staff Motion at 5, 7.

<sup>20</sup> State of Vermont's Response to NRC Staff's Motion to Vacate LBP-15-24 (Nov. 5, 2015) (Vermont Answer). The Staff notes that Entergy does not oppose the motion to vacate. Staff Motion at 2 n.4.

Also pending before us is the petition of the State of Vermont, the Vermont Yankee Nuclear Power Corporation, and Green Mountain Power Corporation seeking "a robust, comprehensive, and  
(Continued)

## II. DISCUSSION

The Staff seeks to vacate the Board's decision granting Vermont's request for a hearing on Entergy's license amendment request. The Board has now granted Entergy's motion to withdraw the license amendment request and terminated the proceeding in LBP-15-28. The issue before us today is whether vacatur of LBP-15-24 is appropriate in the circumstances presented here. Because there is no longer a live dispute with respect to the license amendment request, we vacate LBP-15-24 in accordance with our usual practice.

The Staff argues that LBP-15-24 should be vacated because Entergy's withdrawal of the license amendment request has made our review of that decision moot.<sup>21</sup> Vermont counters that the Staff's "characterization of the withdrawal fails to recognize that the Board imposed conditions on Entergy's withdrawal that link directly to the underlying decision," such that the underlying dispute is not moot.<sup>22</sup> Vermont argues that LBP-15-24 should not be vacated in order to preserve the integrity of the conditions.<sup>23</sup> Further, Vermont raises the concern that vacating the decision that granted its intervention petition could eliminate its ability to enforce the conditions contained in LBP-15-28.<sup>24</sup>

We agree with the Staff that the case is now moot because the disputed license amendment request has been withdrawn.<sup>25</sup> While Vermont asserts that live issues remain because it continues to dispute Entergy's use of decommissioning funds at Vermont Yankee,<sup>26</sup> the hearing opportunity that the Board granted in LBP-15-24 was limited to the September 2014 license amendment request. Disagreement regarding use of decommissioning trust funds apart from that request does not convert this matter into a live controversy. Moreover, vacatur of LBP-15-24 does not affect the conditions that the Board imposed on the withdrawal in LBP-15-28.

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participatory review of Entergy's use of the Vermont Yankee Nuclear Decommissioning Trust Fund." See Petition of the State of Vermont, the Vermont Yankee Nuclear Power Corporation, and Green Mountain Power Corporation for Review of Entergy Nuclear Operation, Inc.'s Planned Use of the Vermont Yankee Nuclear Decommissioning Trust Fund (Nov. 4, 2015) at 1. The petitioners request that we consider the Staff's motion to vacate as part of the comprehensive review they seek. *Id.* at 14. We decline to do so and will issue a separate decision addressing that petition.

<sup>21</sup> Staff Motion at 7.

<sup>22</sup> Vermont Answer at 1.

<sup>23</sup> *Id.* at 2.

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

<sup>25</sup> See, e.g., *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-10, 78 NRC 563, 568 (2013).

<sup>26</sup> Vermont Answer at 4.

The Board's decision in LBP-15-28 binds the parties, and Entergy must comply with the conditions of withdrawal set forth therein.<sup>27</sup>

Vermont also argues against vacatur because, it claims, vacating the decision would "strip the conditions of any context."<sup>28</sup> But as we observed in *San Onofre*, vacated orders, such as LBP-15-24, will remain available for reference; LBP-15-24 will not be expunged from agency records.<sup>29</sup> Neither does vacatur of LBP-15-24 diminish Vermont's right to challenge Entergy's compliance with the conditions imposed by the Board in LBP-15-28. If Vermont wishes to lodge such a challenge, it may do so by filing a petition for enforcement action under 10 C.F.R. § 2.206.<sup>30</sup>

Citing the Board's Condition 1, which requires Entergy to notify Vermont if it submits a new license amendment request relating to the decommissioning trust fund, Vermont also argues that LBP-15-24 should not be vacated because the dispute it has raised falls into the "capable of repetition, yet evading review" exception to the mootness doctrine.<sup>31</sup> Vermont argues that, by imposing Condition 1, the Board "effectively recognized" the likelihood that Entergy will submit a new license amendment request.<sup>32</sup> The Staff acknowledges this exception to the mootness doctrine but argues it is inapplicable here.<sup>33</sup> Based on Entergy's representation, the Staff contends that there is no reasonable expectation that

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<sup>27</sup> While it is true that LBP-15-28 has no precedential effect, it binds the parties to this case. See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 558 (2013).

<sup>28</sup> Vermont Answer at 6.

<sup>29</sup> *San Onofre*, CLI-13-9, 78 NRC at 559 ("Regardless of vacatur, the decision is an agency record, and will not be excised from the public view."). As was the case in *San Onofre*, LBP-15-24 will be publicly available via the agency's ADAMS recordkeeping system and will be published as part of NUREG-0750, a compilation of Commission and Board decisions. *Id.*

<sup>30</sup> Vermont asserts that the "Board necessarily has continuing jurisdiction to enforce those conditions." Vermont Answer at 6. On this point, Vermont is incorrect. After a proceeding is terminated, a licensing board does not retain jurisdiction over the matter. Cf. *Virginia Electric and Power Co.* (North Anna Power Station, Unit 3), CLI-12-14, 75 NRC 692, 699-701 (discussing when the Licensing Board's jurisdiction ends). Vermont does not need — or benefit from — "party status" to seek to enforce the conditions in the Board's decision; under section 2.206, "[a]ny person" may request enforcement action.

<sup>31</sup> Vermont Answer at 7.

<sup>32</sup> *Id.* We do not view the Board's condition as an acknowledgment that Entergy is likely to submit a similar license amendment request in the future, but rather an additional safeguard to ensure that, if Entergy does, Vermont will have adequate notice to seek a hearing on the request. And in any event, as the Board recognized, "[t]his condition does not impose any additional administrative burden because Entergy is already required by the regulations to notify Vermont of any request to amend the Vermont Yankee license." LBP-15-28, 82 NRC at 243 (citing 10 C.F.R. § 50.91(b)(1)).

<sup>33</sup> Staff Motion at 8 (citing *San Onofre*, CLI-13-9, 78 NRC at 558 n.26; *San Onofre*, CLI-13-10, 78 NRC at 568 n.35).

Entergy will submit another license amendment request similar to the September 2014 request and, in any case, any future license amendment request would trigger an opportunity for a hearing and thus allow for review.<sup>34</sup>

As we have previously noted, the “capable of repetition, yet evading review” exception “applies only to cases in which both the challenged action was in its duration too short to be litigated, *and* there is a reasonable expectation that the same complaining party will be subject to the same action again.”<sup>35</sup> Here, however, a future license amendment request relating to the decommissioning trust fund would not be “too short in duration to be fully litigated prior to its cessation or expiration.”<sup>36</sup> As the Staff noted, if Entergy were to refile a similar license amendment request, it would trigger an opportunity for a hearing.<sup>37</sup> And because such an amendment would remain relevant throughout the decommissioning process (which, even if performed rapidly, will take years), this case is not one where the challenged action would be too short in duration to be subject to review.<sup>38</sup> With respect to whether there is a reasonable expectation that the same parties will be subject to the same action again, Entergy has represented in this case that it “currently has no plans to reinstate this license amendment proceeding at a future date.”<sup>39</sup> While it is possible that Entergy will resubmit its license amendment request at some point during the decommissioning period, we decline to look behind its representation today and speculate that it will do so. For these reasons, this case does not fit within the “capable of repetition, yet evading review” exception.

While unreviewed Board decisions do not create binding legal precedent, we nonetheless customarily vacate such decisions as a prudential matter when appellate review is cut short by mootness.<sup>40</sup> We see no reason to depart from

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<sup>34</sup> *Id.* (citing Motion to Withdraw at 5 (“Entergy currently has no plans to reinstate this license amendment proceeding at a future date.”)).

<sup>35</sup> *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), CLI-93-10, 37 NRC 192, 205 (1993); *see also San Onofre*, CLI-13-9, 78 NRC at 558 n.26; *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-8, 37 NRC 181, 185 (1993) (citing *Southern Pacific Terminal Co. v. Interstate Commerce Commission*, 219 U.S. 498, 515 (1911); *Securities and 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)).

<sup>36</sup> *Advanced Medical Systems*, CLI-93-8, 37 NRC at 187.

<sup>37</sup> Staff Motion at 8 & n.42 (citing Atomic Energy Act of 1954, as amended, § 189a, 42 U.S.C. § 2239(a)(1)(A)).

<sup>38</sup> Decommissioning activities at Vermont Yankee are expected to span approximately sixty years. Vermont Answer at 5 (citing Letter from Christopher J. Wamser, Entergy, to NRC Document Control Desk (Dec. 19, 2014), Enclosure, Post Shutdown Decommissioning Activities Report, at 8 (ADAMS Accession No. ML14357A110)); *see* 10 C.F.R. § 50.82(a)(3) (requiring completion of decommissioning within sixty years of permanent cessation of operations).

<sup>39</sup> Motion to Withdraw at 5.

<sup>40</sup> *See, e.g., San Onofre*, CLI-13-9, 78 NRC at 558.

our customary practice today. When vacating for mootness, we neither approve nor disapprove the underlying Board ruling; we therefore take no position on the Board's decision in LBP-15-24.<sup>41</sup>

### III. CONCLUSION

For the reasons set forth above, we *grant* the Staff's motion and *vacate* LBP-15-24 as moot.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 2d day of June 2016.

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<sup>41</sup> In other words, our decision to vacate LBP-15-24 “does not intimate any opinion on [its] soundness.” *San Onofre*, CLI-13-9, 78 NRC at 559 n.31 (citing *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-99-24, 50 NRC 219, 222 (1999) (quoting *Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-96-2, 43 NRC 13, 15 (1996))).



### Commissioner Baran, Dissenting

I respectfully dissent from the majority's decision.

Vacatur of the Board's decision serves no useful purpose in this case. The Board already terminated the proceeding in LBP-15-28. Unreviewed Board decisions, like the one the NRC Staff seeks to vacate here, do not create binding precedent. Regardless of whether LBP-15-24 is vacated, the decision will remain publicly available and its analysis and reasoning can be cited for its persuasive value.<sup>1</sup> And, as the majority notes, the Board's decision in LBP-15-28 will continue to bind the parties, and Entergy must comply with the conditions of withdrawal set forth in that decision.<sup>2</sup>

The NRC Staff makes no substantive argument for why vacatur is necessary or in any way desirable. The Staff merely cites prior Commission precedent for the general practice of vacating unreviewed Board decisions when they are later rendered moot and notes the "complexity of the issues raised in LBP-15-24."<sup>3</sup> But there is nothing inherently confusing about Board decisions in cases in which the parties vigorously dispute complex issues. Unnecessarily vacating the Board decision is more likely to cause confusion. Although the majority explains that the Commission is not taking a position on the merits of the Board's decision, vacatur will likely leave some with the misimpression that the Commission has concluded that the Board decision is somehow unsound.

I see no reason to continue the customary practice of vacating unreviewed Board decisions simply because the Commission has done so in the past. Rather than perpetuate this peculiar practice, I believe we should require a litigant seeking vacatur to demonstrate that it is actually warranted. Like federal courts, the Commission should consider the facts of each case and balance the equities in deciding whether to vacate a Board decision.<sup>4</sup>

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<sup>1</sup> See Majority Decision at p. 468 (citing *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 559 (2013)).

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

<sup>3</sup> Staff Motion at 9.

<sup>4</sup> See *U.S. Bancorp Mortgage Co. v. Bonner Mall Partnership*, 513 U.S. 18, 24-25 (1994) (emphasizing the equitable nature of a vacatur determination).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket Nos. 50-275  
50-323**

**PACIFIC GAS AND ELECTRIC  
COMPANY  
(Diablo Canyon Nuclear Power  
Plant, Units 1 and 2)**

**June 2, 2016**

**HEARING RIGHTS: LICENSE AMENDMENTS**

An agency action that has the effect of amending a license, whether or not formally designated a “license amendment,” carries with it the opportunity to request a hearing. *Citizens Awareness Network, Inc. v. NRC*, 59 F.3d 284, 295 (1st Cir. 1995).

**HEARING RIGHTS: LICENSE AMENDMENTS**

An agency action not formally labeled a license amendment could constitute a *de facto* license amendment and trigger hearing rights under Atomic Energy Act section 189a if that action “(1) granted the licensee any greater authority or (2) otherwise altered the original terms of the license. *Omaha Public Power District* (Fort Calhoun Station, Unit 1), CLI-15-5, 81 NRC 329, 334 (2015); *see also Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-96-13, 44 NRC 315, 326 (1996) (recognizing that courts have found a section 189a hearing right where the NRC action “grant[ed] the licensee . . . ‘greater operating authority’ or otherwise ‘altered the original terms of a license’” (internal citations omitted)).

## LICENSE AMENDMENTS

Ongoing oversight — including oversight that may eventually result in a licensee requesting to amend an operating license — does not constitute a license amendment “proceeding” that triggers hearing rights. *Fort Calhoun*, CLI-15-5, 81 NRC at 338.

## LICENSE AMENDMENTS

Whereas a series of Staff actions, taken together, could constitute a *de facto* license amendment, the increase in the licensee’s operating authority or change in the terms of a license must be complete or have taken effect. Petitioner’s argument that a change is under way or in process would effectively require a hearing on a host of ongoing Staff oversight activities.

## HEARING RIGHTS: LICENSE AMENDMENTS

Staff information-gathering activities and plant performance evaluations do not provide a basis for a public hearing opportunity.

## MEMORANDUM AND ORDER

In May 2015 we referred to the Atomic Safety and Licensing Board Friends of the Earth’s claim that the NRC has informally, or “*de facto*,” amended the operating licenses of Diablo Canyon Nuclear Power Plant, Units 1 and 2.<sup>1</sup> In LBP-15-27 the Board held that Friends of the Earth had not identified a *de facto* license amendment proceeding and denied its hearing request.<sup>2</sup> Friends of the Earth now appeals.<sup>3</sup> As discussed below, we affirm the Board’s decision.

### I. BACKGROUND

#### A. Jurisprudence Associated with Asserted *De Facto* License Amendments

Friends of the Earth argues that a series of actions by Pacific Gas & Electric

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<sup>1</sup> CLI-15-14, 81 NRC 729, 730 (2015); *see* Petition to Intervene and Request for Hearing by Friends of the Earth (Aug. 26, 2014) (Hearing Request).

<sup>2</sup> LBP-15-27, 82 NRC 184 (2015).

<sup>3</sup> Friends of the Earth’s Notice of Appeal of LBP-15-27 (Oct. 23, 2015); Brief of Friends of the Earth in Support of Appeal of LBP-15-27 (Oct. 23, 2015) (FOE Appeal).

Company (PG&E) and the NRC Staff, taken in response to the discovery of the Shoreline Fault near Diablo Canyon, have changed the plant's licensing basis and thereby effected a "*de facto* license amendment."<sup>4</sup> The Staff and PG&E both argue that none of the challenged activities, consisting of evaluations, related correspondence, and a revision to PG&E's updated final safety analysis report (UFSAR), has either granted PG&E greater operating authority or altered the terms of the operating licenses for Diablo Canyon.<sup>5</sup>

Section 189a of the Atomic Energy Act of 1954, as amended, provides for the opportunity to request a hearing in any proceeding "for the granting, suspending, revoking, or amending of any license."<sup>6</sup> An agency action that has the effect of amending a license, whether or not formally designated a "license amendment," carries with it the opportunity to request a hearing.<sup>7</sup> Our case law acknowledges that an agency action not formally labeled a license amendment could constitute a *de facto* license amendment and trigger hearing rights under Atomic Energy Act § 189a if that action "(1) granted the licensee any greater authority or (2) otherwise altered the original terms of the license."<sup>8</sup>

We have recently clarified and expanded upon our jurisprudence relating to asserted *de facto* license amendments. In *Fort Calhoun* we observed that regulatory oversight activities such as "inspection results, administrative and enforcement actions, informational meetings, and technical reports and memoranda" supported "ongoing Staff oversight activities performed to ensure compliance" with requirements and a plant's current licensing basis.<sup>9</sup> Therefore, ongoing oversight — including oversight that may eventually result in a licensee requesting to amend an operating license — does not constitute a license amendment "proceeding" that triggers hearing rights.<sup>10</sup> Moreover, the prospect of a future license amendment

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<sup>4</sup> See, e.g., FOE Appeal at 2.

<sup>5</sup> See NRC Staff Answer to Petition to Intervene and Request for Hearing by Friends of the Earth (Oct. 6, 2014) at 22-38 (Staff Answer); Pacific Gas and Electric Company's Answer to Friends of the Earth Hearing Request (Oct. 6, 2014) at 17-23 (PG&E Answer); see also NRC Staff Brief in Opposition to Friends of the Earth Appeal of LBP-15-27 (Nov. 17, 2015) (Staff Appeal Brief); Pacific Gas & Electric Company's Response to Friends of the Earth's Appeal of LBP-15-27 (Nov. 17, 2015) (PG&E Appeal Brief).

<sup>6</sup> Atomic Energy Act of 1954, § 189a, 42 U.S.C. § 2239a.

<sup>7</sup> See *Citizens Awareness Network, Inc. v. NRC*, 59 F.3d 284, 295 (1st Cir. 1995).

<sup>8</sup> *Omaha Public Power District* (Fort Calhoun Station, Unit 1), CLI-15-5, 81 NRC 329, 334 (2015); see also *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-96-13, 44 NRC 315, 326 (1996) (recognizing that courts have found a section 189a hearing right where the NRC action "grant[ed] the licensee . . . 'greater operating authority' or otherwise 'altered the original terms of a license'" (internal citations omitted)).

<sup>9</sup> *Fort Calhoun*, CLI-15-5, 81 NRC at 338; see also *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant), CLI-14-11, 80 NRC 167, 174 (2014).

<sup>10</sup> *Fort Calhoun*, CLI-15-5, 81 NRC at 334.

does not create a present hearing opportunity.<sup>11</sup> Instead, concerns involving such ongoing oversight activities are appropriately raised via a request for enforcement action under 10 C.F.R. § 2.206.<sup>12</sup>

And in *St. Lucie*, we rejected a petitioner’s argument that a series of NRC Staff oversight activities constituted an ongoing *de facto* license amendment proceeding. In that case, the petitioner relied on a series of communications (associated with replacement of a steam generator) that pertained to the NRC’s oversight of the facility.<sup>13</sup> At bottom, we declined to accept the premise that each cited item was an element of a single licensing action. Rather, the communications pertained to ongoing oversight activities and did not approve or authorize any change to the license.<sup>14</sup> Although our ruling in *St. Lucie* was grounded in timeliness,<sup>15</sup> we emphasized that the proper avenue to challenge licensee actions (in that case, made under 10 C.F.R. § 50.59) is likewise through a petition under 10 C.F.R. § 2.206.<sup>16</sup> These decisions inform our analysis here.

## **B. Events Leading to Friends of the Earth’s Hearing Request**

Friends of the Earth raises challenges associated with recent ongoing activities related to the seismic qualification of Diablo Canyon. We briefly described Diablo Canyon’s complex history with respect to its seismic design basis in CLI-15-14.<sup>17</sup> As relevant here, the construction permits for Diablo Canyon were issued in 1968 and 1970 and therefore predated the current NRC regulations governing seismic design in 10 C.F.R. Part 100, Appendix A.<sup>18</sup> Diablo Canyon was originally designed to withstand both a “design earthquake,” which was thought to be the largest earthquake expected to occur during the life of the facility, and a “double design earthquake,” which doubled the expected ground motions of the design

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<sup>11</sup> *Id.* at 338.

<sup>12</sup> *Id.* at 336.

<sup>13</sup> *St. Lucie*, CLI-14-11, 80 NRC at 174-75.

<sup>14</sup> *Id.* at 175.

<sup>15</sup> We rejected the hearing request in *St. Lucie* because it was not filed within 60 days of a licensing action that provided an opportunity to request a hearing. *Id.* at 172-75.

<sup>16</sup> *Id.* at 175; see CLI-15-14, 81 NRC at 734-35 (emphasizing in the context of this referral “that claims regarding inadequacies in a licensee’s technical evaluation or noncompliance with its license, standing alone, do not suffice to identify an activity that may constitute a license amendment”).

<sup>17</sup> CLI-15-14, 81 NRC at 731-32.

<sup>18</sup> See Office of Nuclear Reactor Regulation, NRC, Safety Evaluation of the Diablo Canyon Nuclear Power Stations Units 1 and 2 (Supp. 7 May 1978), at 1-2 (ADAMS Accession No. ML14279A129) (SSER 7); Atomic Energy Commission, Part 50 — Licensing of Production and Utilization Facilities, Part 100 — Reactor Site Criteria Seismic and Geologic Siting Criteria, 38 Fed. Reg. 31,279 (Nov. 13, 1973), as amended at 38 Fed. Reg. 32,575 (Nov. 27, 1973).

earthquake to add a safety margin.<sup>19</sup> After construction began, the Hosgri Fault was discovered a few miles off the coast of the Diablo Canyon site, which necessitated plant modifications and reanalysis before NRC could approve the operating licenses.<sup>20</sup> The NRC determined that the plant should be reevaluated assuming a magnitude 7.5 earthquake along the Hosgri Fault.<sup>21</sup> Litigation during the operating license phase confirmed that the plant would survive the seismic loads associated with such an event.<sup>22</sup> As a result, Diablo Canyon has three design basis earthquakes: the original Design Earthquake, the Double Design Earthquake, and the Hosgri Earthquake.<sup>23</sup>

A license condition required PG&E to develop and implement a program to reevaluate the seismic design bases used for Diablo Canyon.<sup>24</sup> PG&E developed a program, called the Long-Term Seismic Program, or LTSP, and it reported its results to the NRC in 1988.<sup>25</sup> The Staff's 1991 Supplemental Safety Evaluation Report found that, subject to a confirmatory item, PG&E had satisfied the license condition, that the plant's seismic qualification basis would continue to be the "original design basis plus the Hosgri evaluation basis," and that future plant modifications would be reviewed in light of the higher LTSP spectra.<sup>26</sup>

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<sup>19</sup> SSER 7 at 1-2, 2-3 to 2-4.

<sup>20</sup> *Id.* at 1-2 to 1-4, ch. 3.

<sup>21</sup> *Id.* at 1-3; *see also* "Safety Evaluation Report Related to the Operation of Diablo Canyon Nuclear Power Plant," NUREG-0675, Supplement 34 (June 1991), § 1.1, at 1-2 (ADAMS Accession No. ML14279A130) (SSER 34).

<sup>22</sup> *See* LBP-79-26, 10 NRC 453, 485, 507 (1979), *aff'd*, ALAB-644, 13 NRC 903 (1981); *id.* at 485 (concluding, among other things, that "the requirement imposed by the Staff that a 7.5 magnitude earthquake be used by [PG&E] in its seismic analysis is reasonable and meets regulatory requirements"). The Appeal Board's decision both affirmed the Board's decision and ruled on evidence taken after the record was reopened following the 1979 Imperial Valley earthquake (approximately 250 miles southeast of the Diablo Canyon site). ALAB-644, 13 NRC at 923-89.

<sup>23</sup> *See* SSER 7 at 2-3. In SSER 7, the Staff explained that it considered the "Hosgri event" (Hosgri Earthquake) as Diablo Canyon's safe shutdown earthquake "or its equivalent," while PG&E considered the Double Design Earthquake as the equivalent of the safe shutdown earthquake. *Id.* at 2-3 to 2-4. The Staff observed, "[t]his disagreement over which event is the safe shutdown earthquake has no bearing on plant safety since, whatever name is assigned to the event, we require that the plant design be shown to be adequate for the Hosgri event and the applicant is proceeding with the work necessary to demonstrate this." *Id.* at 2-4.

<sup>24</sup> *See* "Pacific Gas and Electric Company, Diablo Canyon Nuclear Power Plant, Unit 1, Docket No. 50-275," Facility Operating License, at 7 (ADAMS Accession No. ML053140349).

<sup>25</sup> *See* SSER 34, § 1.2, at 1-4.

<sup>26</sup> SSER 34, § 1.4, at 1-7. The Staff required PG&E to perform confirmatory analyses to assure that the seismic margins were acceptable to accommodate the Staff's higher estimates for 84th percentile vertical ground motions over the 1 to 10 Hz frequency range. *Id.* at 1-5 to 1-7.

PG&E also committed to continue to study seismic issues around Diablo Canyon.<sup>27</sup>

In 2008, a previously unknown fault, now designated the Shoreline Fault, was discovered near the Diablo Canyon plant as a result of PG&E's ongoing activities under the LTSP.<sup>28</sup> PG&E's analysis concluded that the postulated peak ground motions from the Shoreline fault would not exceed the ground motions already evaluated.<sup>29</sup> The NRC Staff then performed a confirmatory analysis of PG&E's new data to determine whether a safety concern existed as a result of the identification of the Shoreline Fault.<sup>30</sup> The Staff's confirmatory evaluation, set forth in Research Information Letter 12-01, found that "potential ground motions from the Shoreline fault are bounded by the ground motions for which [Diablo Canyon] has been previously analyzed and shown to have an adequate safety margin."<sup>31</sup> In particular, the Staff concluded that the deterministic seismic-loading levels predicted for the analyzed Shoreline Fault earthquake scenarios are at or below those levels for the previously evaluated Hosgri earthquake and LTSP ground motions.<sup>32</sup>

In March 2012 — independent of its review of PG&E's Shoreline Fault Report — the NRC Staff issued a request for information to all reactor licensees, including PG&E, calling for (among other things) seismic hazard reevaluations in response to recommendations of the NRC's Near-Term Task Force review of the accident at Fukushima Dai-ichi.<sup>33</sup> This request, issued pursuant to 10 C.F.R. § 50.54(f), detailed a two-phase approach for all licensees to reevaluate seismic hazards at their facilities.

In an October 12, 2012, letter to PG&E, the Staff explained how it expected

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<sup>27</sup> See SSER 34, § 2.5.2.4, at 2-49. Specifically, PG&E committed to continue to maintain a "strong geosciences and engineering staff" and to continue to operate a strong-motion accelerometer array in support of its studies.

<sup>28</sup> PG&E, "Report on the Analysis of the Shoreline Fault Zone, Central Coastal California: Report to the U.S. Nuclear Regulatory Commission (Jan. 2011), at ES-1 (ADAMS Accession No. ML110140431 (package)) (PG&E Shoreline Fault Report); see PG&E Appeal Brief at 3.

<sup>29</sup> See PG&E Shoreline Fault Report at ES-1 to ES-2, A2-18.

<sup>30</sup> "Confirmatory Analysis of Seismic Hazard at the Diablo Canyon Power Plant from the Shoreline Fault Zone," Research Information Letter 12-01 (Sept. 2012) (ADAMS Accession No. ML121230035) (Research Information Letter 12-01).

<sup>31</sup> *Id.* at 95.

<sup>32</sup> See *id.* at 60.

<sup>33</sup> See Letter from NRC to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status (Mar. 12, 2012) (ADAMS Accession No. ML12053A340) (requesting information pursuant to 10 C.F.R. § 50.54(f) regarding recommendations 2.1, 2.3, and 9.3 of the Near-Term Task Force Review of insights from the Fukushima Dai-ichi accident) (Section 50.54(f) Request); Staff Requirements — SECY-11-0124 — Recommended Actions to be Taken Without Delay from the Near-Term Task Force Report (Oct. 18, 2011) (ADAMS Accession No. ML112911571).

PG&E to proceed in analyzing new seismic data.<sup>34</sup> The letter summarized the results of the Staff's analysis, documented in Research Information Letter 12-01, that the Shoreline Fault should be considered a "lesser included case" under the Hosgri Earthquake evaluation and advised PG&E to update its FSAR to include the Shoreline scenario "in accordance with the requirements of 10 CFR 50.71(e)."<sup>35</sup> With respect to the Section 50.54(f) Request, the Staff stated that PG&E should use the Double Design Earthquake in preparing its response.<sup>36</sup>

While the activities discussed above were ongoing, PG&E filed, and then withdrew, a license amendment request related to seismic issues. In 2011 — during the period that the Staff was conducting its analysis of the Shoreline Fault — PG&E requested a license amendment that would:

(1) clearly define an evaluation process for newly identified seismic information and incorporate ongoing commitments associated with the Long Term Seismic Program (LTSP) into the [Updated Final Safety Analysis Report]; and (2) clarify, consistent with the NRC Supplemental Safety Evaluation Report 7, that the 1977 Hosgri earthquake is the equivalent of [Diablo Canyon's] safe shutdown earthquake, as defined in 10 CFR 100, Appendix A,<sup>37</sup> and (3) use the square-root-of-the-sum-of-squares (SRSS) method for the evaluations of load combinations.<sup>38</sup>

In October 2012, PG&E withdrew this license amendment request.<sup>39</sup> PG&E stated that the Staff's Section 50.54(f) Request established "an evaluation process" for new seismic information, which eliminated the need for the plant-specific

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<sup>34</sup> Letter from Joseph Sebrosky, NRC, to Edward Halpin, PG&E (Oct. 12, 2012) (ADAMS Accession No. ML120730106) (regarding Diablo Canyon Power Plant, Unit Nos. 1 and 2 — NRC Review of Shoreline Fault) (October 12, 2012, Letter).

<sup>35</sup> *Id.* at 2; *see also* Research Information Letter 12-01 at xii-xiii.

<sup>36</sup> October 12, 2012, Letter at 3-4 (citing "Diablo Canyon Power Plant Units 1 and 2, Final Safety Analysis Report Update," rev. 20 (Nov. 2011) (ADAMS Accession No. ML15009A024) (UFSAR Revision 20)) ("The NRC staff expects that [PG&E's] response to the [Section 50.54(f) Request] will compare the updated probabilistic ground motion . . . with the ground motion in the plant's current licensing basis that is stated as the equivalent of the [safe shutdown earthquake]. Consistent with [FSAR Revision 20] the [Double Design Earthquake] is the equivalent of the [safe shutdown earthquake] at [Diablo Canyon].").

<sup>37</sup> *See supra* note 23; SSER 7 at 2-3 to 2-4.

<sup>38</sup> Letter DCL-11-097 from James Becker, PG&E to NRC Document Control Desk (Oct. 20, 2011) (ADAMS Accession No. ML11312A166), encl., "Evaluation of the Proposed Change" (regarding License Amendment Request 11-05, "Evaluation Process for New Seismic Information and Clarifying the Diablo Canyon Power Plant Safe Shutdown Earthquake")) (License Amendment Request 11-05).

<sup>39</sup> Letter DCL-12-108 from Barry Allen, PG&E, to NRC Document Control Desk (Oct. 25, 2012) (ADAMS Accession No. ML12300A105) (regarding withdrawal of License Amendment Request 11-05) (License Amendment Request Withdrawal).



evaluation process it had sought with the license amendment request.<sup>40</sup> PG&E further stated that it would update the UFSAR as necessary to reflect the Staff's conclusion "that the Shoreline scenario should be considered as a lesser included case under the [Hosgri Earthquake evaluation] . . . in accordance with the requirements of 10 CFR 50.71(e)."<sup>41</sup> And with respect to the request for approval to use the SRSS method for evaluating seismic load combinations, PG&E stated that it was continuing to review whether a license amendment was necessary and that it might submit a new license amendment request in the future.<sup>42</sup>

PG&E submitted the twenty-first update to its FSAR in September 2013.<sup>43</sup> The revision included changes to the geology and seismology discussion in Chapter 2 and the seismic design section of Chapter 3 that clarified the plant's licensing history with respect to the Hosgri evaluation and the LTSP, and it summarized the evaluations of the Shoreline fault.<sup>44</sup> A June 2014 internal NRC Staff memorandum — referred to in this proceeding as the "Bamford Memo" — confirmed that UFSAR Revision 21 included the information required by regulation to be included in FSAR updates.<sup>45</sup>

### C. Procedural Background

In August 2014, Friends of the Earth requested a hearing and proposed two contentions.<sup>46</sup> In Contention 1, Friends of the Earth argued that because the NRC was "conducting a *de facto* license amendment proceeding that has significant safety implications," Friends of the Earth was entitled to a public hearing under

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<sup>40</sup> *Id.* at 2.

<sup>41</sup> *Id.*; *see id.*, encl., "List of Regulatory Commitments," at 1 (Commitment 1).

<sup>42</sup> License Amendment Request Withdrawal at 2-3.

<sup>43</sup> "Diablo Canyon Power Plant Units 1 and 2 Final Safety Analysis Report Update," rev. 21 (Sept. 2013) (ADAMS Accession No. ML14269A007) (UFSAR Revision 21).

<sup>44</sup> *Compare* UFSAR Revision 21, § 2.5, at 2.5-1, 2.5-61 to -66, *with* UFSAR Revision 20, § 2.5, at 2.5-57 to -64, 2.5-73. UFSAR Revision 21 also reflected thirteen changes incorporated into the FSAR as a result of evaluations performed under 10 C.F.R. § 50.59 and four changes incorporated into the FSAR as a result of license amendments. UFSAR Revision 21, encl. 1 (listing section 50.59 evaluations), encl. 2 (listing changes incorporated as a result of license amendments). Chapter 2 contains descriptions of the plant's site characteristics, and Chapter 3 concerns the design of structures, systems, equipment, and components.

<sup>45</sup> *See* Memorandum from Peter Bamford, NRC, to Michael Markley, NRC, "Diablo Canyon Power Plant, Units 1 and 2 — Review of Final Safety Analysis Report Update, Revision 21 (TAC Nos. MF2945 and MF2946)" (June 23, 2014) (ADAMS Accession No. ML14022A120).

<sup>46</sup> Friends of the Earth also requested that we empanel a Licensing Board to conduct an adjudicatory hearing regarding the ability of Diablo Canyon to be safely shut down in the event of an earthquake and that we order PG&E to suspend operations at Diablo Canyon pending a determination, following a hearing, that the plant can be safely operated. FOE Appeal at 4; Hearing Request at 7.

section 189a of the Atomic Energy Act.<sup>47</sup> In Contention 2, Friends of the Earth argued: “[the] NRC Staff’s determination that the new seismic information, including the Shoreline Earthquake and its effect on the San Luis Bay and Los Osos Faults, is a lesser-included case within the Hosgri Earthquake is [insufficient] to [ensure] that Diablo Canyon is operating safely with an adequate margin of safety.”<sup>48</sup>

Friends of the Earth cited four documents as evidence that the Staff has effectively allowed PG&E to alter the terms of its licenses. Its hearing request cited (1) the Section 50.54(f) Request; (2) Research Information Letter 12-01; and (3) the October 12, 2012, Letter.<sup>49</sup> And in its reply to the Staff and PG&E’s answers, Friends of the Earth argued for the first time that the Bamford Memo constituted Staff “approval” of the changes reflected in UFSAR Revision 21.<sup>50</sup>

We referred Friends of the Earth’s request to the Board in part for a determination as to “whether the NRC granted PG&E greater authority than that provided by its existing licenses or otherwise altered the terms of PG&E’s existing licenses” with respect to the seismic qualification of Diablo Canyon.<sup>51</sup> We also denied portions of Friends of the Earth’s request, and we referred portions of the request to the Executive Director for Operations for consideration of Friends of the Earth’s arguments under 10 C.F.R. § 2.206.<sup>52</sup>

Following the referral, Friends of the Earth supplemented its hearing request, arguing that the Staff’s actions pursuant to the Near-Term Task Force recommendations were part of a proceeding to informally amend the licenses.<sup>53</sup> In support, Friends of the Earth cited PG&E’s March 2015 Seismic Hazard Report (responding to the Staff’s Section 50.54(f) Request) and the Staff’s response to

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<sup>47</sup> Hearing Request at 29.

<sup>48</sup> *Id.* at 47.

<sup>49</sup> These three documents were discussed in the Hearing Request at 14-18, 21-22, 42, 49-53.

<sup>50</sup> Friends of the Earth’s Reply to NRC Staff’s and Pacific Gas & Electric Company’s Answers and Proposed Amicus Curiae Nuclear Energy Institute’s Brief in Response to Petition to Intervene and Request for Hearing” (Oct. 14, 2014) at 11-19.

<sup>51</sup> CLI-15-14, 81 NRC at 734. We directed that PG&E and the Staff be given the opportunity to address the claim regarding UFSAR Revision 21. *Id.* at 735.

<sup>52</sup> *Id.* at 737. We denied Friends of the Earth’s request for a hearing on operational safety and safe shutdown, and we declined its request to suspend operations. The concerns underlying these requests were likewise referred to the Executive Director for Operations for consideration under section 2.206. *Id.* at 736; *see also* Letter from Richard Ayres, Friends of the Earth, to Margaret Watford and Lisa Regner, Petition Managers, NRC (Feb. 8, 2016) (ADAMS Accession No. ML16040A221) (providing additional information in support of section 2.206 petition). The review of this petition is ongoing.

<sup>53</sup> Petitioner Friends of the Earth’s Motion to Allow Supplemental Briefing (June 5, 2015), Petitioner Friends of the Earth’s Supplemental Brief (June 19, 2015) (FOE Supplemental Brief); *see also* Pacific Gas & Electric Company’s Response to FOE’s Supplemental Brief (June 26, 2015) (PG&E Response to FOE Supplemental Brief), NRC Staff’s Response to Friends of the Earth’s Supplemental Brief (June 26, 2015).

licensees regarding the section 50.54(f) evaluations (referred to as the “Screen-In Letter”).<sup>54</sup> Friends of the Earth argued that the Seismic Hazard Report showed that Diablo Canyon “could not comply with its seismic design basis” and that the Staff’s Screen-In Letter had modified the license by authorizing the plants’ “continued operation” for 2 years while PG&E performs additional evaluations.<sup>55</sup> Similarly, Friends of the Earth claimed that a December 2014 inspection report “approved” a PG&E operability determination, thereby modifying the licenses by allowing the plant to continue operating when, in Friends of the Earth’s view, it should have been shut down.<sup>56</sup>

After taking supplemental briefs and hearing oral argument, the Board found that Friends of the Earth had not shown any *de facto* amendment of PG&E’s licenses.<sup>57</sup> The Board considered each of the documents that Friends of the Earth cited in support of its claims and concluded that none had expanded PG&E’s operating authority or altered the terms of the licenses. Because the Board found that no license amendment had been approved by the NRC, and therefore that Friends of the Earth had not established a right to request a hearing, it did not reach the question of the admissibility of Contention 2.<sup>58</sup> Friends of the Earth’s appeal followed.<sup>59</sup>

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<sup>54</sup> FOE Supplemental Brief (citing Letter DCL-15-035 from Barry Allen, PG&E, to NRC Document Control Desk (Mar. 11, 2015) (ADAMS Accession No. ML15070A607) (March 2015 Seismic Hazard Report) (transmitting encl. 1, “Seismic Hazard and Screening Report”)); *see* Letter from William Dean, NRC, to Mark Reddeman, Energy Northwest, Edward Halpin, PG&E, and Randall Edington, Arizona Public Service Co. (May 13, 2015) (ADAMS Accession No. ML15113B344) (Screen-In Letter).

<sup>55</sup> FOE Supplemental Brief at 6-8.

<sup>56</sup> *Id.* at 18-20; *see* Letter from Wayne Walker, NRC, to Edward Halpin, PG&E (Dec. 15, 2014) (ADAMS Accession No. ML14349A485) (December 2014 Inspection Report).

<sup>57</sup> LBP-15-27, 82 NRC at 190, 192-98; *see also* NRC Staff Answer to Friends of the Earth’s De Facto License Amendment Claims Related to PG&E’s Updated Final Safety Analysis Report, Revision 21 (June 15, 2015); Pacific Gas & Electric Company’s Supplemental Brief Regarding UFSAR Revision 21 (June 15, 2015).

<sup>58</sup> LBP-15-27, 82 NRC at 190-91. Nor did the Board reach the question of Friends of the Earth’s standing. *Id.* at 189. Because we affirm the Board’s decision on Friends of the Earth’s Contention 1, we likewise reach neither issue.

<sup>59</sup> After briefing on its appeal was completed, Friends of the Earth submitted a letter arguing that a November 2015 inspection report (issued subsequent to the Board’s ruling) provides additional support for its claims. Letter from Richard Ayres, Friends of the Earth, to Commissioners, NRC (Jan. 14, 2016) (regarding “Recent NRC Staff Inspection Report Relevant to Diablo Canyon Power Plant De Facto License Amendment Proceeding, Docket Nos. 50-275 and 50-323”) (FOE Supplement to Appeal). Friends of the Earth’s letter did not address the good cause factors for supplementing a hearing request found in 10 C.F.R. § 2.309(c). The particular inspection finding that Friends of the Earth points to relates to PG&E’s continued assessment of the SRSS method for evaluating load combinations. *See* Letter from Richard Smith, NRC, to Edward Halpin, PG&E (Nov. 13, 2015),

(Continued)

## II. DISCUSSION

### A. Standard of Review

Friends of the Earth appeals the denial of its hearing request under 10 C.F.R. § 2.311(c).<sup>60</sup> Absent error of law or abuse of discretion, we give “substantial deference” to the Board’s rulings on threshold procedural matters such as standing and contention admissibility.<sup>61</sup> We referred this matter to the Board with a clear description of the applicable law.<sup>62</sup> As explained below, the Board’s conclusions reflect no error of law or abuse of discretion, and we affirm its decision.

### B. The Board’s Decision

The Board found that none of the communications and other documents Friends of the Earth cited in its hearing request or supplemental brief had the effect of granting PG&E greater operating authority or otherwise altering the terms of the licenses and therefore determined that Friends of the Earth was not entitled to an opportunity to request a hearing under Atomic Energy Act section 189a.<sup>63</sup> The Board began its analysis by recognizing that hearing rights may be triggered when “the substance of an NRC action, while not formally labeled a license amendment, in effect accomplishes the same thing.”<sup>64</sup> The Board recognized that a petitioner cannot create the opportunity for a hearing simply by claiming that a licensee is operating in violation of its license: “[s]uch claims are appropriately raised in a petition to initiate an enforcement proceeding under 10 C.F.R. § 2.206.”<sup>65</sup> The Board also held that a change must have the Staff’s approval in order to constitute a *de facto* license amendment, but not every Staff approval constitutes a license amendment.<sup>66</sup>

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encl. at 11 (ADAMS Accession No. ML15317A216) (November 2015 Inspection Report). Although it is improper for Friends of the Earth to supplement its petition or otherwise raise new issues on appeal, we have considered Friends of the Earth’s letter, as well as PG&E’s response to it, as a matter of discretion. *See* Letter from David Repka, Winston & Strawn, to the Commission (Feb. 9, 2016) (Response to Friends of the Earth letter dated January 14, 2016). For further discussion of the inspection report, *see* Section II.C.5, *infra*.

<sup>60</sup> Section 2.311(c) provides, as relevant here, that an order denying a request for hearing is appealable as to the question whether the hearing request should have been granted.

<sup>61</sup> *See, e.g., AmerGen Energy Co. LLC* (Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC 111, 121 (2006).

<sup>62</sup> CLI-15-14, 81 NRC at 734-35.

<sup>63</sup> LBP-15-27, 82 NRC at 198.

<sup>64</sup> *Id.* at 191.

<sup>65</sup> *Id.* at 192.

<sup>66</sup> *Id.* at 191 & n.41 (citing *Perry*, CLI-96-13, 44 NRC at 328).

The Board then examined each of the documents Friends of the Earth cited in its hearing request and concluded that none of the documents effected or evidenced a change in the operating authority or terms of PG&E's licenses. With respect to the Staff's Section 50.54(f) Request, the Board observed that the stated purpose of the request was to "provide additional information to enable the NRC to determine whether future changes to any of the plants' design bases might be warranted," and the letter explicitly stated that the evaluations provided in response would "not revise the design basis of the plant."<sup>67</sup> Noting that our case law does not provide for an adjudicatory hearing based on "speculative changes to a plant's licensing basis," the Board found no *de facto* amendment from the Section 50.54(f) Request.<sup>68</sup> The Board next found that neither Research Information Letter 12-01 nor the October 12, 2012, Letter altered the Diablo Canyon licenses. The Board found that these documents were part of the Staff's regulatory oversight activities and did not give rise to a hearing opportunity.<sup>69</sup> Moreover, it found that the "Hosgri Earthquake has been an established part of the Diablo Canyon design basis since the facility began operation."<sup>70</sup> Further, the Board rejected the argument that the Staff approved a change in the licenses by accepting, via the Bamford Memo, UFSAR Revision 21. The Board explained that an FSAR update is a "reporting requirement," which the Staff reviews for completeness and timeliness, not for substance.<sup>71</sup> Any unauthorized substantive changes in the FSAR "would be a matter for NRC oversight, not for adjudication."<sup>72</sup>

The Board also found the claims in Friends of the Earth's supplemental brief to be unpersuasive.<sup>73</sup> The Board found that PG&E's Seismic Hazards Report, standing alone, could not be a license amendment because a licensee cannot grant itself a license amendment.<sup>74</sup> Moreover, the Staff's Screen-In Letter — which was addressed to a group of power reactor licensees — had not approved a change in any of the licenses; rather, it described the next steps in an ongoing oversight process relating to the agency's post-Fukushima activities.<sup>75</sup> The Board observed that the Screen-In Letter acknowledges that the evaluations might eventually require amendments to affected licenses but that the "mere possibility of a future

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<sup>67</sup> *Id.* at 193.

<sup>68</sup> *Id.* (citing *Fort Calhoun*, CLI-15-5, 81 NRC at 338).

<sup>69</sup> *Id.* at 193-95.

<sup>70</sup> *Id.* at 194.

<sup>71</sup> *Id.* at 195-96.

<sup>72</sup> *Id.* at 196.

<sup>73</sup> The Board noted that there was a "substantial question" whether any of the matters in the supplemental brief were within the scope of the referral. Because it found the arguments substantively unpersuasive, however, it did not address this question. *Id.* at 196 n.71.

<sup>74</sup> *Id.* at 197-98.

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

license amendment . . . does not trigger a hearing opportunity today.”<sup>76</sup> And finally, the Board rejected Friends of the Earth’s arguments with respect to the Staff’s December 2014 inspection report because Staff oversight activities “ensure compliance with existing requirements” and are distinct from processes that could authorize such a change.<sup>77</sup>

### **C. Friends of the Earth’s Appeal**

This dispute centers around Friends of the Earth’s argument that, since the discovery of the Shoreline Fault, PG&E and the Staff have engaged in a series of actions that have revised the Diablo Canyon licenses to allow continued plant operation despite “potentially more powerful faulting” offshore from the plant.<sup>78</sup> More specifically, Friends of the Earth argues that PG&E and the Staff have improperly “added” the Hosgri Earthquake evaluation to the Diablo Canyon licensing basis by virtue of several asserted actions memorialized in a series of documents presented to the Board. Central to Friends of the Earth’s claims is that the Hosgri Earthquake evaluation involved less conservative methods for evaluating seismic risk than have previously been used.

To resolve this dispute, the Board closely parsed these documents; we consider the Board’s assessment below. We conclude that the Board did not err in its assessment. No license amendment has taken place — the Hosgri evaluation has been part of the plant’s seismic design and licensing bases for many years — well prior to the Shoreline Fault analyses that have been performed since 2008 and well prior to the Staff’s current efforts related to seismic hazard reevaluation at all operating plant sites.

#### ***1. The Board Considered Whether There Was a “Proceeding” to Amend the Diablo Canyon Licenses***

Friends of the Earth views its *de facto* license amendment claim as positing a series of events that, taken together, have the effect of amending the Diablo Canyon operating licenses. Thus, it claims that the Board “failed to consider whether the Staff has engaged in a ‘proceeding’ to *de facto* amend Diablo Canyon’s licenses.”<sup>79</sup> In this vein, Friends of the Earth argues that the Board

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<sup>76</sup> *Id.* at 198; see Screen-In Letter at 1 (“The purpose of [the Section 50.54(f) Request] was to gather information concerning seismic hazards at operating reactor sites and to enable the NRC staff to determine whether licenses should be modified, suspended, or revoked.”).

<sup>77</sup> LBP-15-27, 82 NRC at 196-97.

<sup>78</sup> FOE Appeal at 2.

<sup>79</sup> FOE Appeal at 10, 29.

erroneously looked at each activity singly, rather than consider the total effect of the activities.

We disagree. The record reflects that the Board considered the total effect of the communications and activities to support its determination that “none involve[d] the NRC’s granting to PG&E greater authority than that provided by its existing licenses or otherwise altering their terms.”<sup>80</sup> The Board — consistent with our precedent — went on to discuss individually each document and Staff action that Friends of the Earth cited in its hearing request and supplemental filings and explained why each document neither accomplished a change in the license nor granted PG&E greater operating authority. The Board’s thoroughness in addressing each individual item does not undermine its broader conclusion that there has been no amendment to PG&E’s existing licenses. In fact, it serves to strengthen the Board’s conclusion.

Nor do we interpret the Board’s ruling to hold that a series of Staff actions, taken together, could not alter the terms of a license and constitute a *de facto* license amendment. But to support such a claim, a Staff action increasing the licensee’s operating authority or changing the terms of a license must be complete or have taken effect. Friends of the Earth’s argument that a change is under way would effectively require us to hold hearings on a host of ongoing Staff oversight activities that might, at some unspecified future time, lead to a license amendment. But as we have held, “NRC oversight activities gathering information about and evaluating plant performance” do not amend a license and therefore “cannot form the basis for the right to request a hearing.”<sup>81</sup> We find that the Board appropriately distinguished between the Staff’s oversight activities and the license amendment process. Friends of the Earth cannot erase this distinction by recasting oversight activities as a “process” for amending a license informally. To gain an adjudicatory hearing on a claim of a *de facto* license amendment, Friends of the Earth must show that an alteration in the license has taken place. It has not shown that the Board erred in its assessment of this issue.

## **2. The Staff Did Not “Approve” Changes to Diablo Canyon’s Licenses by “Accepting” UFSAR Revision 21**

Friends of the Earth argues that the Board erred when it found that the Staff had not approved changes contained in UFSAR Revision 21.<sup>82</sup> By way of background, the FSAR is part of the application for an operating license and must “include information that describes the facility, presents the design bases and the limits

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<sup>80</sup> LBP-15-27, 82 NRC at 192.

<sup>81</sup> *St. Lucie*, CLI-14-11, 80 NRC at 175.

<sup>82</sup> FOE Appeal at 10-14.

on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole.”<sup>83</sup> Each operating license holder must periodically update its FSAR, pursuant to 10 C.F.R. § 50.71(e), “to assure that the information included in the [FSAR] contains the latest information developed.”<sup>84</sup> Section 50.71(e) is a reporting requirement, intended “to insure that an updated FSAR will be available.”<sup>85</sup> At the time of section 50.71(e)’s implementation, the NRC made clear that “[s]ubmittal of updated FSAR pages does not constitute a licensing action but is only intended to provide information.”<sup>86</sup> And as the Staff observed before the Board, the Staff reviews FSAR updates submitted pursuant to section 50.71(e) only “as part of its oversight to ensure compliance with existing requirements.”<sup>87</sup>

The Board observed that section 50.71(e) does not provide for Staff “approval” of the revisions.<sup>88</sup> The Board concluded, in short, that the Staff’s acceptance of Revision 21 did not constitute a *de facto* license amendment because section 50.71(e) is only a reporting requirement that does not require Staff “approval.”<sup>89</sup> By the plain language of the regulation, an FSAR update must reflect both license amendments (which will have already undergone a formal approval process) and changes that fall under 10 C.F.R. § 50.59, which applies to those matters that do not require NRC Staff preapproval. Moreover, the Board observed that if the revision included any changes “without proper authorization or analysis, that would be a matter for NRC oversight, not for adjudication.”<sup>90</sup>

Friends of the Earth asserts that while it may normally be the case that the Staff does not review or approve FSAR updates, the Board disregarded the particular facts in this case.<sup>91</sup> We disagree. As an initial matter, as the Board observed,

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<sup>83</sup> 10 C.F.R. § 50.34(b); *see id.* §§ 50.34(b)(1)-(12) (setting forth contents of the FSAR); 50.4(b)(6) (requirements for submission of FSAR updates), 50.59(a)(4) (defining FSAR, as updated, as “the Final Safety Analysis Report . . . submitted in accordance with § 50.34, as amended and supplemented, and as updated per the requirements of § 50.71(e) or § 50.71(f), as applicable”).

<sup>84</sup> 10 C.F.R. § 50.71(e). Each FSAR update must include changes made via license amendment and changes made pursuant to 10 C.F.R. § 50.59. *Id.* § 50.71(e)(2). And it must contain certain changes to the quality assurance program description. *Id.* § 50.54(a)(3). The rule’s stated purpose is “to provide an updated reference document to be used in recurring safety analyses performed by the licensee, the Commission, and other interested parties. Final Rule: “Periodic Updating of Final Safety Analysis Reports,” 45 Fed. Reg. 30,614, 30,614 (May 9, 1980) (FSAR Update Final Rule).

<sup>85</sup> FSAR Update Final Rule, 45 Fed. Reg. at 30,615.

<sup>86</sup> *Id.* Further, the update “is not intended for the purpose of re-reviewing plants.” *Id.*

<sup>87</sup> Staff Brief on UFSAR Revision 21, at 4 (citing FSAR Update Final Rule, 45 Fed. Reg. at 30,615 (“The material submitted [under section 50.71(e)] may be reviewed by the NRC staff but will not be formally approved.”)).

<sup>88</sup> LBP-15-27, 82 NRC at 195 (citing 10 C.F.R. § 50.71(e)).

<sup>89</sup> *Id.*

<sup>90</sup> *Id.* at 196.

<sup>91</sup> FOE Appeal at 11-12.



the Staff's review of a UFSAR revision under section 50.71(e), standing alone, cannot constitute a *de facto* license amendment. And the Board's ruling that the Staff does not "approve" FSAR updates accurately reflects the operative regulation. Moreover, we are not persuaded by Friends of the Earth's assertion that, despite the Staff's normal practice of not "approving" FSAR updates, in this particular case the Staff endorsed the changes. The Bamford Memo is an internal Staff memorandum — not addressed to PG&E — that summarizes the update's contents.<sup>92</sup> The Bamford Memo does no more than confirm that UFSAR Revision 21 was timely submitted and appropriately discussed license amendments, inspection reports, and Licensee Event Reports, as required by section 50.71(e).

Friends of the Earth additionally points to a PG&E document — a "UFSAR change request" — and attaches significance to remarks in that request referring to NRC correspondence.<sup>93</sup> The request, which appears to be an internal PG&E form that is not submitted to the NRC (and thereby is not relevant to the agency's decisionmaking process), does not support Friends of the Earth's claim. References to NRC documents and correspondence in an internal PG&E document cannot, and do not, transform Revision 21 into a request for NRC approval, nor do they represent alterations to the license in and of themselves.<sup>94</sup> In short, nothing in the record reflects that PG&E requested, or the Staff approved, changes to the Diablo Canyon operating licenses in conjunction with UFSAR Revision 21.

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<sup>92</sup> See Bamford Memo at 1. The Bamford Memo is roughly akin to a short checklist, in that it simply memorializes the license amendments, inspection reports, and licensee event reports that affected the UFSAR during the update period.

<sup>93</sup> FOE Appeal at 13; see FOE Supplemental Brief, Exhibit 1, DCP Form 69-20108 UFSAR Change Request (June 9, 2013), at 102 (unnumbered) (ADAMS Accession No. ML15170A452) (UFSAR Change Request). The request notes that the proposed revisions to Revision 21 "involve changes to the UFSAR that explicitly identify the licensing basis design requirements and their bases submitted to, and approved by, the NRC in docketed correspondence," and that the changes "are derived from correspondence with the NRC, NRC regulatory documentation, and specific UFSAR text." *Id.* at 102. And a different page of the "change request" states that changes "explicitly identify the licensing basis design requirements" and "provide clarification." *Id.* at 101.

<sup>94</sup> See *St. Lucie*, CLI-14-11, 80 NRC at 173 (observing that "[a] licensee cannot amend the terms of its license unilaterally"). Friends of the Earth makes much of the comment in the change request that the update identifies licensing basis documents "submitted to, and approved by, the NRC in docketed correspondence." But section 50.71(e) requires this very information — the update must contain "all the changes necessary to reflect information and analyses submitted to the Commission by the . . . licensee or prepared by . . . the licensee pursuant to a Commission requirement since the submittal of the original FSAR, or as appropriate, the last update to the FSAR under this section," including evaluations performed by the licensee in support of "approved license amendments." To the extent that Revision 21 contained information "approved by" the NRC, we understand this reference to pertain to information that was previously approved via license amendments and not to approval of a revised seismic analysis, as Friends of the Earth suggests.

### 3. *The Board Did Not Err in Finding That the Hosgri Is a Design-Basis Earthquake*

Friends of the Earth next argues that, prior to UFSAR Revision 21, the Hosgri Earthquake evaluation “was not the plant’s safe shutdown earthquake and, therefore, was not part of its seismic design basis.”<sup>95</sup> Friends of the Earth therefore contends that the Board erred when it found that the Hosgri Earthquake has been part of the design basis “since the facility began operation.”<sup>96</sup> Friends of the Earth contends that nuclear power plants have only two design basis earthquakes — the operating basis earthquake and the safe shutdown earthquake.<sup>97</sup> It argues that the Hosgri Earthquake is neither of these and, prior to UFSAR Revision 21, the Hosgri Earthquake evaluation played a “lesser role,” such that it was not part of the plant’s design basis.<sup>98</sup>

The Board did not err in its determination that the Hosgri Earthquake has long been part of Diablo Canyon’s seismic design basis and was not “added” by UFSAR Revision 21 or any of the Staff’s and PG&E’s actions at issue here. Friends of the Earth misconstrues the changes made by UFSAR Revision 21. The Board’s conclusions regarding the Hosgri Earthquake are well supported by the record, including the extensive litigation over the plant’s capability to withstand a Hosgri Earthquake at the operating license stage and the Staff’s safety evaluations dating back to 1978.<sup>99</sup>

By definition, a plant’s “design bases” are those “values chosen for controlling parameters as reference bounds for design” and “requirements derived from analysis . . . of the effects of a postulated accident for which a structure, system, or component must meet its functional goals.”<sup>100</sup> Diablo Canyon was modified and qualified to withstand the higher ground acceleration produced by the Hosgri Earthquake, making such analyses and modifications by definition part of the plant’s design basis. Even prior to the clarification in UFSAR Revision 21, the FSAR described the Hosgri as the earthquake potentially producing the maximum ground motions at the site.<sup>101</sup> Therefore, the Board did not err in concluding that

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<sup>95</sup> FOE Appeal at 15.

<sup>96</sup> *Id.* at 15-21 (citing LBP-15-27, 82 NRC at 194, 197).

<sup>97</sup> *Id.* at 17, 18.

<sup>98</sup> *Id.* at 18.

<sup>99</sup> See LBP-15-27, 82 NRC at 194 (citing LBP-79-26, 10 NRC at 499; ALAB-644, 13 NRC at 923); *id.* at 194 n.56 (citing SSER 7 at 2-4; SSER 34 at 1-7).

<sup>100</sup> See 10 C.F.R. § 50.2.

<sup>101</sup> See, e.g., UFSAR Revision 20 at 2.5-58, 2.5-73, 3.7-1 to 3.7-2. Although these sections are included in Revision 20, some had not been changed throughout many FSAR updates. See, e.g., *id.* at 3.2-1 to 3.2-2 (footers indicate that the pages appeared in Revision 15, 2003).

Revision 21 did not “add” the Hosgri Earthquake to the plant’s seismic design basis.<sup>102</sup>

Nor does Friends of the Earth identify any change in UFSAR Revision 21 that revises the design basis of the plant. For example, Friends of the Earth points to changes in UFSAR § 2.5, “Geology and Seismology,” in support of its arguments that Revision 21 “inserts” the Hosgri Earthquake and the LTSP into the plant’s design basis.<sup>103</sup> But these changes simply described and clarified the history of the seismic investigations at Diablo Canyon.<sup>104</sup> On their face, these descriptions do not change the design basis of the plant. Moreover, Friends of the Earth acknowledges that UFSAR Revision 21 did not change FSAR statements that the “safe shutdown earthquake” of Appendix A is the equivalent of the Double Design Earthquake.<sup>105</sup> And with respect to the LTSP — which PG&E acknowledges is not part of the plant’s design basis — the discussion added in Revision 21 expressly states that the analysis did not “replace or modify” the Design, Double Design, and Hosgri Earthquakes (that is, the original design-basis earthquakes).<sup>106</sup> In short, Friends of the Earth does not show that UFSAR Revision 21 changed — or purported to change — the seismic design basis of Diablo Canyon.

#### ***4. Diablo Canyon’s Seismic Evaluations Have Not Amended the Licenses***

Friends of the Earth also claims that the Staff granted PG&E greater operating authority by permitting PG&E to assess new seismic information against the Hosgri Earthquake and the ground motions analyzed in the LTSP.<sup>107</sup> Friends of the Earth argues that prior to UFSAR Revision 21, the Double Design Earthquake was clearly Diablo Canyon’s “maximum earthquake.”<sup>108</sup> Therefore, it argues, PG&E must compare new seismic information to the Double Design Earthquake

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<sup>102</sup> In support of this argument Friends of the Earth also argues that the Board erred in relying on SSER 7 to find that the Hosgri Earthquake was part of the plant’s licensing basis, because that report was published prior to issuance of the operating licenses. FOE Appeal at 19. But the fact that the Staff considered the Hosgri Earthquake prior to issuing the licenses supports, rather than undermines, the claim that the Hosgri Earthquake has long been a part of Diablo Canyon’s design and licensing basis. See LBP-15-27, 82 NRC at 194 n.56 (citing SSER 7).

<sup>103</sup> FOE Appeal at 22-23.

<sup>104</sup> Compare UFSAR Revision 21, § 2.5, at 2.5-1, 2.5-61 to -66, with UFSAR Revision 20, § 2.5.2.9, at 2.5-57 to -64, 2.5-73.

<sup>105</sup> See FOE Appeal at 23 n.72 (citing FSAR Revision 21 at 3.2-1). The relevant section, which has not been revised since the fifteenth revision in 2003, explains that plant features important to safety have been analyzed against the Hosgri, Design, and Double Design earthquakes. Compare UFSAR Revision 21, § 3.2.1, with UFSAR Revision 20, § 3.2.1.

<sup>106</sup> UFSAR Revision 21, § 2.5.3.10.4, at 2.5-67.

<sup>107</sup> FOE Appeal at 21-24.

<sup>108</sup> *Id.* at 21.

and that comparing the Shoreline Fault risk to the Hosgri Earthquake or the 1991 LTSP evaluation reduces the safety margins and thereby alters the licensing basis of the plant.<sup>109</sup>

Here, Friends of the Earth conflates regulatory oversight with a licensing action. The Board found that the Staff's investigations of new seismic information, both in connection with its post-Fukushima activities and with the Diablo Canyon-specific analyses, were performed in the course of its regulatory oversight duties and did not affect the plant's licenses.<sup>110</sup> The Board correctly explained that the Staff's analysis documented in Research Information Letter 12-01 was performed to determine whether the plant could continue to operate safely and made "no conclusions whatsoever regarding the Diablo Canyon operating licenses."<sup>111</sup> The analyses comparing the potential hazard from the Shoreline Fault to the Hosgri evaluation did no more than confirm that Diablo Canyon is operating within its *existing* design and licensing bases.

Similarly, the Board did not err in finding that the Section 50.54(f) Request was undertaken as an exercise of the Staff's regulatory oversight.<sup>112</sup> Friends of the Earth has not demonstrated that gathering new information or reanalyzing existing information changes the operating authority of Diablo Canyon. Although the Section 50.54(f) Request directed licensees to conduct seismic hazard reevaluations using new information and updated methodologies, the request itself expressly stated that it did not alter the facilities' licensing bases.<sup>113</sup> The request explained that the purpose of gathering the information was to determine whether further regulatory action (which could include license modifications) would be needed.<sup>114</sup> In sum, the Board did not err in finding that the Staff did not amend the Diablo Canyon operating licenses when it directed PG&E to perform the seismic hazard reevaluation under section 50.54(f).

Likewise, Friends of the Earth argues that the Board erred in finding that the December 2014 Inspection Report did not constitute a *de facto* license amendment because the Board incorrectly concluded that an inspection report could never constitute a *de facto* amendment.<sup>115</sup> But Friends of the Earth's argument with respect to the December 2014 Inspection Report ultimately confuses oversight

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<sup>109</sup> *Id.* at 23-24.

<sup>110</sup> LBP-15-27, 82 NRC at 193-95 (concerning Research Information Letter 12-01 and the October 12, 2012, Letter).

<sup>111</sup> *Id.* at 193-94.

<sup>112</sup> *Id.* at 192 (characterizing section 50.54(f) requests issued to all power reactors as "requests for information to allow the NRC to determine whether, as to each facility, it should or should not require additional action").

<sup>113</sup> Section 50.54(f) Request at 4.

<sup>114</sup> *Id.* at 1, 3, 4; *see also id.*, encl. 1, at 1.

<sup>115</sup> FOE Appeal at 29.

with licensing. PG&E's operability determination does not purport to alter its design basis.<sup>116</sup> Nor does the Staff's finding of no violation constitute an approval of any change.<sup>117</sup> Thus we find no error in the Board's determination that the December 2014 Inspection Report did not constitute a *de facto* amendment.<sup>118</sup>

##### **5. *The Board Did Not Err in Its Assessment of License Amendment Request 11-05***

Finally, Friends of the Earth argues that the Board erred in its treatment of PG&E's filing and subsequent withdrawal of License Amendment Request 11-05. The Board stated that it attached "little if any significance" to the fact that PG&E applied for a license amendment and later withdrew the application.<sup>119</sup> Friends of the Earth argues that PG&E's "subjective belief" that a license amendment was needed to designate the Hosgri Earthquake as the plant's safe shutdown earthquake "is probative to this matter."<sup>120</sup>

We find no error in the Board's treatment of this issue. The critical inquiry is not what might have motivated PG&E to withdraw its license amendment request, but rather whether any changes that were proposed to be made through the request and that required a license amendment have been accomplished by some other means. The record reflects that the changes that would have been sought through the license amendment request have not otherwise occurred. First, the request would have established the Hosgri Earthquake as the "equivalent" of Diablo Canyon's safe shutdown earthquake as that term is defined in Part 100, Appendix A.<sup>121</sup> But as discussed above, UFSAR Revision 21, like the previous iterations of the FSAR, continues to state that the Double Design Earthquake is the equivalent of the safe shutdown earthquake for Diablo Canyon; thus, the change that would have been sought via the license amendment request has not been made via any other mechanism.<sup>122</sup>

Second, the request would have added to Diablo Canyon's technical specifications a new program describing a process for evaluating new seismic informa-

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<sup>116</sup> December 2014 Inspection Report, encl. at 3.

<sup>117</sup> *Id.*, encl. at 6.

<sup>118</sup> LBP-15-27, 82 NRC at 197.

<sup>119</sup> *Id.* at 191 n.39.

<sup>120</sup> FOE Appeal at 24-26.

<sup>121</sup> License Amendment Request 11-05, encl. at 2-3, 5, 16, 22.

<sup>122</sup> In accordance with its commitment in withdrawing the license amendment request, PG&E, in its response to the Staff's Section 50.54(f) Request, used the Double Design Earthquake as its safe shutdown earthquake to determine that the plant "screens in" for further evaluation. *See* March 2015 Seismic Hazards Report at 2-3.

tion.<sup>123</sup> In its withdrawal notice, PG&E represented that the license amendment request was no longer needed because the Staff's Section 50.54(f) Request had defined a process for reevaluating the current licensing bases using new information and current methodologies.<sup>124</sup> To be sure, the reevaluation itself may lead to further action — including amendments to Diablo Canyon's licenses or licensing basis.<sup>125</sup> If the reevaluations require a license amendment, as the Board observed, at that time the public — including Friends of the Earth — would have the opportunity to participate consistent with applicable rules.<sup>126</sup>

The third change PG&E sought in the license amendment request, concerning a change in methods for combining calculated loads, is under consideration in the section 50.59 process, but it has not been made. Friends of the Earth's supplemental letter addresses this issue. Particularly, Friends of the Earth argues, referencing a November 2015 inspection report, that the Staff has effectively amended the Diablo Canyon licenses by allowing the plant to continue to operate despite the fact that the Staff determined that PG&E had not adequately documented its section 50.59 evaluation with respect to the change of methods to calculate the loads.<sup>127</sup> The inspection report identified this performance deficiency as a Severity Level IV violation, which the Staff treated as a noncited violation; the issue was entered into PG&E's corrective action program and will be addressed by PG&E through a reevaluation of the methodology change; any required actions will thereafter be implemented.<sup>128</sup> Should PG&E determine that this change to the FSAR does not require an amendment, that determination may be challenged

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<sup>123</sup> License Amendment Request 11-05, encl. at 11.

<sup>124</sup> See License Amendment Request Withdrawal at 2. See Section 50.54(f) Request, encl. 1, at 4-5 (citing "A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion," Regulatory Guide 1.208 (Mar. 2007) (ADAMS Accession No. ML070310619); "An Approach to the Quantification of Seismic Margins in Nuclear Power Plants," NUREG/CR-4334 (Aug. 1985) (ADAMS Accession No. ML090500182)). Licensees were directed to "reevaluate the seismic hazard at their sites using updated seismic hazard information and present-day regulatory guidance and methodologies," using a probabilistic approach or a seismic margins assessment.

<sup>125</sup> In this vein, Friends of Earth claims that "[l]eaving Diablo Canyon's Technical Specifications unaltered in this case violates regulations requiring certain information, including an evaluation method for new seismic data, to be incorporated into the plant's Technical Specifications." FOE Appeal at 26; see License Amendment Request 11-05, Attachs. 1 & 2. Because the amendment to incorporate a process for the evaluation of new seismic information was not made, no changes to the Technical Specifications were made. And the Section 50.54(f) Request did not amend the plant licenses such that a technical specification change was needed.

<sup>126</sup> See LBP-15-27, 81 NRC at 192.

<sup>127</sup> FOE Supplement to Appeal at 2; see November 2015 Inspection Report at 11-12.

<sup>128</sup> November 2015 Inspection Report at 12, 13.

through a section 2.206 petition.<sup>129</sup> If a license amendment is required, then a hearing opportunity will be available at that time — a possibility that PG&E itself acknowledged.<sup>130</sup>

This example illustrates the overarching flaw in Friends of the Earth's reasoning in this case. If PG&E were to inappropriately make a change to its licensing basis without NRC approval, it has not *amended* its licenses. Rather, PG&E would be *out of compliance* with its licenses, and corrective action is appropriately imposed via the inspection and enforcement process.

We find no error in the Board's determination to ascribe little weight to PG&E's actions with respect to License Amendment Request 11-05, particularly in view of the fact that the changes sought therein have not otherwise been made.

### III. CONCLUSION

For the foregoing reasons, we find that Friends of the Earth has not shown that the Board committed error of law or abused its discretion in determining that there has been no *de facto* amendment of the Diablo Canyon operating licenses and therefore that no opportunity to request a hearing has accrued to Friends of the Earth. We *affirm* the Board's decision in LBP-15-27.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 2d day of June 2016.

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<sup>129</sup> *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-12-20, 76 NRC 437, 439 n.10 (2012) (citing *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-94-3, 39 NRC 95, 101 n.7 (1994)).

<sup>130</sup> License Amendment Request Withdrawal at 3.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket Nos. 50-247-LR  
50-286-LR**

**ENTERGY NUCLEAR  
OPERATIONS, INC.  
(Indian Point, Units 2 and 3)**

**June 2, 2016**

The Commission reverses an Atomic Safety and Licensing Board decision that dismissed a Severe Accident Mitigation Alternatives (SAMA) contention on summary disposition in favor of an intervenor. The Commission rules that the Board instead should have dismissed the contention on summary disposition in favor of the Staff and Applicant. The Commission also directs the Staff to refer potentially cost-beneficial SAMA measures to the Office of Nuclear Reactor Regulation for follow-up and disposition, as appropriate.

**SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

The SAMA analysis is an environmental mitigation analysis conducted pursuant to the National Environmental Policy Act (NEPA). Our NEPA regulations require a SAMA analysis for license renewal if one was not previously performed. The SAMA analysis is not an NRC safety review conducted under the Atomic Energy Act (AEA). The analysis is conducted solely pursuant to NEPA and the NRC's NEPA-related environmental regulations.



## **SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

The SAMA analysis evaluates each mitigation measure independently of others, as if each were the only measure contemplated. But if — and as — one or more measures are ultimately implemented, the plant's configuration changes, affecting its baseline risk profile, in turn potentially affecting the cost-benefit analysis considerations for other SAMA measures.

## **SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

As a NEPA mitigation analysis, the SAMA analysis need not conclusively resolve exactly which mitigation measures (if any) will be implemented. The SAMA rule is intended to satisfy NEPA-related responsibilities and purposes — to identify, consider, and disclose mitigation measures that may be cost-beneficial to implement to further reduce plant risk. But no statute or regulation requires the NRC to impose the implementation of a specific SAMA in the license renewal proceeding. Our license renewal rules do not require SAMA implementation as a condition for license issuance.

## **NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA seeks to guarantee process, not specific outcomes. NEPA's purpose is to help ensure that the agency and the public will have relevant information on the potential impacts of a proposed action. NEPA therefore calls for the disclosure of potential adverse effects and a discussion of potential mitigation measures. But NEPA does not require the elimination of all potential impacts and risks.

## **SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS**

Nearly every license renewal proceeding involves revisions of the SAMA analysis, whether in response to Staff requests for additional information or additional sensitivity analyses, or for other reasons. The mere use of new computer code inputs used in the SAMA analysis modeling does not serve to restart the clock for arguments that could have — and therefore under our contention admissibility requirements should have — been raised at the outset.

## **MEMORANDUM AND ORDER**

This long-pending proceeding concerns the application of Entergy Nuclear Operations, Inc. to renew the operating licenses for Indian Point Nuclear Gener-

ating Units 2 and 3. Today we address appeals of Atomic Safety and Licensing Board decisions regarding contention NYS-35/36, which challenged the Indian Point severe accident mitigation alternatives (SAMA) analysis. In CLI-15-3, we granted Entergy's and the Staff's petitions for review of LBP-11-17, in which the Board found the Staff's SAMA analysis deficient as a matter of law and dismissed NYS-35/36 on summary disposition.<sup>1</sup> We address here the questions regarding LBP-11-17. As discussed below, we reverse the Board's decision granting summary disposition of NYS-35/36 in favor of New York, find that summary disposition was appropriate in favor of the Staff and Entergy, and dismiss the contention. We additionally direct the Staff to refer the pending potentially cost-beneficial SAMAs to the Office of Nuclear Reactor Regulation for follow-up and disposition as appropriate.

## **I. BACKGROUND**

### **A. License Renewal and the Severe Accident Mitigation Alternatives Analysis**

We have described the nature of the SAMA analysis in several other decisions, including a separate decision we recently issued regarding Contention NYS-12C, another of New York's contentions that challenged the SAMA analysis.<sup>2</sup> Our decision here does not address the technical aspects of the SAMA analysis, but focuses on the legal and policy questions relevant to the appeals before us.

In brief, the SAMA analysis is an environmental mitigation analysis conducted pursuant to the National Environmental Policy Act (NEPA). Our NEPA regulations require a SAMA analysis for license renewal if one was not previously performed.<sup>3</sup> As we often have stressed, however, the SAMA analysis is not an NRC safety review conducted under the Atomic Energy Act of 1954, as amended (AEA). The AEA requires the NRC to ensure the "adequate protection" of public health and safety.<sup>4</sup> Safety measures to prevent and mitigate accidents are established, maintained, and continuously assessed through the agency's regulatory

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<sup>1</sup> CLI-15-3, 81 NRC 217 (2015); LBP-11-17, 74 NRC 11 (2011); *see also* Applicant's Petition for Review of Board Decisions Regarding Contentions NYS-8 (Electrical Transformers), CW-EC-3A (Environmental Justice), and NYS-35/36 (SAMA Cost Estimates) (Feb. 14, 2014) at 43-60 (Entergy Petition); NRC Staff's Petition for Commission Review of LBP-13-13 in Part (Contentions NYS-8 and CW-EC-3A), and LBP-11-17 (Contention NYS-35/36) (Feb. 14, 2014) at 41-59 (Staff Petition). We also granted Entergy's petition for review of LBP-10-13, which admitted Contentions 35 and 36 for litigation; as discussed *infra*, we do not reach this appeal. LBP-10-13, 71 NRC 673 (2010).

<sup>2</sup> CLI-16-7, 83 NRC 293 (2016).

<sup>3</sup> *See* 10 C.F.R. § 51.53(c)(3)(ii)(L).

<sup>4</sup> 42 U.S.C. § 2232(a).

oversight of reactor operations, which includes plant inspections, enforcement actions, severe accident research, analyses of generic safety issues (common to all or a subset of plants), and other communications with licensees on emerging issues. An “evolving set of requirements and commitments for a specific plant” are “modified as necessary over the life of the plant to ensure continuation of an adequate level of safety.”<sup>5</sup> For example, following the 2011 Fukushima accident in Japan, the NRC issued to power reactor licensees orders modifying licenses, and we continue to assess the lessons learned from the Fukushima accident to determine all appropriate regulatory action.<sup>6</sup>

The NRC safety review conducted for a license renewal application, therefore, is not intended to address ongoing plant safety concerns, but instead focuses on those matters that may not be sufficiently addressed through our reactor oversight activities. Specifically, the review examines whether licensees will have in place during the period of extended operation adequate programs to detect and manage the effects of aging on particular safety-related systems, structures, and components. Our regulations in 10 C.F.R. Part 54 set forth the requirements and limited scope of the license renewal safety review.<sup>7</sup> By design, the Part 54 safety review does not require a severe accident mitigation analysis.

Separate from the Part 54 safety review, the NRC’s environmental review for license renewal encompasses the issue of potential severe reactor accidents. The NEPA look at beyond-design-basis reactor accidents consists of two separate analyses: (1) a generic severe accident impacts analysis; and (2) a site-specific severe accident mitigation analysis — the SAMA analysis. The NRC’s Generic Environmental Impact Statement (GEIS) for license renewal contains an extensive analysis of the potential environmental impacts of severe accidents.<sup>8</sup> This generic bounding analysis is applicable to all reactor sites. The Indian Point environmental

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<sup>5</sup> See Final Rule: Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 22,473 (May 8, 1995) (Final License Renewal Rule, Safety).

<sup>6</sup> See, e.g., “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” EA-12-049 (Mar. 12, 2012) (ADAMS Accession No. ML12056A045) (regarding capability to maintain or restore core cooling, containment, and spent fuel pool safety); “Order Modifying Licenses with Regard to Reliable Hardened Containment Vents,” EA-12-050 (Mar. 12, 2012) (ADAMS Accession No. ML12054A696); see also Proposed Rule: Mitigation of Beyond-Design-Basis Events, 80 Fed. Reg. 70,610 (Nov. 13, 2015).

<sup>7</sup> See, e.g., 10 C.F.R. §§ 54.4, 54.21; see also *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-14, 71 NRC 449, 453-56 (2010) (outlining scope of Part 54).

<sup>8</sup> The entire GEIS is included in the record as Exs. NYS00131A-I, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” NUREG-1437 (May 1996) (GEIS). The severe accident environmental impacts analysis appears in *id.*, Vol. 1, Main Report, Final Report, at 5-12 to 5-116. In June 2013, the NRC issued a revised GEIS. See “Generic Environmental Impact Statement for License Renewal of Nuclear Plants” (Final Report), NUREG-1437, Vols. 1-3, Rev. 1 (June 2013) (ADAMS Accession No. ML13107A023 (package)).

impacts analysis references the severe accident impacts analysis contained in the GEIS.<sup>9</sup>

The SAMA analysis represents the NRC’s site-specific severe accident mitigation analysis for the Indian Point license renewal application. It is performed solely pursuant to NEPA and the NRC’s NEPA-related environmental regulations.<sup>10</sup> The analysis identifies and evaluates mitigation measures — either new hardware or plant procedures, or both — that could be installed or implemented to further reduce severe accident risk beyond that necessary to provide adequate protection of public health and safety. SAMAs therefore “represent only a minor portion of the Commission’s overall regulatory regime — separate and apart from its safety requirements.”<sup>11</sup>

Pursuant to NRC-endorsed guidance, the SAMA analysis typically has been performed as a cost-benefit analysis. The analysis identifies the main contributors to plant risk and then identifies potential measures to reduce those risks. It goes on to evaluate the risk reduction potential of specific mitigation measures — e.g., to what extent population dose risk or offsite economic cost risk might be reduced by implementation of the mitigation measure. Ultimately, a monetary value is calculated representing the estimated “benefit” associated with an evaluated mitigation measure. The estimated cost of implementing a mitigation measure is weighed against the estimated benefit associated with the measure. Any mitigation measures found potentially cost-beneficial to implement are identified.

## **B. Procedural History of Contention NYS-35/36**

Entergy provided a SAMA analysis in its Environmental Report, in which it identified mitigation measures found potentially cost-beneficial to implement at Indian Point to further reduce severe accident risk.<sup>12</sup> The Staff conducted an independent review of Entergy’s analysis, which led to the identification of additional potentially cost-beneficial mitigation measures; in the Draft SEIS the

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<sup>9</sup> See “Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3” (Final Report), NUREG-1437, supp. 38, vol. 1 — Main Report (Dec. 2010), at 5-3 (ADAMS Accession No. ML102990043) (Final SEIS); *see also* 10 C.F.R. Part 51, Subpart A, App. B, Table B-1, “Summary of Findings on NEPA Issues for License Renewal of Nuclear Plants” (codifying the GEIS conclusion that “the probability-weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to groundwater, and societal and economic impacts from severe accidents are small for all plants”).

<sup>10</sup> See 10 C.F.R. § 51.53(c)(3)(ii)(L).

<sup>11</sup> See *NRDC v. NRC*, 823 F.3d 641, 650 (D.C. Cir. 2016).

<sup>12</sup> Indian Point Energy Center, License Renewal Application, app. E, Environmental Report, at 4-72 to 4-78.

Staff set forth its conclusions.<sup>13</sup> The Staff concurred with Entergy's "identification of areas in which risk can be further reduced in a cost-beneficial manner through the implementation of all or a subset" of the identified potentially cost-beneficial SAMAs.<sup>14</sup> The Staff went on to state that because of the "potential for cost-beneficial risk reduction . . . further evaluation of these SAMAs by Entergy is warranted."<sup>15</sup> Because "none of the potentially cost-beneficial SAMAs relate to adequately managing the effects of aging during the period of extended operation," the Staff concluded that none "need be implemented as part of the license renewal pursuant to 10 CFR Part 54."<sup>16</sup> Nonetheless, the Staff noted Entergy's intention to "consider further for implementation" the identified potentially cost-beneficial SAMAs.<sup>17</sup>

After issuance of the Draft Supplemental Environmental Impact Statement (SEIS), additional Staff inquiries led Entergy to submit a revised SAMA analysis to the NRC in December 2009.<sup>18</sup> Entergy's reanalysis contained corrected (and more conservative) meteorological input data.<sup>19</sup> The Revised SAMA Analysis depicted larger estimated benefits for evaluated SAMAs and identified additional potentially cost-beneficial SAMAs.<sup>20</sup>

As part of the reanalysis, Entergy also revised its estimate of the costs to implement certain SAMAs.<sup>21</sup> Citing to NRC-endorsed guidance on conducting SAMA analyses, Entergy stated that it is often unnecessary to conduct a detailed implementation cost review to judge whether a particular SAMA is potentially cost-beneficial.<sup>22</sup> Entergy stated that for its original SAMA analysis (in its Environmental Report) the implementation costs were only "conceptually estimated to the point where conclusions regarding the economic viability of the proposed modification could be adequately gauged."<sup>23</sup> But later, for the Revised SAMA Analysis, those SAMAs that "appeared to be cost-beneficial" in light of the

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<sup>13</sup> See "Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3" (Draft Report for Comment), NUREG-1437, supp. 38, vol. 2, app. G, at G-35 to G-36 (Dec. 2008) (ADAMS Accession No. ML083540594) (Draft SEIS).

<sup>14</sup> *Id.*, Main Report, at 5-10.

<sup>15</sup> *Id.* at 5-10; *see also id.*, app. G, at G-36.

<sup>16</sup> *Id.*, Main Report, at 5-10; *see also id.* at 5-5; app. G, at G-36.

<sup>17</sup> *Id.*, app. G, at G-35.

<sup>18</sup> See Letter NL-09-165, from Fred Dacimo, Entergy, to NRC Document Control Desk (Dec. 11, 2009), attach. 1, License Renewal Application — SAMA Reanalysis Using Alternate Meteorological Tower Data (ADAMS Accession No. ML093580089) (Revised SAMA Analysis).

<sup>19</sup> *See id.*, attach. 1, at 3.

<sup>20</sup> *See id.* at 31-32.

<sup>21</sup> *See id.* at 7-8, 10-28.

<sup>22</sup> *See id.* at 7-9.

<sup>23</sup> *See id.* at 7.

reanalysis's new larger estimated benefits were then "subjected to more comprehensive and precise cost estimating techniques to determine if they [were] indeed potentially cost-beneficial."<sup>24</sup> Entergy explained that the "new, more comprehensive SAMA implementation cost estimates" captured more of the "anticipated expenses by identifying all parts of the organization that must support the proposed SAMA modification."<sup>25</sup> In some cases, the revised implementation cost estimate rendered a SAMA no longer potentially cost-beneficial, and in other cases, even with the updated cost estimate, a SAMA remained potentially cost-beneficial.<sup>26</sup> Overall, Entergy's Revised SAMA Analysis rendered an additional six SAMAs potentially cost-beneficial (three for Unit 2 and three for Unit 3), raising the total number of potentially cost-beneficial SAMAs to twenty-two.<sup>27</sup>

Entergy stated that these newly identified potentially cost-beneficial measures as well as "those SAMAs identified previously as cost beneficial" had "been submitted for engineering project cost benefit analysis" to further evaluate their cost-effectiveness.<sup>28</sup> Entergy also reiterated that none of the potentially cost-beneficial SAMAs identified to date were necessary for "managing aging effects for components within the scope of license renewal" and therefore none of the potentially cost-beneficial SAMAs needed to be "implemented as part of license renewal pursuant to 10 CFR Part 54."<sup>29</sup>

In response to Entergy's Revised SAMA Analysis, New York submitted new and amended contentions.<sup>30</sup> Relevant here are two of those contentions: NYS-35 and NYS-36. In NYS-35, New York claimed that the analysis was incomplete because Entergy planned to review further — by performing an "engineering project" cost analysis — the implementation costs of various SAMAs newly identified as potentially cost-beneficial.<sup>31</sup> New York claimed that this additional implementation cost analysis "deprived the NRC and [the] Board of the ability to evaluate, and render a rational decision regarding which mitigation measures, if any, are sufficiently cost-effective," such that "their inclusion as a condition for an extended operating license period and a new operating license is warranted."<sup>32</sup> NYS-35 focused on nine mitigation measures that "had not yet been finally determined to be cost-effective," and which, New York claimed, if ultimately

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<sup>24</sup> *Id.* at 8.

<sup>25</sup> *Id.* at 9.

<sup>26</sup> *See id.* at 8-9, 10-28.

<sup>27</sup> *Id.* at 31-32.

<sup>28</sup> *See id.* at 32.

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

<sup>30</sup> State of New York's New and Amended Contentions Concerning the December 2009 Severe Accident Mitigation Alternative Reanalysis (Mar. 11, 2010) (Contention NYS-35/36).

<sup>31</sup> *Id.* at 15.

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

found “sufficiently cost effective, must be added as license conditions” prior to issuance of a renewed license.<sup>33</sup>

A related contention, NYS-36, focused on a different set of nine SAMAs. New York claimed that the Revised SAMA Analysis had shown these measures, “for the first time, to have substantially greater benefits in excess of their costs.”<sup>34</sup> Entergy stated that for these nine SAMAs “the gap between the benefit and the cost is so great that it is extremely unlikely that further engineering cost work could tilt the balance” against cost-effectiveness.<sup>35</sup>

New York went on to argue that Entergy in its reanalysis did not “justify” not committing to implement “clearly cost effective” SAMAs that New York claimed “would, if implemented, substantially increase human health and safety and environmental protection.”<sup>36</sup> Similarly, New York argued that the NRC in its Draft SEIS did not “justify its position that clearly cost effective SAMAs need not be implemented as a condition of license renewal simply because they do not relate to aging management.”<sup>37</sup> In sum, New York argued that the Revised SAMA Analysis lacked a “rational basis” for not including a commitment to implement mitigation measures that were “clearly cost effective.”<sup>38</sup> New York claimed that implementation of the measures should be imposed as a license condition.<sup>39</sup> The Staff and Entergy opposed the admission of both contentions, claiming that they were untimely and failed to meet the NRC’s contention admissibility standards.<sup>40</sup>

In LBP-10-13, the Board admitted both new contentions in part and consolidated them as NYS-35/36. The Board first found the contentions timely, stating that they were based on “new, materially different information,” given that both contentions pointed to new cost-benefit determinations and “different cost-benefit calculations than before,” due to Entergy’s use of different inputs in the reanalysis.<sup>41</sup> The Board rejected the portions of the contentions that could be read to

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<sup>33</sup> *Id.* at 13.

<sup>34</sup> *Id.* at 36.

<sup>35</sup> *Id.* at 37.

<sup>36</sup> *Id.* at 40-41.

<sup>37</sup> *Id.* at 41.

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

<sup>39</sup> *Id.* at 42.

<sup>40</sup> *See, e.g.,* NRC Staff’s Answer to State of New York’s New and Amended Contentions Concerning the December 2009 Severe Accident Mitigation Alternative Reanalysis (Apr. 5, 2010), at 13-35; Applicant’s Answer to New York State’s New and Amended Contentions Concerning Entergy’s December 2009 Revised SAMA Analysis (Apr. 5, 2010), at 21-31. The State of Connecticut, which is participating in this proceeding as an interested state under 10 C.F.R. § 2.315(c), supported admission of the contentions. *See* Answer of the Attorney General of the State of Connecticut to State of New York’s Motion for Leave to File New and Amended Contentions Concerning the December 2009 Reanalysis of Severe Accident Mitigation Alternatives (Apr. 1, 2010).

<sup>41</sup> LBP-10-13, 71 NRC at 696, 702.

“demand implementation” of cost-beneficial SAMAs, reasoning that the Part 54 license renewal safety review did not “directly require[ ]” the “implementation of non-aging-related SAMAs.”<sup>42</sup> But it went on to state that the Staff nonetheless had the authority to impose such license “conditions that are necessary to protect the environment . . . under a Part 50 backfit procedure.”<sup>43</sup> The Board admitted the “portion of NYS-35 calling for completion of the cost-benefit analysis to determine which SAMAs are cost-beneficial to implement.”<sup>44</sup>

Regarding NYS-36, the Board stated that the specific SAMAs referenced in the contention had become, following Entergy’s reanalysis, “dramatically more cost-beneficial in both the baseline and sensitivity analyses.”<sup>45</sup> As outlined by the Board, the admitted “triable issue of fact” was whether the Staff had explained in its record of decision “why it would allow the license to be renewed without requiring” — as a license condition — the implementation of “plainly cost-beneficial” SAMAs.<sup>46</sup> Addressing NYS-35/36, the Board summarized its reasoning as follows:

We hold that in order to meet its obligations under NEPA, once a SAMA has been identified as plainly cost-effective, the NRC Staff must either require implementation or, in the alternative, explain why it has decided not to require implementation prior to license renewal. Likewise, the applicant must supply information that is sufficiently complete for the Commission to be able to explain its decision.<sup>47</sup>

Entergy and the Staff sought interlocutory review of LBP-10-13.<sup>48</sup> While we denied their petitions for not meeting the interlocutory review standards, we stated that the Board’s decision appeared “problematic” and could “warrant our review later in the proceeding.”<sup>49</sup>

### **C. Dismissal of NYS-35/36 on Summary Disposition**

Subsequently, the Staff issued its Final Supplemental Environmental Impact Statement (Final SEIS) for the Indian Point license renewal application. In the

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<sup>42</sup> See *id.* at 697.

<sup>43</sup> *Id.*

<sup>44</sup> *Id.* at 698.

<sup>45</sup> *Id.* at 702.

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

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

<sup>48</sup> See generally Applicant’s Petition for Interlocutory Review of LBP-10-13 (July 15, 2010); NRC Staff’s Petition for Interlocutory Review of the Atomic Safety and Licensing Board’s Decision Admitting New York State Contentions 35 and 36 on Severe Accident Mitigation Alternatives (LBP-10-13) (July 15, 2010).

<sup>49</sup> See CLI-10-30, 72 NRC 564, 568 (2010).



Final SEIS, the Staff took into account Entergy's Revised SAMA Analysis and other information, concluded that the SAMA analysis was complete and otherwise acceptable, and identified the SAMAs found to be potentially cost-beneficial. Again, the Staff concurred with Entergy's "identification of areas in which risk can be further reduced in a cost-beneficial manner through the implementation of all or a subset of potentially cost-beneficial SAMAs."<sup>50</sup> Because of the "potential for cost-beneficial risk reduction," the Staff stated that "further evaluation of these SAMAs by Entergy is appropriate," and noted that Entergy would be considering "further for implementation" all of the potentially cost-beneficial SAMAs, whether identified in the baseline analysis or in the supplemental analyses (sensitivity studies or uncertainty analyses).<sup>51</sup>

The Staff reemphasized, however, that none of the potentially cost-beneficial SAMAs related "to adequately managing the effects of aging during the period of extended operation," and that therefore none of the measures needed to be "implemented as part of [Indian Point's] license renewal" under Part 54.<sup>52</sup> Addressing the Board's decision in LBP-10-13, the Staff again stated that regardless of whether any of the SAMAs ultimately were determined to be cost-beneficial, none needed to be imposed as a "condition for license renewal."<sup>53</sup>

Following issuance of the Final SEIS, New York moved for summary disposition of NYS-35/36.<sup>54</sup> Entergy and the Staff each filed a cross-motion for summary disposition. Both claimed that the SAMA analysis was complete as a matter of law and that no legal basis existed for ordering the implementation of SAMAs as part of the license renewal process.<sup>55</sup> In LBP-11-17, the Board granted New York's motion, concluding that no material factual dispute remained and that New York was entitled to judgment as a matter of law.<sup>56</sup> Because Entergy intended to consider further whether to implement the potentially cost-beneficial SAMAs (and also would further consider the SAMAs' implementation costs), the Board concluded that the Staff had inappropriately permitted "Entergy to complete its

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<sup>50</sup> Final SEIS at 5-11.

<sup>51</sup> See *id.*; see also *id.*, app. G, at G-48.

<sup>52</sup> *Id.*, Main Report at 5-11.

<sup>53</sup> *Id.* at 5-12.

<sup>54</sup> State of New York's Motion for Summary Disposition of Consolidated Contention NYS-35/36 (Jan. 14, 2011). Connecticut supported the motion. Response of Attorney General of Connecticut in Support of New York's Motion for Summary Disposition of Consolidated Contention NYS-35/36 (Feb. 3, 2011).

<sup>55</sup> Applicant's Consolidated Memorandum in Opposition to New York State's Motion for Summary Disposition of Contention NYS-35/36 and in Support of Its Cross-Motion for Summary Disposition (Feb. 3, 2011); NRC Staff's (1) Cross-Motion for Summary Disposition, and (2) Response to New York State's Motion for Summary Disposition, of Contention NYS-35/36 (Feb. 7, 2011).

<sup>56</sup> See LBP-11-17, 74 NRC at 25-27.

SAMA review outside of the license renewal process.”<sup>57</sup> Finding the analysis incomplete, the Board then stated that the NRC lacked “an adequate record” on which to “make its decision on the impacts of relicensing” the Indian Point units.<sup>58</sup> The Board held that the Final SEIS failed to provide a “rational basis” both “for not requiring Entergy to complete its SAMA review” and “for not requiring the implementation of cost-beneficial SAMAs prior to the relicensing of Indian Point.”<sup>59</sup> The Board found the Final SEIS deficient “under NRC regulations, the [Administrative Procedure Act], and NEPA.”<sup>60</sup>

In granting New York’s motion, the Board stressed that it was not “implementation of any SAMA.”<sup>61</sup> But it ruled that the Indian Point licenses could not be renewed unless and until the Staff “reviews Entergy’s completed SAMA analyses” — that is, a SAMA analysis containing Entergy’s intended additional “engineering project” cost analyses — *and* the Staff either “incorporates the result of these reviews into the [Final SEIS],” or, alternatively “modifies its [Final SEIS] to provide a valid reason for recommending” license renewal before “the analysis of potentially cost-effective SAMAs is complete.”<sup>62</sup> The Board further stated that the licenses could not be renewed without the Staff either modifying the Final SEIS to provide a “valid reason . . . for not requiring the implementation of cost-beneficial SAMAs,” or alternatively, modifying the Final SEIS to show that the Staff would, after all, require “the implementation of cost-effective SAMAs.”<sup>63</sup>

Entergy sought interlocutory review of LBP-11-17.<sup>64</sup> In CLI-11-14, we denied Entergy’s petition for review for failure to meet the interlocutory review standards, additionally noting the large number of contentions still pending before the Board (including at that time other SAMA contentions) and our interest in avoiding piecemeal appeals.<sup>65</sup>

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<sup>57</sup> *Id.* at 25.

<sup>58</sup> *Id.*

<sup>59</sup> *Id.* at 27.

<sup>60</sup> *See id.*

<sup>61</sup> *Id.*

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

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

<sup>64</sup> *See* Applicant’s Petition for Review of LBP-11-17 Granting Summary Disposition of Consolidated Contention NYS-35/36 (July 29, 2011). The Staff supported Entergy’s request; New York and Connecticut opposed review. NRC Staff’s Answer to Applicant’s Petition for Review of LBP-11-17 Granting Summary Disposition of Consolidated Contention NYS-35/36 (Aug. 11, 2011); The State of New York and the State of Connecticut’s Combined Motion for Leave to File a Brief Reply to NRC Staff’s Answer to Applicant’s Petition for Interlocutory Review of LBP-11-17 (Aug. 16, 2011).

<sup>65</sup> CLI-11-14, 74 NRC 801, 811 (2014).

#### D. Entergy's Revised Implementation Cost Estimates

In view of the Board's decision, and pursuant to internal processes for evaluating potential plant modifications, Entergy chose to prepare and submit to the NRC refined implementation cost estimates for all of the SAMAs that had been identified in its 2009 Revised SAMA Analysis (and similarly the subsequently issued Final SEIS) as potentially cost-beneficial.<sup>66</sup> Entergy on its own initiative, therefore, provided the "refined engineering project cost estimates" that the Board had determined in LBP-11-17 to be a necessary component for a complete SAMA analysis.<sup>67</sup> Based on these refined and more comprehensive implementation cost estimates, Entergy stated that six out of the twenty-two SAMAs that had been previously identified as potentially cost-beneficial "no longer" were considered cost-beneficial, while sixteen continued to be cost-beneficial.<sup>68</sup>

Having completed its detailed look at SAMA implementation costs, Entergy stated that "to *further reduce* the already very small severe accident risk" it planned to implement four of the SAMAs found to be cost-beneficial, "though it is not required to do so as part of license renewal."<sup>69</sup> Entergy went on to state that it would defer reaching a decision on whether to implement any of the other cost-beneficial SAMAs "until after implementation of the Commission's numerous, ongoing Fukushima action items which, by themselves, are intended and expected to substantially mitigate the risks of certain beyond-design-basis accidents."<sup>70</sup> Entergy stated that after implementing the four SAMAs as well as mitigation measures and other actions relating to Fukushima, the severe accident risk at Indian Point may be so reduced that "many, if not all, of the remaining SAMAs will no longer be cost-beneficial."<sup>71</sup> Entergy therefore stated that it would defer any final decisions on whether to implement additional SAMAs, and later consider, on a case-by-case basis, the "potential costs and *remaining risk benefits*" of the SAMAs, as well as "other regulatory obligations, and available company resources."<sup>72</sup>

In addressing Entergy's refined implementation cost analysis, the Board clarified that the NEPA issues involving NYS-35/36 could not "be resolved" until the Staff either (1) issued a documented review of "Entergy's completed SAMA

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<sup>66</sup> See Letter NL-13-075 from Fred Dacimo, Entergy, to NRC Document Control Desk (May 6, 2013), "License Renewal Application — Completed Engineering Project Cost Estimates for SAMAs Previously Identified as Potentially Cost Beneficial," & attach. 1 (Refined Cost Estimates).

<sup>67</sup> Refined Cost Estimates at 2.

<sup>68</sup> See *id.*; see also attach. 1, at 4-5.

<sup>69</sup> Refined Cost Estimates at 2, attach. 1, at 9.

<sup>70</sup> *Id.*, attach. 1, at 10.

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

<sup>72</sup> *Id.*, attach. 1, at 12 (emphasis added).

analysis” or (2) notified the parties that it would not issue an evaluation of Entergy’s revised cost estimates.<sup>73</sup>

After the Board, following a merits hearing, resolved all other pending SAMA contentions in LBP-13-13, the Staff and Entergy again sought review of the Board’s ruling on NYS-35/36.<sup>74</sup> The State of New York supports the two Board decisions.<sup>75</sup> We granted review in CLI-15-3, and additionally posed several questions to the Staff.<sup>76</sup> The Board’s decision in LBP-11-17 raises substantial and important questions of law and policy warranting our review, and we consider the issues sufficiently ripe to address them at this time.<sup>77</sup> Further, as we note below, New York has filed a new contention before the Board involving similar arguments as those raised in NYS-35/36. Our decision today therefore aids in clarifying a significant legal and policy issue regarding the license renewal SAMA analysis.

#### **E. NRC Staff’s Draft FSEIS Supplement 2**

In December 2015, the Staff completed a review of Entergy’s refined implementation cost estimates, outlining its conclusions in a draft second supplement to the Final SEIS.<sup>78</sup> In Draft FSEIS Supplement 2, the Staff found the revised cost estimates and related conclusions on the SAMAs to be reasonable.<sup>79</sup> The Staff noted that Entergy has now implemented the following four SAMAs: IP3-052: to open the city water supply valve for alternative auxiliary feedwater pump suction; IP3-053: to install an excess flow valve to reduce the risk associated with hy-

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<sup>73</sup> See Licensing Board Order (Granting Entergy’s Motion for Clarification) (July 9, 2013) (unpublished) (ADAMS Accession No. ML13190A068). The Board also provided that adjudicatory submissions addressing Entergy’s refined cost analysis would be due within 60 days of the Staff either issuing a draft SEIS (or an equivalent document discussing the refined cost estimates) or its notification that it would not issue any further review of Entergy’s analysis. *Id.* at 3.

<sup>74</sup> LBP-13-13, 78 NRC 246 (2013).

<sup>75</sup> State of New York’s Answer to Entergy and Staff Petitions for Review of Atomic Safety and Licensing Board Decisions LBP-08-13 and LBP-13-13 with Respect to Contention NYS-8 and for Interlocutory Review of LBP-10-13 and LBP-11-17 with Respect to Contention NYS-35/36 (Mar. 25, 2014) at 37-64 (New York Answer).

<sup>76</sup> See CLI-15-3, 81 NRC 217.

<sup>77</sup> The legal and policy matters associated with the Final SEIS and at issue here are laid out in LBP-11-17.

<sup>78</sup> “Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3” (Draft Report for Comment), NUREG-1437, supp. 38, vol. 5 (Dec. 2015) (Draft FSEIS Supplement 2).

<sup>79</sup> *Id.* at 19. The Staff did determine, however, that two of the SAMAs that Entergy had found to be no longer cost-beneficial ought to be retained for further consideration by Entergy because “the incremental difference by which the SAMAs are not cost beneficial, when viewed in the context of uncertainties in the cost estimates, is too small to exclude them from further consideration.” *Id.*

drogen explosions; and IP2-GAG and IP3-GAG: to install steam generator safety valve gagging devices.<sup>80</sup> The Staff also concurred with Entergy's decision to defer resolving whether to implement the other potentially cost-beneficial SAMAs.

The Staff explained that such implementation decisions "should be viewed as a dynamic process" because when a SAMA "previously determined to be potentially cost-beneficial is implemented, the risk profile from which the SAMA analysis is derived will necessarily change."<sup>81</sup> As the Staff outlined, the implementation of the four SAMAs, and Entergy's implementation (either voluntary or per NRC requirement) of "plant improvements" associated with post-Fukushima orders and actions "will lower the plant's risk profile and, therefore, will tend to lower the benefits" associated with the remaining potentially cost-beneficial SAMAs.<sup>82</sup>

The Staff noted, for example, that in response to the Fukushima accident, the NRC issued to power reactor licensees Order EA-12-049, "Order to Modify Licenses with Regard to Mitigation Strategies for Beyond-Design Basis External Events," which relates to improving the ability to maintain or restore core cooling and containment (as well as spent fuel pool cooling). The Staff went on to specify the potentially cost-beneficial SAMAs that involve actions to maintain reactor core cooling, and whose "potential accident mitigation improvement . . . may be addressed, at least in part" by mitigation measures currently being considered as part of the NRC's review of "all plants' current licensing bases."<sup>83</sup> The Staff agreed that the "risk reduction achieved" by the four already-implemented SAMAs, along with further measures that Entergy will take to respond to Order EA-12-049, likely will "substantially" reduce the benefits of pending potentially cost-beneficial SAMAs.<sup>84</sup>

The Staff therefore found it reasonable for Entergy to defer any action on pending cost-beneficial SAMAs until the "risk profile for each plant" at Indian Point "is reevaluated following the completion of both voluntary and required plant improvements."<sup>85</sup> And the Staff again stressed that none of the SAMA measures pending for possible later implementation involved adequately managing the effects of aging under Part 54 and that therefore none needed to be implemented as part of the license renewal proceeding.

New York has challenged the Staff's SAMA analysis conclusions in Draft FSEIS Supplement 2 in a newly filed contention currently before the Board.<sup>86</sup>

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<sup>80</sup> *Id.* at 20.

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

<sup>82</sup> *Id.* at 20-21.

<sup>83</sup> *Id.* at 20.

<sup>84</sup> *Id.*

<sup>85</sup> *Id.* at 22.

<sup>86</sup> State of New York Contention NYS-40 (Feb. 22, 2016) (Contention NYS-40); State of New York  
(Continued)

## II. ANALYSIS

We review legal issues de novo. Following a careful review of the parties' briefs, the challenged Board decisions, and the Staff's Final SEIS, we conclude that the Board erred in finding the Indian Point SAMA analysis deficient as a matter of law and dismissing NYS-35/36 on summary disposition in favor of New York.<sup>87</sup> While we share the Board's dissatisfaction with aspects of the Staff's responses (a matter we address below), the Staff has adequately — albeit minimally — explained why it chose not to pursue SAMA implementation in this license renewal proceeding. At bottom, the Board demands resolution of SAMA implementation questions now, as part of this license renewal proceeding. For the reasons we explain in greater detail below, we agree with the Staff that it need not mandate SAMA implementation or resolve SAMA implementation issues in this proceeding.

Admittedly, standard cursory references by the Staff to identified SAMAs not “relating to managing the effects of aging” can be confusing or unsatisfying if considered in isolation, and ideally more explanation would have been provided. Yet, when set in the context of a reactor license renewal proceeding, the statement should be understood as a shorthand reference to the basic, longstanding parameters of the NRC's license renewal process that have been reflected in our regulations for decades. Further, the Staff ultimately went beyond its initial cursory explanation, providing an expanded discussion of the topic in the Final SEIS. Here, we provide additional background and observations regarding the SAMA analysis and NRC regulations to help clarify the role of the SAMA analysis in the license renewal proceeding. Our decision today also refers the Indian Point potentially cost-beneficial SAMAs to the Office of Nuclear Reactor Regulation (NRR) for follow-up and appropriate action, separate from this proceeding.

### A. Potential Effects of SAMA Implementation on Plant Risk Profile

We begin with a few overarching observations about SAMAs. The SAMA analysis evaluates each mitigation measure *independently* of the others, as if each were the only measure contemplated. But if — and as — one or more measures ultimately are implemented, the plant's configuration changes, affecting its baseline risk profile (e.g., core damage frequency), in turn potentially rendering

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York Motion for Leave Contention NYS-40 (Feb. 22, 2016) (New York Motion for Leave); *see* NRC Staff's Answer to State of New York's Motion for Leave to File Contention NYS-40 (Mar. 18, 2016); Entergy's Opposition to Proposed New York State Contention NYS-40 Regarding Severe Accident Mitigation Alternatives (Mar. 18, 2016).

<sup>87</sup> As discussed *infra*, we need not reach the issue of the need for refined implementation costs, as we find that the issue is moot.

other mitigation measures less cost-beneficial or even no longer cost-beneficial. Similarly, two or more potentially cost-beneficial SAMAs may act on the same risk contributor (e.g., internal flooding, station blackout, or loss of offsite power); in such cases, the implementation of one measure could reduce residual risk to a point that renders another measure less marginally beneficial in preventing or mitigating the specific accident concern. Depending on the kinds of SAMAs identified and their interrelationship, therefore, the implementation of a subset of SAMAs may achieve much of the potential risk reduction and might do so in an overall more cost-effective way than implementing all identified SAMAs.

In short, when a SAMA analysis identifies numerous cost-beneficial measures, it should not be assumed that all measures would continue to afford the same level of risk reduction, and would remain cost-beneficial (or cost-beneficial to the same degree) regardless of the risk reduction achievable by implementing some of the SAMAs. As SAMAs are implemented, the “relative benefits of adopting additional mitigation alternatives diminish.”<sup>88</sup> In principle, therefore, once specific SAMAs have been implemented, implementation decisions regarding other potentially cost-beneficial SAMAs would justifiably take into account the plant’s new configuration and risk profile.

## **B. The License Renewal NEPA Analysis**

As a NEPA mitigation analysis, the SAMA analysis need not conclusively resolve exactly which mitigation measures (if any) will be implemented. The NRC has previously stated that the SAMA rule is intended to satisfy NEPA-related responsibilities and purposes — to identify, consider, and disclose mitigation measures that may be cost-beneficial to further reduce plant risk, “whether or not mitigation ultimately will be implemented by the licensee.”<sup>89</sup> That does not mean that the analysis results are not considered or have no practical import. On the contrary, over the past decades license renewal applicants have voluntarily implemented one or more of the SAMAs identified as potentially cost-beneficial (here, Entergy already has implemented four).<sup>90</sup>

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<sup>88</sup> See *NRDC*, 823 F.3d at 650.

<sup>89</sup> See Nuclear Energy Institute; Denial of Petition for Rulemaking, 66 Fed. Reg. 10,834, 10,836 (Feb. 20, 2001). In denying a petition for rulemaking seeking to delete the SAMA analysis requirement, the NRC reiterated that “[t]here is no requirement in 10 CFR part 54 for analysis of SAMAs,” but declined to delete the rule because (1) the risks of severe accidents are not so remote “as to warrant their elimination [altogether from] our NEPA reviews,” and (2) the NRC lacked a generic severe accident NEPA mitigation analysis. See *id.* at 10,834, 10,838-39.

<sup>90</sup> See, e.g., “Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Monticello Nuclear Generation Plant” (Final Report), NUREG-1437, supp. 26 (Aug. 2006),  
(Continued)

But no statute or regulation requires the NRC to impose the implementation of a specific SAMA *in this license renewal proceeding*. Nor must the Staff in its NEPA review reach a final determination regarding SAMA implementation.

NEPA “seeks to guarantee process, not specific outcomes.”<sup>91</sup> The NRC need not “require certain mitigation measures under NEPA” because “NEPA is not outcome-driven.”<sup>92</sup> Nor must the agency have a mitigation “plan” before it can issue a license.<sup>93</sup> NEPA’s purpose is to help assure that the agency and the public will have relevant information on the potential impacts of a proposed action. As such, NEPA calls for the disclosure of potential adverse effects and a discussion of potential mitigation measures. But NEPA does not require the elimination of all potential impacts and risks. It “does not require agencies to discuss any particular mitigation plans that they might put in place, nor does it require agencies — or third parties — to effect any.”<sup>94</sup> “Substantive issues like . . . what mitigation conditions to adopt are irrelevant to NEPA compliance.”<sup>95</sup> To satisfy NEPA, therefore, the NRC need not “obtain an assurance that third parties will implement particular measures.”<sup>96</sup> The Staff had no obligation to impose, in this license renewal proceeding, license conditions requiring the implementation of mitigation measures examined in the NEPA analysis.

Notably, there is no claim here that any of the measures at issue are necessary for the adequate protection of public health and safety.<sup>97</sup> A measure that is necessary for adequate protection of public health and safety is a matter for immediate action as a current operating issue.<sup>98</sup> We are addressing, then, whether the potential implementation of mitigation measures that may be or are cost-justifiable to reduce plant risk to levels lower than what the NRC considers

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at 5-5 (ADAMS Accession No. ML062490078) (six SAMAs implemented); “Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Fort Calhoun Station, Unit 1” (Final Report), NUREG-1437, supp. 12 (Aug. 2003), at 5-5, 5-26 (ADAMS Accession No. ML032110214) (seven SAMAs planned for implementation).

<sup>91</sup> *Massachusetts v. NRC*, 708 F.3d 63, 67 (1st Cir. 2013); *see also id.* at 78 (rejecting argument mandating implementation of SAMA as outside of scope of renewal proceeding because NEPA “does not mandate particular results”) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989)). In *Methow Valley*, the Supreme Court drew a “fundamental distinction between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated,” and “a substantive requirement that a complete mitigation plan be actually formulated and adopted.” *Methow Valley*, 490 U.S. at 352.

<sup>92</sup> *Massachusetts*, 708 F.3d at 81 n.27.

<sup>93</sup> *Id.*

<sup>94</sup> *See Theodore Roosevelt Conservation Partnership v. Salazar*, 616 F.3d 497, 503 (D.C. Cir. 2010) (internal quotation omitted).

<sup>95</sup> *Sierra Club v. Van Antwerp*, 526 F.3d 1353, 1362 (11th Cir. 2008).

<sup>96</sup> *Methow Valley*, 490 U.S. at 353 n.16.

<sup>97</sup> If New York believes that any are, it may seek enforcement action under 10 C.F.R. § 2.206.

<sup>98</sup> *See* 10 C.F.R. § 50.109(a)(5).



adequate must be resolved in this proceeding and tied to issuance of the renewed licenses. We agree with the Staff that it need not.

In its Final SEIS, the Staff explained why it does not view SAMA implementation as a matter that must be resolved in this license renewal proceeding and made a condition of license renewal. First, in regard to the scope of the safety review, the Staff discerned no need to impose SAMAs as license conditions because the examined mitigation measures are neither necessary for adequate protection of public health and safety nor among the aging management-related safety issues that must be resolved in the license renewal safety review.

Second, in regard to the environmental review and the GEIS impacts analysis findings, the Staff stated that the SAMA analysis results do not call into question the GEIS's overall conclusions regarding the probability-weighted consequences of potential severe accidents.<sup>99</sup> In other words, the Staff concluded that existing plant risk levels do not pose an unacceptable or undue risk to the environment, so as to warrant denial of the license. The Staff stated, for example, that “the [core damage frequencies] for [Indian Point, Units 2 and 3]” are “quite low.”<sup>100</sup> The Staff also reemphasized in the Final SEIS that NEPA itself does not require the Staff to impose mitigation measures. The Staff, therefore, discerned no necessity (and no clear regulatory basis, given the deliberately narrow scope of the renewal safety review, the SAMA analysis results, and NEPA's focus on procedures) to withhold issuance of the license based solely on the ground that potentially cost-beneficial SAMAs were not implemented.

The Staff nonetheless acknowledged in the Final SEIS that the analysis identi-

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<sup>99</sup> Final SEIS, Main Report, at 5-11 to 5-12 (citing *id.* § 5.2.2, at 5-5 to 5-6) (specifying the core damage frequency per year for each of the Indian Point plants, for the various evaluated accident-initiating events); see Staff Petition at 51 n.187 (“regardless of the question of the agency’s authority to impose SAMAs as a condition for license renewal, the [Final SEIS] concluded there is no reason to require such SAMAs for environmental protection purposes”). Pursuant to the SAMA rule, the Staff evaluated the major severe accident risk contributors at Indian Point and identified measures that can be taken to further reduce risk; the separate issue of whether and which SAMAs ultimately will be implemented was not necessary to the Staff’s current NEPA conclusion in the Final SEIS that “the adverse environmental impacts of license renewal for [Units 2 and 3] are not so great that preserving the option of license renewal for energy planning decision makers would be unreasonable.” See Final SEIS, Main Report, at 9-8.

<sup>100</sup> See Staff Petition at 55-56 & n.198. As New York notes, “despite the low probability” of the accidents evaluated in the SAMA analysis, the NRC still has a NEPA obligation to “evaluate mitigation measures.” See *State of New York Reply to NRC Staff’s Response to Commission Order CLI-15-3 Requesting Further Briefing on Contention NYS-35/36* (May 11, 2015), at 16 (New York Reply Before Commission). The SAMA analysis is that mitigation evaluation. That the analysis searches for and may identify cost-justifiable ways to further reduce risk does not suggest that current plant risk levels provide inadequate protection to public safety or to the environment or are unacceptably high; by the same token, that cost-beneficial SAMAs may be identified to improve the plants’ safety profile does not mean that implementation decisions must be resolved prior to license renewal.

fied various ways “in which risk can be further reduced” in a potentially justifiable or cost-beneficial manner through the implementation of “all or a subset” of potentially cost-beneficial SAMAs.<sup>101</sup> And the Final SEIS indicated that Entergy would “consider further for implementation” the identified potentially cost-beneficial SAMAs.<sup>102</sup>

The Staff went on to state that although no SAMAs would be imposed as conditions in this proceeding, they would nonetheless be considered “to the extent necessary or appropriate, under the agency’s oversight of a facility’s current operating license” under 10 C.F.R. Part 50 requirements.<sup>103</sup> As such, the Staff has maintained throughout this proceeding that it may, under the authority of the Atomic Energy Act, impose a backfit modifying the Indian Point’s current licensing basis if, following appropriate analysis pursuant to section 50.109, a determination is made that a backfit should be mandated. Although the SAMA analysis conclusions in the Final SEIS are not extensive, we do not find them insufficient as a matter of law.

### **C. Potential Cost-Beneficial Enhancements and the Backfit Rule**

Because both the Staff and the Board refer to Part 50 backfits, a few points about backfits should be made clear. The NRC’s backfit rule outlines the circumstances under which the NRC may order a plant modification (“backfit”),<sup>104</sup> including what kind of evaluation or analysis and findings would be required, which in turn depends on the NRC’s basis for considering the modification.<sup>105</sup>

New York suggests that the Staff may dispense with the backfit rule requirements and instead simply mandate SAMA implementation as an environmental license condition.<sup>106</sup> Although Part 54 refers to license conditions “to protect the environment,” such conditions relate to the monitoring, recording, and reporting of environmental data, as a means for the NRC to keep abreast of the environmental impacts of current operating reactors.<sup>107</sup> For the Staff to impose SAMA

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<sup>101</sup> Final SEIS, Main Report, at 5-11.

<sup>102</sup> *Id.*, app. G, at G-48.

<sup>103</sup> *Id.*, Main Report, at 5-11.

<sup>104</sup> See 10 C.F.R. § 50.109(a)(1) (defining “backfitting,” which encompasses a modification of or addition to structures, systems, components, or the design of a facility; or of the procedures or organization required to operate or design a facility).

<sup>105</sup> See 10 C.F.R. § 50.109(a)(3)-(4).

<sup>106</sup> See New York Reply Before Commission at 9 (the “backfit process is only one source of Staff’s authority to implement plant changes”).

<sup>107</sup> See 10 C.F.R. § 54.33(c) (referencing 10 C.F.R. § 50.36(b); see also Proposed Rule: “Environmental Review for Renewal of Operating Licenses,” 56 Fed. Reg. 47,016, 47,018 (Sept. 17, 1991)

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plant modifications unrelated to the license renewal safety review would require the Part 50 backfit rule requirements to be satisfied.

Under the backfit rule, plant modifications determined to be necessary for adequate protection are imposed regardless of cost, and without need of a full backfit analysis under 10 C.F.R. § 50.109(a)(3).<sup>108</sup> Decisions regarding whether to require a licensee to modify plant structures, components, systems, design, or procedures for reasons that go beyond assuring adequate protection or compliance with NRC rules involve multiple considerations, including how proposed measures may relate to existing or proposed NRC rules, practices, and initiatives, and to other plant modifications and activities that may be planned or under consideration.<sup>109</sup>

In the circumstance, here, where a SAMA is not necessary to protect public health and safety but nonetheless may be warranted as an incremental safety improvement, the NRC may impose a plant modification “*only* when it determines,” based on a section 50.109(c) backfit analysis, that (1) there is a *substantial increase* in the overall protection of the public health and safety or the common defense and security, and (2) that the direct and indirect costs of implementation for that facility are justified in view of this increased protection.<sup>110</sup>

#### **D. Implementation Decisions and the Scope of the License Renewal Review**

The Board in LBP-11-17 makes the issue of SAMA implementation — including potential Part 50 backfit analysis findings — one that must be resolved in the renewal proceeding, as a prerequisite for agency action on the license renewal application. Although noting that NEPA “does not mandate the particular

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(“[l]icensees submit the information from monitoring of these conditions to the NRC on a routine basis”). Further, section 54.33(c) refers to “those conditions that are part of the [current licensing basis] at the time of issuance of the renewed license,” and their supplementation or amendment for the renewal term.

<sup>108</sup> 10 C.F.R. § 50.109(a)(5) (the “Commission shall always require the backfitting of a facility if it determines that such regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security”); *see also id.* § 50.109(a)(4)(ii).

<sup>109</sup> In the specific case of SAMAs, for example, it would be insufficient simply to rank measures by how cost-beneficial they may be. A SAMA with a lower net benefit might afford greater overall risk reduction. And, as we earlier described, the implementation of one or more SAMAs may render others less or no longer cost-beneficial.

<sup>110</sup> *See* 10 C.F.R. § 50.109(a)(3) (emphasis added). No backfit analysis under 10 C.F.R. § 50.109(a)(3) is required if a plant modification is (1) necessary for adequate protection of public health and safety; or (2) necessary to bring the facility into compliance with a license, written licensee commitments, or NRC rules or orders. *See* 10 C.F.R. § 50.109(a)(4). No party here claims that any of the Indian Point SAMAs would fall into one of these categories.

decisions that an agency must reach,” the Board stated that the Staff had “the option and the duty . . . to pursue modifications” to Indian Point’s current licensing basis through the backfit process.<sup>111</sup> Moreover, the Board described the Staff as “refusing to require implementation of SAMAs whose benefits, at this juncture and on this record, clearly outweigh their costs.”<sup>112</sup> The Board further stated that the Staff had not provided any explanation for not “directing a backfit” requirement for license renewal or “setting conditions for license renewal” to require implementation of “these cost-beneficial SAMAs.”<sup>113</sup>

But the NRC has stressed — specifically addressing the applicability of the backfit rule — that for license renewal it did “not intend to impose requirements on a licensee that go beyond what is necessary to adequately manage aging effects.”<sup>114</sup> Nor does any part of the license renewal rules or their history or associated Staff guidance refer to license conditions for cost-beneficial SAMAs. And since the earliest license renewals, in practice it has been understood that follow-up actions regarding cost-beneficial SAMAs identified in the NEPA analysis would occur outside of the renewal proceeding, as a current operating issue.<sup>115</sup> While the

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<sup>111</sup> LBP-11-17, 74 NRC at 26-27 & n.76 (citing 10 C.F.R. § 50.109(a)(3)).

<sup>112</sup> *Id.* at 26.

<sup>113</sup> *Id.*

<sup>114</sup> See Final License Renewal Rule: “Safety,” 60 Fed. Reg. at 22,490; see also Proposed Rule: “Nuclear Power Plant License Renewal,” 55 Fed. Reg. 29,043, 29,047 (July 17, 1990) (“[i]f the staff or the licensee seeks to make changes in a plant’s licensing basis for reasons other than age-related degradation, they should be pursued either in the existing operating license or the renewed license, *once issued*. Staff-initiated changes would be evaluated in accordance with the backfit rule, 10 C.F.R. 50.109.” (emphasis added)).

<sup>115</sup> For example, in his notation vote approving the renewal of the Calvert Cliffs licenses (the first to be approved under Part 54), Commissioner McGaffigan encouraged the Staff, “[s]eparate from license renewal,” to “continue to engage [the licensee] on the merits of implementing” four apparently cost-beneficial SAMAs that would “offer a significant level of risk reduction.” Notation Vote, Commissioner McGaffigan, “SECY-00-0010 — Calvert Cliffs Nuclear Power Plant, Units 1 and 2 — Renewal of Full-Power Operating License” (Mar. 13, 2000), at 2 (ADAMS Accession No. ML003695350) (emphasis added); see note 125, *infra*.

Relatedly, in LBP-11-17, the Board misconstrued our decision in *Catawba/McGuire*, which did not involve the same type of claims New York makes here. The Board suggested that we held that SAMA implementation need not be required as part of a plant’s license renewal review in the limited instance when they are already the subject of a generic safety review. See LBP-11-17, 74 NRC at 25. On the contrary, we emphasized that NEPA did not demand “a detailed explanation of specific measures which *will* be employed,” and further noted that whether the NRC “ultimately will require ice condenser plants like McGuire and Catawba to implement a hydrogen control SAMA” (that had already been found to be cost-beneficial in the SAMA review) would be determined as part of a then-ongoing generic safety review, outside of license renewal. See *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 430-31 & n.60 (2003) (citation omitted); see also “Generic Environmental Impact

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SAMA rule history and guidance envisioned that cost-beneficial SAMAs would be considered for implementation to further reduce plant risk, our license renewal rules do not require SAMA implementation as a condition for license issuance.

Moreover, by implying that the Staff has a duty to impose cost-beneficial SAMAs as backfits, the Board mistakenly suggested that SAMA analysis conclusions are the equivalent of backfit analysis determinations made under 10 C.F.R. § 50.109. Although the SAMA cost-benefit analysis in practice has been guided by the same methodology used for performing the cost-benefit portion of a backfit analysis, ultimately the SAMA and backfit analyses are not the same.<sup>116</sup> They are performed for different purposes under different governing legal standards — one performed to satisfy NEPA and the other pursuant to the Atomic Energy Act.

By its own terms, a backfit analysis under section 50.109(a)(3) encompasses significant considerations beyond those considered in a SAMA analysis.<sup>117</sup> Further, even if a proposed modification is cost-beneficial, the NRC may not impose a backfit unless the modification at issue would provide a “substantial increase” in protection of public health and safety or the common defense and security.<sup>118</sup> This proceeding never established (nor did the Board address) which of the pending cost-beneficial SAMAs might provide a “substantial” increase in public safety protection because such findings are not made in SAMA analyses. In short, the conclusions in a NEPA SAMA analysis are not ready-made backfit analysis determinations under Part 50.

It is far from the case, therefore, that “once the SAMA analysis is completed Staff is prepared to order implementation of SAMAs as a backfit,” although the analysis may serve to prompt a backfit review for one or more SAMAs.<sup>119</sup> And

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Statement for License Renewal of Nuclear Plants: Regarding McGuire Nuclear Station, Units 1 and 2” (Final Report), NUREG-1437, supp. 8 (Dec. 2002), at 5-30 (ADAMS Accession No. ML030020238 (package)) (the identified SAMA “is cost-beneficial under certain assumptions,” but would be resolved “as a current operating license issue”). Our decision in *Catawba/McGuire* nowhere suggested that SAMA implementation must be resolved in a license renewal proceeding.

<sup>116</sup> See Severe Accident Mitigation Alternatives (SAMA) Analysis, Guidance Document, NEI 05-01, rev. A (Nov. 2005), at 1 (NEI SAMA Guidance) (referencing “Regulatory Analysis Technical Handbook,” NUREG/BR-0184 (Jan. 1997) (ADAMS Accession No. ML042820192)); see also “Regulatory Analysis Guidelines,” NUREG/BR-0058, rev. 4 (Sept. 2004) (ADAMS Accession No. ML042820192).

<sup>117</sup> A backfit analysis may consider any relevant and material information, and must consider, for example, the “potential safety impact of changes in plant and operational complexity, including the relationship to proposed and existing regulatory requirements,” the “resource burden on the NRC . . . and the availability of such resources,” and the continuing costs associated with the backfit. See 10 C.F.R. § 50.109(c).

<sup>118</sup> See 10 C.F.R. § 50.109(a)(3).

<sup>119</sup> See New York Answer at 60 n.271; see also *id.* at 64. And although backfit analysts presumably might choose to adopt all or a portion of the values used in the SAMA cost-benefit calculations, it is not

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notably, because the SAMAs do not relate to aging management, the Part 50 backfit process and its necessary determinations would need to be satisfied for *each* SAMA in question. These are all additional reasons why further evaluation of SAMAs in regard to the possible pursuit of backfitting, if called for, is a matter appropriately considered separate from the license renewal review.

The NRC deliberately narrowed the scope of the license renewal safety review to aging management because it viewed — and continues to view — the agency’s Part 50 regulatory processes an adequate and appropriate means for addressing ongoing safety concerns. We therefore agree with the Staff that the Board erred in ordering the Staff either to impose SAMA implementation as a *license renewal* requirement or provide other, different reasons for why it was not doing so. The Staff has provided adequate justification for not requiring the implementation of the potentially cost-beneficial SAMAs as part of this license renewal proceeding: (1) the Staff did not need to resolve all implementation questions as a prerequisite for license renewal; (2) Entergy continues to consider whether it will voluntarily implement additional mitigation measures beyond those four it already has implemented; and (3) the Staff nonetheless retains the authority and discretion, separate from this proceeding, to pursue implementation of cost-justifiable SAMAs that may provide substantial additional protection to the overall public health and safety.

Further, as we earlier described, the Staff in its draft second Final SEIS supplement amplifies its earlier explanations with specific examples of how particular SAMAs still under consideration relate to Fukushima-related measures that Entergy may implement either voluntarily or per NRC requirement. The Staff accordingly notes that the implementation of Fukushima-related severe accident mitigation measures, together with the implementation of the SAMAs Entergy already has completed, may change the Indian Point plant’s baseline risk and affect the risk reduction and cost-benefit conclusions for the remaining SAMAs. The Staff therefore considers the deferral of implementation decisions on the pending twelve SAMAs to be appropriate.<sup>120</sup>

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clear that all of the values and considerations (including sensitivity and uncertainty analyses) chosen for a SAMA cost-benefit analysis would necessarily be used in the same fashion in a backfit analysis. Indeed, guidance specific to the SAMA analysis suggests that some cost-benefit considerations in the analysis, particularly those involving the calculation of implementation costs, may have distinctions. *See* NRC Staff’s Response to the Commission’s Memorandum and Order of February 18, 2015 (CLI-15-3) Regarding Contention NYS-35/36 (Mar. 30, 2015) at 14 (Staff Response to Commission) (“the SAMA analysis is not intended to determine whether an identified SAMA is *actually* cost beneficial” (emphasis added) (citing NEI SAMA Guidance)).

<sup>120</sup> *See* Draft FSEIS Supplement 2 at 19-23. Quoting section 51.103(a)(4), New York also stresses that the Staff’s record of decision must “explain” why mitigation measures “were not adopted.” *See* New York Reply Before Commission at 9. Here, as we outlined, the Staff provided practical,

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In short, no statute or NRC regulation requires SAMAs analyzed in a license renewal NEPA review to be imposed (or a decision on SAMA implementation to be finalized) as a prerequisite to license renewal. None of New York's arguments suggest otherwise.<sup>121</sup> The Staff identified potentially cost-beneficial SAMAs, along with their risk reduction potential. That final decisions have not been reached regarding implementation of the Indian Point SAMAs does not render the mitigation analysis incomplete. Nor does the analysis reflect a "generalized, conceptual exercise"<sup>122</sup> — to date four SAMAs already have been implemented at Indian Point, based on the analysis, and more may still be implemented. And while the scope of the NRC's environmental review for license renewal appropriately extends beyond aging management and includes the requirement to consider and identify SAMAs, neither the environmental nor the safety review contains any SAMA implementation requirements that must be met for license issuance.

In sum, the Staff's SAMA analysis conclusions for Indian Point were not deficient as a matter of law. The Staff provided sufficient grounds for why in this license renewal proceeding it will not impose SAMA implementation requirements. We conclude, therefore, that the Board erred in granting summary disposition in favor of New York and prohibiting the issuance of renewed licenses for Indian Point on that ground. Instead, for the reasons outlined in this decision, summary disposition of NYS-35/36 in favor of the Staff and Entergy was appropriate.<sup>123</sup>

#### **E. Referral to the Office of Nuclear Reactor Regulation**

One matter regarding the Indian Point SAMAs warrants additional discussion. The Staff states that it may reach potential SAMA implementation decisions

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technical, and policy grounds for not imposing SAMAs in this proceeding. Given this explanation, the Staff has met the plain language of the rule, which requires the Staff to either state whether it has taken all practicable measures within its jurisdiction to avoid or minimize environmental harm, or to "explain why those measures were not adopted." 10 C.F.R. § 51.103(a)(4). The Staff's explanation was sufficient to explain why it did not impose SAMAs in this license renewal proceeding.

<sup>121</sup> New York emphasizes that Part 54 requires compliance with Part 51, citing 10 C.F.R. § 54.29(b). But the rule simply requires "all applicable" Part 51 rules to have been satisfied. Part 51 is satisfied through sufficient environmental analyses and adequate environmental record of decision. New York, moreover, was able to challenge the adequacy of the SAMA analysis in this proceeding, including litigating other SAMA contentions admitted for hearing.

<sup>122</sup> See New York Answer at 62.

<sup>123</sup> In opposing the Staff's and Entergy's petitions for review, New York requests that we allow oral argument on the merits of the appeals prior to ruling on them. See New York Answer at 65; 10 C.F.R. § 2.343. We decline to hold oral argument. The record before us provides sufficient information on which to base our decision. See *Southern Nuclear Operating Co.* (Vogtle Electric Generating Plant, Units 3 and 4), CLI-11-8, 74 NRC 214, 219-20 (2011).

outside of the proceeding, a choice our decision finds permissible under our rules. But while the Staff sufficiently outlined why it need not take action on implementation in this proceeding, it leaves vague, in practical terms, how a Staff determination on SAMA implementation might be made outside of the proceeding.<sup>124</sup> We know only that Entergy will further evaluate the identified SAMAs for implementation and that the Staff retains the means to pursue a backfit in accordance with 10 C.F.R. § 50.109. But unless the Staff itself also intends to further evaluate the pending potentially cost-beneficial SAMAs (and the Final SEIS is silent on whether that is the case), then conceivably a significant SAMA whose implementation ought to be pursued by the NRC could be overlooked. Typical SAMA analysis conclusions, including those in this case, have not indicated whether and which potentially cost-beneficial SAMAs may provide a substantial increase in the overall protection of the public health and safety or the common defense and security such that additional consideration by the Staff may be warranted.

In this regard, Staff practice in the early years of license renewal included a customary internal referral of identified cost-beneficial (or potentially cost-beneficial) SAMAs — that licensees had not yet voluntarily agreed to implement — for review and action as appropriate, as a current operating issue.<sup>125</sup> This strikes us as an appropriate way to assure that mitigation measures that may substantially increase the overall protection of public health and safety in a cost-justifiable manner are not overlooked, but are reviewed for potential implementation to the extent appropriate. Of course, in instances where it is clear to the Staff that none of the identified cost-beneficial measures would afford a substantial increase in overall safety, it would be sufficient to so note in the Final SEIS conclusion.<sup>126</sup> Here, however, the Staff has not provided such a conclusion.

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<sup>124</sup> We have sought more explanation from the Staff in regard to the “ultimate resolution of cost-beneficial SAMAs.” See CLI-11-14, 74 NRC at 813 n.70; CLI-15-3, 81 NRC at 219. The Staff outlined factors it might consider, including specific “screening criteria,” to determine if a SAMA should be pursued “as a cost-justified ‘substantial increase in safety’ backfit.” See Staff Response to Commission at 6-10. The Staff did not indicate whether any of the Indian Point SAMAs might be appropriate candidates. Nor did the Staff suggest whether or when it might reach any of these considerations.

<sup>125</sup> See, e.g., Memorandum from P.T. Kuo, NRC, to W. Ruland, NRC, “Results of the Severe Accident Mitigation Alternative (SAMA) Analysis Review for Donald C. Cook Nuclear Plant, Units 1 and 2” (May 12, 2005) (ADAMS Accession No. ML051320165); Memorandum from P.T. Kuo, NRC, to H. Berkow, NRC, “Results of the Severe Accident Mitigation Alternative (SAMA) Review for Arkansas Nuclear One, Unit 2” (May 4, 2005) (ADAMS Accession No. ML051250309); Memorandum from P.T. Kuo, NRC, to E. Hackett, NRC, “Cost-Beneficial Severe Accident Mitigation Alternatives (SAMA) Identified During the License Renewal Review for H.B. Robinson Steam Elec. Plant, Unit 2” (Dec. 30, 2003) (ADAMS Accession No. ML040050412).

<sup>126</sup> The Staff’s general conclusions in SAMA analyses would be significantly more informative if  
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We therefore direct the NRC license renewal Staff to refer the pending potentially cost-beneficial SAMAs to appropriate NRR staff for review and disposition, as appropriate, in the context of current plant operation.<sup>127</sup> The Staff should make available to New York its conclusions regarding whether any of the pending identified SAMAs warrant a backfit analysis or other further NRC action. Upon completion of this review, New York may seek to require implementation of any specific SAMA by filing a petition pursuant to 10 C.F.R. § 2.206 to modify the license.

### **III. ADDITIONAL MATTERS**

#### **A. LBP-10-13: Admissibility of NYS-35/36**

Although we also granted review of LBP-10-13, the Board's decision admitting NYS-35/36, we need not reach the contention admissibility question. The contentions originally were based on Entergy's Revised SAMA Analysis, which incorporated new meteorological data. Since then, the Staff issued its Final SEIS, upon which the Board's summary disposition decision was based, and recently issued a draft second supplement to the Final SEIS. In addition, Entergy has since provided and the Staff reviewed the augmented implementation cost analysis containing the "engineering project" costs, one of the key issues in NYS-35/36. Given these events and our decision today, we discern no need to review the admissibility of NYS-35/36. To the extent, however, that NYS-35/36 demanded the implementation of SAMAs or demanded final decisions regarding SAMA implementation, as prerequisites to license renewal, we would consider the contention inadmissible for the same reasons we provide here.

A comment on the contention's timeliness is warranted, however. Simply stated, the Board's reasoning on timeliness in LBP-10-13 appears problematic. New York's contentions challenged the legal sufficiency of explanations regarding why SAMA implementation was not required for license renewal. But these same explanations had appeared earlier in the Staff's Draft SEIS, well before the Revised SAMA Analysis that was used as the basis for Contentions NYS-35 and NYS-36. The Board based its timeliness ruling, though, merely on the fact that in the Revised SAMA Analysis Entergy "utilized different inputs in its analysis,"

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it provided some indication of what degree of significance it attaches to the individually identified cost-beneficial SAMAs — e.g., whether in the Staff's view a SAMA reflects a minor incremental safety improvement or may accord a substantial increase in public health and safety.

<sup>127</sup> In our decision on Contention 12C, we directed the Staff to perform a sensitivity analysis. The Staff may, if it chooses, wait to make its referral until that analysis is complete, to the extent that the sensitivity analysis may affect the cost-benefit analysis results and related conclusions.

which led to “a new cost-benefit picture.”<sup>128</sup> But nearly every license renewal proceeding involves revisions of the SAMA analysis, whether in response to Staff requests for additional information, additional sensitivity analyses, or for other reasons. Notably, in NYS-35/36 New York did not challenge the selection or adequacy of any of the new “inputs” used in the Revised SAMA Analysis. The mere use of new inputs, which often leads to a new “cost-benefit picture,” does not serve to restart the clock for arguments that could have — and therefore under our contention admissibility requirements should have — been raised at the outset.

## **B. Implementation Costs**

As we noted earlier, part of NYS-35/36 challenged Entergy’s intention to further refine its SAMA implementation costs to include “engineering project” costs. In other words, New York challenged the “costs” portion of the SAMA analysis, claiming that the implementation cost estimates were incomplete without inclusion of the “engineering costs” that Entergy had not yet considered but planned to consider. That dispute appears resolved and therefore moot, now that Entergy conducted the additional “engineering project” costs review and revised its SAMA implementation costs accordingly, the Staff has reviewed and accepted those implementation cost revisions, and New York has not challenged the implementation costs further.

Although we need not reach the issue, we nonetheless note the possibility that the issue could reemerge in this case. That is, in our separate decision regarding Contention NYS-12C, we directed that sensitivity analyses for certain economic cost inputs be performed.<sup>129</sup> Pursuant to those sensitivity analyses, the Staff may identify new potentially cost-beneficial SAMAs for which Entergy may not yet have provided the “engineering project” costs. In that instance, there may again be a challenge regarding the adequacy of Entergy’s implementation costs.

Entergy may choose to provide the engineering project cost estimates at the outset for any such newly identified SAMAs. Applicable SAMA cost-benefit guidance may prove helpful in determining the cost categories that should be included in the implementation costs. As the Staff noted in its response to our questions on NYS-35/36, SAMA cost-benefit guidance calls for the implementation cost estimate to contain “*all* costs associated with the SAMA . . . including design, engineering, safety analysis, installation, and long-term maintenance, calibrations, training, etc. that will be required as a result of the

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<sup>128</sup> LBP-10-13, 71 NRC at 696.

<sup>129</sup> See CLI-16-7, 83 NRC at 319-23.

change.”<sup>130</sup> In short, while guidance does not bind Entergy or any applicant, available SAMA or NRC cost-benefit guidance serves as a useful guide to the kinds of costs for which estimates are expected to be included as part of the overall implementation cost estimates.

### C. Contention NYS-40

As we previously indicated, pending before the Board is NYS-40, a new contention New York filed in February 2016 challenging the SAMA analysis in the Staff’s Draft FSEIS Supplement 2. Because NYS-40 raises similar arguments to those raised in NYS-35/36, the Board was directed to hold the contention in abeyance pending our further direction.<sup>131</sup> Contention NYS-40 asserts that “even with Entergy and NRC Staff’s revised” implementation costs, the SAMA analysis “identifies a number of mitigation alternatives” that have “benefits in excess of their costs but which are not being included as conditions of the proposed new operating licenses . . . in this proceeding.”<sup>132</sup> New York challenges the Staff’s draft supplement because it “fails to commit to implementing any cost-effective SAMAs . . . as part of this licensing proceeding.”<sup>133</sup> New York argues that now “that NRC Staff has accepted the engineering cost estimates as ‘complete,’ there is even less reason to defer and avoid implementing cost-effective site-specific SAMAs in this licensing proceeding.”<sup>134</sup>

NYS-40 does not challenge, however, any new substantive information in the draft supplement; it challenges neither the Staff’s evaluation of the SAMA implementation costs nor the Staff’s explanation of why it is reasonable for Entergy to defer future action on the pending cost-beneficial SAMAs. As New York describes, NYS-40 raises “similar issues” to those raised in the appeals regarding NYS-35/36.<sup>135</sup> Our decision today effectively encompasses — and rejects — the legal arguments New York raises in NYS-40. NYS-40 does not

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<sup>130</sup> See Staff Response to Commission at 14 (emphasis added). Guidance also provides that the implementation cost estimate should be sufficiently detailed to permit the “economic viability of the proposed modification [to] be adequately gauged.” See NEI SAMA Guidance at 28. If there are known categories of significant expected costs, it would seem that these should be included, at least as estimates, in the implementation costs. Otherwise the “economic viability” of a measure may become an ever-fluctuating judgment, depending on potential subsequent sensitivity analyses and other SAMA reanalyses that may be performed.

<sup>131</sup> See Order of the Secretary (Apr. 5, 2016) (unpublished).

<sup>132</sup> See Contention NYS-40 at 1.

<sup>133</sup> See *id.* at 9; see also *id.* at 17.

<sup>134</sup> See New York Motion for Leave at 4.

<sup>135</sup> See Contention NYS-40 at 2; see also State of New York Reply in Support of Contention NYS-40 (Mar. 25, 2016) at 4 (noting that the arguments on NYS-40 “revisit earlier disputes among the parties”).

raise a genuine dispute for hearing on a material issue of fact or law.<sup>136</sup> We therefore direct the Board to dismiss NYS-40.

#### IV. CONCLUSION

For the reasons provided above, we *reverse* LBP-11-17 and *dismiss* Contention NYS-35/36. We find that summary disposition was appropriate in favor of the Staff and Entergy. We also *direct* the Board to dismiss Contention NYS-40. Our decision today becomes part of, and serves to supplement, the environmental record of decision for this matter.<sup>137</sup>

IT IS SO ORDERED.<sup>138</sup>

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 2d day of June 2016.

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<sup>136</sup> We note, additionally, that New York in its NYS-40 filings failed to address, as our rules require, the NRC's contention admissibility standards in 10 C.F.R. § 2.309(f)(1). New York subsequently submitted a late filing addressing the criteria, in which it described the earlier omission as inadvertent. *See* New York's Supplemental Submission (Feb. 29, 2016) at S-1. We agree with Entergy that "oversight by counsel" does not establish "good cause" for an untimely submission. *See* Entergy's Opposition to Proposed New York State Contention NYS-40 Regarding Severe Accident Mitigation Alternatives (Mar. 18, 2016) at 12-13. Even considering the supplemental filing, however, New York's arguments do not alter our reasoning or conclusions.

<sup>137</sup> *See Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-06-15, 63 NRC 687, 707 n. 91 (2006).

<sup>138</sup> Chairman Burns did not participate in this matter.

**Additional Views of Commissioner Baran**

I concur with the Memorandum and Order, but write separately to express my views on the Commission's direction to the NRC license renewal Staff to refer the potentially cost-beneficial SAMAs for Indian Point to the responsible staff in the Office of Nuclear Reactor Regulation (NRR) for appropriate action. I agree with my colleagues that referral in this case is a reasonable way to ensure that mitigation measures that may substantially increase safety are not overlooked and are reviewed for potential implementation. In fact, I think the NRC license renewal Staff should establish a regular practice of referring potentially cost-beneficial SAMAs to NRR, which then should expeditiously review them to determine if additional regulatory action should be taken. SAMAs represent a significant technical effort, and NRC should capitalize on the insights they provide about potential safety enhancements at nuclear power plants.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket Nos. 50-275-LR  
50-323-LR**

**PACIFIC GAS AND ELECTRIC  
COMPANY  
(Diablo Canyon Nuclear Power  
Plant, Units 1 and 2)**

**June 2, 2016**

**APPEALS, DISCRETIONARY**

The Commission will grant a petition for review at its discretion, giving due weight to the existence of a substantial question with respect to one or more of the following considerations: (i) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding; a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law; (iii) a substantial and important question of law, policy, or discretion has been raised; (iv) the conduct of the proceeding involved a prejudicial procedural error; or (v) any other consideration that the Commission may deem to be in the public interest.

**MEMORANDUM AND ORDER**

On October 21, 2015, the Atomic Safety and Licensing Board granted summary disposition of the sole admitted contention in this license renewal proceeding in favor of the applicant, Pacific Gas and Electric Company (PG&E).<sup>1</sup> The Board also

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<sup>1</sup> LBP-15-29, 82 NRC 246, 254 (2015); *see* Pacific Gas and Electric Company's Motion for  
(Continued)

dismissed a proposed contention filed by the intervenor, San Luis Obispo Mothers for Peace, and terminated the proceeding.<sup>2</sup> Mothers for Peace has petitioned for review of that decision.<sup>3</sup> In addition, Mothers for Peace seeks review of the Board's dismissal of two proposed contentions in an earlier Board decision.<sup>4</sup> For the reasons set forth below, we deny the petitions for review.

## I. BACKGROUND

In November 2009, PG&E applied to renew the operating licenses for Diablo Canyon Units 1 and 2 for an additional 20 years.<sup>5</sup> The NRC Staff provided an opportunity for interested persons to request an adjudicatory hearing.<sup>6</sup> Mothers for Peace filed a request for hearing with proposed contentions challenging the application.<sup>7</sup> One of its contentions, Contention EC-1, was admitted for hearing.<sup>8</sup> In that contention, Mothers for Peace asserted that PG&E's Environmental Report, specifically the severe accident mitigation alternatives (SAMA) analysis, failed to consider the Shoreline Fault, which was discovered near the Diablo Canyon site.<sup>9</sup>

Today we consider Mothers for Peace's petitions for review of the Board's dismissal of Contention EC-1 as moot and the Board's dismissal of three proposed contentions: Contention A, which challenges PG&E's consideration of energy alternatives;<sup>10</sup> Contention C, a SAMA contention that challenges PG&E's

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Summary Disposition on Contention EC-1 (July 31, 2015) (PG&E Motion for Summary Disposition); Statement of Material Facts on Which No Genuine Dispute Exists (July 31, 2015); Affidavit of L. Jearl Strickland in Support of Summary Disposition of Contention EC-1 (July 31, 2015).

<sup>2</sup> LBP-15-29, 82 NRC at 254-55.

<sup>3</sup> San Luis Obispo Mothers for Peace's Petition for Review of LBP-15-29 (Nov. 16, 2015) (November 2015 Petition for Review).

<sup>4</sup> San Luis Obispo Mothers for Peace's Petition for Review of Memorandum and Order (Denying Motions to File New Contentions) (Sept. 14, 2015) (September 2015 Petition for Review); *see* Memorandum and Order (Denying Motions to File New Contentions) (Aug. 6, 2015) (unpublished) (August 2015 Board Decision).

<sup>5</sup> Notice of Acceptance for Docketing of the Application, Notice of Opportunity for Hearing for Facility Operating License Nos. DPR-80 and DPR-82 for an Additional 20-Year Period; Pacific Gas & Electric Company, Diablo Canyon Nuclear Power Plant, Units 1 and 2; and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information (SUNSI) for Contention Preparation, 75 Fed. Reg. 3493, 3493 (Jan. 21, 2010).

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

<sup>7</sup> Request for Hearing and Petition to Intervene by San Luis Obispo Mothers for Peace (Mar. 22, 2010).

<sup>8</sup> LBP-10-15, 72 NRC 257, 345 (2010), *aff'd in part and rev'd in part*, CLI-11-11, 74 NRC 427, 444, 459 (2011).

<sup>9</sup> CLI-11-11, 74 NRC at 438, 444.

<sup>10</sup> San Luis Obispo Mothers for Peace's Motion to File New Contentions Regarding Adequacy of  
(Continued)

consideration of seismic hazards;<sup>11</sup> and amended Contention C, which repeats the arguments in Contention C and provides additional challenges to PG&E's consideration of seismic hazards.<sup>12</sup> Mothers for Peace filed these contentions in response to PG&E's February 2015 and July 2015 revisions to its Environmental Report, as well as PG&E's March 2015 response to the NRC's request for seismic hazard information under 10 C.F.R. § 50.54(f) (part of the agency's lessons-learned activities from the Fukushima Dai-ichi accident and continuing oversight of all plants, outside of license renewal).<sup>13</sup> Mothers for Peace argues that we should take review of, and reverse, the Board's rulings.<sup>14</sup> PG&E and the Staff oppose Mothers for Peace's petitions for review.<sup>15</sup>

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Environmental Report for Diablo Canyon License Renewal Application (Apr. 6, 2015) at 2-7 (New Contentions A and B).

<sup>11</sup> San Luis Obispo Mothers for Peace's Motion to File New Contentions Regarding Adequacy of Severe Accident Mitigation Alternatives Analysis for Diablo Canyon License Renewal Application (Apr. 15, 2015) at 2-15 (New Contentions C and D). Mothers for Peace also moved to file proposed Contentions B and D, which, respectively, challenged PG&E's conclusions regarding the impacts of license renewal in comparison to the impacts of energy alternatives and the consideration of flooding risk from local intense precipitation events as part of the SAMA analysis. New Contentions A and B at 8-13; New Contentions C and D at 16-18. The Board found these contentions inadmissible, and Mothers for Peace did not seek review of their dismissal. August 2015 Board Decision at 1; September 2015 Petition for Review at 1 n.1.

<sup>12</sup> San Luis Obispo Mothers for Peace's Motion to File Amended Contention C (Inadequate Consideration of Seismic Risk in SAMA Analysis as Supplemented by SHU-SAMA Evaluation) (July 31, 2015) at 3-25 (Amended Contention C).

<sup>13</sup> New Contentions A and B at 1; New Contentions C and D at 1-3; Amended Contention C at 1-2; *see* Letter from Barry S. Allen, PG&E, to NRC Document Control Desk (Feb. 25, 2015) (ADAMS Accession No. ML15057A102 (package)) (February 2015 Revised License Renewal Application); Letter from Barry S. Allen, PG&E, to NRC Document Control Desk (Mar. 11, 2015) (ADAMS Accession No. ML15071A046 (package)) (March 2015 Seismic Hazard Report); Letter from Barry S. Allen, PG&E, to NRC Document Control Desk (July 1, 2015) (ADAMS Accession No. ML15182A452) (July 2015 SAMA Analysis Update). *See generally* Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (Mar. 12, 2012) (ADAMS Accession No. ML12053A340) (Section 50.54(f) Request); Final Determination of Licensee Seismic Probabilistic Risk Assessments Under the Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendation 2.1 "Seismic" of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (Oct. 27, 2015) (ADAMS Accession No. ML15194A015).

<sup>14</sup> November 2015 Petition for Review at 1-2; September 2015 Petition for Review at 1. Mothers for Peace filed its September 2015 petition before the Board issued its decision in LBP-15-29 and terminated the proceeding. At that time, the September 2015 petition was interlocutory, and Mothers for Peace would have had to demonstrate a basis for review under 10 C.F.R. § 2.341(f)(2). Now that the Board has terminated the proceeding, however, the issue whether interlocutory review is appropriate is moot.

<sup>15</sup> Pacific Gas and Electric Company's Opposition to San Luis Obispo Mothers for Peace's Petition  
(Continued)



## II. DISCUSSION

We will grant a petition for review at our discretion, giving due weight to the existence of a substantial question with respect to one or more of the following considerations:

- (i) A finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) A necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) A substantial and important question of law, policy, or discretion has been raised;
- (iv) The conduct of the proceeding involved a prejudicial procedural error; or
- (v) Any other consideration that we may deem to be in the public interest.<sup>16</sup>

### A. The Board's Contention Admissibility Rulings

#### 1. *Contention A*

In Contention A, Mothers for Peace argued that PG&E's amended Environmental Report fails to satisfy the requirements of the National Environmental Policy Act (NEPA) because it relies on what Mothers for Peace claimed to be an outdated concept: that alternative energy technologies capable of baseload generation would be the only viable candidates for replacement power for Diablo Canyon.<sup>17</sup> Mothers for Peace also challenged PG&E's selection of a combination of concentrated solar power, wind, solar photovoltaics, geothermal, demand-side management, and natural-gas-fired generation, as a "technically feasible and practicable technology combination alternative to continuing the operation of

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for Review of LBP-15-29 (Dec. 11, 2015); NRC Staff Answer Opposing San Luis Obispo Mothers for Peace's Petition for Review of LBP-15-29 and Review of the Board's August 6, 2015 Memorandum and Order (Dec. 11, 2015); Applicant's Response to Petition for Review (Oct. 9, 2015) at 1; NRC Staff's Answer Opposing Commission Review of Atomic Safety and Licensing Board Memorandum and Order Denying Motion to File New Contentions A and C (Oct. 9, 2015).

<sup>16</sup> 10 C.F.R. § 2.341(b)(4).

<sup>17</sup> New Contentions A and B at 2-3 ("Chapter 7 of PG&E's Amended Environmental Report is inadequate to satisfy NEPA and 10 CFR § 51.53(c)(2) because it does not evaluate a reasonable array of energy alternatives that either currently are commercially viable or will become so in the near term (i.e., within the next ten years). PG&E's energy alternatives analysis is based on arbitrary and unreasonable assumptions about the necessary characteristics of replacement energy, the viability and availability of alternative energy sources, and what constitute[s] reasonable combinations of energy sources.").

[Diablo Canyon].”<sup>18</sup> Mothers for Peace asserted that this combination alternative “ignores the dramatic developments in . . . the individual technologies,” and therefore overly relies on natural gas, “which distorts the environmental impact assessment.”<sup>19</sup> In a similar vein, Mothers for Peace argued that these recent developments in renewable technologies, including their reduction in cost, demonstrate that they will be available as alternatives “to replace Diablo Canyon capacity upon the termination of its current license[s]” in November 2024 and August 2025, and that PG&E was wrong to question their availability during that time frame.<sup>20</sup> In support of its contention, Mothers for Peace attached a declaration from Mark Cooper, a Senior Fellow for Economic Analysis at the Institute for Energy and the Environment at Vermont Law School.<sup>21</sup>

The Board found that Mothers for Peace’s claims “either r[an] afoul of binding Commission precedents” or otherwise failed to meet the contention admissibility standards in 10 C.F.R. § 2.309(f)(1).<sup>22</sup> In *Seabrook*, we clarified the scope of the energy alternatives analysis for license renewal, and we explained that an energy alternatives contention in a license renewal proceeding must provide facts or expert opinion sufficient to raise a genuine dispute as to whether the proposed alternative technology (or combination of technologies) “is currently commercially viable, or will become so in the near term” to supply baseload power.<sup>23</sup> We reiterated this standard in the *Davis-Besse* license renewal proceeding shortly after our decision in *Seabrook*.<sup>24</sup> Based on our decisions in those cases, the Board found that Mothers for Peace had not presented a “plausible, adequately supported argument” that its preferred technologies “could supply sufficient

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<sup>18</sup> February 2015 Revised License Renewal Application, Enclosure 2, Attach. 1, at 7.2-4; *see* New Contentions A and B at 4.

<sup>19</sup> New Contentions A and B at 4-5.

<sup>20</sup> *Id.* at 6; *see also id.* at 3-4.

<sup>21</sup> Declaration of Mark Cooper in Support of San Luis Obispo Mothers for Peace’s Motion to File New Contentions Regarding Adequacy of Environmental Report for Diablo Canyon License Renewal Application (Apr. 6, 2015) ¶ 1.

<sup>22</sup> August 2015 Board Decision at 8 (citing *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 339 n.223, 342 (2012); *FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 397 (2012)). Although PG&E had argued that some of Mothers for Peace’s claims in Contention A were not timely under 10 C.F.R. § 2.309(c), the Board did not rule on the timeliness of the contentions because it found them inadmissible under section 2.309(f)(1). *Id.* at 5; Pacific Gas and Electric Company’s Answer Opposing Proposed Energy Alternatives Contentions (May 1, 2015) at 7, 10.

<sup>23</sup> *Seabrook*, CLI-12-5, 75 NRC at 342.

<sup>24</sup> *Davis-Besse*, CLI-12-8, 75 NRC at 397.

baseload power to replace Diablo Canyon’s generating capacity at the time its operating licenses expire.”<sup>25</sup>

Mothers for Peace argues that the Board mistakenly relied on *Seabrook* and *Davis-Besse* because the decisions predated the NRC’s 2013 revision to the Generic Environmental Impact Statement for License Renewal (GEIS).<sup>26</sup> According to Mothers for Peace, the rationale from those cases for whether a given energy alternative is capable of supplying “baseload” power is a relic of the 1996 License Renewal GEIS, “which has now been superseded by a markedly different analysis” in the 2013 revision.<sup>27</sup> Mothers for Peace asserts that the Board’s ruling “raises the question of whether the [revised] GEIS is actually an effective document” and asks us “to clarify” that the revised GEIS “governs NEPA reviews of alternative energy analyses.”<sup>28</sup> Mothers for Peace also argues that it adequately supported its contention, noting in particular its challenge to PG&E’s combination alternative, and asserts that the Board improperly reached the merits of the contention by “weighing [Dr.] Cooper’s supported opinions against the statements in the Amended Environmental Report, and by failing to credit [Dr.] Cooper’s expert opinion.”<sup>29</sup>

Mothers for Peace, however, reads the 2013 GEIS out of context and mischaracterizes the Board’s treatment of its contention. Mothers for Peace references a discussion in the revised GEIS regarding advancements in replacement power alternatives that explained that the generic analysis considers the latest information on energy alternatives but does not incorporate anticipated or speculative changes on the future state of technology.<sup>30</sup> In this discussion, the NRC acknowledged that “it is inevitable that rapidly evolving technologies will outpace information pre-

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<sup>25</sup> August 2015 Board Decision at 9. Additionally, to the extent Dr. Cooper asserted that energy efficiency measures could replace baseload power, the Board found that this argument failed to raise a genuine dispute because PG&E considered demand-side management and energy efficiency programs, and although they do not generate baseload power, PG&E deemed them a reasonable alternative. *Id.* at 9-10. And to the extent Mothers for Peace and Dr. Cooper referenced the costs of energy alternatives to argue that PG&E should have considered the economic viability of continuing operation of Diablo Canyon in its alternatives analysis, the Board found that such a determination is within the purview of state regulatory and utility officials and therefore outside the limited scope of the NRC’s license renewal proceeding. *Id.* at 11 (citing Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg. 28,467, 28,471 (June 5, 1996)).

<sup>26</sup> September 2015 Petition for Review at 2-4.

<sup>27</sup> *Id.* at 3.

<sup>28</sup> *Id.* at 4-5.

<sup>29</sup> *Id.* at 5.

<sup>30</sup> *Id.* at 4 (citing “Generic Environmental Impact Statement for License Renewal of Nuclear Plants — Main Report” (Final Report), NUREG-1437, Rev. 1, Vol. 1 (June 2013), at 1-30 to 1-31 (ADAMS Accession No. ML13106A241) (GEIS Rev. 1)).

sented in the GEIS” and left the consideration of the status of energy alternatives and energy policies to individual license renewal reviews.<sup>31</sup>

In the 2013 GEIS, the NRC did not, however, revise the agency’s longstanding position that energy alternatives, to be considered reasonable, must be “capable of meeting the purpose and need of the proposed action (license renewal) or replacing the power generated by a nuclear power plant.”<sup>32</sup> In fact, consistent with our holdings in *Seabrook* and *Davis-Besse*, the revised GEIS expressly states that “[a] reasonable alternative must be commercially viable on a utility scale and operational prior to the expiration of the reactor’s operating license, or expected to become commercially viable on a utility scale and operational prior to the expiration of the reactor’s operating license.”<sup>33</sup> Mothers for Peace’s misapprehension that the revised GEIS reflects a change in the agency’s assessment of how best to address energy alternatives is not a valid basis for review of the Board’s decision.

Further, although Mothers for Peace argues that the Board improperly weighed its arguments, we see nothing to indicate that the Board misapplied our case law or the contention admissibility standards set forth in our rules of practice.<sup>34</sup> The Board reviewed Mothers for Peace’s supporting documentation, including Dr. Cooper’s declaration, to determine whether Mothers for Peace had advanced a genuine, material dispute with PG&E’s license renewal application.<sup>35</sup> The Board found that although Dr. Cooper’s statement showed an increase in generation from renewable technologies and declining costs and increased use of battery technology, it did not show that these technologies would be commercially available and practicable to satisfy baseload demand in the relevant time frame for license renewal.<sup>36</sup> Without a showing of a substantial question as to whether the Board erred, Mothers for Peace has not made a case for our review of the Board’s ruling on Contention A. Therefore, we decline to review the Board’s ruling on this contention.

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<sup>31</sup> GEIS Rev. 1, at 1-31.

<sup>32</sup> Compare *id.* at 2-18 with “Generic Environmental Impact Statement for License Renewal of Nuclear Plants — Main Report” (Final Report), NUREG-1437, Vol. 1 (May 1996), 8-15 (ADAMS Accession No. ML040690705) (evaluating alternatives identified . . . as capable of satisfying the purpose and need of the proposed action”).

<sup>33</sup> GEIS Rev. 1, at 2-18. We “need only discuss those alternatives that are reasonable and ‘will bring about the ends’ of the proposed action.” *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 55 (2001) (quoting *Citizens Against Burlington v. Busey*, 938 F.2d 190, 195 (D.C. Cir.), *cert. denied*, 502 U.S. 994 (1991)).

<sup>34</sup> See 10 C.F.R. § 2.309(f)(1)(i)-(vi).

<sup>35</sup> See, e.g., August 2015 Board Decision at 11.

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

## 2. *Contention C and Amended Contention C*

PG&E submitted an update to its Environmental Report in February 2015 that revised the SAMA analysis by addressing, among other things, updated seismic information that considered the Shoreline Fault and other regional faults.<sup>37</sup> In its Contention C, Mothers for Peace argued that the revised SAMA analysis “is not based on a sufficiently rigorous or up-to-date analysis of seismic risks.”<sup>38</sup> First, Mothers for Peace asserted that the revised SAMA analysis is inadequate because it relies on an “interim” seismic analysis and does not incorporate information from the updated seismic hazard evaluation that PG&E submitted in March 2015 in response to the Staff’s Section 50.54(f) Request.<sup>39</sup> PG&E committed to update its SAMA analysis with this information, but it had not yet done so at the time Mothers for Peace submitted Contention C.<sup>40</sup> Second, Mothers for Peace argued that even if PG&E were to have incorporated this information, the SAMA analysis would still be inadequate due to purported deficiencies in PG&E’s updated seismic hazard evaluation.<sup>41</sup> Mothers for Peace filed Amended Contention C after PG&E again revised the SAMA analysis in July 2015 to incorporate the information from its updated seismic hazard evaluation. Mothers for Peace echoed the arguments in Contention C and added new claims relating to the adequacy of PG&E’s

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<sup>37</sup> See February 2015 Revised License Renewal Application, Enclosure 2, Attach. 2, at 4.20-3.

<sup>38</sup> New Contentions C and D at 2-3 (“PG&E’s SAMA Analysis . . . is inadequate to satisfy [NEPA] or NRC implementing regulation 10 C.F.R. § [51.53(c)(3)(ii)(L)] because PG&E’s evaluation of potential mitigation measures is not based on a sufficiently rigorous or up-to-date analysis of seismic risks. As a result, PG&E’s evaluation of the comparative costs and benefits of measures to prevent or mitigate the effects of a severe earthquake does not sufficiently credit the cost-effectiveness of mitigation measures. While PG&E claims that the ‘results and insights’ of its 2014 ‘interim’ probabilistic risk analysis [PRA] . . . are ‘reasonable for the purposes of a SAMA analysis’ . . . by PG&E’s own admission, [it] is only an ‘interim’ PRA. . . . In addition, it is not sufficiently rigorous or updated to support the SAMA analysis. Nor does PG&E’s promise to ‘update’ the [PRA] with the ‘results’ of its 2015 seismic hazards analysis cure the inadequacy of [the PRA] to support PG&E’s SAMA Analysis, because PG&E’s seismic hazards analysis is also insufficiently rigorous and relies on outdated or unjustified methods and assumptions. Given the inadequacies of PG&E’s seismic hazards analysis, to merely cite its ‘results’ in a revised SAMA Analysis would not be sufficient to ensure the adequacy of the SAMA Analysis to evaluate potential mitigation measures for severe seismic accidents. Instead, PG&E must cure the significant defects in the underlying data and analyses.” (internal citations omitted)).

<sup>39</sup> *Id.* at 4-5.

<sup>40</sup> See February 2015 Revised License Renewal Application at 2.

<sup>41</sup> See New Contentions C and D at 6-12 (arguing, among other things, that PG&E may have incorrectly mapped the location of the Shoreline Fault and other nearby faults, thereby underestimating “the shaking that may be caused by nearby earthquakes” and that even assuming a correct mapping, PG&E failed “to account for recent data and models showing that earthquakes on given faults may be much larger than previously assumed”). The Board found these claims speculative because they were based on a filing that PG&E had not yet submitted. August 2015 Board Decision at 17 n.75.

seismic hazard analysis.<sup>42</sup> Dr. David Jackson, Professor of Geophysics, Emeritus, at UCLA, provided expert opinion in support of Contention C and Amended Contention C.<sup>43</sup>

Our case law sets forth the standard for determining whether a SAMA-related contention raises a genuine, material dispute for an admissible contention under 10 C.F.R. § 2.309(f)(1). Because for any SAMA analysis “[i]t will always be possible to envision and propose some alternate approach, some additional detail to include, [or] some refinement,”<sup>44</sup> we have instructed our licensing boards 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>45</sup> We have made clear that “[u]nless a petitioner sets forth a supported contention pointing to an apparent error or deficiency that may have significantly skewed the environmental conclusions, there is no genuine material dispute for hearing.”<sup>46</sup>

The Board applied this standard to both the original and amended versions of Contention C.<sup>47</sup> The Board found that, “most importantly,”<sup>48</sup> Mothers for Peace “never addressed the potential impact of any particular seismic model change on the cost-benefit evaluations of the [severe accident mitigation measures] that PG&E considered.”<sup>49</sup> That is, in the Board’s assessment, both versions of

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<sup>42</sup> Amended Contention C at 3-4, 13 (arguing that PG&E’s July 2015 SAMA Analysis Update fails to consider “the effects of spectral acceleration” and fails to consider “surface fault rupture, ground displacement, ground velocity, and duration of shaking” — “other measures of ground motion that could cause reasonably foreseeable adverse environmental impacts on Diablo Canyon that are more extreme than or different from the impacts of spectral acceleration”).

<sup>43</sup> New Contentions C and D at 13; Declaration of Dr. David D. Jackson in Support of San Luis Obispo Mothers for Peace’s Motion to File New Contention Regarding Adequacy of Severe Accident Mitigation Alternatives Analysis for Diablo Canyon License Renewal Application (Apr. 15, 2015); Amended Contention C at 19; Declaration of Dr. David D. Jackson in Support of San Luis Obispo Mothers for Peace’s Amended Contention C (July 31, 2015).

<sup>44</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 714 (2012).

<sup>45</sup> *Seabrook*, CLI-12-5, 75 NRC at 323. This stems from NEPA’s “rule of reason.” *See Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208 (2010); *see also Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315 (2010) (observing that “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’” (quoting *Town of Winthrop v. Federal Aviation Administration*, 535 F.3d 1, 11 (1st Cir. 2008))); *Seabrook*, CLI-12-8, 75 NRC at 323 (“SAMA adjudications would prove endless if hearings were triggered merely by suggested alternative inputs and methodologies that conceivably could alter the cost-benefit conclusions.”).

<sup>46</sup> *Davis-Besse*, CLI-12-8, 75 NRC at 407 (emphasis omitted).

<sup>47</sup> *See* LBP-15-29, 82 NRC at 250-52; August 2015 Board Decision at 15-17.

<sup>48</sup> August 2015 Board Decision at 17.

<sup>49</sup> LBP-15-29, 82 NRC at 250; *see also* August 2015 Board Decision at 17.

the contention lacked the necessary link between Mothers for Peace’s claimed deficiencies in the underlying seismic hazard evaluations and the environmental conclusions in PG&E’s SAMA analysis.<sup>50</sup> To the extent that Mothers for Peace challenged the adequacy of PG&E’s updated seismic hazard evaluation *per se* — that is, independent of the SAMA analysis — the Board found such a challenge outside the scope of the license renewal proceeding because the seismic hazard evaluation was submitted in connection with the agency’s continuing oversight of the plant.<sup>51</sup> At bottom, the Board found that Mothers for Peace had not demonstrated that PG&E’s analysis was unreasonable under NEPA.<sup>52</sup>

Mothers for Peace argues that our review of the Board’s ruling on both original and Amended Contention C is warranted because the Board committed factual and legal errors by mischaracterizing the contentions and judging them on their merits.<sup>53</sup> Mothers for Peace faults the Board for what it claims was an improper weighing and crediting of PG&E’s views over those of Dr. Jackson.<sup>54</sup> But the record reflects that the Board adhered to our case law and the contention admissibility standards in our rules of practice. The Board did not weigh Dr. Jackson’s declaration, but rather looked to whether Mothers for Peace had demonstrated a connection between the claimed deficiencies in PG&E’s updated seismic evaluation and the results of the SAMA analysis. The Board found that Mothers for Peace did not make that connection.<sup>55</sup>

According to Mothers for Peace, the original and amended contentions asserted that information had been “omitted” from the SAMA analysis — rendering them contentions of “omission” rather than contentions of “adequacy” — and therefore Mothers for Peace was not required to describe how its criticisms of PG&E’s updated seismic hazard evaluation would materially affect the SAMA analysis’ conclusions.<sup>56</sup> Mothers for Peace likens its arguments to those in Contention EC-1

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<sup>50</sup> See LBP-15-29, 82 NRC at 250-52; August 2015 Board Decision at 17.

<sup>51</sup> LBP-15-29, 82 NRC at 250, 252; August 2015 Board Decision at 16.

<sup>52</sup> LBP-15-29, 82 NRC at 252; August 2015 Board Decision at 16-17.

<sup>53</sup> November 2015 Petition for Review at 4; *see also* September 2015 Petition for Review at 6.

<sup>54</sup> September 2015 Petition for Review at 8-9; *see also* November 2015 Petition for Review at 5-6.

<sup>55</sup> See LBP-15-29, 82 NRC at 252; August 2015 Board Decision at 17. Mothers for Peace also contends that the Board improperly restricted the scope of NEPA by finding its challenge to PG&E’s updated seismic hazard evaluation outside the scope of the proceeding. September 2015 Petition for Review at 6-7. But the Board merely observed that to the extent Mothers for Peace sought to challenge the updated seismic hazard evaluation itself — a review ongoing as part of the Staff’s oversight activities for Diablo Canyon — without any connection to the SAMA analysis, it was outside the scope. *See* LBP-15-29, 82 NRC at 250; August 2015 Board Decision at 16.

<sup>56</sup> See November 2015 Petition for Review at 4; September 2015 Petition for Review at 11. Mothers for Peace nevertheless asserts that it met the standard for an admissible contention by challenging the methodology and conclusions in PG&E’s seismic hazard analyses. *See* November 2015 Petition for Review at 5-6; September 2015 Petition for Review at 10-11.

and our decision upholding the Board's admission of that contention on appeal.<sup>57</sup> In that decision, we cited our reasoning in *McGuire/Catawba* for admitting a portion of a contention that asserted that the applicant failed to consider the results of a particular study in its SAMA analysis, finding it analogous to Contention EC-1, which claimed that PG&E's SAMA analysis failed to consider the Shoreline Fault.<sup>58</sup> We also observed that not every SAMA contention must be supported in the same way, and that "[t]he support required for a contention necessarily will depend on the issue sought to be litigated."<sup>59</sup>

Whether a contention is characterized as one of "omission" or "adequacy" is a matter of degree.<sup>60</sup> Contentions that claim a failure to include an entire subject matter or study might be considered contentions of omission.<sup>61</sup> Contentions that argue for alternative analyses or refinements to a SAMA analysis might be characterized as contentions of "adequacy." But as we explained in our decision upholding Contention EC-1, the label is not the deciding factor at the contention admissibility stage.<sup>62</sup> It is the arguments made and the support provided for those arguments, and ultimately, the demonstration of a genuine dispute as to whether the SAMA analysis is reasonable under NEPA, that determines whether or not a SAMA contention is admissible.<sup>63</sup> This theme runs throughout our SAMA case law.<sup>64</sup>

Here, the Board found that Mothers for Peace had not attempted to connect its claims with the SAMA analysis. This is insufficient support for the contentions regardless of how they are labeled. Therefore, we find that Mothers for Peace has not raised a substantial question regarding the Board's ruling on either original or Amended Contention C.

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<sup>57</sup> See November 2015 Petition for Review at 4-5; September 2015 Petition for Review at 11.

<sup>58</sup> CLI-11-11, 74 NRC at 442-43 (citing *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 8-11 (2002)).

<sup>59</sup> *Id.* at 442.

<sup>60</sup> 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) (discussing the "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").

<sup>61</sup> See *id.*; *McGuire/Catawba*, CLI-02-17, 56 NRC at 9-11.

<sup>62</sup> See CLI-11-11, 74 NRC at 442. The importance of this distinction increases, however, in the face of an argument that the contention has become moot. See *McGuire/Catawba*, CLI-02-28, 56 NRC at 382-83; *infra* Part II.B.

<sup>63</sup> See CLI-11-11, 74 NRC at 442-43.

<sup>64</sup> See *id.* at 443; *Davis-Besse*, CLI-12-8, 75 NRC at 406-07; *Seabrook*, CLI-12-5, 75 NRC at 323-24; *McGuire/Catawba*, CLI-02-17, 56 NRC at 8.



## **B. The Board's Summary Disposition of Contention EC-1**

We reach the same conclusion with regard to the Board's ruling on Contention EC-1. Contention EC-1 states that PG&E's SAMA analysis did not satisfy the requirements of NEPA or 10 C.F.R. § 51.53(c)(3)(ii)(L) because it "fail[ed] to consider information regarding the Shoreline [F]ault that is necessary for an understanding of seismic risks to the Diablo Canyon nuclear power plant."<sup>65</sup> PG&E incorporated information regarding the Shoreline Fault into its SAMA analysis and then filed a motion for summary disposition on the ground that the contention had become moot, which the Board granted.<sup>66</sup> The sole argument that Mothers for Peace makes for our discretionary review is that it did not expect to have to defend against a dispositive motion on Contention EC-1 until after the Staff issued the Draft Supplemental Environmental Impact Statement (Draft SEIS), which the Staff currently plans to issue in August 2016.<sup>67</sup> Mothers for Peace argues that it had relied on the Board's most recent scheduling order and that the Board's granting of PG&E's motion before issuance of the Draft SEIS was "inconsistent with the Commission's legal and policy precedents protecting the fairness of NRC adjudications."<sup>68</sup> Mothers for Peace takes issue with the Board's case management, suggesting that the Board sacrificed fairness to expediency.<sup>69</sup> The history of this proceeding, however, reflects otherwise.

After it admitted Contention EC-1, the Board issued its initial scheduling order in September 2010,<sup>70</sup> and since that time, it has kept us apprised of changes to the hearing schedule. In June 2011, the Board notified us of an over 4-year delay in the adjudicatory proceeding resulting from PG&E's request for the Staff to "'delay the final processing'"<sup>71</sup> of PG&E's license renewal application until PG&E completed seismic imaging studies that had been requested by the State of

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<sup>65</sup> CLI-11-11, 74 NRC at 444 ("PG&E's Severe Accident Mitigation Alternatives [(SAMA)] analysis fails to consider information regarding the Shoreline [F]ault that is necessary for an understanding of seismic risks to the Diablo Canyon nuclear power plant. As a result, PG&E's SAMA analysis does not satisfy the requirements of the National Environmental Policy Act [(NEPA)] for consideration of alternatives or NRC implementing regulation 10 C.F.R. § 51.53(c)(3)(ii)(L)." (first and third alterations in original)).

<sup>66</sup> PG&E Motion for Summary Disposition at 4-5; LBP-15-29, 82 NRC at 254.

<sup>67</sup> See November 2015 Petition for Review at 10-12; Letter from Joseph A. Lindell, counsel for NRC Staff, to the Administrative Judges (Oct. 15, 2015) (Staff Schedule Update).

<sup>68</sup> November 2015 Petition for Review at 10-11.

<sup>69</sup> *Id.* at 11.

<sup>70</sup> Initial Scheduling Order (Sept. 15, 2010).

<sup>71</sup> Letter from David A. Repka, counsel for PG&E, to the Administrative Judges (Apr. 12, 2011), at 1 (quoting attached Letter from John T. Conway, PG&E, to NRC Document Control Desk (Apr. 10, 2011) at 2) (April 2011 PG&E Letter).

California.<sup>72</sup> The Board directed PG&E to issue monthly updates on the status of its seismic imaging project to inform the Board's schedule for the adjudicatory proceeding.<sup>73</sup>

In its most recent iteration of the scheduling order, issued in March 2014, the Board amended the deadlines for new or amended environmental contentions and dispositive motions, including the deadline for dispositive motions on Contention EC-1.<sup>74</sup> The Board extended the deadline for filing a dispositive motion from 10 to 30 days after the event on which the motion was based, with the additional instruction that dispositive motions based on the final seismic imaging report should not be filed before, but would be deemed timely if filed within 30 days after, issuance of the Draft SEIS.<sup>75</sup> And the Board instructed that dispositive motions with regard to Contention EC-1 would be due 30 days after issuance of the Draft SEIS.<sup>76</sup> The Board explained that this "ultimate deadline" was "in addition to, not in lieu of" the general 30-day deadline for dispositive motions.<sup>77</sup>

At the time the Board set this schedule, PG&E had expected to issue the final seismic imaging report in June 2014, and the Staff had expected to issue the Draft SEIS in September 2014.<sup>78</sup> To avoid duplication of effort on the part of the parties and the Board if contentions or dispositive motions were filed based on the seismic imaging report, only to be superseded by the issuance of the Draft SEIS a few months later, the Board based the deadlines on the Staff's issuance of the Draft SEIS.<sup>79</sup>

But fact-of-life changes occurred and the schedule slipped still further. In June 2014, the Board notified us of an additional 11-month delay.<sup>80</sup> PG&E submitted

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<sup>72</sup> Notice of 52-Month Delay and Order Requiring Status Reports (June 7, 2011) at 2-3 (unpublished) (Notice of Delay). PG&E recognized that the results of the studies could inform the state's reviews under the Coastal Zone Management Act and the California Coastal Act, and it noted that the NRC could not issue renewed licenses for Diablo Canyon without concluding that license issuance would be consistent with the Coastal Zone Management Act. *See* April 2011 PG&E Letter at 1-2. PG&E stated that "in light of the [Fukushima Dai-ichi accident] and the interest in California on the issue of seismic safety at [Diablo Canyon], PG&E believe[d] it prudent to complete these studies and issue a report addressing the results prior to issuance of a state [Coastal Zone Management Act] consistency certification and a renewed NRC operating license." *Id.* at 1.

<sup>73</sup> Notice of Delay at 4-5.

<sup>74</sup> Second Revised Scheduling Order (Mar. 26, 2014) at 1-2 (unpublished) (Second Revised Scheduling Order).

<sup>75</sup> *Id.* at 2.

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

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

<sup>78</sup> *See id.* at 1 & nn.1-2.

<sup>79</sup> *See* Tr. at 642-46.

<sup>80</sup> *See* Notice of Additional Eleven-Month Delay in Adjudicatory Proceeding (June 23, 2014) at 2 (unpublished).

its final seismic imaging project report in September 2014.<sup>81</sup> As stated above, the Staff now expects to issue the Draft SEIS in August 2016.<sup>82</sup>

In its February 2015 revision to its Environmental Report, PG&E updated its SAMA analysis with information from a 2014 probabilistic risk assessment that “incorporated seismic hazard curves that include the Shoreline Fault, as well as updated hazard curves for other regional faults,” using information that PG&E obtained as part of its development of a report on the Shoreline Fault that PG&E had provided to the Staff in 2011.<sup>83</sup> PG&E explained that the 2011 Shoreline Fault Report provided “the most recent probabilistic hazard analyses available at the time.”<sup>84</sup> Shortly thereafter, PG&E submitted its updated seismic hazard evaluation.<sup>85</sup> PG&E then evaluated the effect of its updated seismic hazard evaluation on the SAMA analysis and submitted this evaluation in July 2015.<sup>86</sup>

At oral argument with the parties on the admissibility of Mothers for Peace’s new contentions, including Mothers for Peace’s challenge to PG&E’s updated SAMA analysis in Contention C, the Board asked PG&E whether it intended “to take any action” with respect to Contention EC-1 in light of the fact that PG&E had updated its SAMA analysis with information concerning the Shoreline Fault.<sup>87</sup> Counsel for PG&E responded, “I think it’s fair to say that we do.”<sup>88</sup> PG&E’s motion for summary disposition followed.

PG&E argued that summary disposition was appropriate because the claimed omission from the SAMA analysis — consideration of the Shoreline Fault — had been cured and the contention had become moot.<sup>89</sup> Thus, it asserted that there remained no genuine issue of material fact and that it was entitled to a decision

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<sup>81</sup> See Central Coastal California Seismic Imaging Project (Sept. 10, 2014) (ADAMS Accession No. ML14260A106 (package)).

<sup>82</sup> Staff Schedule Update at 1. The Staff expects to issue the Final Supplemental Environmental Impact Statement in May 2017. *Id.* The Staff issued the Safety Evaluation Report in June 2011, and expects that any supplements to the Safety Evaluation Report would be issued in August 2016. *Id.*

<sup>83</sup> PG&E Motion for Summary Disposition at 4; *see also* February 2015 Amended License Renewal Application, Enclosure 2, Attach. 2, at 4.20-3. *See generally* “Report on the Analysis of the Shoreline Fault Zone, Central Coastal California: Report to the U.S. Nuclear Regulatory Commission” (Jan. 2011) (ADAMS Accession No. ML110140431).

<sup>84</sup> PG&E Motion for Summary Disposition at 4. When it submitted its amended Environmental Report, PG&E was in the process of preparing its updated seismic hazard evaluation as part of its response to the Staff’s Section 50.54(f) Request. *Id.*

<sup>85</sup> *Id.*; March 2015 Seismic Hazard Report.

<sup>86</sup> PG&E Motion for Summary Disposition at 5; July 2015 SAMA Analysis Update.

<sup>87</sup> Tr. at 880-81.

<sup>88</sup> *Id.* at 881. PG&E explained that it had not filed a motion up to that point but that Contention EC-1 “is certainly addressed by the information” in PG&E’s updated SAMA analysis. *Id.*

<sup>89</sup> See PG&E Motion for Summary Disposition at 3-5.

as a matter of law.<sup>90</sup> Mothers for Peace immediately moved for an unopposed extension of time to respond, which the Board granted.<sup>91</sup> The Staff supported PG&E's motion, agreeing with PG&E that Contention EC-1 had become moot upon PG&E's update of its SAMA analysis.<sup>92</sup>

In its answer, Mothers for Peace did not dispute that the claimed omission had been cured. Instead, Mothers for Peace focused solely on the timing of PG&E's motion, arguing that it was precluded by the Board's March 2014 scheduling order and therefore had been filed prematurely.<sup>93</sup> The Board agreed with PG&E and the Staff that summary disposition was appropriate and dismissed Contention EC-1 as moot.<sup>94</sup>

In ruling on PG&E's motion, the Board observed that we had anticipated, in our decision upholding the Board's admission of Contention EC-1, the eventual mootness of the contention after a revision or supplement to the license renewal application.<sup>95</sup> We explained that a challenge to the adequacy of such a revision would need to be made in the form of a new or amended contention.<sup>96</sup> The Board rejected Mothers for Peace's reading of its March 2014 scheduling order to preclude PG&E's motion, finding that "[s]uch a construction . . . is inconsistent with [its] purpose and contrary to the Commission's direction that a Licensing Board's 'jurisdiction terminates when there are no longer any contested matters pending before it.'"<sup>97</sup> The Board further explained that "[t]he purpose of scheduling orders is not to vest in any party a right to invoke their provisions to achieve the opposite of the Board's intended objectives," and that a licensing board "may modify or waive the provisions of its scheduling orders as it deems appropriate in the interest of sound case management."<sup>98</sup> The Board reasoned, "unless a schedule is

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<sup>90</sup> *Id.* at 5.

<sup>91</sup> San Luis Obispo Mothers for Peace's Unopposed Motion for Extension of Time (July 31, 2015); Order (Granting Unopposed Motion for Extension of Time) (Aug. 3, 2015) (unpublished) (Board Extension Order).

<sup>92</sup> See NRC Staff Answer to Pacific Gas and Electric Company's Motion for Summary Disposition on Contention EC-1 (Aug. 13, 2015) at 1, 4-5.

<sup>93</sup> San Luis Obispo Mothers for Peace's Response to Pacific Gas & Electric Company's Motion for Summary Disposition of Contention EC-1 (Sept. 14, 2015) at 3-4.

<sup>94</sup> LBP-15-29, 82 NRC at 253-54.

<sup>95</sup> *Id.* at 253 (citing CLI-11-11, 74 NRC at 443 n.92).

<sup>96</sup> CLI-11-11, 74 NRC at 443 n.92.

<sup>97</sup> LBP-15-29, 82 NRC at 253 (quoting *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535, 564 n.46 (2015)).

<sup>98</sup> *Id.* at 254 (citing *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-212, 7 AEC 986, 991 (1974)).

so onerous or unfair that it deprives a party of procedural due process, ‘scheduling is a matter of Licensing Board discretion.’”<sup>99</sup>

Although Mothers for Peace now maintains that it was prejudiced when the Board granted PG&E’s motion for summary disposition, the record reflects that the Board managed the case fairly, as well as efficiently.<sup>100</sup> Licensing boards have considerable discretion in their management of adjudicatory proceedings.<sup>101</sup> Given the procedural history outlined above, the litigation of Contention EC-1 cannot be said to have been rushed.<sup>102</sup> And when PG&E filed its motion, Mothers for Peace was provided with a full and fair opportunity to respond.<sup>103</sup>

Ultimately, however, little remained for Mothers for Peace to do in response to the motion for summary disposition, aside from filing a new or amended contention that challenged the adequacy of PG&E’s SAMA analysis revisions — which Mothers for Peace did with its proposed original and Amended Contention C.<sup>104</sup> In the *McGuire/Catawba* proceeding, after the applicant had supplied information from the study that the petitioner had claimed to have been omitted, we explained: “[i]f we did not require an amended or new contention in ‘omission’ situations, an original contention alleging simply a failure to address a subject could readily be transformed — without basis or support — into a broad series of disparate new claims,” which “effectively would circumvent NRC contention-pleading standards.”<sup>105</sup> Therefore, as the Board here noted, had PG&E not moved for summary disposition, the Board reasonably could have requested briefing on the question of Contention EC-1’s mootness.<sup>106</sup> We find that Mothers for Peace

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<sup>99</sup> *Id.* (quoting *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-841, 24 NRC 64, 95 (1986)).

<sup>100</sup> See November 2015 Petition for Review at 11-12.

<sup>101</sup> See 10 C.F.R. § 2.319; *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-28, 72 NRC 553, 554 (2010) (expecting the Board “to make full use of its broad authority under [the] rules to establish and maintain a fair and disciplined hearing process, avoiding extensions of time absent good cause, unnecessary multiple rounds of briefs, or other unnecessary delay”).

<sup>102</sup> Moreover, although the Board did not rely on this point, the March 2014 scheduling order fairly can be read to allow PG&E’s motion because the Board’s “ultimate deadline” for dispositive motions on Contention EC-1 expressly was provided “*in addition to, not in lieu of*” the general 30-day deadline for dispositive motions. Second Revised Scheduling Order at 2 (emphasis added). PG&E filed its motion for summary disposition 30 days after submitting its July 2015 SAMA analysis update. See PG&E Motion for Summary Disposition at 1 n.1.

<sup>103</sup> See Board Extension Order at 2.

<sup>104</sup> See CLI-11-11, 74 NRC at 443 n.92; accord *McGuire/Catawba*, CLI-02-28, 56 NRC at 383.

<sup>105</sup> See *McGuire/Catawba*, CLI-02-28, 56 NRC at 383.

<sup>106</sup> LBP-15-29, 82 NRC at 254. Moreover, as the Board recognized, if the Board were to have allowed the contention to remain pending for a year or more in anticipation of the Draft SEIS, when it was “clear that no genuinely contested matter” remained before it, the Board would have acted counter to our direction that a Board’s jurisdiction terminates when the contested matters before it

(Continued)

has not raised a substantial question that it was prejudiced by the Board's ruling or that the Board erred in its dismissal of Contention EC-1.

### III. CONCLUSION

Mothers for Peace has not raised a substantial question warranting review of the Board's dismissal of proposed Contention A, proposed original or Amended Contention C, or the Board's summary disposition of Contention EC-1. We therefore *deny* its petitions for review.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 2d day of June 2016.

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have been resolved. *See id.*; *Fermi*, CLI-15-10, 81 NRC at 564 n.46; *Virginia Electric and Power Co.* (North Anna Power Station, Unit 3), CLI-12-14, 75 NRC 692, 699-701 (2012); *cf. Union Electric Co.* (Callaway Nuclear Power Plant, Unit 1), CLI-15-11, 81 NRC 546, 550 (2015) (rejecting the admission of "placeholder" contentions); *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-09-5, 69 NRC 115, 120 (2009) (noting that the regulations do not contemplate contentions that function as a "placeholder" for a further motion to be filed later).

### **Additional Views of Commissioner Baran**

I concur with the Commission's Memorandum and Order but write separately to expand on the discussion of how the NRC Staff evaluates and defines reasonable energy alternatives when conducting a NEPA analysis. As the Commission has previously recognized, the electricity generation sector is a dynamic environment featuring rapidly evolving technologies. As a result, the particular generation resources qualifying as "baseload" will change over time. For example, as energy storage technologies mature, previously intermittent renewable energy generation paired with energy storage are functioning as baseload generation. Energy efficiency improvements and demand response strategies also need to be analyzed as plausible alternatives to baseload nuclear generation in the agency's NEPA reviews. Reflecting this evolution of what constitutes "baseload power" in our NEPA reviews will only enhance their utility for decisionmakers and the public.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket No. 50-271-LA-2**

**ENTERGY NUCLEAR VERMONT  
YANKEE, LLC, and ENTERGY  
NUCLEAR OPERATIONS, INC.  
(Vermont Yankee Nuclear Power  
Station)**

**June 23, 2016**

**STANDARD OF REVIEW**

The Commission will uphold a licensing board's ruling on standing and contention admissibility unless it finds that the board erred as a matter of law or abused its discretion.

**ATOMIC ENERGY ACT: HEARING RIGHTS**

Section 189a of the Atomic Energy Act of 1954, as amended, provides an opportunity for interested members of the public to request a hearing on a license amendment application. Exemption requests, however, are not among the listed actions that are subject to a hearing under the Atomic Energy Act, and the Commission has interpreted their absence from section 189a as intentional.

**ATOMIC ENERGY ACT: HEARING RIGHTS**

The Commission has found that a hearing opportunity is warranted when an exemption request raises material questions directly connected to an agency



licensing action for which the Act expressly provides a hearing right, as it does for the granting, suspending, revoking, or amending of a license.

#### **RULES OF PRACTICE: CONTENTION ADMISSIBILITY**

In addition to demonstrating that the issue raised is within the scope of the proceeding, for a contention to be admitted a petitioner must meet the following criteria: (1) provide a specific statement of the issue of law or fact to be raised or controverted; (2) provide a brief explanation of the basis for the contention; (3) 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; (4) provide a concise statement of the alleged facts or expert opinions that support the petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the petitioner intends to rely to support its position on the issue; and (5) provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact, with references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the contention must identify each failure and the supporting reasons for the petitioner's belief.

#### **RULES OF PRACTICE: CONTENTION ADMISSIBILITY**

A licensing proceeding before this agency is plainly not the proper forum for challenges to the basic structure of the Commission's regulatory process.

#### **NUCLEAR REGULATORY COMMISSION, AUTHORITY**

The Commission's regulations contemplate that it may be called upon to review applications that make predictive findings on future actions that may or may not come to pass.

#### **SUSPENSION OF PROCEEDINGS**

The Commission considers the stay of a proceeding or other agency action to be an extraordinary remedy.

## **NUCLEAR REGULATORY COMMISSION, AUTHORITY: MOTIONS FOR RECONSIDERATION**

The authority to reconsider Commission actions is inherent in the authority to make them in the first instance.

## **MOTIONS FOR RECONSIDERATION**

As a general matter, the Commission's Staff Requirements Memoranda are not subject to reconsideration.

## **MEMORANDUM AND ORDER**

The State of Vermont has appealed LBP-15-18, in which the Atomic Safety and Licensing Board denied Vermont's request for hearing in this license amendment proceeding.<sup>1</sup> Vermont also seeks reconsideration of our approval of the NRC Staff's recommendation to grant Entergy's related exemption request.<sup>2</sup> For the reasons set forth below, we affirm the Board's denial of Vermont's hearing request. As a matter of discretion, we consider Vermont's petition for reconsideration, but uphold our decision on the exemption request.<sup>3</sup>

### **I. BACKGROUND**

As one of a number of activities associated with decommissioning the Vermont Yankee Nuclear Power Station, Entergy seeks to amend its Site Emergency Plan and Emergency Action Level Scheme for Vermont Yankee to reflect the

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<sup>1</sup> The State of Vermont's Notice of Appeal of Atomic Safety and Licensing Board's May 18, 2015 Memorandum and Order Denying Petition for Leave to Intervene and Hearing Request (June 12, 2015); The State of Vermont's Brief in Support of Notice of Appeal of Atomic Safety and Licensing Board's May 18, 2015 Memorandum and Order Denying Petition for Leave to Intervene and Hearing Request (June 12, 2015) (Appeal); LBP-15-18, 81 NRC 793 (2015).

<sup>2</sup> State of Vermont's Petition for Reconsideration of Commission Decision Approving Entergy's Exemption Requests (Mar. 12, 2015) (Petition for Reconsideration); Staff Requirements — SECY-14-0125 — Request by Entergy Nuclear Operations, Inc., for Exemptions from Certain Emergency Planning Requirements (Mar. 2, 2015) (ADAMS Accession No. ML15061A516) (SRM-SECY-14-0125); "Request by Entergy Nuclear Operations, Inc., for Exemptions from Certain Emergency Planning Requirements," Commission Paper SECY-14-0125 (Nov. 14, 2014) (ADAMS Accession No. ML14227A711) (SECY-14-0125).

<sup>3</sup> Vermont has asked us to consolidate our review of the appeal and its petition for reconsideration. Appeal at 17. We do so here at our discretion, in the interest of efficiency.

plant's permanently shutdown and defueled status. To that end, Entergy filed a request for exemptions from certain emergency planning requirements in 10 C.F.R. § 50.47(b), (c)(2) and 10 C.F.R. Part 50, Appendix E.<sup>4</sup> Shortly thereafter, Entergy filed a license amendment application that would implement the exemptions, if approved.<sup>5</sup> The proposed "Permanently Defueled Emergency Plan" and "Permanently Defueled Emergency Action Level Scheme" would reduce the scope of offsite and onsite emergency planning and extend the time for the notification of state authorities of an emergency declaration or change in classification from 15 minutes to 1 hour.<sup>6</sup> Entergy requested that the Staff approve the license amendment with an effective date of April 15, 2016 — a little more than 15 months after shutdown — when Entergy expected the spent fuel stored in the spent fuel pool to have decayed to the extent that the requested exemptions, the revised Emergency Plan, and the revised Emergency Action Level Scheme may be implemented without any additional compensatory actions.<sup>7</sup>

The Staff published a notice of the license amendment application in the *Federal Register*, with an opportunity to provide comments and request a hearing.<sup>8</sup> Vermont did both, filing its comments and hearing request on February 9, 2015.<sup>9</sup> As part of its hearing request, Vermont also challenged Entergy's proposed exemptions. It asserted that the exemption request and the license amendment

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<sup>4</sup>Letter from Christopher J. Wamser, Entergy Nuclear Operations, Inc., to U.S. NRC Document Control Desk (Mar. 14, 2014) (ADAMS Accession No. ML14080A141) (Exemption Request).

<sup>5</sup>Letter from Christopher J. Wamser, Entergy Nuclear Operations, Inc., to U.S. NRC Document Control Desk (June 12, 2014) (ADAMS Accession No. ML14168A302) (License Amendment Application).

<sup>6</sup>*Id.* at 2.

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

<sup>8</sup>Biweekly Notice; Applications and Amendments to Facility Operating Licenses and Combined Licenses Involving No Significant Hazards Considerations, 79 Fed. Reg. 73,106, 73,106-07, 73,109 (Dec. 9, 2014); Entergy Nuclear Operations, Inc.; Vermont Yankee Nuclear Power Station, 80 Fed. Reg. 4949 (Jan. 29, 2015) (reopening public comment period for submission of comments by February 9, 2015).

<sup>9</sup>State of Vermont's Petition for Leave to Intervene, and Hearing Request (Feb. 9, 2015) (Hearing Request); Comments and Declarations of the Vermont Department of Public Service Regarding Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme License Amendment Request BVY 14-033 (Feb. 9, 2015) (Vermont Department of Public Service Comments); Comments and Declarations of the Vermont Division of Emergency Management and Homeland Security on BVY 14-033 Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme (Feb. 9, 2015) (Vermont Division of Emergency Management and Homeland Security Comments); Comments and Declarations of the Vermont Department of Health on Entergy Vermont Yankee's License Amendment Request for the Emergency Planning Zone in Letter BVY 14-033 Dated June 12, 2014 and SECY-14-0125 Dated November 14, 2014 (Feb. 9, 2015) (Vermont Department of Health Comments). Vermont incorporated its comments by reference into its hearing request. Hearing Request at 5, 10.

application “are dependent on one another” and “cannot be reviewed separately.”<sup>10</sup> Specifically, in Contention 1, Vermont argued that “Entergy’s license amendment request is not ready for review” because it is “predicated upon and assumes approval of an exemption request that has not been ruled upon by the Nuclear Regulatory Commission and/or Atomic Safety and Licensing Board.”<sup>11</sup> In Contention 2, Vermont argued that the license amendment application, along with the requested exemptions, “fails to account for all credible emergency scenarios, undermines the effectiveness of the site emergency plan and off-site emergency planning, and poses an increased risk to the health and safety of Vermont citizens in violation of NRC regulatory requirements.”<sup>12</sup>

The Staff reviewed the license amendment application and the exemption request in parallel and sought our approval to grant the exemption request.<sup>13</sup> At that time, the Staff stated that it would wait for our response before the Staff issued a decision on the license amendment application.<sup>14</sup> The Staff’s review of the exemption request verified Entergy’s supporting analyses and calculations and concluded that granting the exemptions “would provide: (1) an adequate basis for an acceptable state of emergency preparedness; and (2) in conjunction with arrangements made with offsite response agencies, reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at [Vermont Yankee].”<sup>15</sup> We approved the Staff’s recommendation to grant the exemptions in March 2015.<sup>16</sup>

In April 2015, the Staff issued for public comment the draft Environmental Assessment and Finding of No Significant Impact for Entergy’s exemption request; it issued the final Environmental Assessment and Finding of No Significant Impact

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<sup>10</sup> Hearing Request at 4.

<sup>11</sup> *Id.* at 3.

<sup>12</sup> *Id.* at 6 (citing 10 C.F.R. § 50.54(q)(4) and 10 C.F.R. Part 50, App. E).

<sup>13</sup> SECY-14-0125, at 1. The Staff is required to request our approval “for any reduction in the effectiveness of a licensee’s emergency plan that requires an exemption from the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50.” Staff Requirements — SECY-08-0024 — Delegation of Commission Authority to Staff to Approve or Deny Emergency Plan Changes that Represent a Decrease in Effectiveness (May 19, 2008) at 1 (ADAMS Accession No. ML081400510). The Staff sought our approval after determining that with the requested exemptions, “the resulting set of [emergency planning] requirements could be viewed as a reduction in effectiveness when compared to the operating reactor emergency plan currently in effect at [Vermont Yankee].” SECY-14-0125, at 3.

<sup>14</sup> SECY-14-0125, at 7.

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

<sup>16</sup> SRM-SECY-14-0125, at 1. Commissioner Baran disapproved in part the Staff’s recommendation. Commission Voting Record, “SECY-14-0125 — Request by Entergy Nuclear Operations, Inc., for Exemptions from Certain Emergency Planning Requirements” (Mar. 2, 2015) at 10 (unnumbered) (ADAMS Accession No. ML15062A135).

on July 31, 2015.<sup>17</sup> The Staff granted the exemption request on December 10, 2015, and approved the license amendment the next day.<sup>18</sup>

Entergy and the Staff filed answers to Vermont's hearing request after we approved the Staff's recommendation to grant Entergy's exemption request but before the Staff issued the exemptions.<sup>19</sup> Both Entergy and the Staff opposed Vermont's request for hearing.<sup>20</sup> They argued that the exemption request and license amendment application are separate licensing actions and that the exemption request may not be challenged in a license amendment proceeding.<sup>21</sup> Entergy and the Staff asserted that Contention 2 is inadmissible because it challenges the underlying exemption request and thus raises issues outside the scope of the license amendment proceeding.<sup>22</sup> Additionally, they argued that Contention 2 lacked sufficient support to demonstrate a genuine or material dispute with the license amendment application.<sup>23</sup> And because we had, by that time, approved the Staff's recommendation to grant the exemption request, Entergy and the Staff argued that Contention 1, which challenged the ripeness of the license amendment application based on the pending status of the exemption request, was moot.<sup>24</sup>

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<sup>17</sup> Entergy Nuclear Operations, Inc.; Vermont Yankee Nuclear Power Station, 80 Fed. Reg. 24,291 (Apr. 30, 2015) (Draft Environmental Assessment); Entergy Nuclear Operations, Inc.; Vermont Yankee Nuclear Power Station, 80 Fed. Reg. 47,960 (Aug. 10, 2015) (Final Environmental Assessment); Commission Notification of Issuance of Final Environmental Assessment and Finding of No Significant Impact for Publication (Aug. 4, 2015). For the license amendment application, the Staff relied on a categorical exclusion and thus did not prepare an environmental assessment or environmental impact statement. Letter from James Kim, NRC, to Vice President, Operations, Entergy Nuclear Operations, Inc. (Dec. 11, 2015), Enclosure 2, at 52 (ADAMS Accession No. ML15233A166) (Issuance of License Amendment).

<sup>18</sup> Notice of Issuance of Exemption (Dec. 10, 2015); Entergy Nuclear Operations, Inc.; Vermont Yankee Nuclear Power Station, 80 Fed. Reg. 78,776 (Dec. 17, 2015); Issuance of License Amendment at 1. The Staff notified us of the issuance of the exemptions. And although the Staff indicated that it expected to issue the license amendment sometime in December, a notification should have been made upon its actual issuance. Commission Notification of Significant Licensing Action (Dec. 2, 2015); *see USEC Inc. (American Centrifuge Plant)*, CLI-06-10, 63 NRC 451, 470 (2006) (requiring parties to notify the presiding officer of "relevant new developments in a proceeding").

<sup>19</sup> Entergy's Answer Opposing Petition for Leave to Intervene and Hearing Request (Mar. 6, 2015) (Entergy Answer); NRC Staff's Answer to State of Vermont's Petition for Leave to Intervene and Hearing Request (Mar. 6, 2015) (Staff Answer).

<sup>20</sup> Entergy Answer at 1; Staff Answer at 1.

<sup>21</sup> Entergy Answer at 7, 15; Staff Answer at 22, 25, 29-30.

<sup>22</sup> Entergy Answer at 19-25; Staff Answer at 29-32.

<sup>23</sup> *See* Entergy Answer at 25-37; Staff Answer at 32-42.

<sup>24</sup> *See* Entergy Answer at 16-17; Staff Answer at 21-22. They also argued that Contention 1, because it invokes the exemption request, is outside the scope of the proceeding. *See* Entergy Answer at 17-18; Staff Answer at 22-25. Vermont filed a reply to Entergy's and the Staff's Answers. The State of

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In LBP-15-18, the Board found Vermont's contentions inadmissible and denied the request for hearing.<sup>25</sup> Vermont filed the instant appeal. Separately, Vermont seeks reconsideration of our approval of the Staff's recommendation to grant the exemption request.<sup>26</sup> Entergy and the Staff oppose both the appeal and the petition for reconsideration.<sup>27</sup> We address each in turn.

## II. DISCUSSION

### A. Vermont's Appeal of LBP-15-18

Vermont's appeal of LBP-15-18 qualifies as an appeal as of right under 10 C.F.R. § 2.311(c). We will uphold a licensing board's ruling on standing and

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Vermont's Reply to NRC Staff and Entergy Answers to Petition for Leave to Intervene and Hearing Request (Mar. 17, 2015). The Board held oral argument on the hearing request on April 8, 2015. *See* Tr. at 1-35.

Vermont also filed a "notice of supplemental authority" based on the Staff's issuance of the draft Environmental Assessment and Finding of No Significant Impact, which Entergy and the Staff opposed to the extent Vermont sought another opportunity to argue the merits of its petition. State of Vermont's Notice of Supplemental Authority (May 4, 2015); Entergy's Response to the State of Vermont's Notice of Supplemental Authority (May 11, 2015) at 2; NRC Staff's Answer to State of Vermont's Notice of Supplemental Authority (May 11, 2015) at 1. The Board noted these additional filings, but did not otherwise refer to them in making its decision. *See* LBP-15-18, 81 NRC at 796 n.14.

<sup>25</sup> LBP-15-18, 81 NRC at 801.

<sup>26</sup> Petition for Reconsideration at 1. Vermont sought a stay of the proceeding before the Board pending our decision on the reconsideration petition to avoid having to formulate a reply to the answers without knowing the outcome of our decision. Alternatively, Vermont sought an extension of time to file its reply. State of Vermont's Motion to Stay the License Amendment Proceeding Pending Commission Reconsideration (Mar. 12, 2015) at 2 (corrected Mar. 13, 2015 with certification of consultation under 10 C.F.R. § 2.323). The Board denied the stay request, but granted a short extension of the reply deadline. Licensing Board Order (Denying Motion to Stay the Proceeding and Extending Deadline for Reply (Mar. 16, 2015) at 2 (unpublished) (finding no action that could have been stayed and that, in any event, Vermont did not explain how its motion satisfied the stay factors); *see also* Licensing Board Order (Denying Motion to Stay the Proceeding) (Mar. 13, 2015) (unpublished) (denying stay request for failure to include certification of consultation).

<sup>27</sup> *See* Entergy's Answer Opposing the State of Vermont's Appeal of the Atomic Safety and Licensing Board's May 18, 2015 Memorandum and Order Denying Petition for Leave to Intervene and Hearing Request (July 7, 2015) (Entergy Brief on Appeal); NRC Staff's Brief in Opposition to the State of Vermont's Appeal of LBP-15-18 (July 7, 2015) (Staff Brief on Appeal); Entergy's Answer Opposing State of Vermont's Petition for Reconsideration of Commission Decision Approving Entergy's Exemption Requests (Mar. 23, 2015); NRC Staff Answer to Vermont Petition for Reconsideration of the Commission Decision Approving Entergy's Exemption Requests (Mar. 23, 2015) at 1.

contention admissibility unless we find that the board erred as a matter of law or abused its discretion.<sup>28</sup>

As the Board recognized, section 189a of the Atomic Energy Act of 1954, as amended, provides an opportunity for interested members of the public to request a hearing on a license amendment application.<sup>29</sup> Exemption requests, however, are not among the listed actions that are subject to a hearing under the Atomic Energy Act, and we have interpreted their absence from section 189a as intentional.<sup>30</sup> We determined that Congress expressly “limited the opportunity for a hearing to certain designated agency actions . . . that do not include exemptions.”<sup>31</sup>

Nevertheless, we have found that a hearing opportunity is warranted when an exemption request “raises material questions directly connected to an agency licensing action” for which the Act expressly provides a hearing right, as it does for the granting, suspending, revoking, or amending of a license.<sup>32</sup> In *Private Fuel Storage*, we held that a petitioner in the then-ongoing proceeding on the application for an independent spent fuel storage installation (ISFSI) could raise a contention in the licensing proceeding that challenged matters within the scope of the applicant’s request for an exemption from a regulation that otherwise would have applied to the licensing of the ISFSI.<sup>33</sup> We also found that “[b]ecause resolution of the exemption request directly affects the licensability of the proposed ISFSI, the exemption raises material questions directly connected to an agency licensing action, and thus comes within the hearing rights of interested

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<sup>28</sup> See, e.g., *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 307 (2012). Although Vermont’s standing is not before us on appeal, we observe that Vermont has standing to request a hearing because the facility is located within the state’s boundaries. 10 C.F.R. § 2.309(h)(2).

<sup>29</sup> LBP-15-18, 81 NRC at 796-97.

<sup>30</sup> See e.g., *Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-00-5, 51 NRC 90, 94-96 (2000).

<sup>31</sup> *Id.* at 96 (emphasis omitted).

<sup>32</sup> *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-12, 53 NRC 459, 467 (2001); see also *Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), CLI-13-1, 77 NRC 1, 10 (2013) (stating that “[a]n exemption standing alone does not give rise to an opportunity for hearing[.] . . . [b]ut when a licensee requests an exemption in a related license amendment application, we consider the hearing rights on the amendment application to encompass the exemption request as well”); *Zion*, CLI-00-5, 51 NRC at 96 (acknowledging that an exemption, “regardless of its label,” could “constitute[ ] an action for which a hearing is required, i.e., . . . [that it] is in effect” an action covered by hearing rights under the Atomic Energy Act); *United States Department of Energy* (Clinch River Breeder Reactor Plant), CLI-82-23, 16 NRC 412, 421 (1982) (recognizing a “statutory right to a hearing on the granting of an exemption” where the grant is “part of a proceeding for the granting, suspending, revoking, or amending of any license or construction permit under the Atomic Energy Act”).

<sup>33</sup> *Private Fuel Storage*, CLI-01-12, 53 NRC at 461, 467.

parties.”<sup>34</sup> “To hold otherwise,” we explained, “would exclude critical safety questions from licensing hearings merely on the basis of an ‘exemption’ label.”<sup>35</sup>

Here, the Board found that to reach its decision on Vermont’s hearing request, it “need not test the boundaries of the . . . *Private Fuel Storage* decision.”<sup>36</sup> The Board instead relied on the fact that we had already approved the Staff’s recommendation to grant Entergy’s requested exemptions, and it declined to open an adjudicatory proceeding to explore the propriety of our decision.<sup>37</sup> The Board noted that Vermont already had filed a separate petition for reconsideration to challenge our decision on the exemption.<sup>38</sup> Given our action on the exemption request, the Board determined that it was limited to the question whether “Vermont ha[d] asserted admissible contentions concerning whether Entergy’s [license amendment application] is consistent with . . . [the] regulations *as exempted*.”<sup>39</sup> The Board went on to dismiss both contentions. The Board found Contention 1 mooted by our approval of the Staff’s recommendation to grant the exemption request, and the Board found Contention 2 inadmissible for failure to raise a genuine dispute with the license amendment application’s compliance with the exempted regulations.<sup>40</sup>

On appeal, Vermont asserts that the Board should have considered “all possible outcomes” of a Commission decision on Vermont’s pending petition for reconsideration or should have awaited that decision before finding Contention 1 moot.<sup>41</sup> Vermont characterizes the Board’s summary dismissal of the contention as “arbitrary,” and “premature,” and hypothesized that we might reverse our direction to the Staff regarding the exemption request or that the Staff itself might deny the request after completing its review.<sup>42</sup> With regard to Contention 2, Vermont asserts that the Board applied too high a standard for the “genuine dispute” prong of our contention admissibility rule.<sup>43</sup> Vermont argues that, contrary to the Board’s ruling, its hearing request and the attached declarations from its experts identified omissions in Entergy’s license amendment application and provided

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<sup>34</sup> *Id.* at 467.

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

<sup>36</sup> LBP-15-18, 81 NRC at 797.

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

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

<sup>39</sup> *Id.* at 798. The Board left open the possibility that, in ruling on Vermont’s petition for reconsideration, we might clarify any exemption-related issues that might be appropriate for adjudication. *Id.* at 798 n.26.

<sup>40</sup> *Id.* at 798-801.

<sup>41</sup> Appeal at 8.

<sup>42</sup> *Id.* at 6, 8-9.

<sup>43</sup> *See id.* at 15-16.



adequate support for a contention of omission.<sup>44</sup> Finally, Vermont argues that the Board's errors are compounded by the Board's decision not to apply *Private Fuel Storage* to allow a hearing on the exemption request together with the license amendment application.<sup>45</sup> Because it is dispositive of the question whether Vermont's contentions raise issues that are within the scope of this proceeding, we begin with an analysis of *Private Fuel Storage*.

As Entergy and the Staff would have it, our *Private Fuel Storage* decision is distinguishable from the circumstances presented here based on the timing of Entergy's exemption request.<sup>46</sup> Because, they assert, the exemption request preceded the license amendment application, it was not filed as part of an ongoing licensing action for which a hearing right attached, as was the case in *Private Fuel Storage*.<sup>47</sup> Entergy and the Staff also argue that the nature of the proceedings was different, with *Private Fuel Storage* involving an initial license application, and this case involving an already-licensed facility.<sup>48</sup> The Staff adds that in *Private Fuel Storage*, the issue whether to litigate the exemption request was squarely before the Board, whereas in this proceeding our action on the exemption request removed that question from the Board's jurisdiction.<sup>49</sup> The Staff also points out that the two-part exemption request/license amendment application process used here to reduce the emergency planning requirements at Vermont Yankee has been used previously for other permanently shutdown and defueled facilities.<sup>50</sup> We find these arguments unavailing.

In its attempt to distinguish this case, the Staff minimizes the importance of the exemption request to the license amendment application, stating that "the license amendment merely reflects or implements the requested exemptions."<sup>51</sup> But this link between the license amendment application and the exemption request is precisely the reason that we find the two actions sufficiently related to warrant a hearing opportunity for both. Vermont, quoting from our decision in *Private Fuel Storage*, gets to the heart of the matter — "[b]ecause 'the exemption is necessary for the applicant to . . . amend its license,' it 'trigger[s] the right to a hearing under the [Atomic Energy Act].'"<sup>52</sup>

We find that Entergy's license amendment application and exemption request are essentially two necessary parts of the action to change Vermont Yankee's

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<sup>44</sup> See *id.* at 15-17.

<sup>45</sup> *Id.* at 6, 9-12.

<sup>46</sup> Entergy Brief on Appeal at 14-15; Staff Brief on Appeal at 17.

<sup>47</sup> Entergy Brief on Appeal at 14-15; Staff Brief on Appeal at 17.

<sup>48</sup> Entergy Brief on Appeal at 15; Staff Brief on Appeal at 17.

<sup>49</sup> Staff Brief on Appeal at 17.

<sup>50</sup> *Id.* at 17-18.

<sup>51</sup> *Id.* at 16.

<sup>52</sup> Appeal at 11 (quoting *Private Fuel Storage*, CLI-01-12, 53 NRC at 470).

emergency planning requirements, and therefore matters related to the exemption request may be challenged as part of this license amendment proceeding. The emergency planning requirements themselves illustrate how the two licensing actions are intertwined. The types of changes that Entergy proposes to make to its Site Emergency Plan and Emergency Action Level Scheme require preapproval from the NRC in the form of a license amendment.<sup>53</sup> And because section 50.54(q)(4) requires that any application to amend an emergency plan include a certification that the plan, as amended, will continue to meet the requirements of 10 C.F.R. § 50.47(b) and 10 C.F.R. Part 50, Appendix E — the regulations that contain the emergency planning standards that Entergy seeks to eliminate from its license — exemptions from these requirements also are necessary before Entergy may proceed with its license amendment application.<sup>54</sup>

In other words, if the NRC were to reject Entergy's request for exemptions from section 50.47(b) and Appendix E, Entergy would not be able to certify that its revised plan and Emergency Action Level Scheme meet the standards in those regulations to amend its license. A license amendment application alone, based on the language and structure of the regulations as presently written,<sup>55</sup> would not be sufficient to accomplish Entergy's goal of reducing the scope of its emergency plan, and Entergy acknowledges as much in both its exemption request and its license amendment application.<sup>56</sup>

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<sup>53</sup> See 10 C.F.R. § 50.54(q)(4) ("The changes to a licensee's emergency plan that reduce the effectiveness of the plan . . . may not be implemented without prior approval by the NRC. A licensee desiring to make such a change . . . shall submit an application for an amendment to its license.").

<sup>54</sup> See *id.* (stating that the license amendment application must include "the basis for concluding that the licensee's emergency plan, as revised, will continue to meet the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b)").

<sup>55</sup> Our current emergency planning regulations do not expressly address the circumstances faced by plants in the process of decommissioning. When we approved the Staff's recommendation to grant emergency planning exemptions for the Crystal River Nuclear Plant, we also directed the Staff to proceed with a rulemaking, with a completion date of early 2019, to address emergency planning and preparedness for plants that are or will be undergoing decommissioning. Staff Requirements — SECY-14-0118 — Request by Duke Energy Florida, Inc., for Exemptions from Certain Emergency Planning Requirements (Dec. 30, 2014) at 1 (ADAMS Accession No. ML14364A111). We acknowledged that exemptions and license amendments would be addressed in the interim. *Id.* at 1. The Staff has published an Advance Notice of Proposed Rulemaking to obtain input from the public as the Staff prepares the regulatory basis for such a rule. Regulatory Improvements for Decommissioning Power Reactors, 80 Fed. Reg. 72,358 (Nov. 19, 2015) (Advance Notice of Proposed Rulemaking); Regulatory Improvements for Decommissioning Power Reactors, 80 Fed. Reg. 80,709 (Dec. 28, 2015) (extending the comment period until March 18, 2016).

<sup>56</sup> See Exemption Request at 2 (notifying the Staff of Entergy's plans to submit for NRC review and approval a Permanently Defueled Emergency Plan and Permanently Defueled Emergency Action Level Scheme "based on the exemptions requested herein"); License Amendment Application at

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Entergy and the Staff asserted that this case is more analogous to the facts in *Zion*, where we denied a hearing request that challenged a request for exemptions from certain physical security requirements in 10 C.F.R. § 73.55.<sup>57</sup> *Zion* Station also had been permanently shut down and defueled, and the licensee, Commonwealth Edison, had begun to prepare for decommissioning.<sup>58</sup> Commonwealth Edison sought the exemptions in order to submit a defueled physical security plan.<sup>59</sup> But Commonwealth Edison did not request a license amendment,<sup>60</sup> and so the issues addressed in the exemption request were not tied to a license amendment request or other action that required a hearing opportunity under the Atomic Energy Act.<sup>61</sup>

Here, in contrast, we have before us Entergy's exemption request and license amendment application, and a regulation (section 50.54(q)(4)) that requires both submittals for Entergy to make the desired changes to its Site Emergency Plan and Emergency Action Level Scheme. Moreover, the analyses that Entergy provided in support of its exemption request also support Entergy's license amendment application.<sup>62</sup> The two licensing actions overlap, to the point that they are, in essence, two parts of the same action. They are inextricably intertwined. To be sure, we make this determination based on the case presented here — not every exemption request that is in some way related to a license amendment application will therefore be subject to challenge in an adjudication. Such a determination is entirely dependent upon the facts and circumstances of each case.<sup>63</sup>

Even though we have granted other exemptions and accompanying license amendments to reduce the scope of emergency planning for other plants in the process of decommissioning, until this case we have not had occasion to pass upon the scope of an associated hearing opportunity under section 189a of the Atomic Energy Act. And although Vermont asserts that the Board erred in not

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2 (explaining that the proposed Permanently Defueled Emergency Plan and Permanently Defueled Emergency Action Level Scheme “are predicated on approval of [previously submitted] requests for exemptions from portions of 10 CFR 50.47(b), 10 CFR 50.47(c)(2) and 10 CFR Part 50, Appendix E”).

<sup>57</sup> Entergy Answer at 20-21; Staff Answer at 25.

<sup>58</sup> *Zion*, CLI-00-5, 51 NRC at 92-93.

<sup>59</sup> *Id.* at 93.

<sup>60</sup> *See id.*

<sup>61</sup> *Id.* at 96.

<sup>62</sup> *See* License Amendment Application at 2 (citing the exemption request analysis to support the timing of the requested license amendment).

<sup>63</sup> For example, although we find unavailing here Entergy's and the Staff's arguments regarding the 3-month difference between the exemption request and license amendment application as support for their position that the two actions are separate, the timing of an exemption request relative to an action for which a hearing opportunity would be required under the Atomic Energy Act is one of many factors that would be considered.

addressing this issue, under these circumstances, we do not fault the Board for not applying our *Private Fuel Storage* decision or addressing the connection between the exemption request and the license amendment application.

Because Vermont's contentions are not outside the scope of the proceeding, it is necessary to review Vermont's contentions under the remaining contention admissibility factors. In addition to demonstrating that the issue raised is within the scope of the proceeding, for a contention to be admitted a petitioner must meet the following criteria:

- (1) "[p]rovide a specific statement of the issue of law or fact to be raised or controverted";
- (2) "[p]rovide a brief explanation of the basis for the contention";
- (3) "[d]emonstrate 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";
- (4) "[p]rovide a concise statement of the alleged facts or expert opinions [that] support the petitioner's . . . position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the petitioner intends to rely to support its position on the issue"; and
- (5) "[p]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact," with "references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or if the petitioner believes that the application fails to contain information on a relevant matter as required by law," the contention must identify "each failure and the supporting reasons for the petitioner's belief."<sup>64</sup>

In Contention 1, Vermont asserted that "Entergy's license amendment request is not ready for review, as the amendment request is predicated upon and assumes approval of an exemption request that has not been ruled upon by the Nuclear Regulatory Commission and/or Atomic Safety and Licensing Board."<sup>65</sup> Vermont claimed that it "is inappropriate, both as a matter of law and public policy," to review the license amendment application until a decision has been made

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<sup>64</sup> 10 C.F.R. § 2.309(f)(1)(i)-(vi).

<sup>65</sup> Hearing Request at 3.

on the exemption request.<sup>66</sup> Vermont also expressed concern that the license amendment application “assumes actions by the NRC that have not yet occurred” and, according to Vermont, “more importantly may never occur in the future.”<sup>67</sup>

To the extent that Vermont argues that review of the license amendment application must await a decision on the exemption request, we find the contention inadmissible. In that sense, Vermont does not challenge the substance of the exemption request and license amendment application and thus does not articulate a genuine dispute with either document. Rather, it takes issue with the timing of the Staff’s review — an issue that is not cognizable in an adjudicatory proceeding.<sup>68</sup> “[A] licensing proceeding before this agency is plainly not the proper forum . . . for challenges to the basic structure of the Commission’s regulatory process.”<sup>69</sup>

Our regulations contemplate that we may be called upon to review applications that make predictive findings on future actions that may or may not come to pass.<sup>70</sup> And with respect to the emergency planning revisions that are at issue here, the agency has completed review of a number of substantively similar requests at other permanently shutdown and defueled plants, demonstrating that the agency can effectively review an exemption request and related license amendment application at the same time.<sup>71</sup>

Vermont also requested that we or the Board hold the proceeding and the deadline to file hearing requests in abeyance “until at least 30 days after . . . [the agency] has taken final action” on the exemption request and that we “provide a meaningful opportunity for the State to provide comments and request a hearing

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<sup>66</sup> *Id.* at 4-5 (“Neither the State nor the NRC is able to evaluate the full extent to which the proposed license amendment will or will not meet NRC safety and environmental requirements until the final decision on the exemption request[ ] is made.”).

<sup>67</sup> *Id.* at 4.

<sup>68</sup> *See id.* at 3-5; *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-08-15, 68 NRC 1, 3 & n.2 (2008) (rejecting a challenge to a Staff decision to docket an application for review and explaining that “‘it is the license application, not the NRC staff review, that is at issue’” in an adjudicatory proceeding (quoting *Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-25, 48 NRC 325, 350 (1998))).

<sup>69</sup> *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20 (1974).

<sup>70</sup> *Cf. Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-09-8, 69 NRC 317, 322 (2009). For example, as was the case in *Shearon Harris*, under Part 52 an applicant for a combined license may reference a reactor design that is undergoing design certification rulemaking. The applicant does so “‘at its own risk,’” given that the design certification might not be granted. *Id.* (quoting 10 C.F.R. § 52.55(c)).

<sup>71</sup> *See, e.g.,* Southern California Edison Company; San Onofre Nuclear Generating Station, Units 1, 2, and 3, and Independent Spent Fuel Storage Installation, 80 Fed. Reg. 33,558 (June 12, 2015); Duke Energy Florida, Inc.; Crystal River Unit 3 Nuclear Generating Station, 80 Fed. Reg. 19,358 (Apr. 10, 2015); Dominion Energy Kewaunee, Inc.; Kewaunee Power Station, 79 Fed. Reg. 65,715 (Nov. 5, 2014).

with respect to the exemption[] request.”<sup>72</sup> We consider the stay of a proceeding or other agency action to be an extraordinary remedy, and Vermont has not addressed any of the factors that would demonstrate that a stay is warranted here.<sup>73</sup> Moreover, Vermont provided comments and requested a hearing with respect to both the exemption request and the license amendment application. It also filed comments on the Environmental Assessment associated with the exemption request.<sup>74</sup> Therefore, Vermont already has received the opportunity to request a hearing and to express its views in this proceeding. With this contention, however, Vermont has — instead of challenging the applications — impermissibly challenged the way the agency conducts its business. We do not admit Contention 1, and we decline to hold the proceeding in abeyance.

Vermont challenged the substance of the exemption request and license amendment application in Contention 2. In its statement of the contention, Vermont asserted that:

Entergy’s license amendment request, if approved along with the predicate requested exemptions, fails to account for all credible emergency scenarios, undermines the effectiveness of the site emergency plan and off-site emergency planning, and poses an increased risk to the health and safety of Vermont citizens in violation of NRC regulatory requirements 10 C.F.R. § 50.54(q)(4) and Appendix E to Part 50.<sup>75</sup>

Vermont claimed that there are several purported deficiencies in Entergy’s exemption request and license amendment application; these include a lack of implementing procedures, which Vermont argued were necessary for the state to respond effectively to an emergency at the plant.<sup>76</sup> In addition, Vermont asserted that the exemption request and license amendment application would leave Entergy with “no effective means” to communicate critical information to the state during an emergency; that they fail to analyze all credible beyond-design-basis

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<sup>72</sup> Hearing Request at 5. Vermont renews this request on appeal, asking us to provide it with an opportunity to submit new or amended contentions. Appeal at 17-18.

<sup>73</sup> See *Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 158-59 (2011) (applying the stay factors in *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-26, 54 NRC 376, 380 (2001), which focus on whether continuing the adjudication will jeopardize health and safety, impede fair and efficient decision making, and hinder implementation of rule or policy changes); *Shearon Harris*, CLI-09-8, 69 NRC at 329 (declining to hold the adjudicatory proceeding on a combined license application in abeyance pending the completion of the design certification rulemaking for the design referenced in the application).

<sup>74</sup> See Final Environmental Assessment, 80 Fed. Reg. at 47,962-63; Comments of the State of Vermont (June 1, 2015) (ADAMS Accession No. ML15159A183).

<sup>75</sup> Hearing Request at 6.

<sup>76</sup> *Id.* at 6-8; see also Vermont Division of Emergency Management and Homeland Security Comments at 5.

accident scenarios, including those arising from hostile action; that they fail to address heightened safety concerns from the presence of high-burnup fuel; and that they fail to adopt effective radiation monitoring standards.<sup>77</sup> Vermont concludes that the license amendment application and exemption request would result in a “clear reduction in emergency plan effectiveness that cannot meet the requirements of 10 C.F.R. § 50.54(q)(4) and companion Part 50, Appendix E emergency plan requirements.”<sup>78</sup>

Entergy and the Staff, however, both have acknowledged that the exemption request and the license amendment application would reduce the effectiveness of the current Vermont Yankee emergency plan.<sup>79</sup> That fact is not in dispute. The reduction in effectiveness is the reason that Entergy must obtain NRC approval to amend its Emergency Plan and Emergency Action Level Scheme.<sup>80</sup> The relevant issue here is the safety of Entergy’s proposal given the plant’s shutdown and defueled status. And although Vermont has catalogued a number of concerns, Vermont’s arguments do not articulate an admissible contention with respect to the proposed Permanently Defueled Emergency Plan and Permanently Defueled Emergency Action Level Scheme.

For example, Vermont’s claim that there would be “no effective” means of communication between Entergy and Vermont in the event of an emergency does not include supporting facts or opinion to demonstrate a genuine dispute — in particular, Vermont does not address the fact that the notification requirements will remain “largely unchanged” under the exemption request and license amendment application, except for an increase in notification time limits from 15 minutes to 1 hour.<sup>81</sup> Similarly, Vermont’s claim regarding the presence of high-burnup fuel does not specifically challenge Entergy’s consideration of high-burnup fuel in the exemption request.<sup>82</sup> Additionally, Vermont’s claim that Entergy should

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<sup>77</sup> Hearing Request at 7-9; *see also* Vermont Department of Public Service Comments at 1-3; Vermont Division of Emergency Management and Homeland Security Comments at 4-5; Vermont Department of Health Comments at 2, 4-6.

<sup>78</sup> Hearing Request at 8. Vermont also alludes to the proposed revisions as discontinuing a federal requirement for Entergy to support state planning and monitoring activities and advances a more specific request for the NRC to require Entergy to financially support state agencies that would be responsible for responding to an emergency under the revised plan. *See id.* at 6; Vermont Division of Emergency Management and Homeland Security Comments at 7; Vermont Department of Health Comments at 7. The NRC’s regulations do not require a licensee to provide funding to state or local organizations as part of its emergency planning. The provision of such funding to Vermont is therefore a matter beyond this proceeding’s scope.

<sup>79</sup> *See, e.g.*, SECY-14-0125, at 3-4; License Amendment Application at 1.

<sup>80</sup> *See* 10 C.F.R. § 50.54(q)(4).

<sup>81</sup> Entergy Answer at 35-36; Exemption Request, Attachment 1, at 20-21; License Amendment Application, Attachment 1, at 1.

<sup>82</sup> *See* Entergy Answer at 32 (citing Exemption Request, Attachment 2, at 5-6).

consider additional accident scenarios, including hostile action, did not explain why the analyses that Entergy relied upon in its exemption request and license amendment application are inadequate.<sup>83</sup> Vermont's argument regarding the lack of effective radiation monitoring standards similarly falls short.<sup>84</sup> Although expert declarations may serve as support for a proposed contention, the statements from Vermont's experts are conclusory in nature and do not provide the rationale that is missing from Vermont's hearing request.<sup>85</sup>

Nor did Vermont explain why the purported deficiencies in Entergy's proposal would be required under NRC regulations, i.e., that they would be material to the NRC's decision on the exemption request and license amendment application.<sup>86</sup> Vermont asserted that Entergy must provide implementing procedures with its proposed revisions, but it did not explain why the procedures would be necessary at this stage for Entergy to comply with the emergency planning requirements. Vermont's claims amount to generalized grievances and are insufficient to establish a genuine, material dispute with either application.<sup>87</sup> Contention 2 is inadmissible.

## **B. Vermont's Petition for Reconsideration**

The authority to reconsider our actions is inherent in our authority to make them in the first instance.<sup>88</sup> There is, however, no procedural mechanism for an external entity to seek revisions to a Commission direction to the Staff in a Staff Requirements Memorandum — the type of decision that Vermont asks us to reverse here.<sup>89</sup> The provisions that Vermont references as authority for its petition — 10 C.F.R. §§ 2.341(d) and 2.345 — govern reconsideration of adjudicatory decisions, and do not apply to the directives we issue to the Staff outside of an adjudicatory proceeding.<sup>90</sup> As a general matter, our Staff Requirements Memoranda are not subject to reconsideration. But purely as a matter of discretion, we consider Vermont's petition. As discussed below, however, we are not persuaded to reverse our decision.

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<sup>83</sup> See *id.* at 28-32; Staff Answer at 32-36.

<sup>84</sup> See Staff Answer at 37.

<sup>85</sup> See *USEC Inc. (American Centrifuge Plant)*, CLI-06-10, 63 NRC 451, 472 (2006) (explaining that conclusory statements, even if made by an expert, are insufficient to support the admission of a contention).

<sup>86</sup> See 10 C.F.R. § 2.309(f)(1)(iv).

<sup>87</sup> See *id.* § 2.309(f)(1)(v), (vi).

<sup>88</sup> *U.S. Department of Energy (High-Level Waste Repository)*, CLI-14-1, 79 NRC 1, 2 (2014).

<sup>89</sup> *Id.* at 3-4.

<sup>90</sup> See Petition for Reconsideration at 1.



First, Vermont argues that our Staff Requirements Memorandum violates NRC precedent that requires a hearing opportunity when an exemption request is directly related to a license amendment application.<sup>91</sup> Our decision today addresses this point. And in raising contentions that challenge the matters underlying both the exemption request and the license amendment application, Vermont has received that opportunity. Vermont also filed comments that addressed both the exemption request and the license amendment application.<sup>92</sup>

Second, Vermont argues that the Staff Requirements Memorandum violates the National Environmental Policy Act (NEPA).<sup>93</sup> Vermont claims that our decision granted the exemption request, amounting to a “major federal action” that required an environmental analysis.<sup>94</sup> Vermont’s characterization of our action, however, is incorrect.<sup>95</sup> In any event, the Staff performed the requisite environmental analysis here. After the issuance of the Staff Requirements Memorandum and prior to issuing a decision on the exemption request, the Staff — consistent with the NRC’s obligations under NEPA — prepared an Environmental Assessment.<sup>96</sup> And although NEPA does not require it, the Staff published the draft Environmental Assessment for public comment. Vermont submitted comments on the draft, which the Staff addressed in the final Environmental Assessment.<sup>97</sup> Only after the completion of the NEPA process did the Staff complete its review and issue the exemptions. The agency’s obligations under NEPA therefore have been fulfilled.

Finally, Vermont argues that we should review existing emergency planning and response obligations that Entergy has to the State beyond those required by NRC regulations that are reflected in memoranda of understanding and letters of agreement between Entergy and the State of Vermont.<sup>98</sup> State and local governments play a vital role in emergency planning; indeed, they serve on the front lines of any emergency event within their jurisdiction. And we acknowledge

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<sup>91</sup> See *id.* at 1, 4.

<sup>92</sup> The Staff considered and responded to these comments in the Safety Evaluation Report for the license amendment. See Issuance of License Amendment, Enclosure 2, at 40-47.

<sup>93</sup> Petition for Reconsideration 1.

<sup>94</sup> *Id.* at 6.

<sup>95</sup> In its more recent filings, Vermont characterizes our action accurately, thereby moving away from this argument. See, e.g., Appeal at 7 (acknowledging that we did not “approve[ ] the exemption request, but . . . accepted the Staff’s recommendation that the exemption request be granted by the Staff”).

<sup>96</sup> See Draft Environmental Assessment, 80 Fed. Reg. at 24,291.

<sup>97</sup> See Final Environmental Assessment, 80 Fed. Reg. at 47,962-63. On the basis of the Environmental Assessment, the Staff concluded that the proposed action “will not have a significant effect on the quality of the human environment” and therefore that it would not prepare an environmental impact statement. *Id.* at 47,963; see 10 C.F.R. § 51.20(a)(1) (requiring the agency to prepare an environmental impact statement under NEPA for major actions that have a significant environmental effect).

<sup>98</sup> Petition for Reconsideration at 9-10.

that the State of Vermont and the local communities in the vicinity of Vermont Yankee have a strong interest in the decommissioning activities that will be undertaken at the plant. Our regulatory processes provide an opportunity for interested governmental entities and members of the public to express their views and to learn more about what to expect over the decommissioning phase. The Staff has held public meetings near the plant and, more recently, has sought public comment to help the agency develop the regulatory basis for a rule that will improve the existing regulations by tailoring them for decommissioning plants, including our emergency planning requirements.<sup>99</sup> Although the plant has shut down, the agency's safety and security oversight has not ceased, and we continue to ensure that Entergy remains in compliance with our regulations. To the extent, however, that Vermont and Entergy have agreed to requirements beyond those imposed by our regulations, any changes to those requirements must be negotiated between the two parties themselves. We decline to step into the middle of a dispute that resides outside of our jurisdiction. Our decision on the Staff's recommendation, reflected in SRM-SECY-14-0125, stands.

### III. CONCLUSION

As discussed above, we find that Vermont has not raised an admissible contention, and we therefore *affirm* the Board's decision denying the hearing request. Additionally, we *consider* as a matter of discretion Vermont's petition for reconsideration, but *sustain* our approval of the Staff's recommendation to grant the exemption request. We *terminate* the proceeding.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 23d day of June 2016.

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<sup>99</sup> See Advance Notice of Proposed Rulemaking, 80 Fed. Reg. at 72,358.

### **Additional Views of Commissioner Svinicki**

I fully join my colleagues' conclusion that neither of Vermont's contentions meets our contention admissibility requirements regardless of whether the contentions are within the scope of this proceeding. Thus, as the Board concluded, I do not see a reason to "test the boundaries of the . . . *Private Fuel Storage* decision"<sup>1</sup> to answer the scope question since we have effectively decided this case on other grounds. Nonetheless, if confronted with the issue, I would disagree with my colleagues and find Vermont's contentions out of scope because *Private Fuel Storage* is distinguishable from the instant case.

In *Private Fuel Storage* the Commission provided a critical explanation of the principles underlying its holding.

To speak in terms of a hearing on [an] exemption is a convenient shorthand, which we ourselves use in today's Order. It is important to recognize at the outset, though, that the certified question does not focus directly on the exemption itself, but, as the Board said, "on exemption-related matters." . . . At bottom, what Utah proposes to litigate is whether [the applicant's] ISFSI design, which is dependent on an exemption from otherwise controlling seismic regulations, is adequate to withstand plausible earthquake risks.<sup>2</sup>

Thus, *Private Fuel Storage* rests on the core insight that the AEA does not provide an opportunity to seek a hearing on exemption requests even when an exemption request is "related" to a licensing action. Rather, when there are matters within the scope of a licensing action that are also the subject of an exemption request, then the exemption request does not remove those matters from the scope of the licensing proceeding. Viewed in this light, the exemption request at issue in *Private Fuel Storage* appears significantly different than the exemption request at issue in this proceeding. The former replaced one set of regulatory requirements with another while the latter removes a set of regulatory requirements altogether. Because of this difference, the two exemptions have very different effects on their related licensing proceedings, as explained below.

In *Private Fuel Storage* the applicant for an ISFSI in Utah sought an exemption from 10 C.F.R. § 72.102, which required an ISFSI applicant west of the Rocky Mountain Front to perform a deterministic seismic hazards analysis to meet the seismic evaluation and design standards for licensing.<sup>3</sup> Instead, the applicant proposed to calculate the design earthquake for the facility using a more

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<sup>1</sup> LBP-15-18, 81 NRC 793, 797 (2015).

<sup>2</sup> *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-12, 53 NRC 459, 465-66 (2001) (quoting *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-3, 53 NRC 84, 100 (2001)).

<sup>3</sup> *Id.* at 461, 463.

recent probabilistic approach, “in accordance with the guidance in Regulatory Guide 1.165, and applying the risk-informed approach of 10 C.F.R. Part 60.”<sup>4</sup> Ultimately, the Staff approved the exemption request and thereby allowed the applicant to demonstrate the adequacy of the facility’s seismic design through an alternate methodology.<sup>5</sup> Consequently, the adequacy of the applicant’s *alternate* demonstration was within the scope of the underlying license proceeding and a topic suitable for a hearing.<sup>6</sup> Otherwise, the petitioners would have been unable to challenge a critical part of the safety analysis simply because it also happened to be the subject of an exemption.

In contrast, the exemption request at issue in this proceeding completely exempts Vermont Yankee from certain regulatory requirements in 10 C.F.R. § 50.47 and 10 C.F.R. Part 50, Appendix E, which largely relate to emergency planning for the offsite consequences of accident scenarios that are no longer credible at the site.<sup>7</sup> Neither the exemption request nor its approval substitutes those regulations with alternate requirements.<sup>8</sup> As a result, the effect of the exemption request on this licensing proceeding is fundamentally different than the effect the exemption request had on the *Private Fuel Storage* licensing proceeding. Because the exemption request in *Private Fuel Storage* exempted the applicant from one set of seismic requirements but imposed another set of requirements, the issue of the plant’s seismic adequacy remained in the licensing proceeding. In contrast, in this proceeding the exemption request exempted the licensee from a set of emergency planning requirements altogether and without imposing replacement requirements; as a result, the issue of whether the license amendment application meets the exempted requirements is no longer within the scope of this proceeding.

As a result, the license amendment request in this proceeding does not attempt to show compliance with the exempted regulations or compliance with an alternate set of requirements, as the license application in *Private Fuel Storage* was required to do.<sup>9</sup> Instead, the license amendment request attempts to demonstrate compliance with the regulations that remain applicable to the facility after the exemption. Rather than challenge Entergy’s compliance with the remaining applicable regulations, Vermont’s challenges essentially seek to question whether

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<sup>4</sup> *Id.* at 463 (internal quotation marks omitted).

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

<sup>6</sup> *Id.* at 467. Moreover, as a corollary, because the exemption from the regulation was granted, and the new standard imposed by the Staff was not within an applicable regulation, the question of whether the new standard was adequate itself was also within the scope of the proceeding. *Id.* at 470.

<sup>7</sup> Exemption Request, Attach. 1.

<sup>8</sup> SRM-SECY-14-0125; SECY-14-0125.

<sup>9</sup> License Amendment Application; see *Private Fuel Storage*, CLI-01-12, 53 NRC at 467 (“The safe design of the facility is a matter that [the applicant] must establish to obtain a license.”).

Entergy should still be required to meet the exempted regulatory provisions.<sup>10</sup> Consequently, the issues that Vermont seeks to litigate, predominantly related to offsite emergency planning, are outside of this proceeding's scope.<sup>11</sup> To hold otherwise would allow Vermont to do what we have long held the Atomic Energy Act does not provide for: seek a hearing on the adequacy of an exemption request itself.<sup>12</sup>

Nonetheless, Vermont argues that *Private Fuel Storage* supports its request for a hearing on the exemption request.<sup>13</sup> Vermont contends that *Private Fuel Storage* stands for the proposition that the Commission does not only grant “a hearing on exemption requests that are directly related to an already-admitted contention. The proper focus is on *whether the exemption is necessary for the applicant to obtain an initial license or amend its license.*”<sup>14</sup> Vermont notes that the license amendment request is dependent on the exemption request.<sup>15</sup> Thus, Vermont concludes, “Because ‘the exemption is necessary for the applicant to . . . amend its license,’ it ‘trigger[s] the right to a hearing under the AEA.’”<sup>16</sup>

Vermont advances an interpretation of *Private Fuel Storage* that appears reasonable on the surface. However, Vermont's argument ultimately rests on an insufficiently nuanced reading of that case. As noted above, the Commission in *Private Fuel Storage* explicitly cautioned that speaking “in terms of a hearing on [the applicant's] exemption is a convenient shorthand.”<sup>17</sup> The Commission clarified that the issue actually before it was whether the licensing hearing could include “exemption-related matters.”<sup>18</sup> Vermont's arguments do not address this pivotal distinction. Rather, Vermont reads the Commission's “shorthand” literally and seeks a hearing on the exemption request itself without any showing that the issues it seeks to litigate are part of the instant licensing action, like the seismic design in *Private Fuel Storage*. As a result, Vermont would greatly expand *Private Fuel Storage* to essentially allow a hearing on an exemption request whenever it happened to be accompanied by an implementing license amendment. Such a holding would significantly undermine our longstanding conclusion that Congress

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<sup>10</sup> Hearing Request at 3-10.

<sup>11</sup> 10 C.F.R. § 2.309(f)(1)(iii).

<sup>12</sup> *Private Fuel Storage*, CLI-01-12, 53 NRC at 466; *Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-00-5, 51 NRC 90, 96-98 (2000).

<sup>13</sup> Appeal at 9-12.

<sup>14</sup> *Id.* at 10 (quoting *Private Fuel Storage*, CLI-01-12, 54 NRC at 470 (emphasis added in Appeal)).

<sup>15</sup> *Id.* at 11.

<sup>16</sup> *Id.* (quoting *Private Fuel Storage*, CLI-01-12, 54 NRC at 470 (omission and alteration in original)).

<sup>17</sup> *Private Fuel Storage*, CLI-01-12, 54 NRC at 465.

<sup>18</sup> *Id.* (internal quotation marks omitted).

purposefully declined to require hearings on exemptions.<sup>19</sup> Therefore, I would decline to adopt Vermont’s reading of *Private Fuel Storage*.

Vermont reminds us that *Private Fuel Storage* warned against “‘exclud[ing] critical safety questions from licensing hearings merely on the basis of an ‘exemption’ label.’”<sup>20</sup> As *Private Fuel Storage* recognized, the exemption request cannot “remove a matter germane to a licensing proceeding from consideration in a hearing.”<sup>21</sup> However, by exempting the applicant from certain regulatory requirements, the exemption request at issue in this proceeding shapes the scope of the requirements the applicant must meet.<sup>22</sup> While this impacts the licensing proceeding, it does so in a way that we have consistently held is not susceptible to challenge in NRC licensing proceedings.<sup>23</sup> Thus, the challenges Vermont raises, while certainly germane to the exemption, are not germane to the licensing action at hand. Ignoring this distinction would elevate form over substance and allow a petitioner to raise wide-ranging challenges to an exemption request, which the Commission has never allowed, based on the happenstance of a temporal connection between an exemption request and a following license amendment request.

For these reasons, I do not join my colleagues’ discussion of whether *Private Fuel Storage* is controlling precedent for this case and would instead find Vermont’s contentions to be outside the scope of this proceeding.

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<sup>19</sup> *Zion*, CLI-00-5, 51 NRC at 96-98.

<sup>20</sup> Appeal at 11 (quoting *Private Fuel Storage*, CLI-01-12, 53 NRC at 467).

<sup>21</sup> *Private Fuel Storage*, CLI-01-12, 53 NRC at 467.

<sup>22</sup> In that sense, an exemption is similar to our regulations, which also shape the scope of our licensing proceedings in a manner that is not normally open to adjudicatory challenges. *Exelon Generation Co., LLC* (Limerick Generating Station, Units 1 and 2), CLI-12-19, 76 NRC 377, 380 (2012) (explaining that “a contention may not challenge an agency rule or regulation in any adjudicatory proceeding absent a waiver”).

<sup>23</sup> *Id.* at 466; *Zion*, CLI-00-5, 51 NRC at 96-98.

### **Commissioner Baran, Concurring in Part and Dissenting in Part**

I concur in part with and dissent in part from the Commission's decision.

I agree with the portion of the decision that discusses the Commission's *Private Fuel Storage* decision and finds that matters related to Entergy's exemption request are sufficiently related to the company's license amendment request to entitle the State of Vermont to challenge the substance of the exemptions in this proceeding. I also join the majority in its decision to consider Vermont's Motion for Reconsideration as a matter of discretion.

However, I respectfully dissent from the portions of the decision that (1) address contention admissibility and (2) sustain the Commission's prior approval of the Staff's recommendation to grant the exemption request. The Board did not address the admissibility of the contentions as they were proposed because the Board deferred to the Commission's previous approval of Entergy's exemption and decided that it would be improper for the Board to rule on the appropriateness of the Commission's action. Therefore, the Board limited its inquiry to whether Vermont raised an admissible contention with the regulations as exempted. Given its understandably narrow reading of the question before it, the Board found Contentions 1 and 2 inadmissible. However, the Commission has now determined that the issue of whether the exemption should be granted is directly linked to the question of whether the license amendment request should be granted, and the Commission has agreed to consider Vermont's Motion for Reconsideration as a matter of discretion. Therefore, I would remand Contentions 1 and 2 to the Board to make a fresh contention admissibility determination taking into account today's decision, and I would hold Vermont's Motion for Reconsideration in abeyance until after the Board's new contention admissibility decision, any potential hearing, and any potential appeals. As the Commission recently emphasized, threshold issues such as contention admissibility are ordinarily decided by our Boards in the first instance.<sup>1</sup>

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<sup>1</sup> *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-15-14, 81 NRC 729, 735 n.27 (2015) (citing *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 560 & n.36 (2013) ("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.")).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Stephen G. Burns**, Chairman  
**Kristine L. Svinicki**  
**William C. Ostendorff**  
**Jeff Baran**

**In the Matter of**

**Docket No. 40-9091**

**STRATA ENERGY, INC.**  
**(Ross In Situ Uranium Recovery**  
**Project)**

**June 29, 2016**

**STANDARD OF REVIEW**

We review questions of law *de novo*, and we defer to the Board's findings with respect to the underlying facts unless the findings are "clearly erroneous." *Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), CLI-13-1, 77 NRC 1, 18-19 (2013) (citing *David Geisen*, CLI-10-23, 72 NRC 210, 224-25 & n.61 (2010) and *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 26 (2003)).

**CONTENTIONS, ADMISSIBILITY**

We defer to the Board on issues of contention admissibility unless there is an error of law or abuse of discretion. We generally leave to the Board's judgment whether a proposed contention has a sufficient factual basis to be admitted for hearing. *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 354-55 (2015); *Crow Butte Resources, Inc.* (Marsland Expansion Area), CLI-14-2, 79 NRC 11, 26 (2014).



## NEPA, SEGMENTATION

The Board did not err as a matter of law in finding that plans for expanding the proposed *in situ* uranium recovery facility with satellite areas would have to be in a sufficiently advanced stage to be considered a “proposal” for action requiring analysis under NEPA.

## NEPA

The Board did not err in holding that the groundwater monitoring used to characterize the environmental conditions of the site for NEPA purposes need not conform to the more detailed groundwater monitoring requirements the NRC imposes for an operating *in situ* uranium recovery facility.

## STANDARD OF REVIEW

We decline to review a board’s “plausible decision that rests on carefully rendered findings of fact,” even where the record includes evidence that supports a different view.

## APPEALS

We do not consider cursory, unexplained legal arguments, and we will not speculate about what a pleading is supposed to mean. *See, e.g., Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Plant), CLI-10-17, 72 NRC 1, 30 (2010); *Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-99-4, 49 NRC 185, 194 (1999) (quoting *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-279, 1 NRC 559, 576 (1975)).

## MEMORANDUM AND ORDER

This decision addresses a petition for review relating to a materials license application for an *in situ* uranium recovery facility in Crook County, Wyoming, filed by Strata Energy, Inc.<sup>1</sup> Natural Resources Defense Council and Powder

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<sup>1</sup> Natural Resources Defense Council’s & Powder River Basin Resource Council’s Petition for Review of Atomic Safety and Licensing Board’s January 23, 2015 Initial Decision Denying Environmental Contentions 1 Through 3, and Interlocutory Decisions Denying Environmental Contentions  
(Continued)

River Basin Resource Council (together, “Joint Intervenors”) have petitioned for review of the Atomic Safety and Licensing Board’s Initial Decision on their admitted contentions.<sup>2</sup> Joint Intervenors also challenge three earlier interlocutory Board decisions that found several contentions inadmissible.<sup>3</sup> For the reasons stated below, we deny review.

## I. BACKGROUND

Strata proposes to build and operate an *in situ* recovery and processing facility for uranium known as the Ross Project.<sup>4</sup> As described in its application, the proposed operation will consist of two steps: recovering mineralized uranium from the ore body and processing the uranium-rich solution into yellowcake.<sup>5</sup> Uranium recovery will be accomplished by injecting an oxidizing solution, or “lixiviant,” into the ore-bearing sandstone through a series of injection wells.<sup>6</sup> The lixiviant oxidizes and mobilizes the uranium as it moves through the ore body, after which it is removed from the ore body by recovery wells.<sup>7</sup> The “pregnant,” or mineral-rich, lixiviant is then transferred to a central processing plant to be processed into uranium yellowcake.<sup>8</sup>

The *in situ* uranium recovery process is used throughout Wyoming, South Dakota, Nebraska, and New Mexico. Recognizing the widespread use of this technology in this region of the country, the Staff prepared a generic environmental

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4/5A and 6/7 (Feb. 17, 2015) (Petition); *see also* Exs. SEI014A to SEI014P, Ross ISR Project USNRC License Application, Crook County, Wyoming, Technical Report (Dec. 2010) (Technical Report); Exs. SEI016A to SEI016E, Ross ISR Project USNRC License Application, Crook County, Wyoming, Environmental Report (Dec. 2010) (Environmental Report).

<sup>2</sup> LBP-15-3, 81 NRC 65 (2015).

<sup>3</sup> LBP-13-10, 78 NRC 117 (2013); Memorandum and Order (Denying Motion for Reconsideration of LBP-13-10 Ruling Regarding Environmental Contention 4/5A or, Alternatively, to Admit Amended Contention) (Aug. 27, 2013) (unpublished) (Reconsideration Order); Memorandum and Order (Ruling on Motion to Migrate/Amend Existing Contentions and Admit New Contentions Regarding Final Supplement to Generic Environmental Impact Statement) (May 23, 2014) (unpublished) (FSEIS Order).

<sup>4</sup> Letter from Andrew Simpson, Strata Energy, Inc., to Keith McConnell, NRC (Jan. 4, 2011) (submitting application consisting of Environment Report (Exs. SEI016A to SEI016E) and Technical Report (Exs. SEI014A to SEI014P)) (ADAMS Accession No. ML110120055); *see also* Strata Energy, Inc., Ross In Situ Recovery Uranium Project, Crook County, WY; Notice of Materials License Application, Opportunity to Request a Hearing and to Petition for Leave to Intervene, and Commission Order Imposing Procedures for Document Access to Sensitive Unclassified Non-Safeguards Information for Contention Preparation, 76 Fed. Reg. 41,308 (July 13, 2011).

<sup>5</sup> *See* Ex. SEI014A, Technical Report § 1.7, at 1-6.

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

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

<sup>8</sup> *Id.* at 1-6 to 1-7.

impact statement (GEIS) to address aspects of the environmental analysis for these facilities that are similar across sites.<sup>9</sup>

This licensing proceeding began in January 2011, when Strata filed an application for the Ross Project. As proposed by Strata, the Ross Project would occupy 1721 acres (696 hectares) in the northern half of a larger area within the Nebraska–South Dakota–Wyoming Uranium Milling Region known as the Lance District.<sup>10</sup> The project would consist of a central processing facility and 15-25 wellfield modules comprising a total of 1400-2200 recovery and injection wells.<sup>11</sup> Strata is also “actively exploring” the entire Lance District for potential satellite uranium recovery facilities, but had not yet submitted a license application for any of these facilities at the time of the Board’s decision.<sup>12</sup> A license application, whether for a separate license or for a license amendment to expand the Ross facility, is subject to a separate safety and environmental review, and Joint Intervenors or other members of the public would have an opportunity to request a hearing with respect to any such application.<sup>13</sup>

At the outset of the proceeding Joint Intervenors sought and were granted a

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<sup>9</sup> See Exs. NRC007 to NRC008, “Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities, Final Report,” NUREG-1910, Vols. 1-2 (May 2009) (GEIS).

<sup>10</sup> See Exs. SEI009A to SEI009B, “Environmental Impact Statement for the Ross ISR Project in Crook County, Wyoming, Supplement to the Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities Final Report,” NUREG-1910, Supp. 5 (Feb. 2014) § 2.1.1, at 2-3 (FSEIS). The FSEIS describes the Lance District as an area “90-km<sup>2</sup> [56 mi<sup>2</sup>]” — which is an incorrect conversion (90 square kilometers is 35 square miles). The exact size of the district is not relevant to this appeal.

<sup>11</sup> *Id.* at 2-9.

<sup>12</sup> *Id.* at 2-3 to 2-4.

<sup>13</sup> In the time since the Board’s initial decision approving the license, Strata has requested a license amendment to expand into the Kendrick expansion area. See Strata Energy Inc., Kendrick Expansion Area Amendment to SUA-1601 (Mar. 20, 2015) (ADAMS Accession No. ML15096A141 (package)) (Kendrick Expansion Amendment). That license amendment request is under review, and a notice of opportunity to request a hearing was published in the *Federal Register*. See Strata Energy Inc., Ross *In Situ* Recovery Project; License Amendment Request and Notice of Opportunity to Request a Hearing, 81 Fed. Reg. 10,285 (Feb. 29, 2016) (Kendrick Hearing Notice). Joint Intervenors did not submit a petition to intervene in the Kendrick proceeding. Further, the Staff has started the environmental scoping process for the Kendrick request. See Strata Energy, Inc. Kendrick Expansion Area *In Situ* Uranium Recovery Project; Scoping Notice, 81 Fed. Reg. 12,143 (Mar. 8, 2016) (Kendrick Scoping Notice). Joint Intervenors have submitted scoping comments on the environmental review for the Kendrick expansion area. See E-mail from Shannon Anderson, Powder River Basin Resource Council, to NRC (Apr. 22, 2016) (ADAMS Accession No. ML16117A369) (transmitting Letter from Howard Crystal, representing Natural Resources Defense Council, to Cindy Bladey, NRC (Apr. 22, 2016) (Kendrick Project Scoping Comments)).

hearing on four contentions — all initially challenging Strata’s environmental report.<sup>14</sup> The admitted contentions were:

Contention 1: The application fails to adequately characterize baseline groundwater quality.

Contention 2: The application fails to analyze the environmental impacts that will occur if Strata cannot restore groundwater to primary or secondary limits.

Contention 3: The application fails to include adequate hydrological information to demonstrate Strata’s ability to prevent mining fluids from migrating into adjacent groundwater.

Contention 4/5A: The application fails to adequately assess cumulative impacts of the proposed action and the planned Lance District expansion projects.<sup>15</sup>

Following the issuance of the Staff’s Draft Supplemental Environmental Impact Statement (DSEIS), Joint Intervenor filed a “motion to resubmit” their original contentions and to add a new contention (Contention 6).<sup>16</sup> In LBP-13-10, the Board “migrated” Contentions 1-3 as challenges to the Staff’s DSEIS because the DSEIS discussion of the subject matter of each contention was substantially the same as in Strata’s environmental report.<sup>17</sup> With respect to Contention 4/5A, however, the Board found that the information in the DSEIS differed significantly from the information in the environmental report.<sup>18</sup> The Board ruled that the migration tenet did not apply and Joint Intervenor should have submitted a new or amended contention, addressing all the admissibility factors.<sup>19</sup> Therefore, it held that Contention 4/5A would continue as a challenge to Strata’s environmental

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<sup>14</sup> LBP-12-3, 75 NRC 164, 210 (2012). On appeal we affirmed the Board’s standing determination and did not address contention admissibility. CLI-12-12, 75 NRC 603 (2012).

<sup>15</sup> See LBP-12-3, 75 NRC at 212.

<sup>16</sup> Natural Resources Defense Council’s & Powder River Basin Resource Council’s Joint Motion to Resubmit Contentions & Admit One New Contention in Response to Staff’s Supplemental Draft Environmental Impact Statement (May 6, 2013) (Motion to Resubmit Contentions); see also Exs. NRC006A to NRC006B, “Environmental Impact Statement for the Ross ISR Project in Crook County, Wyoming Supplement to the Generic Environmental Impact Statement for *In-Situ* Leach Uranium Milling Facilities,” NUREG-1910, Supp. 5 (Draft Report for Comment) (Mar. 2013).

<sup>17</sup> LBP-13-10, 78 NRC at 151. Under the “migration tenet,” where the information in the Staff’s environmental review document is “sufficiently similar” to the material in the applicant’s environmental report, an existing contention based on the application can be “migrated,” or deemed to apply to the Staff’s review document as it did to the application. *Id.* at 132-33 (citations omitted). As the Board explained, this case management practice obviates the need for intervenors to file an essentially identical contention challenging the Staff’s document followed by a motion to dismiss the existing contention as moot. *Id.* at 133 n.8.

<sup>18</sup> *Id.* at 141-44.

<sup>19</sup> *Id.* at 143.

report.<sup>20</sup> The Board later denied a motion for reconsideration of its ruling with respect to Contention 4/5A, stating that Joint Intervenor had made no showing on either the good cause or admissibility factors.<sup>21</sup>

The Board also declined to admit Joint Intervenor's proposed Contention 6, which argued that the Staff's NEPA analysis should consider the development of the entire Lance District as the federal action.<sup>22</sup> The Board found that Contention 6 was inadmissible because Joint Intervenor had not shown that plans to develop additional *in situ* recovery facilities in the region were sufficiently advanced or interconnected with the proposed action so as to trigger NEPA's requirement that they be submitted in a single environmental impact statement with the proposed license.<sup>23</sup> The Board further reasoned that the contention should have been filed with Joint Intervenor's initial petition to intervene because the environmental report identified the potential for Strata to develop the entire Lance District.<sup>24</sup>

The Staff completed its Final Supplemental Environmental Impact Statement (FSEIS) in February 2014 and issued the license in April 2014.<sup>25</sup> Shortly after the Staff completed the FSEIS, Joint Intervenor again sought to migrate or

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

<sup>21</sup> Reconsideration Order at 4-6.

<sup>22</sup> LBP-13-10, 78 NRC at 150.

<sup>23</sup> *Id.* at 144-50. As noted above, Strata has now filed an application to expand its operations into the Kendrick area, contiguous to the Ross site, and the Joint Intervenor has filed scoping comments in that proceeding. *See supra* note 13. Joint Intervenor also submitted a "Notice of Filing" asking that we consider their scoping comments as part of the record in this proceeding. *See* Natural Resources Defense Council and Powder River Basin Resource Council's Notice of Filing (Apr. 27, 2016). The record for this proceeding, however, is closed and Joint Intervenor has not addressed the criteria for reopening the record in 10 C.F.R. § 2.326. Further, had Joint Intervenor filed a motion to reopen the record based on their scoping comments, it does not appear that they would have been able to meet the standards. Motions to reopen must, among other things, "demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially." 10 C.F.R. § 2.326(a)(3). In their scoping comments Joint Intervenor reiterates the claim (among other things) that the Staff's analysis of the environmental impacts in this proceeding is defective because "the entire project should be considered in a single EIS." Kendrick Project Scoping Comments at 2. But, as discussed in more detail below, the Staff's EIS for the Ross project considered the cumulative impacts of the construction of possible satellite facilities, such as Kendrick, including impacts to geology and soils (*see* Ex. SEI009A, FSEIS, ch. 5, at 5-18 to 5-19), and surface and groundwater impacts (Ex. SEI009A, FSEIS, ch. 5, at 5-20 to 5-29). Moreover, much of the Joint Intervenor's scoping commentary either does not address cumulative impacts or simply raises concerns with respect to the Kendrick area that were fully litigated with respect to the Ross facility — such as containment of mining fluids, baseline water quality characterization, and restoration impacts (*see* Kendrick Project Scoping Comments at 6-7). We decline to make Joint Intervenor's scoping comments part of the record here.

<sup>24</sup> LBP-13-10, 78 NRC at 149-50.

<sup>25</sup> *See* Exs. SEI009A to SEI009B, FSEIS; Ex. SEI015, Materials License SUA-1601 (Apr. 24, 2014) (License).

amend their contentions and offered a proposed Contention 7, which reiterated the claims of Contention 6.<sup>26</sup> In May 2014, the Board “migrated” Contentions 1 and 3, admitted an amended Contention 2, and again declined to migrate or amend Contention 4/5A.<sup>27</sup> The Board also found Contention 7 inadmissible because it was not based on new information.<sup>28</sup> Soon thereafter, the Board granted the Staff’s and Strata’s motions for summary disposition of Contention 4/5A.<sup>29</sup>

The Board held a hearing in the fall of 2014 on Contentions 1, 2, and 3.<sup>30</sup> In its Initial Decision following the hearing, the Board modified one license condition to require Strata to properly abandon certain historic drill holes outside the wellfield perimeter.<sup>31</sup> In all other respects, the Board ruled in favor of Strata and the NRC Staff on all three contentions.<sup>32</sup>

Joint Intervenors have petitioned for review of the Board’s Initial Decision with respect to all three contentions.<sup>33</sup> They also seek review of the Board’s interlocutory decisions refusing to migrate or amend Contention 4/5A and refusing

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<sup>26</sup> Natural Resources Defense Council’s & Powder River Basin Resource Council’s Joint Motion to Migrate or Amend Contentions, and to Admit New Contentions in Response to Staff’s Final Supplemental Draft Environmental Impact Statement (Mar. 31, 2014) (Motion to Migrate Contentions to FSEIS); *see also* Second Declaration of Christopher E. Paine in Support of the Natural Resources Defense Council & Powder River Basin Resource Council’s Joint Motion to Migrate or Amend Contentions, and to Admit New Contentions in Response to the Final Supplemental Environmental Impact Statement (Mar. 31, 2014) (Second Paine Declaration). Joint Intervenors referred to their proposed contention as “Contention 5” because they had only four contentions pending in the proceeding. *See* Motion to Migrate Contentions to FSEIS at 33 n.13. The Board, however, designated the contention “Contention 7” to maintain a consistent numbering system.

<sup>27</sup> *See* FSEIS Order at 19.

<sup>28</sup> *Id.* at 14-16, 20.

<sup>29</sup> Memorandum and Order (Ruling on Summary Disposition Motion Regarding Environmental Contention 4/5A) (July 25, 2014) (unpublished) (Summary Disposition Order).

<sup>30</sup> Notice of Hearing (Notice of Evidentiary Hearing and Opportunity to Provide Oral and Written Limited Appearance Statements), 79 Fed. Reg. 44,471 (July 31, 2014).

<sup>31</sup> *See* LBP-15-3, 81 NRC at 143-44. Strata did not appeal the Board’s imposition of this license condition. In December 2015, Strata requested a license amendment to further modify the affected license condition, License Condition 10.12. *See* Letter from Michael Griffin, Strata Energy, to NRC Document Control Desk (Dec. 23, 2015) (regarding request to amend License Condition 10.12) (ADAMS Accession No. ML16020A370). *See also* Natural Resources Defense Council and Powder River Basin Resource Council’s Notice of Filing (Feb. 19, 2016), Attachment B, Letter from Howard Crystal, Meyer Glitzenstein & Eubanks, LLP, to NRC Document Control Desk (Feb. 17, 2016) (opposing license amendment request). The Staff published a notice of the license amendment request on the NRC public website, along with the opportunity to request a hearing on the amendment. *See* <http://www.nrc.gov/about-nrc/regulatory/adjudicatory/hearing-license-applications.html#acc.docketing>. Because this license amendment request has a separate opportunity to request a hearing and is not part of this proceeding, we do not need to further consider this issue here.

<sup>32</sup> LBP-15-3, 81 NRC at 153-54.

<sup>33</sup> *See* Petition at 1.

to admit Contentions 6 and 7.<sup>34</sup> As detailed below, we find that Joint Intervenor has not raised a substantial question of law or identified a clear factual error and we deny their petition.

## II. DISCUSSION

### A. Standard of Review

We will grant a petition for review at our discretion, upon a showing that the petitioner has raised a substantial question as to whether:

- (i) A finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) A necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) A substantial and important question of law, policy, or discretion has been raised;
- (iv) The conduct of the proceeding involved a prejudicial procedural error; or
- (v) Any other consideration that we may deem to be in the public interest.<sup>35</sup>

We review questions of law *de novo*, and we defer to the Board's findings with respect to the underlying facts unless the findings are "clearly erroneous."<sup>36</sup> The standard for showing "clear error" is a difficult one to meet: to do so, a petitioner must demonstrate that the Board's determination is "not even plausible" in light of the record as a whole.<sup>37</sup> For this reason, where a petition for review relies primarily on claims that the Board erred in weighing the evidence in a merits decision, we seldom grant review.<sup>38</sup> We defer to the Board on issues of contention admissibility unless there is an error of law or abuse of discretion.<sup>39</sup> Moreover,

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<sup>34</sup> See *id.*

<sup>35</sup> 10 C.F.R. § 2.341(b)(4).

<sup>36</sup> *Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), CLI-13-1, 77 NRC 1, 18-19 (2013) (citing *David Geisen*, CLI-10-23, 72 NRC 210, 224-25 & n.61 (2010) and *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 26 (2003)).

<sup>37</sup> See, e.g., *Shaw AREVA MOX Services, LLC* (Mixed Oxide Fuel Fabrication Facility), CLI-15-9, 81 NRC 512, 519 (2015) (citations omitted).

<sup>38</sup> See, e.g., *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-14-10, 80 NRC 157, 162-63 (2014); *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 45-46 (2012).

<sup>39</sup> *Southern Nuclear Operating Co.* (Vogtle Electric Generating Plant, Units 3 and 4), CLI-09-16, 70 NRC 33, 35 (2009); *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 914 (2009).

we generally leave to the Board’s judgment whether a proposed contention has a sufficient factual basis to be admitted for hearing.<sup>40</sup>

## **B. Contentions Rejected Prior to Hearing**

Joint Intervenors seek review of the interlocutory Board decisions relating to three contentions dispositioned prior to hearing: Contention 4/5A, which the Board declined to update as a challenge to the DSEIS and FSEIS; and Contentions 6 and 7, which were never admitted in the proceeding.<sup>41</sup> We find that Joint Intervenors have not raised a substantial question with respect to these decisions.

### **1. Proposed Contentions 6 and 7**

#### **a. Joint Intervenors’ Proposed Contentions**

Joint Intervenors first challenge the Board’s decisions rejecting proposed Environmental Contention 6 (challenging the DSEIS) and Environmental Contention 7 (the same contention, challenging the FSEIS).<sup>42</sup> As discussed above, Joint Intervenors argued in these contentions that the Staff’s NEPA analyses should have considered Strata’s development plans for the entire Lance District in a single EIS.<sup>43</sup> Joint Intervenors claimed that Strata had “segmented” the Lance District development to mask the actual environmental consequences of its long-term plans and to expedite the licensing process.<sup>44</sup> To support their contentions, Joint Intervenors cited Council on Environmental Quality (CEQ) regulations providing that 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” and that proposals should be considered a single course of action where they have “similarities that provide a basis for evaluating their environmental consequences together.”<sup>45</sup> Joint Intervenors also argued that the Supreme Court has ruled in *Kleppe v. Sierra Club* that “when several proposals for . . . actions that will have

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<sup>40</sup> *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 354-55 (2015); *Crow Butte Resources, Inc.* (Marsland Expansion Area), CLI-14-2, 79 NRC 11, 26 (2014).

<sup>41</sup> See Petition at 4, 7-10 (challenging LBP-13-10, Reconsideration Order, and FSEIS Order). A petitioner who has been granted intervention and has other contentions pending in the proceeding may not seek immediate review of the Board’s contention admissibility rulings. See, e.g., *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-13-3, 77 NRC 51, 54 (2013).

<sup>42</sup> Petition at 7-10.

<sup>43</sup> See Motion to Resubmit Contentions at 19-23; Motion to Migrate Contentions to FSEIS at 33-39.

<sup>44</sup> Motion to Resubmit Contentions at 19-23; Declaration of Christopher E. Paine on Behalf of the Natural Resources Defense Council & Powder River Basin Resource Council in Support of Contentions 4/5A and 6 (May 6, 2013) (Paine Declaration).

<sup>45</sup> Motion to Resubmit Contentions at 19 (quoting 40 C.F.R. §§ 1502.4(a) and 1508.25(a)).



a cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together.”<sup>46</sup> In support of their contentions, Joint Intervenors cited various public statements and press releases from Strata’s corporate parent indicating that Strata intends to file consecutive applications to develop the entire Lance District.<sup>47</sup>

*b. The Board’s Rulings on Contentions 6 and 7*

In LBP-13-10, when the Board considered this claim with respect to Contention 6, it concluded that Strata’s expansion plans were not sufficiently well developed to constitute a “proposal” that the NRC must consider in its review of the Ross Project.<sup>48</sup> The Board found that the lack of additional “proposals” — actual applications for other facilities — undermined Joint Intervenors’ reliance on both *Kleppe* and the CEQ regulations they cited.<sup>49</sup> It observed that the Supreme Court held in *Kleppe* that NEPA “does not require an agency to consider the possible environmental impacts of less imminent actions when preparing the [environmental] impact statement on proposed actions.”<sup>50</sup> In addition, the Board cited Commission precedent that holds “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).”<sup>51</sup>

The Board next analyzed Joint Intervenors’ claim against the three types of actions described in the relevant CEQ regulation: connected, cumulative, and similar.<sup>52</sup> In the “connected action” portion of its analysis, the Board applied the “independent utility” test devised by the U.S. Court of Appeals for the Ninth Circuit in *Thomas v. Peterson*.<sup>53</sup> This test holds that related actions should be discussed together when each would have no independent utility without the other.<sup>54</sup> The Board found that this was not the case here — the Ross Project

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<sup>46</sup> *Id.* (citing *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976)).

<sup>47</sup> *See id.* at 20-21; Paine Declaration at 14-31 (unnumbered). The press releases referred to in the Paine Declaration are dated between October 2010 and March 2013. *See id.* at 14 (unnumbered).

<sup>48</sup> LBP-13-10, 78 NRC at 144-50.

<sup>49</sup> *Id.* at 145-46.

<sup>50</sup> *Id.* at 145 (quoting *Kleppe*, 427 U.S. at 410 & n.20).

<sup>51</sup> LBP-13-10, 78 NRC at 146 (quoting *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)).

<sup>52</sup> *Id.* at 147 (citing 40 C.F.R. § 1508.25(a)).

<sup>53</sup> *Id.* (discussing *Thomas v. Peterson*, 753 F.2d 754, 758-59 (9th Cir. 1985)).

<sup>54</sup> *Thomas*, 753 F.2d at 758-59. In *Thomas v. Peterson*, the Ninth Circuit held that in assessing the environmental impacts of a timber road, the U.S. Forest Service must consider the impacts of

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has “independent utility” without the possible expansion sites.<sup>55</sup> While the Board noted that it would be economically and operationally efficient if the processing facility built for the Ross Project were used for satellite facilities, it found that this efficiency fell short of showing that the proposed facility would have no independent utility if the satellite facilities were never built.<sup>56</sup> The Board concluded that Joint Intervenors had not shown a genuine dispute with respect to the “connected action” aspect of the CEQ’s regulation.<sup>57</sup> The Board further declined to consider whether the expansion sites might fit the CEQ regulations’ categories of “cumulative” and “similar” projects, because Joint Intervenors nevertheless had failed to show that the information on which their claims were based had not been “previously available.”<sup>58</sup> Therefore the Board determined that the proposed contention could not satisfy the good cause factors in 10 C.F.R. § 2.309(c).<sup>59</sup>

In Contention 7, Joint Intervenors reasserted the same claims with respect to the FSEIS as Contention 6 had made with respect to the DSEIS.<sup>60</sup> In support of their motion, Joint Intervenors argued that Strata’s parent company had continued to publicly disclose Strata’s plans to develop satellite facilities within the Lance District, including in a May 2013 statement that exploratory drilling had commenced in the areas surrounding the Ross Project area.<sup>61</sup>

The Board found that Contention 7 failed to meet the good cause criteria because it was not based on new information.<sup>62</sup> The Board noted that the public documents Joint Intervenors cited to support the contention were dated from March 2013 through March 2014.<sup>63</sup> And only the last of these, a March 2014

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the timber sales that the road was designed to facilitate. But in that case, the timber sales could not take place without the road and the road had no independent utility apart from the timber sales. *Id.* Other federal courts continue to apply this test. *See, e.g., Webster v. United States Department of Agriculture*, 685 F.3d 411, 426 (4th Cir. 2012).

<sup>55</sup> LBP-13-10, 78 NRC at 148.

<sup>56</sup> *Id.* The Board also noted that both the DSEIS and the Environmental Report acknowledged that the processing facility for the Ross Project will be designed to have a processing capacity four times greater than would be needed for the expected production of the Ross Project alone. *Id.* (citing Ex. NRC006A, DSEIS § 2.1.1.1, at 2-13, and Ex. SEI016A, Environmental Report § 1.1, at 1-4).

<sup>57</sup> *Id.* at 149 (citing 10 C.F.R. § 2.309(f)(1)(vi)).

<sup>58</sup> *Id.* at 149-50.

<sup>59</sup> *Id.* Petitioners who file a new or amended contention filed after the deadline for filing a petition for intervention must demonstrate good cause by showing that their contention is based on information that was not previously available, materially different from the information that was previously available, and filed in a timely fashion after the information becomes available. 10 C.F.R. § 2.309(c)(1)(i), (ii), (iii).

<sup>60</sup> Motion to Migrate Contentions to FSEIS at 33-40.

<sup>61</sup> *Id.* at 35-36.

<sup>62</sup> FSEIS Order at 14-16.

<sup>63</sup> *Id.* at 15-16.

presentation from Strata's parent company, was dated within 30 days of Joint Intervenor's motion.<sup>64</sup> The Board concluded that the presentation was not materially different from previously available information and that Joint Intervenor had not satisfied the good cause factors under 10 C.F.R. § 2.309(c).<sup>65</sup>

*c. Review Denied with Respect to Proposed Contentions 6 and 7*

On appeal, Joint Intervenor argues that the Board's rulings erroneously conflated the merits of the contention with its admissibility and that the Board erred in not finding good cause for filing Contentions 6 and 7 after the deadline for filing the initial intervention petition.<sup>66</sup> Joint Intervenor argues that the Board required them to prove that the Lance District's development is a single project, when the contention admissibility factors only require "a concise statement of the alleged facts."<sup>67</sup>

With respect to whether Contention 7 was based on new information, we observe that Strata disclosed the potential for future satellite facilities in its application.<sup>68</sup> Moreover, it is apparent that Joint Intervenor was aware of these facilities from the fact that they raised the question of cumulative impacts from these facilities in their initial Contention 4/5A.<sup>69</sup> The Board's conclusion that Joint Intervenor already knew enough to formulate their contentions, and should have done so at the time that the application was filed, was reasonable.

Nor do we discern any error of law in the Board's ruling that the expansion plans would have to be in a sufficiently advanced stage to be considered a "proposal" for action that "bring[s] NEPA into play."<sup>70</sup> The Board's ruling with respect to the scope of the federal action rested on Supreme Court authority in *Kleppe* as well as our own agency case law, as discussed above.<sup>71</sup> While the

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<sup>64</sup> *Id.* at 16. See Second Paine Declaration at 16-18 (discussing <http://www.pel.net.au/images/peninsul---aingoequei.pdf>).

<sup>65</sup> FSEIS Order at 16.

<sup>66</sup> Petition at 8.

<sup>67</sup> *Id.*; see also 10 C.F.R. § 2.309(f)(1)(v).

<sup>68</sup> Ex. SEI016A, Environment Report, at 1-20 to 1-21. "The proposed Ross ISR Project is intended to be just the first of several ISR project sites to be developed in the area. If these other sites are developed, it is likely that they will serve as ancillary or satellite facilities to the proposed Ross project site, with all satellite facilities using the same [central processing plant]." *Id.* at 2-8.

<sup>69</sup> See Petition to Intervene and Request for Hearing by the Natural Resources Defense Council & Powder River Basin Resource Council at 28-29 (Oct. 27, 2011).

<sup>70</sup> *Id.* at 146 (quoting *McGuire/Catawba*, CLI-02-14, 55 NRC at 295); see also *Webster*, 685 F.3d at 426-27 (agency of the U.S. Department of Agriculture was not required to consider the possible development of a water treatment facility in deciding whether to approve construction of a dam, when no such facility had been proposed).

<sup>71</sup> *Kleppe*, 427 U.S. at 410; *McGuire/Catawba*, CLI-02-14, 55 NRC at 295.

Ross Project FSEIS appropriately discussed the cumulative impacts of potential satellite facilities, a single environmental impact statement on the development of the entire Lance District would be speculative at this time.<sup>72</sup>

Finally, contrary to Joint Intervenor's arguments on appeal, we do not find that the Board strayed into "weighing the merits" in considering the admissibility of these proposed contentions.<sup>73</sup> Joint Intervenor had the burden to demonstrate the admissibility of their contention, including establishing a factual predicate for its claims.<sup>74</sup> Here, the Board had to determine whether there was a sufficient factual basis for the contention in the face of the contrary evidence that no concrete proposals to develop additional sites were pending before the agency at that time. Its discussion relates to the "genuine dispute" element of the contention admissibility factors — not the merits of the underlying claim.<sup>75</sup> We usually defer to a Board's judgment as to whether a contention's proponent has provided adequate support to raise a genuine dispute of material fact.<sup>76</sup> We see no reason to change this practice here; we find that Joint Intervenor has not raised a substantial question with respect to Contentions 6 and 7.<sup>77</sup>

## 2. Contention 4/5A

Joint Intervenor seeks review of the Board's decisions declining to admit

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<sup>72</sup> See Ex. SEI009A, FSEIS § 5.2.1.1, at 5-5 to 5-8 (discussion of potential satellite facilities and other past or future *in situ* recovery facilities within 50 miles (80 kilometers) of the proposed project). And the filing of a license amendment request to expand the current Strata Facility, which occurred after the issuance of the Board's decision, does not alter the fact that the Board's ruling was appropriate at the time. See Kendrick Expansion Amendment. The FSEIS considered the cumulative impacts of future satellite facilities, such as the proposed Kendrick expansion. See generally Ex. SEI009A, FSEIS § 5.2. Joint Intervenor has not provided any basis for us to question this analysis as it applies to this proceeding.

<sup>73</sup> See Petition at 8.

<sup>74</sup> See *Luminant Generation Co., LLC* (Comanche Peak Nuclear Power Plant, Units 3 and 4), CLI-11-9, 74 NRC 233, 243-44 (2011) (in rejecting a contention that failed to identify inadequacies in the applicant's Mitigative Strategies Report, the board did not impermissibly weigh the merits to find that the Mitigative Strategies Report was sufficient).

<sup>75</sup> See 10 C.F.R. § 2.309(f)(1)(vi); see also *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 276-77 (2009) (the board did not impermissibly weigh the merits in finding that petitioners had provided no factual support for their proposed safety contention).

<sup>76</sup> *Indian Point*, CLI-15-6, 81 NRC at 354-55.

<sup>77</sup> We note that the Staff intends to prepare a supplemental EIS, rather than an environmental assessment, for the Kendrick expansion, which will consider potential impacts of construction, operation, and restoration of the site. See Kendrick Scoping Notice, 81 Fed. Reg. at 12,144. Joint Intervenor — along with any other interested groups or members of the public — may participate in the separate proceeding regarding the license amendment request for the Kendrick expansion. See Kendrick Expansion Amendment and Kendrick Hearing Notice, 81 Fed. Reg. at 10,285.

their “resubmitted” Contention 4/5A as a challenge to the DSEIS, and later, as a challenge to the FSEIS.<sup>78</sup> As admitted, Contention 4/5A argued that the application failed to consider cumulative impacts on groundwater quantity and quality from satellite facilities that Strata eventually intends to develop surrounding the Ross site.<sup>79</sup> The Board’s refusal to migrate or amend Contention 4/5A led to its eventual summary disposition because a challenge to the environmental report was no longer material once the Staff had completed its FSEIS.<sup>80</sup>

Joint Intervenors’ challenge with respect to Contention 4/5A, however, only addresses the Board’s ruling in LBP-13-10 with respect to good cause.<sup>81</sup> They argue that because the Board itself found that the DSEIS information “differed significantly” from the material in the environmental report, this should be enough to show “good cause” for filing under 10 C.F.R. § 2.309(c), because the information was not “previously available.”<sup>82</sup> Joint Intervenors argue that even if their “Motion to Resubmit” their contentions lacked a “formalistic invocation of the 2.309(c) factors,” the Board erred in denying their motion for reconsideration of LBP-13-10, which included such a recitation.<sup>83</sup> But good cause was only one basis on which the Board refused to admit Joint Intervenors’ “resubmitted” contentions on the DSEIS — the Board also noted that, in addition to demonstrating good cause, Joint Intervenors needed to satisfy “the section 2.309(f)(1) admissibility factors . . . to provide the foundation for a new or amended contention.”<sup>84</sup>

Even if Joint Intervenors were correct with respect to their argument on appeal related to good cause, they do not argue that the Board erred with respect to the admissibility factors. Because the DSEIS provided new information on cumulative impacts to address the deficiencies identified in Contention 4/5A, Joint Intervenors needed to challenge that analysis specifically to show that a genuine dispute remained concerning cumulative impacts. And as “the Board is the appropriate arbiter of such fact-specific questions of contention admissibility, we will not second-guess the Board’s evaluation of factual support for [a] contention, absent an error of law or abuse of discretion,” which Joint Intervenors have not shown here.<sup>85</sup> We therefore decline to take review of the Board’s decisions in LBP-13-10, the Reconsideration Order, and the FSEIS Order with respect to Contention 4/5A.

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<sup>78</sup> Petition at 4, 9-10.

<sup>79</sup> LBP-12-3, 75 NRC at 212.

<sup>80</sup> See Summary Disposition Order at 14-15.

<sup>81</sup> Petition at 9; see 10 C.F.R. § 2.309(c).

<sup>82</sup> Petition at 9.

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

<sup>84</sup> See LBP-13-10, 78 NRC at 143.

<sup>85</sup> *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 326-27 (2012).

## C. Contentions Decided on the Merits

### 1. Contention 1

#### a. Background of Contention 1

In Contention 1, Joint Intervenors claimed that Strata's groundwater quality monitoring program was inadequate to describe the baseline — or existing — water quality of the various aquifers underlying the Ross site:

The FSEIS fails to comply with 10 C.F.R. §§ 51.90-94, 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 FSEIS's departure from NRC guidance serves as additional evidence of these regulatory violations.<sup>86</sup>

Joint Intervenors argued that if the site is not adequately characterized, the potential impacts of the proposed facility cannot adequately be measured.<sup>87</sup> We agree that the baseline environmental conditions at a site like Strata must be considered as part of the Staff's NEPA analysis.<sup>88</sup> As we discuss in more detail below, the Board found Strata's and the NRC Staff's description of the environmental baseline to be sufficient to support the NEPA analysis in the FSEIS.<sup>89</sup> Joint Intervenors' appeal does not raise an issue that causes us to disturb the Board's determination here.

An applicant for an *in situ* uranium recovery license must describe the hydrology of the proposed site to predict the potential effect such a facility would have on adjacent groundwater and surface waters as required by NEPA.<sup>90</sup> To do this, the applicant must establish a precicensing groundwater monitoring program to provide baseline data sufficient to describe the overall quality of the groundwater.<sup>91</sup> This requirement is also codified in Criterion 7 of Part 40, Appendix A, which requires that “at least one full year prior to any major site construction,

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<sup>86</sup> FSEIS Order, app. A (citing Ex. SEI007, Standard Review Plan for *In Situ* Leach Uranium Extraction License Applications, NUREG-1569, §§ 2.7.1, 2.7.3, 2.7.4 (2003) (NUREG-1569)).

<sup>87</sup> See, e.g., Ex. JTI001-R, Pre-filed Direct Testimony of Dr. Richard Abitz Supporting Joint Intervenors' Contentions 1 and 3, at 7 (Abitz Direct Testimony).

<sup>88</sup> The Board explained that there was some “uncertainty” concerning the terms “baseline” and “background” and whether these terms are interchangeable. See LBP-15-3, 81 NRC at 75-76 n.2. The Board used “baseline” to refer to the precicensing site characterization and “background” for the values that will be established post-licensing. *Id.* We use the Board's terminology.

<sup>89</sup> See LBP-15-3, 81 NRC at 111.

<sup>90</sup> See 10 C.F.R. Part 40, App. A, Criterion 7; see also Ex. SEI007, NUREG-1569 § 2.7.1.

<sup>91</sup> See Ex. NRC001, NRC Staff's Initial Testimony, at 3-4 (Staff Testimony); see also Ex. SEI007, NUREG-1569 § 2.7.1, at 2-23 to 2-26.

a preoperational monitoring program must be conducted to provide complete baseline data.”<sup>92</sup>

Accordingly, Strata conducted a groundwater monitoring program over a 2-year period, the results of which were incorporated into the FSEIS.<sup>93</sup> Strata’s prelicensing groundwater monitoring activities consisted of six monitoring well clusters, with at least four wells in each cluster to collect samples from the ore zone, the aquifers immediately overlying and underlying the ore zone, and the surficial aquifer.<sup>94</sup> In addition to the samples collected through its own monitoring, Strata used samples from existing water-supply wells located within or adjacent to the Ross site and data from a former research and development operation during the 1970s to characterize the baseline groundwater quality. Staff incorporated all this information into the FSEIS.<sup>95</sup>

Joint Intervenors’ expert Dr. Richard Abitz testified that the distribution of the wells used for groundwater sampling did not collect data “representative of overall site conditions,” which led to the flawed characterization of the site.<sup>96</sup> Moreover, Dr. Abitz said that Strata’s wells concentrated on the mineralized areas within the aquifer instead of sampling water through the entire thickness of the aquifer, resulting in data that indicated more contamination in the groundwater than is actually there.<sup>97</sup> Dr. Abitz argued that higher baseline contaminant levels would “allow[ ] for a substantially more degraded aquifer after restoration” that would preclude the use of the mined aquifer in the future for domestic, livestock, or agricultural needs.<sup>98</sup> To address this concern, Joint Intervenors urged that the baseline water quality be established through more rigorous protocols — such as those set forth in NRC regulations for post-licensing, preoperational background monitoring or such as the Environmental Protection Agency’s “Statistical Analysis of Groundwater Monitoring Data at [Resource Conservation and Recovery Act (RCRA)] Facilities.”<sup>99</sup>

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<sup>92</sup> 10 C.F.R. Part 40, App. A; *see also* LBP-15-3, 81 NRC at 89-90.

<sup>93</sup> *See generally* Ex. SEI009A, FSEIS § 3.5.3.3; Ex. SEI009B, FSEIS, app. C (complete sampling data).

<sup>94</sup> Ex. SEI009A, FSEIS § 3.5.3.3, at 3-37 to 3-38. The Board explained that the monitored aquifers, or horizons, were the ore zone, the aquifer underlying the ore zone (referred to as the deep monitoring unit), the aquifer overlaying the ore zone (referred to as the shallow monitoring unit), and the surficial aquifer. *See* LBP-15-3, 81 NRC at 89.

<sup>95</sup> Ex. SEI009A, FSEIS § 3.5.3.3, at 3-38. The research and development operation, known as Nubeth Joint Venture, operated from August 1978 through April 1979 and was decommissioned in 1983. *Id.* § 2.1.1, at 2-11.

<sup>96</sup> *See* Ex. JTI001-R, Abitz Direct Testimony, at 10, 16-17.

<sup>97</sup> *Id.* at 10, 21-22.

<sup>98</sup> *Id.* at 11, 24.

<sup>99</sup> *See id.* at 7-10, 35-40; Tr. at 428 (Abitz); *see also* Ex. JTI006, EPA, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance (Mar. 2009).

b. *The Board's Ruling on Contention 1*

The Board rejected as a matter of law Joint Intervenor's argument that the FSEIS site characterization must conform to the more rigorous criteria that specifically apply to post-licensing, preoperational monitoring.<sup>100</sup> In reviewing this contention, the Board explained the difference between prelicensing site characterization for NEPA purposes and the post-licensing activities used to set restoration values and to detect excursions during operations.<sup>101</sup> After receiving a license, a licensee collects groundwater samples from the production and injection wells to establish post-licensing, preoperational background levels for various chemical constituents, which are then used to set restoration goals.<sup>102</sup> At that time, the licensee also installs monitoring wells at the perimeter of each wellfield, which are used to detect leaks during operations.<sup>103</sup> The Board cited the Standard Review Plan for *In Situ* Leach Uranium Recovery Facilities and Regulatory Guide 4.14 to distinguish between the groundwater monitoring necessary for prelicense site characterization (baseline), and the post-licensing, preoperation monitoring that will be used for monitoring and site restoration.<sup>104</sup> Further, the Board relied on our decision in *Hydro Resources*, where we stated that conducting the more detailed post-licensing analysis "to establish definitively the groundwater quality baselines and upper control limits" is "consistent with industry practice and NRC methodology"; and, in fact, this analysis cannot be completed until after licensing, when an *in situ* leach wellfield has been installed.<sup>105</sup> The Board held that the fact that Strata's groundwater monitoring (on which the FSEIS relied) did not conform to post-licensing monitoring or other, more rigorous, procedures did not undermine the sufficiency of the site characterization *per se*.<sup>106</sup>

This conclusion, however, did not end the Board's inquiry into Contention 1 — the Staff was still required to show that the FSEIS sufficiently described the site. The Board next considered Joint Intervenor's specific arguments that the

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<sup>100</sup> LBP-15-3, 81 NRC at 91-92. That is, the criteria of 10 C.F.R. Part 40, App. A, Criterion 5 and Criterion 7A, do not specifically apply to site characterization under NEPA.

<sup>101</sup> *Id.* at 89-90; *see also* Ex. SEI009A, FSEIS § 2.1.1.1, at 2-25.

<sup>102</sup> LBP-15-3, 81 NRC at 76, 90; *see also* 10 C.F.R. Part 40, App. A, Criterion 5B(5).

<sup>103</sup> LBP-15-3, 81 NRC at 76, 90-91; *see also* 10 C.F.R. Part 40, App. A, Criterion 7A.

<sup>104</sup> LBP-15-3, 81 NRC at 90-91 (citing Ex. SEI007, NUREG-1569 § 2.7; Ex. SEI008, Regulatory Guide 4.14 (Rev. 1), Radiological Effluent and Environmental Monitoring at Uranium Mills (Apr. 25, 1980)). Staff Guidance documents such as standard review plans are entitled to "special weight." *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-05-15, 61 NRC 365, 375 n.26 (2005) (quoting *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 290 (1988)).

<sup>105</sup> LBP-15-3, 81 NRC at 91 (citing *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), CLI-06-1, 63 NRC 1, 6 (2006)).

<sup>106</sup> *Id.* at 91-92.



FSEIS's description of the groundwater at the Ross Project site was inaccurate or incomplete for the purposes of NEPA.<sup>107</sup> After a detailed discussion of each purported defect, the Board ruled in favor of the Staff and Strata on each point.<sup>108</sup>

*c. Petition for Review of Contention 1*

(1) NO SUBSTANTIAL QUESTION OF LEGAL ERROR IN CONTENTION 1

Joint Intervenors argue that the Board erroneously held that it is permissible to defer “meaningful” or “accurate” baseline characterization until after the license is issued.<sup>109</sup> Joint Intervenors have not raised a “substantial question” of law with respect to the applicable standards for site characterization — their claim mischaracterizes the Board’s ruling. The Board did not rule that “meaningful” baseline characterization may be deferred until the post-licensing period. Rather, it held that the groundwater monitoring used to describe the environmental conditions at the site for NEPA purposes need not conform to the groundwater monitoring requirements applicable to an operating facility.<sup>110</sup> The two standards serve different purposes.

Joint Intervenors argue generally that NEPA requires the collection of accurate information prior to making a decision.<sup>111</sup> While we agree that the information in the FSEIS must be accurate, in this instance Joint Intervenors equate accuracy with the volume of data collected. Joint Intervenors provide no justification for challenging the validity of the Staff’s NEPA analysis beyond a call for the collection of additional data.<sup>112</sup> But our regulations do not require licensees or the Staff to conduct the additional sampling that Joint Intervenors request before the issuance of a license. Joint Intervenors have not shown that additional groundwater sampling is necessary to characterize the existing site conditions or the expected environmental impacts of the proposed operation. While it is always possible to gather more data, at some point the Staff must “move forward with decisionmaking.”<sup>113</sup> And, as explained below, Joint Intervenors do not raise a substantial question relating to the Board’s fact finding with respect to Strata’s site characterization. Given that the Board based its legal ruling on precedent

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<sup>107</sup> *Id.* at 93-110.

<sup>108</sup> *Id.* We do not provide a discussion of the technical arguments resolved in Staff’s favor that are not the subject of Joint Intervenors’ petition.

<sup>109</sup> Petition at 10-11.

<sup>110</sup> LBP-15-3, 81 NRC at 91-92.

<sup>111</sup> Petition at 11.

<sup>112</sup> *Id.* at 12-14.

<sup>113</sup> *Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-10-11, 71 NRC 287, 315 (2010) (quoting *Town of Winthrop v. Federal Aviation Administration*, 535 F.3d 1, 11 (1st Cir. 2008)).

and applicable Staff guidance, we see no substantial question of law relating to NEPA's site characterization requirements.

Joint Intervenors additionally argue that the Board improperly shifted the burden of proof to Joint Intervenors.<sup>114</sup> We disagree. The Board acknowledged that the Staff has the burden to prove the sufficiency of the FSEIS.<sup>115</sup> When considering challenges to how the Board weighed the evidence, we “defer to the Board’s expertise as the fact finder and decline to substitute the judgment [of an Intervenor’s expert] for that of the Board.”<sup>116</sup>

(2) NO SUBSTANTIAL QUESTION OF FACTUAL ERROR IN CONTENTION 1

We also decline to take review of Joint Intervenors’ factual challenges with respect to Contention 1. Although Joint Intervenors raised many challenges to Strata’s site characterization before the Board, their petition (and thus our decision today) focuses on only two.<sup>117</sup>

Joint Intervenors first claim that the monitoring wells were not “located and distributed in a manner designed to collect data representative of overall site conditions.”<sup>118</sup> Joint Intervenors aver that “no one disputed” that Strata’s approach “was neither designed to, nor did, collect representative baseline water quality data.”<sup>119</sup>

We see no “clear error” in the Board’s fact finding relating to this complex issue. Contrary to Joint Intervenors’ assertion, the Staff and Strata vigorously disputed Joint Intervenors’ claim that the site characterization was insufficient.<sup>120</sup> Moreover, the Board cited ample record support for its conclusions. It observed that Strata’s collection methods had generated “362 groundwater samples (with 16,000 chemical and radiological parameters).”<sup>121</sup> The Board also noted that “the

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<sup>114</sup> Petition at 11-12.

<sup>115</sup> LBP-15-3, 81 NRC at 84-85.

<sup>116</sup> See, e.g., *Oyster Creek*, CLI-09-7, 69 NRC at 266.

<sup>117</sup> Petition for Review at 11-14.

<sup>118</sup> *Id.* at 12 (citing Ex. JTI001-R, Abitz Direct Testimony, at 16).

<sup>119</sup> *Id.* at 13.

<sup>120</sup> See Ex. NRC001, Staff Testimony at 12-14 (“Because the location and placement of Strata’s wells and the sampling and analytical methods used were consistent with those described in Section 2.7 [of the Standard Review Plan], the Staff found that the quality of the baseline groundwater data presenting in the FSEIS was adequate for use in assessing the Ross Project’s potential environmental impacts.”); Ex. SEI005, Initial Written Testimony of Ben Schiffer, at 9 (“In my experience and opinion, 16,000 results from more than 362 groundwater samples provides a representative, quantitative description of the baseline groundwater quality within and adjacent to the project boundary. As importantly in my opinion, these data more than meet the intent of NEPA . . .”).

<sup>121</sup> LBP-15-3, 81 NRC at 93-94. The Board cited *Pilgrim*, wherein we held that NEPA does not require that unlimited resources be devoted to information gathering so long as the result is reasonable. *Pilgrim*, CLI-10-11, 71 NRC at 315.

number and location of . . . wells was based on factors such as [Wyoming Department of Environmental Quality] guidelines, . . . having consistent/continuous water-bearing intervals above and below mineralization, satisfactory confining layer thickness, proximity to existing drilling data, sufficient spatial distribution for development of potentiometric data, and landowner considerations.”<sup>122</sup> The Board also discussed Joint Intervenors’ evidence, specifically the testimony of their expert Dr. Abitz.<sup>123</sup> In considering the record here, the Board found that there was no evidence of “actual bias (or an attempt to induce a biased result)” in the number and location of wells.<sup>124</sup> Given that the Board considered and weighed the evidence from all parties, and based on our review of Joint Intervenors’ petition, we will not second guess the Board’s conclusion that the number of samples and location of wells were sufficient to support the Staff’s FSEIS.

Joint Intervenors next dispute the Board’s finding that Strata’s well screening intervals were “appropriate” for site characterization.<sup>125</sup> That is, they claim that Strata’s sampling wells were designed to draw water only through the parts of the ore zone aquifer that contain “stacked ore horizons” (uranium deposits), thereby biasing the results toward higher concentrations of uranium and radium-226.<sup>126</sup> Joint Intervenors generally assert that the wells should be screened through the entire thickness of the aquifer.<sup>127</sup>

The Board found that Strata’s well screening intervals did not inappropriately bias the results of its site characterization activities.<sup>128</sup> The Board acknowledged that the wells did not draw water from the entire thickness of the ore zone aquifer.<sup>129</sup> Nevertheless, it found the results were not biased because some of the wells were located in the nonmineralized parts of the aquifer, and, for those wells located in the mineralized zones, the screened intervals were “long enough to collect groundwater from nonmineralized layers between ore horizons.”<sup>130</sup> It

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<sup>122</sup> LBP-15-3, 81 NRC at 94 n.19 (citing Ex. SEI016A, Environmental Report, at 3-101, and Ex. SEI045, Rebuttal Testimony of Ben Schiffer, at 15).

<sup>123</sup> *Id.* at 93-95.

<sup>124</sup> *Id.* at 94.

<sup>125</sup> Petition for Review at 13-14.

<sup>126</sup> *Id.*; see also JTI001-R, Abitz Direct Testimony, at 21-22. The Board explained that “‘well screening’ denotes the use, at the intake portion of a well, of a porous filter that allows groundwater to be sampled from a targeted aquifer or a specific horizon within an aquifer.” See LBP-15-3, 81 NRC at 97 n.23.

<sup>127</sup> Petition for Review at 13-14.

<sup>128</sup> LBP-15-3, 81 NRC at 98-99.

<sup>129</sup> *Id.* at 98.

<sup>130</sup> *Id.* at 99.

concluded that the well screening protocol used by Strata was sufficient for site characterization.<sup>131</sup>

Joint Intervenors do not show clear error in the Board's finding of fact with respect to well screening intervals. The Board provided a plausible explanation why the well screening protocols would not unduly bias the groundwater sampling results, and well screening was just one subissue of many the Board considered with respect to this contention. It is apparent that the Board considered evidence and arguments from both sides of each of Joint Intervenors' specific technical complaints, including the two they discuss in their petition for review.

We decline to review a board's "plausible decision that rests on carefully rendered findings of fact," even where the record includes evidence that supports a different view.<sup>132</sup> We therefore find that Joint Intervenors have not raised a substantial question with respect to the Board's findings of fact on Contention 1.

## **2. Contention 2**

### **a. Background of Contention 2**

In Contention 2, Joint Intervenors argued that the FSEIS did not consider the extent to which groundwater will be degraded due to the establishment of alternate concentration limits for hazardous constituents after site restoration:

The FSEIS fails to meet the requirements of 10 C.F.R. §§ 51.90-94 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 FSEIS 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 [alternate concentration limit] in accordance with 10 C.F.R. Part 40, App. A, Criterion 5B(5)(c).<sup>133</sup>

Joint Intervenors maintained that alternate concentration limits are inevitable at the Ross Project site because no decommissioned *in situ* uranium recovery facility has ever met primary or secondary standards for all contaminants.<sup>134</sup>

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<sup>131</sup> *Id.* at 98-100. Joint Intervenors also claimed before the Board that the Standard Review Plan requires that wells be "fully screened" through the "entire thickness of the aquifer," but, as the Board pointed out, the Standard Review Plan section in question only applies to the perimeter monitoring wells that are to be installed to detect excursions, not for site characterization. *See id.* at 98-99 (citing Ex. SEI007, NUREG-1569 § 5.7.8.3, at 5-42 to 5-43).

<sup>132</sup> *Private Fuel Storage*, CLI-03-8, 58 NRC at 25-26.

<sup>133</sup> FSEIS Order, app. A.

<sup>134</sup> *See* Motion to Migrate Contentions to FSEIS at 23-25.

As explained with respect to Contention 1, *in situ* recovery facility licensees must establish restoration goals for hazardous constituents in groundwater through post-licensing, preoperational testing.<sup>135</sup> Under the terms of its license, Strata must restore the groundwater in each wellfield to regulatory limits.<sup>136</sup> The first option for any given constituent is background (the level present prior to operations), which the Board termed the “primary” standard.<sup>137</sup> The “secondary” standard to which the contention refers is a maximum contaminant level provided for certain constituents in Part 40, Appendix A, Table 5C.<sup>138</sup> If the licensee cannot meet primary or secondary standards for a particular constituent after restoration efforts, it may file a license amendment request for a site-specific alternate concentration limit for that constituent.<sup>139</sup> To receive the license amendment, the licensee must demonstrate both that the concentration of the particular hazardous constituent is as low as reasonably achievable and that the alternate concentration limit presents no significant hazard to human health or the environment, in accordance with factors listed in Criterion 5B(6). These factors include potential adverse effects to groundwater and to hydraulically connected surface water, current and future uses of the ground and surface waters, and possible cumulative effects with other sources of contamination.<sup>140</sup> The license amendment application would also be subject to an opportunity for interested persons to request a hearing.

In admitting the contention at the outset of the proceeding, the Board rejected the Staff’s argument that the environmental effects of possible alternate concentration limits are too uncertain for consideration in the FSEIS.<sup>141</sup> The Board acknowledged that the Staff “likely” could not determine prior to licensing the facility what alternate concentration limits would be approved for a particular wellfield after restoration.<sup>142</sup> But the Board reasoned that the Staff could perform a bounding analysis to consider the range of alternate concentration limits that have been approved historically.<sup>143</sup>

The Staff accordingly included a discussion of three approved aquifer restora-

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<sup>135</sup> See generally 10 C.F.R. Part 40, App. A, Criterion 7A.

<sup>136</sup> See Ex. SEI015, License, at 7 (License Condition 10.6).

<sup>137</sup> See LBP-15-3, 81 NRC at 114 (citing 10 C.F.R. Part 40, App. A, Criterion 5B(5)(a)).

<sup>138</sup> 10 C.F.R. Part 40, App. A, Criterion 5B(5)(b), Table 5C; see also LBP-15-3, 81 NRC at 114. The values provided in Table 5C are the Maximum Constituent Levels set by the Environmental Protection Agency in 40 C.F.R. Part 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings.

<sup>139</sup> 10 C.F.R. Part 40, App. A, Criterion 5B(5)(c).

<sup>140</sup> *Id.*, Criterion 5B(6).

<sup>141</sup> LBP-12-3, 75 NRC at 197.

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

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

tions in the FSEIS.<sup>144</sup> These three restorations could give only a general idea of the range of possible future alternate concentration limits for the Ross Project because they had all been approved at a time when the Staff used a different interpretation of “secondary” standard than it now uses.<sup>145</sup> Prior to 2009, the Staff considered the “secondary standard” to be coextensive with the “preoperational class of use” established by the state, which — as the Board’s decision acknowledges — is not accurate.<sup>146</sup> Alternate concentration limits were not considered necessary at the three sites discussed in the FSEIS bounding analysis because they all met the “preoperational class of use” standard following restoration.<sup>147</sup> Therefore, those licensees did not have to meet the more stringent criteria — set forth at Part 40, Appendix A, Criterion 5B(6) — that apply at the Ross site.<sup>148</sup> In contrast, before any alternate concentration limit could be approved for any constituent at the Ross Project site, Strata would have to show that its concentration is as low as reasonably achievable and meets the other criteria set forth in Criterion 5B(6). For this reason, the FSEIS bounding analysis provides a conservative basis for predicting the likely range of alternate concentration limits that might be approved following restoration of the Ross Project site.

The FSEIS states that for the three sites discussed in the bounding analysis, most of the groundwater quality constituents were either restored to post-licensing, preoperational background levels or to “class I (domestic use)” standards.<sup>149</sup> In addition, where elevated levels of certain hazardous constituents persisted after

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<sup>144</sup> Ex. SEI009A, FSEIS § 4.5.1.3, at 4-45 to 4-46.

<sup>145</sup> Crow Butte Wellfield 1 restoration was approved in 2003 (*see* Ex. NRC026, Letter from Daniel M. Gillen, NRC, to Michael L. Griffen, Crow Butte Resources, Inc., License Amendment 15, Crow Butte Resources *In Situ* Leach Facility, License No. SUA-1534, Wellfield #1 Restoration Acceptance (Feb. 12, 2003) (Crow Butte Wellfield 1 Approval)). Smith Ranch-Highland Wellfield A was approved in 2004 (*see* Ex. NRC027, Letter from Gary S. Janosko, NRC, to W. F. Kearney, Power Resources, Inc., License Amendment 15, Crow Butte Resources *In Situ* Leach Facility, License No. SUA-1534, Wellfield #1 Restoration Acceptance (June 29, 2004)). Irigaray Mine Units 1-9 restoration was approved in 2006 (*see* Ex. NRC034, Letter from Gary S. Janosko, NRC, to Donna L. Wichers, COGEMA Mining, Inc., Review of Cogema Mining, Inc., Irigaray Mine Restoration Report, Production Units 1 Through 9, Source Materials License SUA-1341 (Sept. 20, 2006)).

<sup>146</sup> *See* LBP-15-3, 78 NRC at 116 n.46; *see also* Ex. SEI009A, FSEIS § 4.5.1.3, at 4-45.

<sup>147</sup> After a 2009 Regulatory Issue Summary found this interpretation to be in error, the Staff has used the concentrations set forth in 10 C.F.R. Part 40, App. A, Table 5C as the secondary standard. Ex. NRC038, NRC Regulatory Issue Summary 2009-05, Uranium Recovery Policy Regarding: (1) the Process for Scheduling Licensing Reviews of Applications for New Uranium Recovery Facilities and (2) the Restoration of Groundwater at Licensed Uranium *In Situ* Recovery Facilities, at 3 (Apr. 29, 2009).

<sup>148</sup> Ex. SEI009A, FSEIS § 4.5.1.3, at 4-45.

<sup>149</sup> *Id.* at 4-48. The state department of environmental quality determines the water quality standards. The Wyoming Department of Environmental Quality has standards for Class I (domestic use), Class II (agricultural use), or Class III (livestock use).

restoration, this did not change the class of use.<sup>150</sup> The FSEIS concludes that, given the relative success of past restorations, the impacts to groundwater quality in the exempted portion of the aquifer and the confined aquifers surrounding the exempted aquifer would be small following restoration at the Ross Project site.<sup>151</sup>

The Board found that the Staff's approach in the FSEIS, as supplemented by the record in this proceeding, "adequately identifies the potential impacts" of an alternate concentration limit, should one be necessary for the Ross project.<sup>152</sup> The Board found that the Staff's determination that impacts would be small was supported by the fact that the mined portion of the aquifer has been permanently exempted as a source of drinking water and "there have been no reported instances of an excursion from an [*in situ* uranium recovery] facility negatively impacting drinking water."<sup>153</sup> The Board concluded that the record supported the Staff's ultimate conclusion that the likely impact due to alternate concentration limits is small:

[T]he FSEIS, as supplemented by the uranium bounding analysis discussed in this decision, adequately identified the potential environmental impacts of an [alternate concentration limit] should an [alternate concentration limit] be necessary for the Ross Project site. Furthermore, the preponderance of the evidence before the Board supports the FSEIS determination that the restoration-associated impacts on groundwater quality within the Ross Projects site [ore zone] aquifer and surrounding aquifers will be SMALL.<sup>154</sup>

*b. Claims of Factual Error in Resolution of Contention 2*

On appeal, Joint Intervenors argue that the Board made several errors in affirming the Staff's conclusion that the potential environmental impacts from

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

<sup>151</sup> *Id.* The FSEIS explains that operations will be conducted within an area defined by an aquifer exemption permit granted by the Wyoming Department of Environmental Quality and approved by the Environmental Protection Agency. *See id.* § 2.1.1.1, at 2-27; *see also* Ex. SEI0034, Letter from Derrith R. Watchman-Moore, U.S. Environmental Protection Agency, Region 8, to Kevin Frederick, Wyoming Department of Environmental Quality, aquifer exemption approval: Strata Energy (May 15, 2013). The area covered by the exemption permit is referred to as the exempted aquifer but is actually a portion of the mined (ore zone) aquifer.

<sup>152</sup> LBP-15-3, 81 NRC at 133. The FSEIS omitted the uranium concentration approved for two of the three sites discussed (Smith Ranch–Highland facility and Irigaray Mine Units 1-9). *See* Ex. SEI009A, FSEIS § 4.5.1.3, at 4-46. But this information was provided in the Staff's testimony. *See* Ex. NRC001, Staff Initial Testimony, at 33; *see also* LBP-15-3, 81 NRC at 117.

<sup>153</sup> LBP-15-3, 81 NRC at 132.

<sup>154</sup> *Id.* at 133.

alternate concentration limits would be small.<sup>155</sup> At bottom, these arguments amount to disagreements with how the Board weighed the evidence.

(1) CLAIM THAT BOARD RELIED ON EVIDENCE NOT IN THE RECORD

Joint Intervenor argue that the Board erred in relying on evidence that was not in the record — specifically, a “transport model” relating to the restoration approval for the Crow Butte Resources wellfield 1 in Nebraska (one of the examples used in the Staff’s “bounding analysis” for the Ross Project).<sup>156</sup> As explained below, Joint Intervenor show no clear error in the Board’s decision, nor do they raise a substantial question of prejudicial procedural error in the Board’s decision not to require documentary evidence related to transport modeling at the Crow Butte site.

In Contention 2, Joint Intervenor claimed that the Staff will approve any number as an alternate concentration limit, provided the licensee first reasonably attempts to meet primary or secondary limits.<sup>157</sup>

At the hearing, the Staff denied that its practice is to set alternate concentration limits based on how much effort the licensee has expended. The Staff’s witness, Dr. Johnson, stated that the Staff generally evaluates the “transport that would go on from the location within the [exempted] area out to that exempted boundary, the boundary of the exempted aquifer.”<sup>158</sup> In other words, the Staff evaluates whether the contaminants would naturally attenuate to primary or secondary levels by the time the groundwater reaches the boundary of the exempted portion of the aquifer.<sup>159</sup> Joint Intervenor’s expert requested to see the “transport model” used by the Staff for the Crow Butte site.<sup>160</sup> In response, Dr. Johnson replied that the documents supporting the Crow Butte license amendment approval had been included in the Staff’s exhibits.<sup>161</sup> On appeal, Joint Intervenor argue that the Board erred because its conclusion rested in part on “a non-existent transport model.”<sup>162</sup>

We find no Board error here; the Board appropriately relied on the Staff’s and Strata’s testimony in reaching its decision.<sup>163</sup> Contrary to Joint Intervenor’s

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<sup>155</sup> Petition at 16-21.

<sup>156</sup> *Id.* at 16-17.

<sup>157</sup> See, e.g., Ex. JTI003-R, Pre-Filed Testimony of Dr. Lance Larson on Contentions 2 and 3, at 22 (Aug. 25, 2014) (Larson Direct Testimony).

<sup>158</sup> Tr. at 617 (Johnson); see LBP-15-3 at 121.

<sup>159</sup> See Tr. at 559-60, 617 (Johnson).

<sup>160</sup> Tr. at 618 (Larson and Johnson).

<sup>161</sup> Tr. at 618-19 (Larson and Johnson).

<sup>162</sup> Petition at 16-17 (citing LBP-15-3, 81 NRC at 121).

<sup>163</sup> See LBP-15-3, 81 NRC at 121 (citing Tr. at 617 (Johnson)). It is not error for a board to rely on witness testimony. See, e.g., *Oyster Creek*, CLI-09-7, 69 NRC at 268.



assertions, the Staff provided extensive documentation to support its use of the Crow Butte analysis to support its NEPA review here.<sup>164</sup> The Staff never claimed to have a document called a “transport model” on the record — the Board’s discussion of the Staff’s testimony, as cited by Joint Intervenors, refers to “transport modeling,” not a “transport model.”<sup>165</sup> While the Board certainly could have asked the parties to produce additional documentary evidence, it was not required to do so. The Staff’s testimony regarding its practice when approving previous restorations provided a reasonable basis for determining how the Staff would address a request for an alternate concentration limit at the Ross Project site, and Joint Intervenors have not raised a substantial question regarding the Board’s reliance on the Staff’s practice here.

(2) CLAIM THAT BOARD MISINTERPRETED THE DATA CONCERNING  
RESTORATION APPROVAL OF SMITH RANCH-HIGHLAND SITE

Joint Intervenors next argue that the Board misinterpreted the evidence concerning the Smith Ranch–Highland facility, Wellfield A, the restoration of which the Staff approved in 2004.<sup>166</sup> Specifically, they argue that the Board mistakenly interpreted testimony of their expert Dr. Larson to refer to groundwater samples taken during the period when groundwater was still undergoing active restoration, when the data actually were gathered during the “stability” period (that is, after active restoration when the licensee was attempting to ascertain whether hazardous constituent concentrations had stabilized).<sup>167</sup>

Joint Intervenors’ argument points to no material error. The Board found that Dr. Larson’s data were not relevant because they reflected site conditions prior to the time the Staff approved the restoration.<sup>168</sup> The focus of Contention 2 was the reasonable range of alternate concentration limits that might be approved at the Ross Project site *after* its restoration is approved. Regardless of whether Dr. Larson’s data came from the restoration period or the stability period, their

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<sup>164</sup> Staff provided several documents supporting its approval of the Crow Butte restoration. *See, e.g.*, Ex. NRC022, Letter from Stephen P. Collings, Crow Butte Resources, Inc., to John Surmeier, NRC, Mine Unit 1 Restoration Report Submittal and Request for License Amendment (Jan. 14, 2000); Ex. NRC023, Letter from Stephen P. Collings, Crow Butte Resources, Inc., to Melvyn Leach, NRC, Mine Unit 1 Restoration; Response to Request for Additional Information (Aug. 24, 2001); Ex. NRC024, Letter from Michael L. Griffin, Crow Butte Resources, Inc. to Daniel M. Gillen, NRC, Mine Unit I Groundwater Stability Data (Oct. 11, 2002); Ex. NRC026, Crow Butte Wellfield 1 Approval.

<sup>165</sup> Petition at 16 (quoting LBP-15-3, 81 NRC at 121). Moreover, the term “transport modeling” was not used by the Staff expert in discussing the Staff’s work with the Board — the Board introduced the term to refer to the Staff’s work as part of the discussion in LBP-15-3. *See* LBP-15-3, 81 NRC at 121.

<sup>166</sup> Petition at 17-18.

<sup>167</sup> *Id.* (citing Ex. JTI005A-R2, NRC ISL Database Spreadsheets, at 227-32).

<sup>168</sup> LBP-15-3, 81 NRC at 123-24.

relevance to Contention 2 is minimal because only the concentrations that the Staff actually approved for restoration matter to the bounding analysis.<sup>169</sup>

(3) CLAIM THAT BOARD IGNORED EVIDENCE OF EXCURSIONS

Joint Intervenors next argue that the Board “dismissed evidence of mining fluid excursions impacting water in vertically or horizontally adjacent aquifers outside the exempted areas.”<sup>170</sup> Joint Intervenors cite four paragraphs of the Board’s decision to support their claims, and they are correct that the Board does not discuss vertical or horizontal excursions in those four paragraphs.<sup>171</sup>

The evidence that Joint Intervenors cite, however, relates to excursions at sites for which restoration had not been approved.<sup>172</sup> Joint Intervenors do not explain how vertical or horizontal excursions at these sites are relevant to Contention 2, which concerns elevated hazardous constituent levels that may linger on the site after restoration has been approved. On appeal, Joint Intervenors do not cite any testimony or pleading to support their claim that excursions during operations or restoration relate to Contention 2. We do not consider cursory, unexplained legal arguments, and we will not speculate about what a pleading is supposed to mean.<sup>173</sup> Therefore, Joint Intervenors have not identified a Board error that would warrant granting their petition for review.

(4) CLAIM THAT BOARD UNJUSTIFIABLY RELIED ON EXEMPTION AND ON FUTURE PROCESSES TO PROTECT THE AQUIFER

Joint Intervenors also argue that the Board erred in relying on the aquifer

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<sup>169</sup> Joint Intervenors also argue that the Board confused Staff testimony concerning a different site with the evidence concerning Smith Ranch–Highland Wellfield A. Petition at 18. This is incorrect. The Board simply pointed to the Staff’s discussion of the other site to show that it is inappropriate to average the results of samples taken during restoration because only the concentrations at the end of the restoration process (at the point of Staff approval) are relevant to the question of what concentrations the Staff might approve at the Ross Project site. *See* LBP-15-3, 81 NRC at 123-24.

<sup>170</sup> *See* Petition at 18-19.

<sup>171</sup> *Id.* at 18 (citing ¶¶ 4.98-4.101, LBP-15-3, 81 NRC at 126-28).

<sup>172</sup> *See* Ex. JTI036, 2012 Status Update Casing Leak Investigation C, E, and F Wellfields Smith Ranch–Highland Operations, at 59-85 (Feb. 20, 2013). Joint Intervenors’ Petition also refers to pages 61-62 of Ex. JTI005B-R2, which is only 35 pages long. *See* Petition at 19 n.21. We observe that most of the pages of this exhibit discuss a project (Willow Creek/Christensen Ranch) that the Board found not to be relevant to Contention 2 because site restoration has not been approved. *See* LBP-15-3, 81 NRC at 126-27. The exhibit also discusses shallow aquifer contamination at Smith Ranch–Highland site due to excursions during operations, but that issue is likewise not relevant to Contention 2.

<sup>173</sup> *See, e.g., Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Plant), CLI-10-17, 72 NRC 1, 30 (2010); *Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-99-4, 49 NRC 185, 194 (1999) (quoting *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-279, 1 NRC 559, 576 (1975)).

exemption granted by Wyoming and the license amendment process as additional support for upholding the Staff's conclusion that impacts from alternate concentration limits will be small.<sup>174</sup>

We find that Joint Intervenors have not raised a substantial question with respect to the Board's findings. As an initial matter, the fact that the mined portion of the aquifer is permanently exempted as a source of drinking water and the possibility of a future hearing on an alternate concentration limit were only two factors the Board discussed in concluding that the FSEIS discussion of post-restoration impacts was reasonable. Moreover, contrary to Joint Intervenors' suggestion, these factors support the FSEIS's conclusion that any elevated hazardous constituent levels left at the Ross Site following restoration would have a small overall environmental impact.

Our regulations and license amendment process require that no alternate concentration limit be approved without meeting safety criteria, regardless of whether any intervenor has contested the matter.<sup>175</sup> If a licensee fails to show that a proposed alternate concentration limit meets the standards of Criterion 5B(6), then it will have to restore to primary or secondary limits.<sup>176</sup> Moreover, Joint Intervenors and any other interested party will have the opportunity to submit contentions and request a hearing on any future license amendment related to alternate concentration limits, should such an amendment become necessary for this site.

Joint Intervenors argue that because the future concentration limits are unknown, the Staff cannot show that it meets NEPA now and that the Staff did not provide sufficient information to support its finding that the environmental impacts will be small.<sup>177</sup> However, Joint Intervenors have not pointed to any specific matter where the Board refused to consider their arguments and supporting evidence. It was appropriate for the Board to rely on the testimony from the Staff's experts describing how the Staff reviews secondary concentration limits in license amendment applications. And the Board also modified a license condition in response to Joint Intervenors' concerns that unplugged exploratory wells (or boreholes) existing on the site could cause vertical excursions during operations.<sup>178</sup> The Board's narrowly tailored relief appropriately addresses the concerns raised by Joint Intervenors.

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<sup>174</sup> Petition at 19-20.

<sup>175</sup> See generally 10 C.F.R. Part 40, App. A, Criterion 5B(5).

<sup>176</sup> See Ex. SEI015, License, at 7-8 (License Condition 10.6).

<sup>177</sup> See Petition at 19-20.

<sup>178</sup> See LBP-15-3, 81 NRC at 143-44. The Board modified License Condition 10.2, which requires the licensee to locate and properly abandon historic exploratory wells or boreholes that may exist on the site. The Board expanded the reach of the License Condition to include wells outside the perimeter monitoring ring and downgradient of the wellfield. *Id.*

In sum, Joint Intervenors have not identified clear error in the Board's factual findings relating to post-restoration contamination levels in the mined aquifers. None of their arguments call into question the Board's judgment that the FSEIS, as supplemented by the hearing record, reasonably concluded that the impact of hazardous constituents persisting in the aquifer after restoration would be small.

*c. Claims of Legal Error in Resolution of Contention 2*

Joint Intervenors raise one legal argument with respect to Contention 2: that the Staff's issuance of the license prior to the hearing and Board decision violates NEPA.<sup>179</sup> They argue that if the hearing record and Board decision are necessary to complete, or even correct, the environmental record, then the license must be vacated and remanded to the Staff so that it may consider the complete NEPA analysis prior to deciding whether to issue the license.<sup>180</sup> To support their claim, Joint Intervenors point to the Board's agreement with their concern that Staff's analysis was flawed in some respects.<sup>181</sup> Joint Intervenors argue that the Board simply "declar[ed] these violations cured" by its decision, violating the "fundamental NEPA precepts that data may not be utilized simply to 'justify[] decisions already made.'"<sup>182</sup>

Joint Intervenors fail to raise a substantial question for our review because the Board found the Staff's environmental impact determinations to be well-founded. Our adjudicatory proceedings, as we recently discussed in *Crow Butte Resources, Inc.*, contemplate that a Board or the Commission may appropriately modify, condition, or revoke a license, if required by the circumstances of a particular proceeding.<sup>183</sup> Here, the Board evaluated the Staff's analysis and determined that, with the additional information considered at the hearing and in the Staff's prefiled testimony, the environmental impacts of the proposed licensing action were appropriately identified.<sup>184</sup> And, after identifying several gaps in the Staff's analysis, the Board determined that modifying a license condition was the appropriate approach to address Joint Intervenors' concerns about groundwater protection.<sup>185</sup> While we agree with Joint Intervenors that remanding, or staying, the license would have been appropriate had the Board determined that the Staff's analysis did not adequately consider the environmental

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<sup>179</sup> Petition at 14-16.

<sup>180</sup> *Id.* at 14-15.

<sup>181</sup> *Id.* at 14 (citing LBP-15-3, 81 NRC at 122, 124-26).

<sup>182</sup> *Id.* at 15 (citing 40 C.F.R. § 1502.2(g)).

<sup>183</sup> *Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), CLI-15-17, 82 NRC 33, 40 (2015).

<sup>184</sup> See LBP-15-3, 81 NRC at 133.

<sup>185</sup> *Id.* at 143-44.

consequences of this licensing action, there is no need for such action here. Here the Board's modification of the environmental record of decision did not change, in any material aspect, the Staff's ultimate determination that impacts to groundwater in the OZ aquifer and surrounding aquifers would be SMALL. Instead, the Board merely modified the record of decision to include a revised license condition and additional analyses that were placed on the record before the Board by various parties.<sup>186</sup> We have previously held that a Board's hearing, hearing record, and subsequent decision on a contested environmental matter augment the environmental record of decision developed by the Staff with respect to this issue<sup>187</sup> and Joint Intervenors have not persuaded us to abandon this practice. Not only have Joint Intervenors failed to demonstrate Board error in reaching this decision, but we find that the environmental record of decision, as modified by the Board supports the issuance of a license to Strata.<sup>188</sup>

Therefore, we decline to take review of the Board's legal and factual rulings with respect to Contention 2.

### 3. *Contention 3*

In Contention 3, Joint Intervenors argued that Strata and the Staff failed to demonstrate that the mined aquifer is isolated and that Strata can prevent fluid migration outside the production zone during operations:

CONTENTION: The FSEIS fails to assess [adequately] the likelihood and impacts of fluid migration to the adjacent groundwater, as required by 10 C.F.R. §§ 51.90-94 and NEPA, and as discussed in NUREG-1569 § 2.7, in that:

1. The FSEIS 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.

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<sup>186</sup> *Indian Point*, CLI-15-6, 81 NRC at 387-88 (“[W]hen a hearing is held on a proposed action, ‘the initial decision of the presiding officer or the final decision of the Commissioners acting as a collegial body will constitute the record of decision.’ . . . We have consistently interpreted [our regulations] to provide that environmental impact statements are modified by any subsequent Board or Commission decision.”); see *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 53 (2001).

<sup>187</sup> *Indian Point*, CLI-15-6, 81 NRC at 388.

<sup>188</sup> It is well settled that parties challenging an agency's NEPA process are not entitled to relief unless they demonstrate harm or prejudice. Joint Intervenors have not done so here because the Board concluded that the Staff's analysis of the reasonably foreseeable impacts from alternate concentration limits was fundamentally correct. *Northwest Coalition for Alternatives to Pesticides v. Lyng*, 844 F.2d 588, 594 (9th Cir. 1988).

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.<sup>189</sup>

All of Joint Intervenors' challenges to the Board's decision on Contention 3 relate to how the Board weighed the evidence. Based upon our review of the record, we find that none of Joint Intervenors' arguments raise a substantial question with respect to the Board's factual findings.

*a. Historic Boreholes*

There are nearly 1500 historic exploratory boreholes on the site, most of which have not been properly abandoned (plugged) and over 100 of which have not yet been located.<sup>190</sup> As the Board observed, the FSEIS acknowledges that boreholes that have not been properly abandoned could cause vertical excursions — leaks to overlying or underlying aquifers — and that vertical excursions are more difficult to recover than horizontal excursions.<sup>191</sup>

On appeal, Joint Intervenors argue that the Board relied too heavily on a license condition requiring the licensee to “attempt to locate and abandon” the boreholes within the perimeter of each wellfield, a provision they argue is essentially unenforceable.<sup>192</sup> Joint Intervenors argue that Strata's witness acknowledged at hearing that it may not be able to fill all the boreholes, and that the Staff witness stated that the Staff would be “powerless to act” unless it can show that Strata's violation was “willful.”<sup>193</sup>

As an initial matter, Joint Intervenors' petition mischaracterizes the hearing testimony. Contrary to Joint Intervenors' arguments, Strata's witness stated that Strata might not be able to locate every borehole prior to performing the preop-

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<sup>189</sup> See FSEIS Order, app. A, at 1; *see also* Ex. JTI003-R, Larson Direct Testimony, at 49-51, 54-61; Ex. JTI001-R, Abitz Direct Testimony, at 45-49.

<sup>190</sup> LBP-15-3, 81 NRC at 137 (citing Tr. at 679-80 (Knode)).

<sup>191</sup> *Id.* (citing FSEIS § 4.5.1.2, at 4-37).

<sup>192</sup> Petition at 22. Joint Intervenors refer to License Condition 10.12, which the Board modified to include boreholes outside the perimeter well ring if the wells extend into the first underlying aquifer and are downgradient of the wellfield. The modified condition requires the licensee to fill boreholes from the perimeter monitoring ring to the closer of the Ross Project license area boundary or the outer boundary of the exempted aquifer. *See* LBP-15-3, 81 NRC at 143-44. The licensee has requested an amendment to this condition, which is subject to a separate opportunity to request a hearing. *See supra* note 31.

<sup>193</sup> Petition at 22.

erational pump test, but that the boreholes “should show up in that pump test.”<sup>194</sup> In addition, our enforcement process does not require that a violation be “willful” for the Staff to take enforcement action.<sup>195</sup> The NRC has a well-developed enforcement process that considers both willful and nonwillful violations by NRC licensees and applicants.<sup>196</sup> A licensee’s failure to correct a violation once identified could result in a notice of violation.<sup>197</sup>

We find that the Board appropriately considered Joint Intervenors’ evidence and arguments with respect to boreholes. The Board found that the license condition requiring Strata to “attempt” to locate the boreholes was sufficient because the NRC does not assume that a licensee will ignore its obligations, and other license conditions will help to assure Strata’s compliance.<sup>198</sup> In its decision, the Board discussed License Condition 10.13, which requires Strata to conduct additional pumping tests to ensure isolation of the aquifers prior to beginning production of a wellfield; and License Condition 11.5, which requires Strata to immediately cease operations if a vertical excursion is detected.<sup>199</sup> The Board found that these license conditions provide additional incentive for Strata to locate and abandon the boreholes.<sup>200</sup> Moreover, License Condition 10.12 requires Strata to “document its efforts” to find and fill the boreholes, enabling Staff to assess whether Strata’s efforts were in good faith.<sup>201</sup> Given that the Board considered the contrary evidence and explained its reasoning, the Board’s conclusion that these factors, taken together, will ensure the licensee’s compliance with the requirement to find and plug historic boreholes was reasonable.

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<sup>194</sup> Tr. at 766 (Griffin); *see also* Ex. NRC001, Staff Initial Testimony, at 49 (“The Staff determined that after performing hydrologic tests to demonstrate confinement of the ore aquifer and routine excursion monitoring, a drill hole not abandoned would be detected and proper corrective actions would be undertaken.”)

<sup>195</sup> At the hearing, both Staff’s witness and Staff’s counsel acknowledged that the witness was not qualified to testify regarding the specifics of the NRC’s enforcement process. *See* Tr. at 765 (Mr. Saxton) (“I don’t know the exact procedure”); *id.* at 766 (Ms. Monteith) (“I don’t believe that our witnesses are qualified to testify to the enforcement process.”).

<sup>196</sup> *See, e.g.*, “Nuclear Regulatory Commission Enforcement Manual,” Rev. 9 (Dec. 2015) (ADAMS Accession No. ML102630150).

<sup>197</sup> *See* Nuclear Regulatory Commission Enforcement Manual, Rev. 9 (2013) (updated Sept. 8, 2015), § 2.2.3, at 100-01.

<sup>198</sup> LBP-15-3, 81 NRC at 140-41 (citing *GPU Nuclear, Inc.* (Oyster Creek Nuclear Generating Station), CLI-00-6, 51 NRC 193, 207 (2000)).

<sup>199</sup> LBP-15-3, 81 NRC at 141 (citing Ex. SEI015, License, at 9, 13).

<sup>200</sup> *Id.* at 140 (citing Ex. SEI015, License, at 13-14).

<sup>201</sup> *See* Ex. SEI015, License, at 9.

*b. Pumping Tests*

Next, Joint Intervenors argue that the Board disregarded evidence that chemical analyses of the groundwater following Strata's prelicensing pumping tests indicate that the aquifer is not confined.<sup>202</sup> As the Board explained, Strata performed an aquifer test — or pumping test — in each monitoring well cluster to confirm that the ore zone aquifer was confined. According to the prefiled testimony of Strata's witness, Ray Moores, this test involves pumping the well installed in the ore zone aquifer at a constant rate.<sup>203</sup> Pressure transducers installed in the wells in the ore zone, the overlying aquifer, and the underlying aquifer measure and record the water level in each well on 1-minute intervals.<sup>204</sup> According to Mr. Moores, "by evaluating responses, or lack thereof, recorded in the [overlying and underlying aquifer] wells it was also possible to measure the integrity of the confining intervals above and below the [ore zone] aquifer."<sup>205</sup> Mr. Moores stated that the transducers were sufficiently sensitive to detect "a leaky aquifer even over short pumping durations."<sup>206</sup> He acknowledged that the pumping tests can only demonstrate confinement over the immediate area, not the entire Ross Project area.<sup>207</sup> For this reason, License Condition 10.13 requires additional tests prior to opening each wellfield.<sup>208</sup>

According to the prefiled testimony of Joint Intervenors' expert Dr. Abitz, changes in the levels of sodium and sulfate in the water from the ore zone aquifer following the tests indicate that water from the ore zone aquifer had been diluted with water from the overlaying aquifer, which has naturally lower levels of these chemicals.<sup>209</sup> The Board, however, found that Dr. Abitz's interpretation was "mere speculation," and it concluded that the "better explanation" for the variable levels of these constituents was the natural differences in the minerals within the ore zone.<sup>210</sup>

In challenging the Board's decision, Joint Intervenors claim that the Board's conclusion inherently contradicts its conclusion with respect to Contention 1, wherein the Board found that the site had been adequately characterized through

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<sup>202</sup> Petition at 23.

<sup>203</sup> Ex. SEI042, Initial Written Testimony of Ray Moores, at 5 (Aug. 25, 2014) (Moores Testimony); *see also* LBP-15-3, 81 NRC at 144-46.

<sup>204</sup> Ex. SEI042, Moores Testimony at 5. The tests were used to evaluate a variety of ore zone characteristics as well as confirming confinement. *Id.*

<sup>205</sup> *Id.*

<sup>206</sup> *Id.* at 6.

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

<sup>208</sup> *See* Ex. SEI015, License, at 9.

<sup>209</sup> Ex. JTI001-R, Abitz Direct Testimony, at 49-50.

<sup>210</sup> LBP-15-3, 81 NRC at 147.



its precicensing monitoring program.<sup>211</sup> Joint Intervenors argue that “if the results of groundwater tests in the [ore zone] will ‘vary considerably’ depending on the mineral content where they are located then [Strata] and Staff failed to demonstrate that the limited groundwater data collected meaningfully characterized the baseline.”<sup>212</sup>

We do not see any inherent contradiction between the Board’s findings on Contentions 1 and 3. The FSEIS does not state that water quality is consistent throughout each aquifer — the groundwater monitoring data in Appendix C shows that the concentrations of the constituents tested vary between the wells.<sup>213</sup> At most, the pumping test results show that the picture of the Ross Project site groundwater could be painted with a finer brush — it does not show that more data are necessary to characterize the site and evaluate the environmental impacts of the proposed project. The Board’s factual finding resolved two competing technical opinions, which is a matter where the Commission ordinarily defers to the Board’s judgment.<sup>214</sup> Based upon our review of the record, we conclude that the Board’s interpretation of the pumping test results is reasonable and that Joint Intervenors have failed to identify a clear factual error on the Board’s part.

*c. Selection of Excursion Indicators (Excursion Monitoring Parameters)*

Joint Intervenors also argue that the Board erred in declining to require Strata to use uranium as an excursion indicator — one of the characteristics specifically monitored at the perimeter of a wellfield to ensure that mining fluids have not escaped the area of operation.<sup>215</sup> Specifically, Joint Intervenors argue that the Board recognized that there is “uncertainty” about the movement of uranium in groundwater, and that it was therefore “error for the Board to conclude that the Staff had appropriately found the impacts from excursions will be small based on excursion parameters that will *not include monitoring for uranium*.”<sup>216</sup> Further, Joint Intervenors argue that the Board erroneously shifted the burden to Joint Intervenors to show that uranium should be used, rather than requiring the Staff and Strata to show why it should not.<sup>217</sup>

Joint Intervenors miss the Board’s point with respect to the excursion indicators. As the Board noted, the FSEIS explains that most *in situ* uranium recovery

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<sup>211</sup> Petition at 23.

<sup>212</sup> *Id.*

<sup>213</sup> See Ex. SEI09B, FSEIS, app. C.

<sup>214</sup> See, e.g., *Oyster Creek*, CLI-09-7, 69 NRC at 264; *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-28, 62 NRC 721, 723 (2005).

<sup>215</sup> Petition at 24.

<sup>216</sup> *Id.*

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

facilities will use chloride, conductivity, and total alkalinity because “[t]hese constituents move through the aquifer faster than other water-quality parameters.”<sup>218</sup> In other words, the excursion indicators are selected because they will provide the earliest warning of a problem, not because they are the chemicals of most concern in groundwater protection. The Board agreed with Staff that the “uncertainty” surrounding the behavior of uranium in various chemical environments (that is, whether it will be adsorbed or remain in solution) is a reason not to use uranium as an excursion indicator.<sup>219</sup> The Board, after weighing the parties’ evidence, concluded that

the case for using uranium as an excursion indicator for the Ross Project [was] not compelling, particularly given Joint Intervenor’s failure to present any convincing site-specific evidence to counter the Staff’s] and [Strata’s] showings that chloride and the other indicators proposed for use by [Strata] and accepted by the Staff would be effective excursion indicators at Ross.<sup>220</sup>

Joint Intervenor’s petition does not point to any evidence that demonstrates factual error in the Board’s finding that “uranium is not as effective a tool for providing a timely alert regarding a lixiviant excursion.”<sup>221</sup> Although Joint Intervenor’s claim generally that Drs. Abitz and Larson demonstrated that “uranium may move through the aquifer more quickly than chloride and the other excursion indicator constituents,” they cite nothing for that proposition.<sup>222</sup> In fact, Dr. Abitz’s testimony, which the Board discussed, argues that uranium would be a good indicator because the “levels of uranium in the lixiviant are generally three to four orders of magnitude greater than true baseline; and increases in chloride, alkalinity and [total dissolved solids] in the aquifer will be less than one or two

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<sup>218</sup> See LBP-15-3, 81 NRC at 148 & n.73. At least three excursion indicators must be used at each wellfield, and the FSEIS explains why chloride, conductivity, and alkalinity are usually selected:

[C]hloride is selected because it does not interact strongly with the minerals in the ore zone; it is easily measured; and chloride concentrations are significantly increased during ISR operations. Conductivity, which is correlated to total dissolved solids (TDS), is also considered a good excursion indicator because of the high concentrations of dissolved constituents in the lixiviant as compared to the surrounding aquifers. . . . Total alkalinity (carbonate plus bicarbonate plus hydroxide) is used as an indicator in wellfields where sodium bicarbonate or carbon dioxide is used in the lixiviant.

Ex. SEI009A, FSEIS § 2.1.1.2, at 2-31; see also Ex. NRC001, Staff Testimony, at 72-73. Strata’s license provides that sulfate will be used as the default excursion indicator in lieu of chloride only in the aquifer underlying the ore zone aquifer, because of the naturally high chloride in that aquifer. See Ex. SEI015, License, at 13 (License Condition 11.4).

<sup>219</sup> LBP-15-3, 81 NRC at 149-50.

<sup>220</sup> *Id.* at 150.

<sup>221</sup> *Id.*

<sup>222</sup> Petition at 7, 24.

orders of magnitude.”<sup>223</sup> But, at most, this testimony would show that if uranium is present, it might be easier to detect than the selected excursion indicators — not that it would be detected earlier than the indicators Strata plans to monitor.

In addition, we do not find that the Board improperly shifted the burden of proof. The Board discussed the parties’ prefiled and hearing testimony with respect to this issue, and it appropriately considered the various parties’ positions — it simply found the Staff’s and Strata’s positions more persuasive.<sup>224</sup> Joint Intervenors have not provided any basis for us to review the Board’s factual findings with respect to the excursion indicators.

*d. Evidence of Excursions at Other Sites*

Finally, Joint Intervenors argue that the Board “discounted” evidence of excursions at other *in situ* uranium recovery sites because of the aquifer exemption.<sup>225</sup> They argue that regardless of the exemption, the aquifer is still part of the “affected environment, impacts to which must be disclosed and considered in the FSEIS.”<sup>226</sup>

We do not find that the Board disregarded the evidence. The Board’s conclusion relied on the licensee’s ability to detect and recover excursions (in addition to the fact that the aquifer is exempted from human consumption) to conclude that the potential environmental impacts from operations are small.<sup>227</sup> In addition, the FSEIS discusses the possibility of excursions and describes recovery measures that are imposed by License Condition 11.5.<sup>228</sup> Joint Intervenors have not shown either that the Board erred in its findings of fact or that the FSEIS failed to consider all potential environmental impacts from the proposed facility.

### III. CONCLUSION

For the foregoing reasons, we *deny* the petition for review.

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<sup>223</sup> LBP-15-3, 81 NRC at 149 n.76 (quoting Ex. JTI001-R, Abitz Direct Testimony, at 43).

<sup>224</sup> *See id.* at 148-50.

<sup>225</sup> Petition at 24-25 (citing LBP-15-3, 81 NRC at 150-52).

<sup>226</sup> *Id.* at 25.

<sup>227</sup> LBP-15-3, 81 NRC at 151.

<sup>228</sup> *See* Ex. SEI009A, FSEIS § 4.5.1.2, at 4-41 to 4-43.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 29th day of June 2016.

### **Commissioner Baran, Concurring in Part and Dissenting in Part**

I concur in part with and dissent in part from the Commission's decision.

I join the majority in the decision except for the subsection that denies review of the Joint Intervenors' claim that the Board erred in resolving Contention 2 by allowing its Initial Decision to supplement the Final Supplemental Environmental Impact Statement (FSEIS) after issuance of the license. I respectfully dissent from this portion of the decision. I would grant review of this claim and order the Staff to cure the deficiency in its environmental analysis.

With respect to Contention 2, Joint Intervenors contend that the Staff's issuance of the license prior to the hearing and Board decision violates NEPA.<sup>1</sup> They argue that if the hearing record and Board decision are necessary to complete or correct the environmental record, then the license must be vacated and remanded to the Staff so that it may consider the complete NEPA analysis prior to deciding whether to issue the license.<sup>2</sup> In response to the Joint Intervenors' claims regarding the need to suspend the license, the Board found that there was not yet a final agency action because the "agency's NEPA record of decision remains open, and is subject to adjudicatory supplementation relative to matters associated with any pending admitted NEPA contention, at least until the hearing record is closed and the final agency adjudicatory decision is issued."<sup>3</sup> To support their claim on appeal, Joint Intervenors point to the Board's agreement with their concern that Staff's environmental analysis was flawed in some respects.<sup>4</sup> Joint Intervenors argue that the Board simply "declar[ed] these violations cured" by its decision, "violat[ing] the fundamental NEPA precepts that data may not be utilized simply to 'justify[] decisions already made.'"<sup>5</sup> I believe that the Joint Intervenors raise a substantial question for our review.

The Staff's practice in materials cases is to issue a license before the completion of contested hearings on environmental matters. Section 2.1202(a) provides:

During the pendency of any hearing under this subpart, consistent with the NRC staff's findings in its review of the application or matter which is the subject of the hearing and as authorized by law, the NRC Staff is expected to promptly issue its approval or denial of the application. . . .<sup>6</sup>

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<sup>1</sup> Natural Resources Defense Council's & Powder River Basin Resource Council's Petition for Review of Atomic Safety and Licensing Board's January 23, 2015 Initial Decision Denying Environmental Contentions 1 Through 3, and Interlocutory Decisions Denying Environmental Contentions 4/5A and 6/7 (Feb. 17, 2015) at 14-16 (Petition).

<sup>2</sup> *Id.* at 14-15.

<sup>3</sup> LBP-15-3, 81 NRC 65, 122 n.49 (2015).

<sup>4</sup> Petition at 14 (citing LBP-15-3, 81 NRC at 122, 124-26).

<sup>5</sup> *Id.* at 15 (emphasis omitted) (quoting 40 C.F.R. § 1502.2(g)).

<sup>6</sup> 10 C.F.R. § 2.1202(a).

It appears that the Staff reads this regulatory provision to require it to issue a license when it completes its safety review and issues the Final Environmental Impact Statement. However, in the adjudicatory context, the Commission has held that its decisions and Licensing Board decisions can supplement<sup>7</sup> the NEPA analysis to correct deficiencies in such an analysis.<sup>8</sup> Allowing adjudicatory decisions to supplement the NEPA analysis means that, where there are contested environmental matters, the NEPA process is not complete until any admitted environmental contentions are resolved. Thus, the Staff's current practice, in some instances, conflicts with a core requirement of NEPA — that the decisionmaker consider all environmental impacts of an action *before* making a decision.<sup>9</sup>

In my view, this conflict requires the Commission to clarify its supplementation doctrine to account for situations like this one. Several options are available to avoid this conflict. For example, the Staff could wait until the end of the hearing process on contested environmental contentions prior to issuing a license. In this circumstance, a Board or Commission decision could revise the NEPA analysis prior to the issuance of the license, which would ensure that the decisionmaker considers the complete NEPA analysis prior to the completion of the federal action. Alternatively, if the Staff issues a license upon completion of its environmental review but before the completion of any hearing challenging that review, then a subsequent Board or Commission decision finding a flaw in the NEPA analysis or process may require the suspension or vacatur of the license pending Staff action to cure the NEPA deficiency. In these circumstances, the adjudicatory decision or proceedings cannot supplement the NEPA environmental document or Record of Decision after the fact because the licensing action has already been taken in reliance on the NEPA analysis.

Here, the license has already been issued and the Board found aspects of the FSEIS to be deficient. The Board evaluated the Staff's environmental analysis and determined that, only with the additional information considered at the hearing, were the environmental impacts of the proposed licensing action appropriately identified.<sup>10</sup> Because the Board found a deficiency in the NEPA analysis, the agency did not have an adequate environmental analysis at the time it decided whether to issue the license. Thus, the Staff's decision to issue the license was not informed by an adequate NEPA analysis.

In federal court, a violation of NEPA, by itself, is not always sufficient to

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<sup>7</sup> Here, I am using the term "supplement" as it is used in the Commission case law, not as it is used in 10 C.F.R. § 51.92.

<sup>8</sup> See, e.g., *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 387-88 (2015).

<sup>9</sup> Petition at 15 (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)).

<sup>10</sup> See LBP-15-3, 81 NRC at 133.

justify suspending or revoking the license.<sup>11</sup> However, the Commission has a responsibility to ensure that the Staff complies with NEPA. The agency should not undermine NEPA's core requirement of fully informed decisionmaking by failing to grapple with the problem of pairing a regulation that allows a materials license to be issued prior to adjudicatory hearings with an adjudicatory doctrine that permits the NEPA environmental review to be supplemented by adjudications completed after issuance of the license. We should not endorse a practice that would likely result in future after-the-fact supplementation of the NEPA analysis. Therefore, I would order the Staff to revise the Record of Decision in this case to include all relevant information, including the change to the license condition made by the Board and the additional information the Board found necessary to supplement the FSEIS in response to Contention 2, so that the Director of the Office of Nuclear Materials Safety and Safeguards could make a fully informed decision on whether to reaffirm, modify, condition, or revoke the license. If the Staff did not revise the Record of Decision and make a decision on whether to reaffirm, modify, condition, or revoke the license within 30 days, then I would order the Staff to suspend the license until such steps are taken.

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<sup>11</sup> See *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 157-58 (2010) (injunction not automatic or default remedy to cure NEPA violation); *Northwest Coalition for Alternatives to Pesticides v. Lyng*, 844 F.2d 588, 595 (9th Cir. 1988); *City of Del Norte v. United States*, 732 F.2d 1462, 1467 (9th Cir. 1984); *Central Delta Water Agency v. U.S. Fish and Wildlife Service*, 653 F. Supp. 2d 1066, 1086-87 (E.D. Cal. 2009); *Muhly v. Espy*, 877 F. Supp. 294, 300 (W.D. Va. 1995).





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- Alaska Department of Transportation and Public Facilities*, CLI-04-26, 60 NRC 399, 406 n.28, *reconsideration denied*, CLI-04-38, 60 NRC 652 (2004)  
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- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 264 (2009)  
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- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 266 (2009)  
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- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 268 (2009)  
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- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 272 (2009)  
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- AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 276-77 (2009)  
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- Ass'n Concerned About Tomorrow, Inc. v. Dole*, 610 F. Supp. 1101, 1109 (N.D. Tex. 1985)  
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- Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 97 (1983)  
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- Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 99 n.12 (1983)  
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- Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-25, 48 NRC 325, 350 (1998)  
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- Bellotti v. NRC*, 725 F.2d 1380 (D.C. Cir. 1983)  
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- Bering Strait Citizens for Responsible Res. Dev. v. U.S. Army Corps of Eng'rs*, 524 F.3d 938, 953 (9th Cir. 2008)  
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- Blackhawk Heating & Plumbing Co. v. Driver*, 433 F.2d 1137, 1140 (D.C. Cir. 1970)  
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- Bus. and Prof'l People for the Pub. Interest v. AEC*, 504 F.2d 424, 428-29 (D.C. Cir. 1974)  
statutory basis for affording an adjudicatory hearing to challenge a materials license application requires that intervenor specify one or more cognizable health, safety, or environmental concerns to obtain a hearing at which the validity of such concerns can be litigated; LBP-16-2, 83 NRC 111-12 (2016)
- Cabinet Mountains Wilderness v. Peterson*, 685 F.2d 678, 683 (D.C. Cir. 1982)  
state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 449 n.213 (2016)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 914 (2009)  
Commission defers to the board on issues of contention admissibility unless there is an error of law or abuse of discretion; CLI-16-13, 83 NRC 573 (2016)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 915 (2009)  
NRC looks to contemporaneous judicial concepts of standing in assessing whether petitioner has standing to intervene; CLI-16-6, 83 NRC 162 (2016)  
realistic threat of harm conferring proximity-based standing can be assumed in construction permit and operating license proceedings for power reactors; LBP-16-5, 83 NRC 268 (2016)  
to establish standing, petitioner must demonstrate a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision, where the injury is to an interest arguably within the zone of interests protected by the governing statute; CLI-16-6, 83 NRC 162 (2016)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 917 (2009)  
proximity presumption rests on board finding, in construction permit and operating license cases, that persons living within the roughly 50-mile radius of the facility face a realistic threat of harm if a release from the facility of radioactive material were to occur; LBP-16-5, 83 NRC 267-68 (2016)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63, 67-69 (2012)  
final licensing decisions for affected matters were held in abeyance while NRC addressed a remand of NRC's Waste Confidence Decision and Temporary Storage Rule; CLI-16-2, 83 NRC 22 (2016)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-14-8, 80 NRC 71, 77 (2014)  
comprehensive analysis of environmental impacts of continued storage is addressed; CLI-16-2, 83 NRC 22 (2016)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-09-4, 69 NRC 170, 183 (2009)  
proximity presumption rests on board finding, in construction permit and operating license cases, that persons living within the roughly 50-mile radius of the facility face a realistic threat of harm if a release from the facility of radioactive material were to occur; LBP-16-5, 83 NRC 267-68 (2016)
- Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-12-19, 76 NRC 184, 200 (2012)  
hearing process bogged down by time-consuming evidentiary motions of questionable value should be avoided; LBP-16-7, 83 NRC 405 (2016)
- Calvert Cliffs' Coordinating Comm., Inc. v. AEC*, 449 F.2d 1109, 1118 (D.C. Cir. 1971)  
after a licensing board in an uncontested proceeding determines the NRC Staff's NEPA review is adequate, it must then independently consider the final balance among conflicting factors that is struck in the conditions recommendation; LBP-16-4, 83 NRC 198 n.62 (2016)

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- Campbell v. Minneapolis Pub. Hous. Auth.*, 168 F.3d 1069, 1074 (8th Cir. 1999)  
fundamental principle is that the ultimate merits of the case have no bearing on the threshold question of standing; LBP-16-5, 83 NRC 270 (2016)
- C.A.R.E. Now, Inc. v. FAA*, 844 F.2d 1569, 1575 (11th Cir. 1988)  
state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 449 n.213 (2016)
- Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), CLI-01-7, 53 NRC 113, 118 (2001)  
NRC Staff's no significant hazards consideration determination cannot be contested; CLI-16-5, 83 NRC 144 (2016)
- Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-01-9, 53 NRC 239, 249 (2001)  
where intervening parties proffer admissible contentions challenging the conclusions in the environmental assessment that underpin a FONSI determination, the EA must provide a reasonable defense of NRC Staff's position; LBP-16-7, 83 NRC 403 (2016)
- Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), LBP-78-2, 7 NRC 83, 85 (1978)  
boards have long introduced and relied on exhibits for clarifying and verifying NRC Staff's testimony to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 406 (2016)
- Cent. Delta Water Agency v. FWS*, 653 F. Supp. 2d 1066, 1086-87 (E.D. Cal. 2009)  
violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 604-05 (2016)
- CFC Logistics, Inc.*, LBP-03-20, 58 NRC 311, 320 (2003)  
licensing boards have found proximity standing based on unlikely, yet plausible, scenario in which an accident of some sort could damage the armored pool containing the cobalt-60 at a food processing irradiator facility; LBP-16-5, 83 NRC 270 (2016)
- Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), LBP-82-48, 15 NRC 1549, 1567 (1982)  
part of the board's technical expertise is the ability to assess witnesses' testimony and relevant knowledge; LBP-16-7, 83 NRC 408 (2016)
- Citizens Against Burlington Inc. v. Busey*, 938 F.2d 190, 195 (D.C. Cir.), *cert. denied*, 502 U.S. 994 (1991)  
only energy alternatives that are reasonable and will bring about the ends of the proposed action need to be discussed in the environmental report; CLI-16-11, 83 NRC 530 n.33 (2016)
- Citizens Against Burlington Inc. v. Busey*, 938 F.2d 190, 206 (D.C. Cir. 1991)  
NEPA does not require agencies or third parties to effect mitigation measures; CLI-16-7, 83 NRC 328 (2016)  
NEPA requires only a reasonably complete mitigation analysis; CLI-16-7, 83 NRC 323 (2016)
- Citizens Awareness Network, Inc. v. NRC*, 59 F.3d 284, 295 (1st Cir. 1995)  
agency action that has the effect of amending a license, whether or not formally designated a license amendment, carries with it the opportunity to request a hearing; CLI-16-9, 83 NRC 474 (2016)
- City of Del Norte v. United States*, 732 F.2d 1462, 1467 (9th Cir. 1984)  
violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 604-05 (2016)
- Clarke v. Securities Industry Ass'n*, 479 U.S. 388, 399 (1987)  
zone-of-interests test for standing is not meant to be especially demanding; CLI-16-6, 83 NRC 164 (2016)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 90-92 (1993)  
petitioners had standing under the proximity presumption to challenge a license amendment that deleted the material specimen withdrawal schedule from the plant's technical specifications; LBP-16-5, 83 NRC 275 (2016)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 92 (1993)  
under contemporaneous judicial concepts of standing applied in NRC proceedings, petitioner must allege a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision; LBP-16-5, 83 NRC 267 (2016)

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- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 95-96 (1993)  
material condition of a plant's reactor vessel bears on the health and safety of members of the public who reside in the plant's vicinity; LBP-16-5, 83 NRC 275 (2016)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 96 (1993)  
Commission held that petitioners had standing based on the proximity presumption without reviewing the merits at all, stating that its ruling did not signify any opinion on the admissibility or the merits of the petitioners' contention and remanding those issues to the licensing board; LBP-16-5, 83 NRC 270 (2016)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-96-13, 44 NRC 315, 326 (1996)  
agency action not formally labeled a license amendment could constitute a de facto license amendment and trigger hearing rights under Atomic Energy Act if that action granted licensee greater authority or otherwise altered the original terms of the license; CLI-16-9, 83 NRC 474 (2016)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI-96-13, 44 NRC 315, 328 (1996)  
change by licensee must have NRC Staff approval in order to constitute a de facto license amendment, but not every Staff approval constitutes a license amendment; CLI-16-9, 83 NRC 482 (2016)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-841, 24 NRC 64, 95 (1986)  
unless a schedule is so onerous or unfair that it deprives a party of procedural due process, scheduling is a matter of licensing board discretion; CLI-16-11, 83 NRC 538-39 (2016)
- Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-20, 24 NRC 518, 519 (1986), *aff'd sub nom. Ohio v. NRC*, 814 F.2d 258 (6th Cir. 1987)  
state's petition to intervene as an interested governmental entity was denied as untimely when the state's petition was filed after the close of the adjudicatory record and on the eve of the Commission's licensing decision; LBP-16-6, 83 NRC 337-38 n.47 (2016)
- Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-735, 18 NRC 19, 23-24 (1983)  
questions of fact are not susceptible of resolution on the basis of nothing more than the generalized representations of counsel who are unequipped to attest on the basis of their own personal knowledge to the accuracy of the representations; LBP-16-3, 83 NRC 180 (2016)
- Commonwealth Edison Co.* (Dresden Station, Units 2 and 3), LBP-81-37, 14 NRC 708, 726 (1981)  
boards have long introduced and relied on exhibits for clarifying and verifying NRC Staff's testimony to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 406 (2016)
- Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-99-4, 49 NRC 185, 191 (1999)  
for the proximity presumption to apply in license amendment proceedings, the proposed amendment must obviously entail an increased potential for offsite consequences; LBP-16-5, 83 NRC 268 (2016)
- Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-99-4, 49 NRC 185, 192 (1999)  
petitioner's allegations, coupled with the acknowledged possibility of offsite consequences if CIS wall modules are structurally inadequate, satisfy the requirement that petitioner show a plausible chain of causation explaining how the amendment itself would result in a distinct new harm or threat beyond that posed by the licensed facility itself; LBP-16-5, 83 NRC 274 (2016)
- Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-99-4, 49 NRC 185, 194 (1999)  
Commission does not consider cursory, unexplained legal arguments on appeal and will not speculate about what a pleading is supposed to mean; CLI-16-13, 83 NRC 592 (2016)
- Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-00-5, 51 NRC 90, 94-96 (2000)  
exemption requests are not among the listed actions that are subject to a hearing under the Atomic Energy Act, and their absence from section 189a has been interpreted as intentional; CLI-16-12, 83 NRC 549 (2016)



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- Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-00-5, 51 NRC 90, 96 (2000)  
Congress expressly limited the opportunity for a hearing to certain designated agency actions which do not include exemptions; CLI-16-12, 83 NRC 549 (2016)  
exemption, regardless of its label, could constitute an action for which a hearing is required; CLI-16-12, 83 NRC 549 n.32 (2016)  
hearing request challenging requested exemptions from some physical security requirements was denied where licensee had not requested a license amendment; CLI-16-12, 83 NRC 553 (2016)
- Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), CLI-00-5, 51 NRC 90, 96-98 (2000)  
Atomic Energy Act does not provide for a hearing on adequacy of an exemption request itself; CLI-16-12, 83 NRC 563-64 (2016)
- Commonwealth Edison Co.* (Zion Nuclear Power Station, Units 1 and 2), LBP-98-27, 48 NRC 271, 276 (1998), *aff'd*, CLI-99-4, 49 NRC 185, 191 (1999)  
Commission has rejected proximity standing for license amendments associated with shutdown and defueled reactors; LBP-16-5, 83 NRC 275 (2016)
- Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-222, 8 AEC 229, 236 (1974)  
Congress specifically created licensing boards to serve as a panel of experts that brings all of the accumulated knowledge possessed by both technical members to bear on the questions before it; LBP-16-7, 83 NRC 405, 408 (2016)
- Communities Against Runway Expansion, Inc. v. FAA*, 355 F.3d 678, 687 (D.C. Cir. 2004)  
principal purpose of NEPA is to ensure public disclosure of information relevant to federal decisions significantly affecting the environment; LBP-16-8, 83 NRC 443-44 n.172 (2016)
- Connecticut Bankers Ass'n v. Bd. of Governors*, 627 F.2d 245, 251 (D.C. Cir. 1980)  
petitioner does not become entitled to an evidentiary hearing merely on request, or on a bald or conclusory allegation that a dispute exists, but rather must make a minimal showing that material facts are in dispute, thereby demonstrating that an inquiry in depth is appropriate; LBP-16-5, 83 NRC 282 (2016)
- Consolidated Edison Co. of New York* (Indian Point, Units 1 and 2), CLI-01-19, 54 NRC 109, 133 (2001)  
wholesale incorporation by reference by a petitioner who, in a written submission, merely establishes standing and attempts, without more, to incorporate the issues of other petitioners is not permitted; LBP-16-8, 83 NRC 434 n.111 (2016)
- Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 340 (1973)  
boards have relied on exhibits authored by the party interposing objections in order to clarify and verify the party's testimony and to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 406 (2016)
- Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), CLI-09-9, 69 NRC 331, 365 (2009)  
routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain; CLI-16-1, 83 NRC 8 (2016)
- Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), CLI-15-17, 82 NRC 33, 40 (2015)  
board or Commission may appropriately modify, condition, or revoke a license, if required by circumstances of a particular proceeding; CLI-16-13, 83 NRC 594 (2016)
- Crow Butte Resources, Inc.* (Marsland Expansion Area), CLI-14-2, 79 NRC 11, 14 (2014)  
Commission defers to a board's contention admissibility rulings unless the appeal points to an error of law or abuse of discretion; CLI-16-5, 83 NRC 135 (2016)
- Crow Butte Resources, Inc.* (Marsland Expansion Area), CLI-14-2, 79 NRC 11, 26 (2014)  
Commission generally leaves to the board's judgment whether a proposed contention has a sufficient factual basis to be admitted for hearing; CLI-16-13, 83 NRC 574 (2016)
- Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 543 (2009)  
Commission defers to a board's contention admissibility rulings unless the appeal points to an error of law or abuse of discretion; CLI-16-5, 83 NRC 135 (2016)
- Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 552 (2009)  
boards may reformulate contentions to eliminate extraneous issues or to consolidate issues for a more efficient proceeding; LBP-16-3, 83 NRC 186 n.33 (2016)

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- Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 568 (2009)  
petitioner may not use its reply to raise new issues for the first time; CLI-16-5, 83 NRC 145 n.97 (2016)
- Crow Butte Resources, Inc.* (North Trend Expansion Project), LBP-09-1, 69 NRC 11, 16-25 (2009), *aff'd in part, rev'd in part*, CLI-09-12, 69 NRC 535 (2009)  
once a party demonstrates that it has standing to intervene on its own accord, that party may then raise any contention that, if proved, will afford the party relief from the injury it relies upon for standing; LBP-16-5, 83 NRC 276 (2016)
- Ctr. for Sci. in the Pub. Interest v. Regan*, 727 F.2d 1161, 1170 (D.C. Cir. 1984)  
“capable of repetition, yet evading review” exception to the mootness doctrine applies only to cases in which both the challenged action was in its duration too short to be litigated and there is a reasonable expectation that the same complaining party will be subject to the same action again; CLI-16-8, 83 NRC 469 (2016)
- David Geisen*, CLI-10-23, 72 NRC 210, 224-25 & n.61 (2010)  
Commission reviews questions of law de novo and defers to board findings with respect to the underlying facts unless the findings are clearly erroneous; CLI-16-13, 83 NRC 573 (2016)
- Davis v. Mineta*, 302 F.3d 1104, 1114 (10th Cir. 2002)  
monetary remedies are not possible in the NRC licensing context, and failure to comply with NEPA presumptively implies environmental harms that money cannot fix; LBP-16-7, 83 NRC 413 (2016)
- Defs. of Wildlife v. North Carolina Dep't of Transp.*, 762 F.3d 374, 396 (4th Cir. 2014)  
NEPA requires an agency to do more than to scatter its evaluation of environmental damage among various public documents; LBP-16-8, 83 NRC 435 n.118 (2016)
- Del Monte Fresh Produce Co. v. United States*, 570 F.3d 316, 322 (D.C. Cir. 2009)  
injury capable of repetition requires a reasonable expectation that the same complaining party would be subjected to the same action again; CLI-16-6, 83 NRC 156 (2016)  
to evade review, a challenged action must be too short to be fully litigated prior to its cessation or expiration; CLI-16-6, 83 NRC 156 (2016)
- Delaware Riverkeeper Network v. Fed. Energy Regulatory Comm'n*, 753 F.3d 1304, 1314 (D.C. Cir. 2014)  
cumulative impacts analysis includes small and unrelated decisions; LBP-16-8, 83 NRC 445 (2016)
- Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 756-57 (2004)  
NEPA does not create a substantive requirement that a federal agency affirmatively limit the environmental harms of its actions; LBP-16-7, 83 NRC 351 (2016)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 2), CLI-03-14, 58 NRC 207, 213 (2003)  
contention admissibility requirements are strict by design to ensure that NRC hearings adjudicate genuine, substantive safety and environmental issues; CLI-16-6, 83 NRC 159 (2016)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 2), LBP-03-12, 58 NRC 75, 93 (2003)  
obvious potential for offsite consequences is not in itself sufficient to support an admissible contention; LBP-16-5, 83 NRC 274 n.78 (2016)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-02-22, 56 NRC 213, 222 (2002)  
Commission typically declines to second-guess the board on its fact-specific conclusions, except where the decision contains obvious material factual errors and could be misleading, warranting clarification; CLI-16-7, 83 NRC 306 (2016)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-08-17, 68 NRC 231, 233 (2008)  
beyond constituting a subjective and otherwise unsupported interpretation of NRC's actions regarding voluntary implementation of Executive Order 12898, petitioner's claim represents a generalized grievance against NRC policy; LBP-16-5, 83 NRC 289-90 (2016)  
generalized grievance is outside the scope of license amendment proceedings and cannot serve as a basis for identifying an admissible contention; LBP-16-5, 83 NRC 289-90 (2016)  
threshold contention standards are imposed to avoid contentions based on little more than speculation and admitted intervenors who often had negligible knowledge of nuclear power issues; LBP-16-5, 83 NRC 283 n.127 (2016)

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- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-08-17, 68 NRC 231, 241 (2008)  
appeals based on nothing more than speculation are insufficient to support Commission review; CLI-16-5, 83 NRC 140 n.55 (2016)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-09-5, 69 NRC 115, 120 (2009)  
contentions that function as a “placeholder” for a further motion to be filed later are not allowed; CLI-16-11, 83 NRC 539-40 n.106 (2016)
- Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001)  
contention admission standards are strict by design and failure to fulfill any one of the requirements of 10 C.F.R. 2.309(f)(1) renders a contention inadmissible; CLI-16-5, 83 NRC 136 (2016)
- Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), CLI-07-27, 66 NRC 215, 222 n.21 (2007)  
NRC gives Council on Environmental Quality regulations substantial deference; LBP-16-7, 83 NRC 350 n.21 (2016)
- Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), CLI-07-27, 66 NRC 215, 238 (2007)  
NRC, as an independent agency, is not bound by Executive Order 12898, but voluntarily committed to undertake environmental justice reviews; LBP-16-5, 83 NRC 288 (2016)
- Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), CLI-07-27, 66 NRC 215, 240 (2007)  
general statement of policy does not establish a binding norm and is not finally determinative of the issues or rights to which it is addressed; LBP-16-5, 83 NRC 288-89 n.166 (2016)
- Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), LBP-07-9, 65 NRC 539, 559-60 *permit issuance authorized*, CLI-07-27, 66 NRC 215 (2007)  
boards need not rethink or redo every aspect of NRC Staff’s environmental findings or undertake their own fact-finding activities; LBP-16-4, 83 NRC 198 (2016)
- Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), LBP-07-9, 65 NRC 539, 583 (2007)  
boards have relied on exhibits authored by the party interposing objections in order to clarify and verify the party’s testimony and to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 406 (2016)
- Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), LBP-07-9, 65 NRC 539, 615, *permit issuance authorized*, CLI-07-27, 66 NRC 215 (2007)  
under amended 10 C.F.R. 52.21, early site permit applicant’s environmental report and NRC Staff’s environmental impact statement are not required to address benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP; LBP-16-4, 83 NRC 197 n.58 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 2), CLI-15-18, 82 NRC 135, 146 (2015)  
petitioner may not use its reply to raise new issues for the first time; CLI-16-5, 83 NRC 145 n.97 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-14-7, 80 NRC 1, 10 (2014)  
Commission directed NRC Staff to deny rulemaking petitioners’ collateral request to suspend licensing decisions on all other pending proceedings and directed Staff to seek Commission approval if it determined that suspension of NRC rules or the environmental assessments considering severe accident mitigation alternatives analyses would be necessary; CLI-16-2, 83 NRC 24 n.57 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-14-10, 80 NRC 157, 162-63 (2014)  
where a petition for review relies primarily on claims that the Board erred in weighing the evidence in a merits decision, Commission seldom grants review; CLI-16-13, 83 NRC 573 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535, 540 (2015)  
NEPA requirement to prepare an environmental impact statement ensures that decisionmakers will have available, and will carefully consider, detailed information concerning significant environmental impacts; CLI-16-3, 83 NRC 56 (2016)

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- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535, 540-41 (2015)  
NEPA requirement to prepare an environmental impact statement guarantees that the relevant information will be made available to the larger audience that may also play a role in the decisionmaking process; CLI-16-3, 83 NRC 56 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535, 543 (2015)  
preparation of a supplement to a final environmental impact statement is necessary if substantial changes in the proposed action or new and significant information presents a seriously different picture of the environmental impacts; CLI-16-3, 83 NRC 55 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535, 544 (2015)  
placeholder contentions are inadmissible; CLI-16-2, 83 NRC 23 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-13, 81 NRC 555, 560-61 (2015)  
combined license application is not reviewed de novo, but rather, the Commission considers whether NRC Staff's review of the application is sufficient to support the required findings; CLI-16-2, 83 NRC 19 (2016)
- DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-13, 81 NRC 555, 564 n.46 (2015)  
if the board were to allow a contention to remain pending for a year or more in anticipation of the draft SEIS, when no genuinely contested matter remained before it, the board would have acted counter to Commission direction that a board's jurisdiction terminates when the contested matters before it have been resolved; CLI-16-11, 83 NRC 539-40 n.106 (2016)  
licensing board's jurisdiction terminates when there are no longer any contested matters pending before it; CLI-16-11, 83 NRC 538 (2016)
- Dubois v. USDA*, 102 F.3d 1273, 1291 (1st Cir. 1996)  
one purpose of NEPA review is to ensure that the public who might be affected by the proposed project be fully informed of the proposal, its impacts, and all major points of view; LBP-16-8, 83 NRC 444 n.172 (2016)
- Duke Energy Carolinas, LLC* (William States Lee III Nuclear Station, Units 1 and 2), CLI-15-15, 81 NRC 803, 805 (2015), *appeal docketed*, No. 15-1262 (D.C. Cir. Aug. 7, 2015)  
placeholder contentions are inadmissible; CLI-16-2, 83 NRC 23 (2016)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 290 (2002)  
distinction between Category 1 and Category 2 issues during a license renewal is based on an extensive study of potential environmental consequences of operating a nuclear power plant for an additional 20 years; LBP-16-8, 83 NRC 439 (2016)
- 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)  
expansion plans would have to be in a sufficiently advanced stage to be considered a proposal for action that brings NEPA into play; CLI-16-13, 83 NRC 577 (2016)  
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); CLI-16-13, 83 NRC 575 (2016)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 8 (2002)  
arguments made and the support provided for those arguments and demonstration of a genuine dispute as to whether the SAMA analysis is reasonable under NEPA determine whether a SAMA contention is admissible; CLI-16-11, 83 NRC 534 (2016)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 8-11 (2002)  
contention asserting that applicant failed to consider results of a particular study in its SAMA analysis was admissible; CLI-16-11, 83 NRC 534 (2016)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 9-11 (2002)  
contentions that claim a failure to include an entire subject matter or study might be considered contentions of omission; CLI-16-11, 83 NRC 534 (2016)

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- 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)  
contentions that claim a failure to include an entire subject matter or study might be considered contentions of omission; CLI-16-11, 83 NRC 534 (2016)  
importance of distinction between contentions of adequacy and contentions of omission increases in the face of an argument that the contention has become moot; CLI-16-11, 83 NRC 534 n.62 (2016)  
whether a contention is characterized as one of omission or adequacy is a matter of degree; CLI-16-11, 83 NRC 534 (2016)
- 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)  
if an amended or new contention was not required in omission situations, an original contention alleging simply a failure to address a subject could readily be transformed without basis or support into a broad series of disparate new claims, which effectively would circumvent NRC contention-pleading standards; CLI-16-11, 83 NRC 539 (2016)  
if the board were to allow a contention to remain pending for a year or more in anticipation of the draft SEIS, when no genuinely contested matter remained before it, the board would have acted counter to Commission direction that a board's jurisdiction terminates when the contested matters before it have been resolved; CLI-16-11, 83 NRC 539-40 n.106 (2016)  
petitioner has little to do in response to a motion for summary disposition, aside from filing a new or amended contention that challenges the adequacy of SAMA analysis revisions; CLI-16-11, 83 NRC 539 (2016)
- Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 430-31 & n.60 (2003)  
whether NRC ultimately will require ice condenser plants to implement a hydrogen control SAMA would be determined as part of a then-ongoing generic safety review, outside of license renewal; CLI-16-10, 83 NRC 514 n.115 (2016)
- Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1049 (1983)  
NRC Staff bears the ultimate burden of proof for showing that it complied with NEPA; LBP-16-8, 83 NRC 431 (2016)
- Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3), LBP-82-81, 16 NRC 1128, 1134-35 (1982)  
if an adequate showing is made of withdrawal-associated harm to a party or the public interest in general, a licensing board can grant a withdrawal without prejudice, signifying no merits disposition was made and the application can be refiled, albeit with appropriate conditions to protect a party or the public interest; LBP-16-1, 83 NRC 104 (2016)  
purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 104 n.5 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-08-2, 67 NRC 31, 34-35 (2008)  
partial initial decisions are reviewable under 10 C.F.R. 2.341(b)(1) because they are considered final decisions; LBP-16-7, 83 NRC 415 n.551 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 297 (2010)  
at the summary disposition stage, the judge's function is not himself to weigh the evidence and determine the truth of the matter but to determine whether there is a genuine issue for hearing; LBP-16-3, 83 NRC 185 (2016)  
NRC standards governing summary disposition are based on those the federal courts apply to motions for summary judgment under Rule 56 of the Federal Rules of Civil Procedure; LBP-16-3, 83 NRC 176 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 297-98 (2010)  
if reasonable minds could differ as to the import of the evidence, summary disposition is not appropriate; LBP-16-3, 83 NRC 177 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 303 (2010)  
specific and thorough statements of an expert must be accepted as true; LBP-16-3, 83 NRC 182 (2016)

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- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 307 (2010)  
in a case with numerous factual issues and competing expert declarations, proceeding to an evidentiary hearing where factual claims appropriately can be weighed, clarified, and resolved with merits findings may be more efficient for all parties than granting summary disposition; LBP-16-3, 83 NRC 177 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315 (2010)  
although it is always possible to gather more data, at some point NRC Staff must move forward with decisionmaking; CLI-16-13, 83 NRC 583 (2016)  
environmental impact statement is not a research document reflecting the frontiers of scientific methodology, studies, and data; CLI-16-7, 83 NRC 323 (2016)  
NEPA does not require that unlimited resources be devoted to information gathering as long as the result is reasonable; CLI-16-13, 83 NRC 584 n.121 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-14, 71 NRC 449, 453-54 (2010)  
distinction between Category 1 and Category 2 issues during a license renewal is based on the underlying assumption that the nuclear power plant will continue operating under its current license requirements, including license conditions and technical specifications; LBP-16-8, 83 NRC 439 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-14, 71 NRC 449, 453-56 (2010)  
NRC safety review requirements and limited scope of the license renewal safety review are set forth in Part 54; CLI-16-10, 83 NRC 497 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208 (2010)  
NEPA requirements are tempered by a practical rule of reason; CLI-16-7, 83 NRC 326 (2016)  
under NEPA's rule of reason, 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; CLI-16-11, 83 NRC 532 n.45 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208-09 (2010)  
disclosures of any known shortcomings in available methodology and any incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these considerations credibly could or would alter the SAMA analysis conclusions, should be provided; CLI-16-7, 83 NRC 307 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208-09 & n.40 (2010)  
NEPA requires only a reasonably complete mitigation analysis; CLI-16-7, 83 NRC 323 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-28, 72 NRC 553, 554 (2010)  
licensing board is expected to make full use of its broad authority under the rules to establish and maintain a fair and disciplined hearing process, avoiding extensions of time absent good cause, unnecessary multiple rounds of briefs, or other unnecessary delay; CLI-16-11, 83 NRC 539 n.101 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 45-46 (2012)  
where a petition for review relies primarily on claims that the Board erred in weighing the evidence in a merits decision, Commission seldom grants review; CLI-16-13, 83 NRC 573 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 53-54 (2012)  
population dose risk and offsite economic cost risk are the key risk values of interest for determining for determining potentially cost-beneficial severe accident mitigation alternatives; CLI-16-7, 83 NRC 298 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 57 (2012)  
SAMA analysis computer modeling involves thousands of code inputs, and it will always be possible to conceive of yet another alternative input that could have been used, and in fact many different inputs and approaches may all be reasonable choices for the analysis; CLI-16-7, 83 NRC 306-07 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-3, 75 NRC 132, 145 n.86 (2012)  
affidavit that merely states that declarant has read and reviewed the contention and fully supports all of its statements fails to meet the affidavit requirements in 10 C.F.R. 2.326(b); LBP-16-6, 83 NRC 337 (2016)

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- boards are not expected to search the pleadings for information that would satisfy reopening requirements; LBP-16-6, 83 NRC 337 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 708 & n.12 (2012)
- SAMA analysis results are not based on either best-case or worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios, with an additional uncertainty analysis also performed; CLI-16-7, 83 NRC 297-98 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 NRC 704, 714 (2012)
- for any SAMA analysis it will always be possible to envision and propose some alternative approach, some additional detail to include, or some refinement; CLI-16-11, 83 NRC 532 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-21, 76 NRC 491, 498 (2012)
- motion to reopen must set forth information that is materially different from what was previously available; LBP-16-6, 83 NRC 334 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-21, 76 NRC 491, 498-99, 502 (2012)
- untimeliness alone is fatal to a motion to reopen; LBP-16-6, 83 NRC 337 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-21, 76 NRC 491, 501 n.67 (2012)
- exceptionally grave issue provision of 10 C.F.R. 2.326(a)(1) is a narrow exception and will be granted rarely and only in truly extraordinary circumstances; LBP-16-6, 83 NRC 336 (2016)
- Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), LBP-12-11, 75 NRC 731, 737 (2012)
- time for challenging applicant's environmental report passes when NRC Staff releases its draft supplemental environmental impact statement; LBP-16-6, 83 NRC 336 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-08-7, 67 NRC 187, 191 (2008)
- appeal as of right is reserved for situations where a petition is denied in its entirety, therefore having the effect of wholly refusing a petitioner entry into a proceeding; CLI-16-1, 83 NRC 6-7 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-08-7, 67 NRC 187, 192 (2008)
- introduction of exhibits in order to question witnesses and better understand their testimony falls within the board's general authority to regulate the course and conduct of the proceeding; LBP-16-7, 83 NRC 407-08 (2016)
- routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain; CLI-16-1, 83 NRC 8 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-12-18, 76 NRC 371, 376 (2012)
- boards are to ensure that the case record has adequate information for a reasoned decision to be issued on the contested matters; LBP-16-7, 83 NRC 405 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 354-55 (2015)
- Commission defers to board's judgment on whether a proposed contention has a sufficient factual basis to be admitted for hearing; CLI-16-13, 83 NRC 574, 578 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 356 (2015)
- as a guidance document, NUREG-1555 is entitled to special weight in NRC proceedings; LBP-16-8, 83 NRC 432 n.98 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 369 (2015)
- Executive Order 12898 does not, in itself, create new substantive authority for federal agencies, and therefore, NRC determined that it would endeavor to carry out these environmental justice principles as part of the agency's responsibilities under NEPA; LBP-16-5, 83 NRC 288 (2016)
- federal agencies are directed to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations; LBP-16-5, 83 NRC 288 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 369-70 (2015)
- NRC committed to consider, in NEPA reviews, factors peculiar to minority and low-income populations and to identify significant impacts, if any, that will fall disproportionately on minority and low-income communities due to these factors; LBP-16-5, 83 NRC 289 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 370 (2015)
- NRC Staff developed its own guidance, using the Council on Environmental Quality's guidelines for implementing environmental justice as a reference; LBP-16-5, 83 NRC 289 (2016)

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- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 387-88 (2015)  
Commission and licensing board decisions can supplement the NEPA analysis to correct its deficiencies; CLI-16-13, 83 NRC 604 (2016)  
licensing board's findings and conclusions are deemed to amend NRC Staff's NEPA documents and become the agency record of decision on those matters; LBP-16-8, 83 NRC 447 n.197 (2016)  
when a hearing is held on a proposed action, the initial decision of the presiding officer or the final decision of the Commissioners acting as a collegial body will constitute the record of decision; CLI-16-13, 83 NRC 595 n.186 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 388 (2015)  
board's hearing, hearing record, and subsequent decision on a contested environmental matter augment the environmental record of decision developed by NRC Staff; CLI-16-13, 83 NRC 595 (2016)  
environmental record of decision may be supplemented by the hearing and relevant board and Commission decisions; LBP-16-8, 83 NRC 447 n.196 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-15-6, 81 NRC 340, 388 n.258 (2015)  
factual findings in an evidentiary dispute are based on a preponderance of the evidence; LBP-16-8, 83 NRC 431 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-16-7, 83 NRC 293, 307 (2016)  
NEPA's information-disclosure purpose was not satisfied because input values were not meaningfully addressed in the final supplemental environmental impact statement or the board's decision; LBP-16-8, 83 NRC 446 n.193 (2016)
- Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-16-7, 83 NRC 293, 328 (2016)  
NEPA documents must respond with appropriate scrutiny and reasoned explanations to opposing views, which includes being able to explain and make available underlying assumptions in NRC's environmental analyses; LBP-16-8, 83 NRC 444 n.173 (2016)  
responding with appropriate scrutiny and reasoned explanations to opposing views is a NEPA requirement which includes being able to explain and make available underlying assumptions in environmental analyses; LBP-16-7, 83 NRC 404 (2016)
- Entergy Nuclear Operations, Inc.* (Palisades Nuclear Plant), CLI-08-19, 68 NRC 251, 260 n.23 (2008)  
although the Commission abolished the Atomic Safety and Licensing Appeal Board Panel in 1991, its decisions still carry precedential weight; CLI-16-1, 83 NRC 7 n.22 (2016)
- Entergy Nuclear Operations, Inc.* (Palisades Nuclear Plant), CLI-15-22, 82 NRC 310, 320 (2015)  
board appropriately reviewed support provided for contention and determined that it did not apply to the circumstances presented; CLI-16-5, 83 NRC 137 n.35 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-07-1, 65 NRC 1, 4-5 (2007)  
Commission may exercise its inherent supervisory authority over adjudications to review on its own motion an issue not otherwise properly before it on appeal in sufficiently significant circumstances; CLI-16-1, 83 NRC 8-9 n.32 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Plant), CLI-10-17, 72 NRC 1, 30 (2010)  
Commission does not consider cursory, unexplained legal arguments on appeal and will not speculate about what a pleading is supposed to mean; CLI-16-13, 83 NRC 592 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 49 (2010)  
Congress specifically created licensing boards to serve as a panel of experts; LBP-16-7, 83 NRC 405 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 45 n.246 (2010)  
pleadings submitted by pro se petitioners are afforded greater leniency than petitions drafted with the assistance of counsel; LBP-16-5, 83 NRC 272 n.62 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 49-50 (2010)  
Congress specifically created licensing boards to serve as a panel of experts that brings all of the accumulated knowledge possessed by both technical members to bear on the questions before it; LBP-16-7, 83 NRC 405, 408 (2016)



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- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 50 (2010)  
board is required to consider, probe, and understand the evidence offered in the proceeding; LBP-16-7, 83 NRC 405 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-15-20, 82 NRC 211, 230 (2015)  
when petitioners bring claims that are not susceptible to adjudication, the Commission frequently directs them toward other processes or government agencies; CLI-16-6, 83 NRC 159 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-15-20, 82 NRC 211, 230 n.40 (2015)  
section 2.206 provides a process for stakeholders to advance concerns and obtain full or partial relief, or written reasons why the requested relief is not warranted; LBP-16-6, 83 NRC 338 (2016)
- Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-04-28, 60 NRC 548, 553-54 (2004)  
in a power uprate proceeding, representational standing was granted to an organization with members who lived within 15 miles of the plant; LBP-16-5, 83 NRC 275-76 (2016)
- Env'tl. Def. Fund, Inc. v. U.S. Army Corps of Eng'rs*, 492 F.2d 1123, 1136 (5th Cir. 1974)  
environmental impact statement must be sufficient to enable those who did not have a part in its compilation to understand and consider meaningfully the factors involved; LBP-16-8, 83 NRC 437 n.130 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 27-29 (2005)  
hearing on an early site permit application is required by statute regardless of whether the application is opposed; LBP-16-4, 83 NRC 199 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 34 (2005)  
licensing boards are expected to conduct mandatory hearings on uncontested issues to take an independent hard look at NRC Staff safety and environmental findings, but are not to replicate NRC Staff work; LBP-16-4, 83 NRC 191 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 34-36 (2005)  
Commission does not review construction permit application for a medical radioisotope production facility de novo, but rather considers the sufficiency of NRC Staff's review; CLI-16-4, 83 NRC 64 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 39 (2005)  
giving appropriate deference to NRC Staff technical expertise, boards are to probe the logic and evidence supporting NRC Staff findings and decide whether those findings are sufficient to support license issuance; LBP-16-4, 83 NRC 197-98 (2016)  
licensing board's responsibility in a mandatory hearing on an early site permit is analogous to the function of an appellate court, applying the substantial evidence test, although it is imperfect because the ASLB looks not only to the information in the record, but also to the thoroughness of the review that the Staff has given it; LBP-16-4, 83 NRC 197 n.60 (2016)  
licensing boards are not expected to conduct a de novo review of safety or environmental issues, but rather a simple sufficiency review of uncontested issues in the mandatory hearing on an early site permit; LBP-16-4, 83 NRC 197 (2016)  
licensing boards should conduct a simple sufficiency review of uncontested issues in the uncontested hearing, not a de novo review; LBP-16-4, 83 NRC 191 (2016)  
licensing boards should inquire whether NRC Staff performed an adequate review of the early site permit application and made findings with reasonable support in logic and fact; LBP-16-4, 83 NRC 197 n.60 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 39-40 (2005)  
NRC Staff's underlying technical and factual findings are not open to board reconsideration unless, after a review of the record, the board finds the NRC Staff review inadequate or its findings insufficient; LBP-16-4, 83 NRC 198 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 40 (2005)  
licensing board's role in a mandatory early site permit proceeding is to carefully probe NRC Staff findings by asking appropriate questions and by requiring supplemental information when necessary; LBP-16-4, 83 NRC 198 (2016)

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- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 41 (2005)  
licensing boards have an important but limited role in mandatory proceedings, in which the only parties are applicant and NRC Staff; LBP-16-4, 83 NRC 191 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 42-43 (2005)  
Atomic Energy Act does not prescribe a specific structure for a mandatory hearing, and the Commission has allowed licensing boards flexibility to select the most appropriate approach in the circumstances of each individual case; LBP-16-4, 83 NRC 199 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 44 (2005)  
boards need not rethink or redo every aspect of NRC Staff's environmental findings or undertake their own fact-finding activities; LBP-16-4, 83 NRC 198 n.62 (2016)  
in reaching judgment regarding NEPA issues, licensing boards are to ensure that the demands of NEPA and NRC regulations are met through independent environmental judgments by NRC licensing boards; LBP-16-4, 83 NRC 198 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 45 (2005)  
in reaching its independent judgment regarding NEPA issues, licensing boards are not to second-guess underlying technical or factual findings by the NRC Staff; LBP-16-4, 83 NRC 198 (2016)  
licensing board's NEPA review must not be so intrusive or detailed as to involve the board in independent basic research or a duplication of the analysis previously performed by the Staff; LBP-16-4, 83 NRC 198 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 47 (2005)  
under amended 10 C.F.R. 52.21, early site permit applicant's environmental report and NRC Staff's environmental impact statement are not required to address benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP; LBP-16-4, 83 NRC 197 n.58 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 808 (2005)  
petitioner cannot satisfy contention admission requirements of 10 C.F.R. 2.309(f)(1) by mere notice pleading; CLI-16-5, 83 NRC 136 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005)  
board must determine whether NRC Staff took a hard look at the potential environmental impacts of the licensing actions and adequately justified its conclusions; LBP-16-8, 83 NRC 431, 441 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-06-20, 64 NRC 15, 21-22 (2006)  
mandatory hearing board must narrow its inquiry to those topics or sections in Staff documents that it deems most important and should concentrate on portions of the documents that do not on their face adequately explain the logic, underlying facts, and applicable regulations and guidance; LBP-16-4, 83 NRC 200 (2016)  
NRC Staff need not produce copies of every document used in its review when the board cannot possibly read through every one, let alone scrutinize them; LBP-16-4, 83 NRC 200 (2016)  
NRC Staff need not produce volumes of documents and information supporting facts and conclusions that are of small importance and are beyond dispute; LBP-16-4, 83 NRC 200 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-07-12, 65 NRC 203, 205 (2007)  
early site permit is a partial construction permit; LBP-16-4, 83 NRC 190-91 (2016)  
early site permit is not an authorization to construct or operate a nuclear power plant, but rather relates only to site suitability; LBP-16-4, 83 NRC 190-91 (2016)
- Exelon Generation Co., LLC* (Limerick Generating Station, Units 1 and 2), CLI-12-19, 76 NRC 377, 380 (2012)  
contention may not challenge an agency rule or regulation in any adjudicatory proceeding absent a waiver; CLI-16-12, 83 NRC 564 (2016)
- Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), LBP-06-28, 64 NRC 460, 467-68 (2006), *permit issuance authorized*, CLI-07-12, 65 NRC 203 (2007)  
early site permit applicant is not required to select a specific unit design at the ESP stage; LBP-16-4, 83 NRC 192 n.14 (2016)  
under amended 10 C.F.R. 52.21, early site permit applicant's environmental report and NRC Staff's environmental impact statement are not required to address benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP; LBP-16-4, 83 NRC 197 n.58 (2016)

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- Exelon Generation Co., LLC* (Peach Bottom Atomic Power Station, Units 2 and 3), CLI-05-26, 62 NRC 577, 580 (2005)  
appropriate radius for claims of proximity-based standing is decided on a case-by-case basis; LBP-16-5, 83 NRC 275 (2016)  
if proximity standing applies, petitioner need not expressly establish traditional standing elements of injury, causation, or redressability; LBP-16-5, 83 NRC 276 n.91 (2016)
- Exelon Generation Co., LLC* (Peach Bottom Atomic Power Station, Units 2 and 3), CLI-05-26, 62 NRC 577, 581 (2005)  
Commission has rejected proximity standing for license transfers; LBP-16-5, 83 NRC 274-75 (2016)  
petitioner has the burden to show that the proximity presumption should apply; LBP-16-5, 83 NRC 269 (2016)  
petitioners living or having frequent contacts or a property interest within 50 miles of a nuclear power reactor may establish standing without the need to make an individualized showing of injury, causation, and redressability; LBP-16-5, 83 NRC 267 (2016)
- Exelon Generation Co., LLC* (Peach Bottom Atomic Power Station, Units 2 and 3), CLI-05-26, 62 NRC 577, 582 (2005)  
there are limits to proximity standing when there are no changes to the physical plant itself, its operating procedures, design basis accident analysis, management, or personnel; LBP-16-5, 83 NRC 274 (2016)
- Exelon Nuclear Texas Holdings, LLC* (Victoria County Station Site), LBP-12-20, 76 NRC 215, 216 (2012)  
motion to withdraw application without prejudice is granted where no harm accrues to the public or other parties and is unopposed by intervenors and NRC Staff; LBP-16-1, 83 NRC 105 (2016)
- Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003)  
petitioner's issue will be ruled inadmissible if petitioner has offered no tangible information, no experts, no substantive affidavits, but instead only bare assertions and speculation; LBP-16-5, 83 NRC 283 n.127 (2016)
- Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 205 (2003)  
providing any material or document as a basis for a contention, without setting forth an explanation of its significance, is inadequate to support its admission; LBP-16-5, 83 NRC 283 (2016)
- FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 397 (2012)  
contentions that fail to meet admissibility standards in 10 C.F.R. 2.309(f)(1) or conflict with case law will be dismissed; CLI-16-11, 83 NRC 528 (2016)  
energy alternatives contention in license renewal proceeding must provide facts or expert opinion sufficient to raise a genuine dispute as to whether the proposed alternative technology (or combination of technologies) is currently commercially viable, or will become so in the near term to supply baseload power; CLI-16-11, 83 NRC 528 (2016)
- FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 406-07 (2012)  
arguments made and the support provided for those arguments and demonstration of a genuine dispute as to whether the SAMA analysis is reasonable under NEPA determines whether a SAMA contention is admissible; CLI-16-11, 83 NRC 534 (2016)
- FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-8, 75 NRC 393, 407 (2012)  
unless petitioner sets forth a supported contention pointing to an apparent error or deficiency that may have significantly skewed the environmental conclusions in the SAMA analysis, there is no genuine material dispute for hearing; CLI-16-11, 83 NRC 532 (2016)
- Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), CLI-14-11, 80 NRC 167, 173 (2014)  
licensee cannot amend the terms of its license unilaterally; CLI-16-9, 83 NRC 487 n.94 (2016)  
references to NRC documents and correspondence in an internal licensee document cannot, and do not, transform FSAR revision into a request for NRC approval, nor do they represent alterations to the license in and of themselves; CLI-16-9, 83 NRC 487 n.94 (2016)
- Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), CLI-14-11, 80 NRC 167, 174 (2014)  
regulatory oversight activities such as inspection results, administrative and enforcement actions, informational meetings, and technical reports and memoranda support ongoing Staff oversight

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- activities performed to ensure compliance with requirements and a plant's current licensing basis; CLI-16-9, 83 NRC 474 (2016)
- Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), CLI-14-11, 80 NRC 167, 174-75 (2014)
- series of communications associated with replacement of a steam generator that pertained to the NRC's oversight of the facility does not constitute an ongoing de facto license amendment proceeding; CLI-16-9, 83 NRC 475 (2016)
- Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), CLI-14-11, 80 NRC 167, 175 (2014)
- NRC oversight activities gathering information about and evaluating plant performance do not amend a license and therefore cannot form the basis for the right to request a hearing; CLI-16-9, 83 NRC 485 (2016)
- Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Units 1 and 2), CLI-89-21, 30 NRC 325, 329 (1989)
- impact of an amendment on worker safety does not qualify for proximity-based standing; LBP-16-5, 83 NRC 276 n.92 (2016)
- living within a specific distance from the plant is enough to confer standing on an individual or group in proceedings for construction permits, operating licenses, or significant amendments thereto; LBP-16-5, 83 NRC 267 n.27 (2016)
- Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Units 1 and 2), CLI-89-21, 30 NRC 325, 329-30 (1989)
- Commission has rejected proximity standing for certain changes to worker-protection requirements; LBP-16-5, 83 NRC 275 (2016)
- Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 9 (2001)
- distinction between Category 1 and Category 2 issues during a license renewal is based on the underlying assumption that the nuclear power plant will continue operating under its current license requirements, including license conditions and technical specifications; LBP-16-8, 83 NRC 439 (2016)
- Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 11 (2001)
- Category 2 issues require a plant-specific review of all environmental issues for which NRC was not able to make environmental findings on a generic basis; LBP-16-8, 83 NRC 439 (2016)
- Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 15 (2001)
- pleadings submitted by pro se petitioners are afforded greater leniency than petitions drafted with the assistance of counsel; LBP-16-5, 83 NRC 272 n.62 (2016)
- Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 148 (2001)
- for the proximity presumption to apply in license amendment proceedings, the proposed amendment must obviously entail an increased potential for offsite consequences; LBP-16-5, 83 NRC 268 (2016)
- Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-08-18, 68 NRC 533, 539 (2008)
- for the proximity presumption to apply in license amendment proceedings, the proposed amendment must obviously entail increased potential for offsite consequences; LBP-16-5, 83 NRC 268 (2016)
- Friends of the Earth, Inc. v. Laidlaw Envtl. Servs., Inc.*, 528 U.S. 167, 189 (2000)
- defendant's voluntary cessation of a challenged practice does not deprive a federal court of its power to determine the legality of the practice; CLI-16-6, 83 NRC 156 n.48 (2016)
- "voluntary cessation" exception is intended to prevent a party from evading review by taking temporary action to preclude a possible adverse decision; CLI-16-6, 83 NRC 156 n.48 (2016)
- Friends of the River v. Fed. Energy Regulatory Comm'n*, 720 F.2d 93, 106 (D.C. Cir. 1983)
- licensing board's findings and conclusions are deemed to amend NRC Staff's NEPA documents and become the agency record of decision on those matters; LBP-16-8, 83 NRC 447 n.197 (2016)

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- Friends of the Wild Swan v. Weber*, 767 F.3d 936, 942 (9th Cir. 2014)  
NEPA ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process as well as provide sufficient evidence and analysis to determine the reasonableness of the decision not to prepare an EIS; LBP-16-8, 83 NRC 435 (2016)
- Geders v. United States*, 425 U.S. 80, 87 (1976)  
courts routinely exclude witnesses prior to their testimony not only to discourage or expose outright fabrication, but also to exercise a restraint on the natural tendency of witnesses to tailor their testimony to that of earlier witnesses; LBP-16-4, 83 NRC 210 n.169 (2016)
- GE-Hitachi Global Laser Enrichment LLC* (GLE Commercial Facility), LBP-12-21, 76 NRC 218, 248 n.171 (2012)  
because members of licensing boards themselves must read challenged testimony to determine whether its probative value is substantially outweighed by the danger of unfair prejudice or confusion of the issues, excluding evidence on this ground has little practical effect; LBP-16-4, 83 NRC 211 n.171 (2016)  
hearing process bogged down by time-consuming evidentiary motions of questionable value should be avoided; LBP-16-7, 83 NRC 405 (2016)
- GE-Hitachi Global Laser Enrichment LLC* (GLE Commercial Facility), LBP-12-21, 76 NRC 218, 249-50 (2012)  
courts routinely exclude witnesses prior to their testimony not only to discourage or expose outright fabrication, but also to exercise a restraint on the natural tendency of witnesses to tailor their testimony to that of earlier witnesses; LBP-16-4, 83 NRC 210 n.169 (2016)
- Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995)  
for standing purposes, NRC does not rule on disputes of fact but reads the petition in the light most favorable to petitioner; CLI-16-6, 83 NRC 163 (2016)  
under contemporaneous judicial concepts of standing applied in NRC proceedings, petitioner must allege a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision; LBP-16-5, 83 NRC 267 (2016)  
when evaluating whether petitioner has established standing, licensing board is to construe the intervention petition in favor of petitioner; LBP-16-5, 83 NRC 269 (2016)
- Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 116 (1995)  
proximity presumption is intended to be applied across the board to all proceedings regardless of type because the underlying rationale is not based on the type of proceeding per se but on whether the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences; LBP-16-5, 83 NRC 268 n.33 (2016)
- Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 117 (1995)  
Commission rejected an appeal that sought to disturb a standing determination where a research reactor licensee argued that the hypothetical scenarios underlying the proximity presumption were incredible because they would first require three independent safety systems to fail; LBP-16-5, 83 NRC 270 (2016)
- GPU Nuclear, Inc.* (Oyster Creek Nuclear Generating Station), CLI-00-6, 51 NRC 193, 207 (2000)  
NRC does not assume that licensee will ignore its obligations; CLI-16-13, 83 NRC 597 (2016)
- Ground Zero Ctr. for Non-Violent Action v. U.S. Dep't of the Navy*, 383 F.3d 1082, 1090 (9th Cir. 2004)  
agencies may exclude from consideration those impacts that are not reasonably foreseeable, but are remote and speculative; LBP-16-7, 83 NRC 351 (2016)
- Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-329, 3 NRC 607, 610-11 (1976)  
decision to deny petition for section 2.309 party status but grant a petition for section 2.315(c) interested participant status does nothing to affect the entity's status in the proceeding; CLI-16-1, 83 NRC 10 (2016)  
interlocutory review was denied to interested state that attempted to appeal dismissal of particular issues it sought to litigate; CLI-16-1, 83 NRC 7 (2016)

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- Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-329, 3 NRC 607, 611 (1976)  
sole practical consequence of denying state's participation to intervene but granting its request to participate as an interested state was that the scope of the health and safety hearing would not be further broadened to encompass the additional issues that the state sought to inject into it; CLI-16-1, 83 NRC 10 (2016)
- Gunpowder Riverkeeper v. Fed. Energy Regulatory Comm'n*, 807 F.3d 267, 276 (D.C. Cir. 2015)  
NEPA casts a wide net with respect to those impacts that an agency must assess in its environmental review; LBP-16-7, 83 NRC 351 (2016)
- Hanly v. Kleindienst*, 471 F.2d 823, 831 (2d Cir. 1972)  
purpose of a cumulative effects analysis is to consider whether a small change will worsen an already bad situation, like the proverbial straw that broke the camel's back; LBP-16-8, 83 NRC 444-45 & n.179 (2016)
- Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), CLI-13-1, 77 NRC 1, 10 (2013)  
exemption standing alone does not give rise to an opportunity for hearing, but when licensee requests an exemption in a related license amendment application, hearing rights on the amendment application are considered to encompass the exemption request as well; CLI-16-12, 83 NRC 549 n.32 (2016)
- Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), CLI-13-1, 77 NRC 1, 18-19 (2013)  
Commission reviews questions of law de novo and defers to board findings with respect to the underlying facts unless the findings are clearly erroneous; CLI-16-13, 83 NRC 573 (2016)
- Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-799, 21 NRC 360, 382 (1985)  
when only a single intervenor is participating, its withdrawal serves to bring the proceeding to an end; LBP-16-2, 83 NRC 113 (2016)
- Hughes River Watershed Conservancy v. Johnson*, 165 F.3d 283, 288 (4th Cir. 1999)  
NEPA's hard look requires informed and reasoned decisionmaking in which the agency obtains opinions from its own experts and from experts outside the agency, and gives careful scientific scrutiny and response to all legitimate concerns that are raised; LBP-16-7, 83 NRC 351 (2016)
- Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-00-8, 51 NRC 227, 241 (2000)  
Commission disfavors imposing a draconian remedy when less drastic relief will suffice; LBP-16-7, 83 NRC 413 (2016)
- Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 53 (2001)  
environmental impact statements are modified by any subsequent board or Commission decision; CLI-16-13, 83 NRC 595 n.186 (2016)
- Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 55 (2001)  
only energy alternatives that are reasonable and will bring about the ends of the proposed action need to be discussed in the environmental report; CLI-16-11, 83 NRC 530 n.33 (2016)
- Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 60 (2001)  
agencies must consider environmental effects that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions with the goal of making sure that individually minor but collectively significant actions are properly analyzed; LBP-16-8, 83 NRC 445 (2016)
- Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-04-39, 60 NRC 657, 659 (2004)  
preparation of a supplement to a final environmental impact statement is necessary if substantial changes in the proposed action or new and significant information presents a seriously different picture of the environmental impacts; CLI-16-3, 83 NRC 55 (2016)
- Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), CLI-06-1, 63 NRC 1, 6 (2006)  
conducting the more detailed post-licensing analysis to establish definitively the groundwater quality baselines and upper control limits is consistent with industry practice and NRC methodology, and this analysis cannot be completed until after licensing, when an in situ leach wellfield has been installed; CLI-16-13, 83 NRC 582 (2016)

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- Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), CLI-06-29, 64 NRC 417, 426 (2006)  
environmental impact statement must discuss mitigation measures in sufficient detail to satisfy the NEPA hard look standard; LBP-16-8, 83 NRC 441 n.160 (2016)
- Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-05-26, 62 NRC 442, 472 (2005)  
satisfying NEPA means satisfying, at a minimum, the NHPA's Identification Obligations and even going further in certain cases; LBP-16-7, 83 NRC 402 (2016)
- 'Ilio'ulaokalani Coal v. Rumsfeld*, 464 F.3d 1083, 1101 (9th Cir. 2006)  
NEPA requires an agency to do more than to scatter its evaluation of environmental damage among various public documents; LBP-16-8, 83 NRC 435 n.118 (2016)
- International Uranium (USA) Corp.* (Receipt of Additional Material from Tonawanda, New York), LBP-00-11, 51 NRC 178, 180 (2000)  
when only a single intervenor is participating, its withdrawal serves to bring the proceeding to an end; LBP-16-2, 83 NRC 113 (2016)
- International Uranium (USA) Corp.* (White Mesa Uranium Mill), CLI-01-21, 54 NRC 247, 250-51 (2001)  
requirements for an organization to show representational standing are outlined; LBP-16-2, 83 NRC 112-13 (2016)
- International Uranium (USA) Corp.* (White Mesa Uranium Mill), CLI-01-21, 54 NRC 247, 252 (2001)  
organization seeking standing in its own right must establish a discrete institutional injury to the organization's interests, which must be based on something more than a general environmental or policy interest in the subject matter of the proceeding; LBP-16-2, 83 NRC 113 n.32 (2016)
- International Uranium (USA) Corp.* (White Mesa Uranium Mill), CLI-02-10, 55 NRC 251, 255-56 (2002)  
whether petitioner is ultimately correct on the merits is generally a distinct issue from the threshold question of standing for purposes of the proximity presumption; LBP-16-5, 83 NRC 270 (2016)
- International Uranium (USA) Corp.* (White Mesa Uranium Mill), LBP-97-12, 46 NRC 1, 6 (1997)  
requirements for an organization to show representational standing are outlined; LBP-16-2, 83 NRC 112-13 (2016)
- Isle Royale Boaters Ass'n v. Norton*, 154 F. Supp. 2d 1098, 1128 (W. D. Mich. 2001), *aff'd*, 330 F.3d 777 (6th Cir. 2003)  
environmental impact statement may rely on external materials if the materials are reasonably available, statements in the Final Statement are understandable without undue cross-reference, and incorporation by reference meets a general standard of reasonableness; LBP-16-8, 83 NRC 434 n.114 (2016)
- Izaak Walton League of America v. Marsh*, 655 F.2d 346, 368-69 (D.C. Cir. 1981)  
environmental impact statement must be sufficient to enable those who did not have a part in its compilation to understand and consider meaningfully the factors involved; LBP-16-8, 83 NRC 437 n.130 (2016)
- Jones v. Nat'l Marine Fisheries Serv.*, 741 F.3d 989, 998 (9th Cir. 2013)  
agency may incorporate data underlying an environmental assessment by reference; LBP-16-8, 83 NRC 432 n.98 (2016)  
EA or EIS is to provide not merely the agency's general conclusions but all relevant considerations that went into reaching those conclusions such as the underlying data; LBP-16-7, 83 NRC 351 (2016)
- Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-279, 1 NRC 559, 576 (1975)  
Commission does not consider cursory, unexplained legal arguments on appeal and will not speculate about what a pleading is supposed to mean; CLI-16-13, 83 NRC 592 (2016)
- Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1078 (9th Cir. 2002)  
restricted cumulative impacts analysis would impermissibly subject the decisionmaking process contemplated by NEPA to the tyranny of small decisions; LBP-16-8, 83 NRC 445 n.181 (2016)
- Kerr-McGee Chemical Corp.* (Kress Creek Decontamination), ALAB-885, 27 NRC 59, 69 (1988)  
by introducing potentially relevant background information in board exhibits, the board ensures that this information is easily available for public and appellate review, fulfilling the spirit of NEPA's disclosure goals and the NRC's transparency requirements; LBP-16-7, 83 NRC 409 (2016)

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- Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232, 246 (1982), *aff'd*, *City of West Chicago v. NRC*, 701 F.2d 632 (7th Cir. 1983)  
mandatory, or uncontested, hearing is conducted for a production or utilization facility in which applicant and NRC Staff are the parties; LBP-16-1, 83 NRC 105 n.6 (2016)
- Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), CLI-96-2, 43 NRC 13, 15 (1996)  
decision to vacate does not intimate any opinion on a decision's soundness; CLI-16-8, 83 NRC 470 n.41 (2016)
- Kleppe v. Sierra Club*, 427 U.S. 390, 410 & n.20 (1976)  
NEPA does not require an agency to consider the possible environmental impacts of less imminent actions when preparing the environmental impact statement on proposed actions; CLI-16-13, 83 NRC 575 (2016)
- League of Wilderness Defs./Blue Mountains Biodiversity Project v. Connaughton*, 752 F.3d 755, 761, 767 (9th Cir. 2014)  
where an agency fails to comply with procedural statutes such as NEPA or the NHPA, an injunction is sometimes the proper recourse; LBP-16-7, 83 NRC 412 (2016)
- League of Wilderness Defs./Blue Mountains Biodiversity Project v. Connaughton*, No. 3:12-CV-02271-HZ, 2014 WL 6977611, at \*16 (D. Or. Dec. 9, 2014)  
agency may not discharge its obligation to provide the public with analysis of the environmental impacts of a project simply by incorporating documents by reference; LBP-16-8, 83 NRC 434 n.114 (2016)
- Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 739, 745 (3d Cir. 1989)  
agencies may exclude from consideration those impacts that are not reasonably foreseeable, but are remote and speculative; LBP-16-7, 83 NRC 351 (2016)  
hard look requirement is subject to a rule of reason; LBP-16-7, 83 NRC 351 (2016)
- Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 290 (1988)  
NRC Staff guidance documents such as standard review plans are entitled to special weight; CLI-16-13, 83 NRC 582 n.104 (2016)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 84 (1998)  
board reformulation of the contention reflects the fact that, although the contention originally was filed based on the environmental report, the information in the DEIS is sufficiently similar to the information in the ER that the remaining aspect of the contention constitutes a viable challenge to the adequacy of the DEIS; LBP-16-3, 83 NRC 186 n.34 (2016)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998)  
board must determine whether NRC Staff took a hard look at the potential environmental impacts of the licensing actions and adequately justified its conclusions; LBP-16-8, 83 NRC 431 (2016)  
NEPA obligates each federal agency to take a hard look at the environmental impacts of its actions and disclose potential environmental impacts before proceeding with a planned action; LBP-16-7, 83 NRC 351 (2016)
- Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 89 (1998)  
licensing board's factual findings, as well as the adjudicatory record, become, in effect, part of the final NEPA document; LBP-16-7, 83 NRC 352 (2016)  
NRC Staff must present credible arguments to cure its deficient EA at an evidentiary hearing; LBP-16-7, 83 NRC 403 (2016)  
where an adjudicatory hearing tests the adequacy of an EA or EIS, evidence adduced at the hearing may cure a defective NEPA document because in contested proceedings with a hearing, a licensing board creates the final record of decision under NEPA; LBP-16-7, 83 NRC 351-52 (2016)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 224-25 (2004)  
petitioner may not use its reply to raise new issues for the first time; CLI-16-5, 83 NRC 145 n.97 (2016)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 225 (2004)  
petitioner is confined to the contention as initially filed and may not rectify its deficiencies through its reply brief or on appeal; CLI-16-5, 83 NRC 137 n.33 (2016)



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- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619 (2004)  
as used in section 2.315(c), the phrase “that has not been admitted as a party under section 2.309” means that an entity cannot be admitted as an interested participant under section 2.315(c) if it is already admitted as a party under section 2.309; CLI-16-1, 83 NRC 11 (2016)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619, 627 (2004)  
interested government participating under section 2.315(c) may participate on any admitted contentions; CLI-16-1, 83 NRC 7 (2016)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-28, 62 NRC 721, 723 (2005)  
where board’s factual finding resolved two competing technical opinions, the Commission ordinarily defers to the board’s judgment; CLI-16-13, 83 NRC 599 (2016)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-06-15, 63 NRC 687, 707 n.91 (2006)  
Commission decision becomes part of, and serves to supplement, the environmental record of decision; CLI-16-7, 83 NRC 328 (2016); CLI-16-10, 83 NRC 522 (2016)
- Louisiana Energy Services, L.P.* (National Enrichment Facility), LBP-05-13, 61 NRC 385, 404 (2005), *aff’d*, CLI-06-22, 64 NRC 37 (2006)  
final record of decision under NEPA is the entire adjudicatory record in addition to the environmental assessment or environmental impact statement; LBP-16-7, 83 NRC 352 (2016)
- Lujan v. Defs. of Wildlife*, 504 U.S. 555, 559-61 (1992)  
to establish standing, petitioner must demonstrate a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision, where the injury is to an interest arguably within the zone of interests protected by the governing statute; CLI-16-6, 83 NRC 162 (2016)
- Lujan v. Defs. of Wildlife*, 504 U.S. 555, 561 (1992)  
at the pleading stage, general factual allegations of injury resulting from defendant’s conduct may suffice, and the court presumes that general allegations embrace the specific facts that are necessary to support the claim; LBP-16-5, 83 NRC 270 (2016)  
it is generally sufficient if petitioner provides plausible factual allegations that satisfy each element of standing; LBP-16-5, 83 NRC 269 (2016)
- Luminant Generation Co., LLC* (Comanche Peak Nuclear Power Plant, Units 3 and 4), CLI-11-9, 74 NRC 233, 243-44 (2011)  
intervenor has the burden to demonstrate admissibility of their contention, including establishing a factual predicate for its claims; CLI-16-13, 83 NRC 578 (2016)
- Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), LBP-82-4, 15 NRC 199, 206 (1982)  
petitioner must provide sufficient detail for proposed contentions to demonstrate that the issues raised are admissible and that further inquiry is warranted; LBP-16-2, 83 NRC 111 (2016)
- Marble Mountain Audubon Soc’y v. Rice*, 914 F.2d 179, 182 (9th Cir. 1990)  
agency must set forth a reasoned explanation for its decision and cannot simply assert that its decision will have an insignificant effect on the environment; LBP-16-8, 83 NRC 442 n.163 (2016)
- Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 378 (1989)  
judicial review requires courts to ensure that agency decisions are founded on a reasoned evaluation of the relevant factors; LBP-16-8, 83 NRC 446-47 & n.195 (2016)
- Massachusetts v. NRC*, 708 F.3d 63, 67 (1st Cir. 2013)  
NEPA seeks to guarantee process, not specific outcomes; CLI-16-10, 83 NRC 510 n.91 (2016)
- Massachusetts v. NRC*, 708 F.3d 63, 78 (1st Cir. 2013)  
NEPA seeks to guarantee process, not any specific outcomes; CLI-16-7, 83 NRC 328 (2016)
- Massachusetts v. NRC*, 708 F.3d 63, 81 n.27 (1st Cir. 2013)  
NRC need not require certain mitigation measures under NEPA because NEPA is not outcome-driven; CLI-16-10, 83 NRC 510 (2016)
- Massachusetts v. NRC*, 708 F.3d 63, 82 (1st Cir. 2013)  
NEPA process would effectively become unending if it required NRC to stop and await internationally based research and potential code modifications that could take years to complete; CLI-16-7, 83 NRC 323 (2016)

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- McBryde v. Comm. to Review Circuit Council Conduct and Disability Orders of the Judicial Conference of the United States*, 264 F.3d 52, 55 (D.C. Cir. 2001)  
when subsequent events outrun the controversy, the Commission will ordinarily dismiss a case as moot; CLI-16-6, 83 NRC 153 n.33 (2016)
- Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-807, 21 NRC 1195, 1200 n.12 (1985)  
boards have relied on exhibits authored by the party interposing objections in order to clarify and verify the party's testimony and to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 406 (2016)
- Michigan v. Bay Mills Indian Cmty.*, 134 S. Ct. 2024, 2030 (2014)  
Indian tribes are nations with unique sovereign status that predates the United States; LBP-16-7, 83 NRC 375 (2016)
- Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), LBP-73-41, 6 AEC 1057, 1057 (1973)  
request for hearing at such time as suspension of the application may be lifted is consistent with longstanding agency case law; LBP-16-2, 83 NRC 112 (2016)
- Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), LBP-73-41, 6 AEC 1057, 1057-58 (1973)  
petitioner seeking to reinstate a withdrawn intervention request must show good cause under NRC's then-existing late-filing requirements; LBP-16-2, 83 NRC 112 (2016)
- Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 156-57 (2010)  
injunctive relief is only warranted when the traditional test justifying it is met; LBP-16-7, 83 NRC 413 (2016)  
where an agency fails to comply with procedural statutes such as NEPA or the NHPA, an injunction is sometimes the proper recourse; LBP-16-7, 83 NRC 412 (2016)
- Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 157-58 (2010)  
injunction is not an automatic or default remedy to cure NEPA violation; CLI-16-13, 83 NRC 604-05 (2016)  
violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 604-05 (2016)
- Montana Wilderness Ass'n v. Connell*, 725 F.3d 988, 993, 1005-07 (9th Cir. 2013)  
insofar as there were areas that would be affected by changed operations or new construction, literature review and reliance on past surveys was inadequate for identifying tribal cultural properties and historic properties; LBP-16-7, 83 NRC 392 (2016)
- Montana Wilderness Ass'n v. Connell*, 725 F.3d 988, 1006 (9th Cir. 2013)  
Class III archeological survey is an intensive, professionally conducted study of a target area; LBP-16-7, 83 NRC 384 (2016)
- Morton v. Ruiz*, 415 U.S. 199, 236 (1974)  
failure of the Bureau of Indian Affairs to make any real attempt to comply with its own policy of consultation not only violates general principles that govern administrative decisionmaking, but also violates the distinctive obligation of trust incumbent upon the government in its dealings with these dependent and sometimes exploited people; LBP-16-7, 83 NRC 373 n.211 (2016)
- Muhly v. Espy*, 877 F. Supp. 294, 300 (W.D. Va. 1995)  
violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 604-05 (2016)
- Munsell v. USDA*, 509 F.3d 572, 583 (D.C. Cir. 2007)  
speculation as to future events, without more, does not shield a case from a mootness determination; CLI-16-6, 83 NRC 156 (2016)
- Myersville Citizens for a Rural Cmty., Inc. v. Fed. Energy Regulatory Comm'n*, 783 F.3d 1301, 1322 (D.C. Cir. 2015)  
environmental assessment performs the critical role of first determining whether the proposed federal action may produce any such significant, unmitigated impacts; LBP-16-7, 83 NRC 352 (2016)

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- Nat. Credit Union Admin. v. First Nat. Bank & Trust Co.*, 522 U.S. 479, 492 (1998)  
to evaluate labor union's zone-of-interests claim, the Commission first discerns the interests arguably to be protected by the statutory provision at issue and then inquires whether plaintiff's interests affected by the agency action in question are among them; CLI-16-6, 83 NRC 163 (2016)
- Nat. Credit Union Admin. v. First Nat. Bank & Trust Co.*, 522 U.S. 479, 494 n.7 (1998)  
court looks for some indication that petitioner's interest is arguably among those interests protected by the relevant statute; CLI-16-6, 83 NRC 164 (2016)
- Nat. Parks Conservation Ass'n v. Jewell*, 965 F. Supp. 2d 67, 75 (D. D.C. 2013)  
agency's discussion of potential mitigation measures in an EIS must include sufficient detail to ensure that environmental consequences have been fairly evaluated; LBP-16-8, 83 NRC 448 n.201 (2016)  
NEPA does not demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act or a detailed explanation of specific measures that will be employed to mitigate the adverse impacts of a proposed action; LBP-16-8, 83 NRC 447-48 & n.201 (2016)
- Neighborhood Ass'n of the Back Bay, Inc. v. Fed. Transit Admin.*, 463 F.3d 50, 58 (1st Cir. 2006)  
where an agency fails to comply with procedural statutes such as NEPA or NHPA, an injunction is sometimes the proper recourse; LBP-16-7, 83 NRC 412 (2016)
- Nevada v. DOE*, 457 F.3d 78, 93 (D.C. Cir. 2006)  
licensing boards are obliged to ensure that NRC Staff's NEPA documents come to grips with potentially significant environmental impacts and fully justify any conclusions in this regard; LBP-16-8, 83 NRC 441 (2016)
- New England Coal. on Nuclear Pollution v. NRC*, 582 F.2d 87, 93 (1st Cir. 1978)  
Atomic Energy Act gives NRC complete discretion to decide what financial qualifications are appropriate; CLI-16-2, 83 NRC 33 n.119 (2016)
- New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012)  
Waste Confidence Decision and Temporary Storage Rule were vacated and remanded; CLI-16-2, 83 NRC 22 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301 (2012)  
specificity is needed to ensure that readers are not forced to sift through large volumes of material in search of asserted factual support; LBP-16-8, 83 NRC 434 (2016)  
wholesale incorporation by reference by a petitioner who, in a written submission, merely establishes standing and attempts, without more, to incorporate the issues of other petitioners is not permitted; LBP-16-8, 83 NRC 434 n.111 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 307 (2012)  
Commission will uphold a licensing board ruling on standing and contention admissibility unless it finds that the board erred as a matter of law or abused its discretion; CLI-16-12, 83 NRC 548-49 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 323 (2012)  
proper question is not whether there are plausible alternative choices for use in a SAMA analysis, but whether the analysis that was done is reasonable under NEPA; CLI-16-11, 83 NRC 532 n.45 (2016)  
SAMA adjudications would prove endless if hearings were triggered merely by suggested alternative inputs and methodologies that conceivably could alter the cost-benefit conclusions; CLI-16-11, 83 NRC 532 n.45 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 323-24 (2012)  
arguments made and the support provided for those arguments and demonstration of a genuine dispute as to whether the SAMA analysis is reasonable under NEPA determines whether a SAMA contention is admissible; CLI-16-11, 83 NRC 534 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 326-27 (2012)  
Commission will not second-guess board's evaluation of factual support for a contention, absent an error of law or abuse of discretion; CLI-16-13, 83 NRC 579 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 339 n.223, 342 (2012)  
contentions that fail to meet admissibility standards in 10 C.F.R. 2.309(f)(1) or conflict with case law will be dismissed; CLI-16-11, 83 NRC 528 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 342 (2012)  
energy alternatives contention in license renewal proceeding must provide facts or expert opinion sufficient to raise a genuine dispute as to whether the proposed alternative technology (or

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- combination of technologies) is currently commercially viable, or will become so in the near term to supply baseload power; CLI-16-11, 83 NRC 528 (2016)
- NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-13-3, 77 NRC 51, 54 (2013)
- Commission longstanding policy disfavors interlocutory, piecemeal review of board rulings, barring extraordinary circumstances; CLI-16-1, 83 NRC 8 (2016)
- if litigant has been denied admission of certain contentions but still has other contentions pending in the proceeding, section 2.311 does not provide for immediate interlocutory review of the dismissal of those contentions; CLI-16-1, 83 NRC 6 (2016)
- interlocutory appeal as of right with respect to contention admissibility rulings is allowed in two specific circumstances; CLI-16-1, 83 NRC 6 (2016)
- petitioner who has been granted intervention and has other contentions pending in the proceeding may not seek immediate review of the board's contention admissibility rulings; CLI-16-13, 83 NRC 574 n.41 (2016)
- Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Units 1 and 2), CLI-00-9, 51 NRC 293, 294 (2000)
- withdrawal of an application moots any adjudicatory proceeding regarding that application; LBP-16-1, 83 NRC 103 (2016)
- Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 489 (2010)
- Commission may exercise its inherent supervisory authority over adjudications to review on its own motion an issue not otherwise properly before it on appeal in sufficiently significant circumstances; CLI-16-1, 83 NRC 8-9 n.32 (2016)
- Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC 481, 496 (2010)
- petitioners have an iron-clad obligation to examine publicly available documentary material with sufficient care to enable them to uncover any information that could serve as the foundation for a specific contention; LBP-16-6, 83 NRC 336 (2016)
- Northern States Power Co.* (Prairie Island Nuclear Generating Plant Independent Spent Fuel Storage Installation), LBP-15-30, 82 NRC 339 (2015)
- NRC Staff served as an effective supporter of cultural concerns of an Indian tribe in a dispute with the license applicants; LBP-16-7, 83 NRC 371 n.195 (2016)
- NRDC v. Callaway*, 524 F.2d 79, 88 (2d Cir. 1975)
- cumulative impacts analysis includes small and unrelated decisions; LBP-16-8, 83 NRC 445 n.181 (2016)
- NRDC v. Duvall*, 777 F. Supp. 1533, 1538-39 (E.D. Cal. 1991)
- incorporation by reference that does not adequately describe the contents of the documents allegedly incorporated has been disallowed; LBP-16-8, 83 NRC 433-34 & n.109 (2016)
- NRDC v. NRC*, 823 F.3d 641, 651 (D.C. Cir. 2016)
- severe accident mitigation alternatives represent only a minor portion of the Commission's overall regulatory regime, separate and apart from its safety requirements; CLI-16-10, 83 NRC 498 (2016)
- Nuclear Innovation North America LLC* (South Texas Project, Units 3 and 4), CLI-16-2, 83 NRC 13, 19 (2016)
- licensing boards should conduct a simple sufficiency review of uncontested issues in the uncontested hearing, not a de novo review; LBP-16-4, 83 NRC 191 (2016)
- Nuclear Management Co., LLC* (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 732 (2006)
- petitioner may not use its reply to raise new issues for the first time; CLI-16-5, 83 NRC 145 n.97 (2016)
- Nuclear Management Co., LLC* (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 734 n.29 (2006)
- Category 1 issues are those that NRC has categorized and assessed generically because the environmental effects of those issues are essentially similar for all plants; LBP-16-8, 83 NRC 439 (2016)
- Nuclear Management Co., LLC* (Palisades Nuclear Plant), LBP-06-10, 63 NRC 314, 338, *aff'd*, CLI-06-17, 63 NRC 727 (2006)
- contentions are limited to issues germane to the application pending before the board, and are not cognizable unless they are material to matters that fall within the scope of the proceeding for which

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- the licensing board has been delegated jurisdiction as set forth in the Commission's notice of opportunity for hearing; LBP-16-5, 83 NRC 287 n.153 (2016)
- Nuclear Management Co., LLC* (Palisades Nuclear Plant), LBP-06-10, 63 NRC 314, 341, *aff'd*, CLI-06-17, 63 NRC 727 (2006)
- allegation that some aspect of a license application is inadequate or unacceptable does not give rise to a genuine dispute unless it is supported by facts and a reasoned statement of why the application is unacceptable in some material respect; LBP-16-5, 83 NRC 281 (2016)
- Nw. Coal. for Alts. to Pesticides v. Lyng*, 844 F.2d 588, 594 (9th Cir. 1988)
- parties challenging an agency's NEPA process are not entitled to relief unless they demonstrate harm or prejudice; CLI-16-13, 83 NRC 595 n.188 (2016)
- Nw. Coal. for Alts. to Pesticides v. Lyng*, 844 F.2d 588, 595 (9th Cir. 1988)
- violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 604-05 (2016)
- Oglala Sioux Tribe of Indians v. Andrus*, 603 F.2d 707, 722 (8th Cir. 1979)
- failure of the Bureau of Indian Affairs to make any real attempt to comply with its own policy of consultation not only violates general principles that govern administrative decisionmaking, but also violates the distinctive obligation of trust incumbent upon the Government in its dealings with these dependent and sometimes exploited people; LBP-16-7, 83 NRC 373 n.211 (2016)
- Omaha Public Power District* (Fort Calhoun Station, Unit 1), CLI-15-5, 81 NRC 329, 334 (2015)
- agency action not formally labeled a license amendment could constitute a de facto license amendment and trigger hearing rights under Atomic Energy Act if that action granted licensee greater authority or otherwise altered the original terms of the license; CLI-16-9, 83 NRC 474 n.8 (2016)
- ongoing oversight, including what may eventually result in a licensee requesting amendment of an operating license, does not constitute a license amendment proceeding that triggers hearing rights; CLI-16-9, 83 NRC 474 (2016)
- Omaha Public Power District* (Fort Calhoun Station, Unit 1), CLI-15-5, 81 NRC 329, 336 (2015)
- concerns involving ongoing oversight activities are appropriately raised via a request for enforcement action under 10 C.F.R. 2.206; CLI-16-9, 83 NRC 475 (2016)
- Omaha Public Power District* (Fort Calhoun Station, Unit 1), CLI-15-5, 81 NRC 329, 338 (2015)
- NRC case law does not provide for an adjudicatory hearing based on speculative changes to a plant's licensing basis; CLI-16-9, 83 NRC 483 (2016)
- prospect of a future license amendment does not create a present hearing opportunity; CLI-16-9, 83 NRC 474-75 (2016)
- regulatory oversight activities such as inspection results, administrative and enforcement actions, informational meetings, and technical reports and memoranda support ongoing Staff oversight activities performed to ensure compliance with requirements and a plant's current licensing basis; CLI-16-9, 83 NRC 474 (2016)
- Pac. Gas & Elec. Co. v. Fed. Power Comm'n*, 506 F.2d 33, 38 (D.C. Cir. 1974)
- NRC 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; LBP-16-5, 83 NRC 289 n.166 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-519, 9 NRC 42, 43 n.3 (1979)
- boards have long introduced and relied on exhibits for clarifying and verifying NRC Staff's testimony to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 406 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-583, 11 NRC 447, 449 (1980)
- governmental entity denied participation may, in the Commission's discretion, file an amicus brief should there be an appeal from the board's forthcoming initial decision; LBP-16-6, 83 NRC 338 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-600, 12 NRC 3, 8 (1980)
- tardy petitioner with no good excuse may be required to take the proceeding as it finds it; LBP-16-6, 83 NRC 338 n.47 (2016)

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- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-644, 13 NRC 903, 915 & n.24 (1981)  
part of the board's technical expertise is the ability to synthesize relevant background information that is undisputed by the parties; LBP-16-7, 83 NRC 408 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 442 (2011)  
contentions that argue for alternative analyses or refinements to a SAMA analysis might be characterized as contentions of adequacy, but the label is not the deciding factor at the contention admissibility stage; CLI-16-11, 83 NRC 534 (2016)  
issue sought to be litigated determines support required for SAMA contentions; CLI-16-11, 83 NRC 534 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC 427, 442-43 (2011)  
arguments made and support provided for those arguments and demonstration of a genuine dispute as to whether the SAMA analysis is reasonable under NEPA determines whether a SAMA contention is admissible; CLI-16-11, 83 NRC 534 (2016)  
contention asserting that applicant failed to consider results of a particular study in its SAMA analysis was admissible; CLI-16-11, 83 NRC 534 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-12-13, 75 NRC 681, 688 (2012)  
routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain; CLI-16-1, 83 NRC 8 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-15-14, 81 NRC 729, 734-35 (2015)  
claims of inadequacies in licensee's technical evaluation or noncompliance with its license, standing alone, do not suffice to identify an activity that may constitute a license amendment; CLI-16-9, 83 NRC 475 n.16 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-15-21, 82 NRC 295, 308 & n.69 (2015)  
when petitioners bring claims that are not susceptible to adjudication, the Commission frequently directs them toward other processes or government agencies; CLI-16-6, 83 NRC 159 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-94-35, 40 NRC 180, 192 (1994)  
boards include technical experts who can evaluate the factual material in the record and reach their own judgment as to its significance; LBP-16-8, 83 NRC 460 n.302 (2016)
- Pacific Gas & Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 521 (2008)  
factual findings in an evidentiary dispute are based on a preponderance of the evidence; LBP-16-8, 83 NRC 431 (2016)
- Pacific Gas & Electric Co.* (Stanislaus Nuclear Project, Unit 1), LBP-83-2, 17 NRC 45, 51 (1983)  
filing of an application usually is voluntary, and applicant's withdrawal decision is generally considered a business judgment, the soundness of which is not a matter for licensing board consideration; LBP-16-1, 83 NRC 104 (2016)
- Pa'ina Hawaii, LLC*, CLI-06-18, 64 NRC 1, 4 (2006)  
interested government's appeal is considered as a petition for discretionary interlocutory review; CLI-16-1, 83 NRC 8 (2016)
- Pa'ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 69, 85 (2010)  
NRC Staff must consider alternative sites to satisfy the hard look standard required by NEPA; LBP-16-8, 83 NRC 441 n.160 (2016)
- Pa'ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 75 (2010)  
difference between an environmental assessment and an environmental impact statement is explained; LBP-16-7, 83 NRC 352 (2016)

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- People Against Nuclear Energy v. NRC*, 678 F.2d 222, 228-29 (D.C. Cir. 1982)  
NEPA requires a look at intangible, not just tangible, properties and it is not limited to a focus on historic properties in the same way as the NHPA; LBP-16-7, 83 NRC 402 (2016)
- Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), ALAB-657, 14 NRC 967, 973, 978-79 (1981)  
purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 104 n.5 (2016)
- Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), ALAB-657, 14 NRC 967, 974 (1981)  
licensing board has significant leeway in defining circumstances under which an application can be withdrawn, but any withdrawal terms imposed by a board must bear a reasonable relationship to the conduct and legal harm at which they are aimed and the record must support any findings concerning the conduct and the harm in question; LBP-16-1, 83 NRC 104 n.5 (2016)  
once a notice of hearing has been issued, any application withdrawal request must be approved by the licensing board and is subject to any appropriate conditions the board may impose; LBP-16-1, 83 NRC 103-04 (2016)
- Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), LBP-84-43, 20 NRC 1333, 1337-38 (1984)  
purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 104 n.5 (2016)
- Philadelphia Electric Co.* (Limerick Generating Station, Unit 1), LBP-86-9, 23 NRC 273, 277 (1986)  
petitioner must provide sufficient detail for proposed contentions to demonstrate that the issues raised are admissible and further inquiry is warranted; LBP-16-2, 83 NRC 111 (2016)
- Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-262, 1 NRC 163, 197 n.54 (1975)  
licensing board decision satisfies the disclosure purpose of NEPA through the public vetting of environmental issues at an evidentiary hearing; LBP-16-8, 83 NRC 447 (2016)
- Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-82-43A, 15 NRC 1423, 1445 (1982)  
Atomic Energy Act concentrates on licensing and regulation of nuclear materials for purpose of protecting public health and safety and the common defense and security; CLI-16-6, 83 NRC 163 (2016)
- Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20 (1974)  
licensing proceeding before NRC is not the proper forum for challenges to the basic structure of NRC's regulatory process; CLI-16-12, 83 NRC 555 (2016)
- Phillips v. Cohen*, 400 F.3d 388, 399 (6th Cir. 2005)  
case law counsels against granting summary disposition when opponent provides a viable expert opinion, because competing expert opinions present the classic battle of the experts and it is up to a jury to evaluate what weight and credibility each expert opinion deserves; LBP-16-3, 83 NRC 177 (2016)
- Phillips v. Cohen*, 400 F.3d 388, 399 (6th Cir. 2005)  
competing expert opinions present the classic battle of the experts that requires an evidentiary hearing to evaluate what weight and credibility each expert opinion deserves; LBP-16-3, 83 NRC 183 (2016)
- Pit River Tribe v. U.S. Forest Serv.*, 469 F.3d 768, 788 (9th Cir. 2006)  
satisfying NEPA means satisfying, at a minimum, NHPA's Identification Obligations; LBP-16-7, 83 NRC 402 (2016)
- Pogliani v. U.S. Army Corps of Eng'rs*, 306 F.3d 1235, 1237 (2d Cir. 2002)  
NEPA obligates each federal agency to take a hard look at the environmental impacts of its actions and disclose potential environmental impacts before proceeding with a planned action; LBP-16-7, 83 NRC 351 (2016)

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- Powertech USA, Inc.* (Dewey Burdock In Situ Uranium Recovery Facility), LBP-15-16, 81 NRC 618, 640 (2015)  
Programmatic Agreement may be used to implement the NHPA § 106 process in situations where the effects to historic properties cannot be fully determined prior to the approval of an undertaking, such as where an applicant proposes a phased approach to developing its project; LBP-16-7, 83 NRC 378 n.254 (2016)
- Powertech USA, Inc.* (Dewey Burdock In Situ Uranium Recovery Facility), LBP-15-16, 81 NRC 618, 654-55 (2015)  
many of National Historic Preservation Act's requirements overlap with those of the National Environmental Policy Act; LBP-16-7, 83 NRC 402 (2016)  
satisfying NEPA means satisfying, at a minimum, the NHPA's Identification Obligations and even going further in certain cases; LBP-16-7, 83 NRC 402 (2016)
- Powertech USA, Inc.* (Dewey Burdock In Situ Uranium Recovery Facility), LBP-15-16, 81 NRC 618, 656 (2015)  
abundance of letters does not equate to meaningful or reasonable consultation with Indian tribes; LBP-16-7, 83 NRC 376 (2016)
- PPL Bell Bend* (Bell Bend Nuclear Power Plant), LBP-11-27, 74 NRC 591, 596, 601-02 (2011), *petition denied*, *Luminant Generation Co., LLC* (Comanche Peak Nuclear Power Plant, Units 3 and 4), CLI-12-7, 75 NRC 379 (2012)  
attempt to reopen a proceeding based on a Fukushima-related contention was rejected as premature, because of the NRC's ongoing attempts to evaluate regulatory actions post-Fukushima; LBP-16-5, 83 NRC 287 (2016)
- Private Fuel Storage, LLC*. (Independent Spent Fuel Storage Installation), CLI-98-13, 48 NRC 26, 32 (1998)  
boards may review petitioner's standing declarations, its petition, and relevant documents cited by participants to decide whether standing requirements have been met; LBP-16-5, 83 NRC 272 n.63 (2016)
- Private Fuel Storage, LLC*. (Independent Spent Fuel Storage Installation), CLI-00-2, 51 NRC 77, 80 (2000)  
appeals of rulings on contention admissibility must abide the end of the case; CLI-16-1, 83 NRC 6 n.19 (2016)
- Private Fuel Storage, LLC*. (Independent Spent Fuel Storage Installation), CLI-00-13, 52 NRC 23, 34 (2000)  
NRC Staff may exercise professional judgment in conducting post-licensing verification activities; LBP-16-4, 83 NRC 217 (2016)
- Private Fuel Storage, LLC*. (Independent Spent Fuel Storage Installation), CLI-01-12, 53 NRC 459, 461, 467 (2001)  
petitioner in ongoing proceeding can raise a contention that challenges matters within the scope of applicant's request for an exemption from a regulation that otherwise would have applied to the licensing of the facility; CLI-16-12, 83 NRC 549 (2016)
- Private Fuel Storage, LLC*. (Independent Spent Fuel Storage Installation), CLI-01-12, 53 NRC 459, 465-66 (2001)  
Commission distinguishes between a hearing on an exemption and a hearing on exemption-related matters; CLI-16-12, 83 NRC 561 (2016)
- Private Fuel Storage, LLC*. (Independent Spent Fuel Storage Installation), CLI-01-12, 53 NRC 459, 466 (2001)  
Atomic Energy Act does not provide for a hearing on adequacy of an exemption request itself; CLI-16-12, 83 NRC 563 (2016)
- Private Fuel Storage, LLC*. (Independent Spent Fuel Storage Installation), CLI-01-12, 53 NRC 459, 467 (2001)  
adequacy of applicant's alternative methodology to demonstrate adequacy of facility's seismic design, use of which was granted by exemption from regulation, was within the scope of the underlying license proceeding and a topic suitable for a hearing; CLI-16-12, 83 NRC 562 (2016)  
critical safety questions should not be excluded from licensing hearings merely on the basis of an exemption label; CLI-16-12, 83 NRC 550, 564 (2016)



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- exemption request cannot remove a matter germane to a licensing proceeding from consideration in a hearing; CLI-16-12, 83 NRC 564 (2016)
- hearing opportunity is warranted when an exemption request raises material questions directly connected to an agency licensing action for which the Atomic Energy Act expressly provides a hearing right, as it does for the granting, suspending, revoking, or amending of a license; CLI-16-12, 83 NRC 549 (2016)
- resolution of exemption request directly affects licensability of the proposed facility and thus raises material questions directly connected to an agency licensing action, coming within the hearing rights of interested parties; CLI-16-12, 83 NRC 549-50 (2016)
- safe design of the facility is a matter that applicant must establish to obtain a license; CLI-16-12, 83 NRC 562 n.9 (2016)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-12, 53 NRC 459, 470 (2001)
- where exemption from a regulation was granted, and the new standard imposed by NRC Staff was not within an applicable regulation, the question of whether the new standard was adequate itself was within the scope of the proceeding; CLI-16-12, 83 NRC 562 n.6, 563 (2016)
- where exemption is necessary for applicant to amend its license, it triggers the right to a hearing under the Atomic Energy Act; CLI-16-12, 83 NRC 551 (2016)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-26, 54 NRC 376, 380 (2001)
- stay factors that proponent must address focus on whether continuing the adjudication will jeopardize health and safety, impede fair and efficient decisionmaking, and hinder implementation of rule or policy changes; CLI-16-12, 83 NRC 556 (2016)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 25-26 (2003)
- Commission declines to review a board's plausible decision that rests on carefully rendered findings of fact, even where the record includes evidence that supports a different view; CLI-16-13, 83 NRC 586 (2016)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 26 (2003)
- Commission reviews questions of law de novo and defers to board findings with respect to the underlying facts unless the findings are clearly erroneous; CLI-16-13, 83 NRC 573 (2016)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-12, 61 NRC 345, 350 n.18 (2005)
- intentionally heavy burden is placed on parties seeking to reopen the record because there would be little hope of completing administrative proceedings if each newly arising allegation required an agency to reopen its hearings; LBP-16-6, 83 NRC 333 (2016)
- Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-3, 53 NRC 84, 100 (2001)
- Commission distinguishes between a hearing on an exemption and a hearing on exemption-related matters; CLI-16-12, 83 NRC 561 (2016)
- Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-08-15, 68 NRC 1, 3 & n.2 (2008)
- it is the license application, not the NRC Staff review, that is at issue in an adjudicatory proceeding; CLI-16-12, 83 NRC 555 n.68 (2016)
- Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-09-8, 69 NRC 317, 322 (2009)
- applicant for a combined license may reference a reactor design that is undergoing design certification rulemaking, doing so at its own risk, given that the design certification might not be granted; CLI-16-12, 83 NRC 555 n.70 (2016)
- Commission may be called upon to review applications that make predictive findings on future actions that may or may not come to pass; CLI-16-12, 83 NRC 555 (2016)

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Commission declined to hold the adjudicatory proceeding on a combined license application in abeyance pending completion of the design certification rulemaking for the design referenced in the application; CLI-16-12, 83 NRC 556 n.73 (2016)
- Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), CLI-10-2, 71 NRC 27, 34-35 (2010)  
NRC Staff is the party with the burden of proof at the hearing phase; LBP-16-7, 83 NRC 379 (2016)
- Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), CLI-11-10, 74 NRC 251, 255 (2011)  
partial initial decisions are reviewable under 10 C.F.R. 2.341(b)(1) because they are considered final decisions; LBP-16-7, 83 NRC 415 n.551 (2016)
- Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-13-4, 77 NRC 107, 117 (2013)  
boards have long introduced and relied on exhibits for clarifying and verifying NRC Staff's testimony to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 406 (2016)
- Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-13-4, 77 NRC 107, 217-18 (2013)  
absent information to the contrary, NRC may properly assume that applicant or licensee will comply with concrete and enforceable conditions and requirements imposed by statutes, regulations, licenses, or permits issued by competent federal, state, or local governmental entities; LBP-16-8, 83 NRC 450 n.217 (2016)
- Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), LBP-86-37, 24 NRC 719, 723-24 (1986)  
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- Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-520, 9 NRC 48, 50 n.2 (1979)  
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- Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-838, 23 NRC 585, 588-91 (1986)  
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- Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1132, 1135 (1981)  
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- Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1132-33 (1981)  
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- Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1135 (1981)  
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- Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352-53 (1989)
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- Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 n.16 (1989)
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- Shaw AREVA MOX Services, LLC* (Mixed Oxide Fuel Fabrication Facility), LBP-07-14, 66 NRC 169, 188 (2007)  
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- Sierra Club v. EPA*, 292 F.3d 895, 898-99 (D.C. Cir. 2002)  
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- Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 558 n.26 (2013)  
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- Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-13-9, 78 NRC 551, 559 (2013)  
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- Town of Winthrop v. FAA*, 535 F.3d 1, 11-13 (1st Cir. 2008)  
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- Union Electric Co.* (Callaway Nuclear Power Plant, Unit 1), CLI-15-11, 81 NRC 546, 550 (2015)  
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- Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 158 & n.65 (2011)  
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- Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 175-76 (2011)  
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- Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 158-59 (2011)  
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- United States v. Almaraz*, 306 F.3d 1031, 1041 (10th Cir. 2002)  
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- U.S. Army Installation Command* (Schoefield Barracks, Oahu, Hawaii, and Pohakuloa Training Area, Island of Hawaii, Hawaii), LBP-10-4, 71 NRC 216, 230 (2010)  
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- U.S. Bancorp Mortg. Co. v. Bonner Mall P'ship*, 513 U.S. 18, 24-25 (1994)  
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- U.S. Department of Energy* (Clinch River Breeder Reactor Plant), CLI-82-23, 16 NRC 412, 421 (1982)  
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- U.S. Department of Energy* (High-Level Waste Repository), CLI-08-21, 68 NRC 351, 353 (2008)  
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- U.S. Department of Energy* (High-Level Waste Repository), CLI-09-14, 69 NRC 580, 588 (2009)  
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- U.S. Department of Energy* (High-Level Waste Repository), CLI-14-1, 79 NRC 1, 2 (2014)  
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- U.S. Department of Energy* (High-Level Waste Repository), LBP-10-11, 71 NRC 609, 624 (2010), *aff'd by an equally divided Commission*, CLI-11-7, 74 NRC 212 (2011)  
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- U.S. Enrichment Corp.* (Paducah, Kentucky Gaseous Diffusion Plant), CLI-01-23, 54 NRC 267, 272-73 (2001)  
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- U.S. Telecom Ass'n v. FCC*, 359 F.3d 554, 568 (D.C. Cir. 2004)  
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- USEC Inc.* (American Centrifuge Plant), CLI-05-11, 61 NRC 309, 314 (2005)  
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- USEC Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 457 (2006)  
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- USEC Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 458 (2006)  
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- USEC Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 470 (2006)  
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- USEC Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006)  
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- expert opinion that merely states a conclusion without providing a reasoned basis or explanation for that conclusion is inadequate because it deprives the board of the ability to make the necessary, reflective assessment of the opinion; CLI-16-7, 83 NRC 311 (2016)
- USEC Inc.* (American Centrifuge Plant), LBP-05-28, 62 NRC 585, 597 (2005)
- providing any material or document as a basis for a contention, without setting forth an explanation of its significance, is inadequate to support its admission; LBP-16-5, 83 NRC 283 (2016)
- Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 555 (1978)
- intentionally heavy burden is placed on parties seeking to reopen the record because there would be little hope of completing administrative proceedings if each newly arising allegation required an agency to reopen its hearings; LBP-16-6, 83 NRC 333 (2016)
- Virginia Electric and Power Co.* (North Anna Power Station, Unit 3), CLI-12-14, 75 NRC 692, 699-701 (2012)
- if the board were to allow a contention to remain pending for a year or more in anticipation of the draft SEIS, when no genuinely contested matter remained before it, the board would have acted counter to Commission direction that a board's jurisdiction terminates when the contested matters before it have been resolved; CLI-16-11, 83 NRC 539-40 n.106 (2016)
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- Virginia Electric and Power Co.* (North Anna Power Station, Unit 3), LBP-08-15, 68 NRC 294, 307 n.58 (2008)
- if applicant includes a satisfactory site redress plan, an early site permit holder may conduct certain site preparation activities under a limited work authorization; LBP-16-4, 83 NRC 191 n.4 (2016)
- Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-146, 6 AEC 631, 633 & n.4 (1973)
- pleadings submitted by pro se petitioners are afforded greater leniency than petitions drafted with the assistance of counsel; LBP-16-5, 83 NRC 272 n.62 (2016)
- Virginia Electric and Power Co.* (Surry Nuclear Power Station, Units 1 and 2), CLI-80-4, 11 NRC 405, 406 (1980)
- where the significance of an action is unclear because of scientific uncertainty, preferable course of action is to prepare an environmental impact statement; LBP-16-7, 83 NRC 353 n.54 (2016)
- Washington Public Power Supply System* (WPPSS Nuclear Project No. 4), LBP-78-8, 7 NRC 254, 261 (1978)
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- Webster v. USDA*, 685 F.3d 411, 426 (4th Cir. 2012)
- independent utility test in assessing environmental impacts holds that related actions should be discussed together when each would have no independent utility without the other; CLI-16-13, 83 NRC 576 n.54 (2016)
- Weinberger v. Catholic Action of Hawaii/Peace Educ. Project*, 454 U.S. 139, 143 (1981)
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- Weinstein v. Bradford*, 423 U.S. 147, 149 (1975)
- injury capable of repetition requires a reasonable expectation that the same complaining party would be subjected to the same action again; CLI-16-6, 83 NRC 156 (2016)
- Wilson v. Block*, 708 F.2d 735, 754-55 (D.C. Cir. 1983)
- where previous or partial surveys and all other evidence indicate that a complete survey would be fruitless, NHPA does not require a complete survey of the project area; LBP-16-7, 83 NRC 363 (2016)
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- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-1, 43 NRC 1, 6 (1996)  
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- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 249 (1996)  
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- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-99-24, 50 NRC 219, 222 (1999)  
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- Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-05-15, 61 NRC 365, 375 n.26 (2005)  
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- 10 C.F.R. 2.101(a)(5)  
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- 10 C.F.R. 2.105(a)(4)  
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- 10 C.F.R. 2.107(a)  
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- 10 C.F.R. 2.202(a)(3)  
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- 10 C.F.R. 2.206  
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- 10 C.F.R. 2.206(b)  
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- 10 C.F.R. 2.302(g)(4)  
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- 10 C.F.R. 2.309  
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- 10 C.F.R. 2.309(a)  
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- 10 C.F.R. 2.309(c)(1)  
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- 10 C.F.R. 2.309(c)(1)(i)-(iii)  
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- 10 C.F.R. 2.309(d)(1)(ii)-(iv)  
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- 10 C.F.R. 2.309(d)(2)  
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- 10 C.F.R. 2.309(f)(1)  
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- 10 C.F.R. 2.309(f)(1)(i)-(vi)  
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- 10 C.F.R. 2.309(f)(1)(iii)  
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- 10 C.F.R. 2.309(f)(1)(iv)  
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- 10 C.F.R. 2.309(f)(1)(v)  
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- 10 C.F.R. 2.309(f)(1)(vi)  
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- 10 C.F.R. 2.309(h)(2)  
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- 10 C.F.R. 2.311  
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- 10 C.F.R. 2.311(c)  
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- 10 C.F.R. 2.315(a)  
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- 10 C.F.R. 2.315(c)  
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- 10 C.F.R. 2.315(d)  
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- 10 C.F.R. 2.319  
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- 10 C.F.R. 2.319(d)  
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- 10 C.F.R. 2.321(a)  
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- 10 C.F.R. 2.326  
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- 10 C.F.R. 2.326(a)  
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- 10 C.F.R. 2.326(a)(1)  
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- 10 C.F.R. 2.326(a)(3)  
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- 10 C.F.R. 2.326(b)  
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- 10 C.F.R. 2.326(d)  
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- 10 C.F.R. 2.335(a)  
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- 10 C.F.R. 2.340(e)(1)  
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- 10 C.F.R. 2.340(e)(2)(ii)  
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- 10 C.F.R. 2.341(a)(2)  
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- 10 C.F.R. 2.341(b)(1)  
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- 10 C.F.R. 2.341(b)(4)  
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- 10 C.F.R. 2.341(d)  
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- 10 C.F.R. 2.341(f)  
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- 10 C.F.R. 2.341(f)(2)  
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- 10 C.F.R. 2.343  
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- 10 C.F.R. 2.345  
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- 10 C.F.R. 2.710(a), (b)  
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- 10 C.F.R. 2.710(d)(2)  
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- 10 C.F.R. 2.1202(a)  
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- NRC Staff may issue a license before an adjudicatory proceeding is concluded; LBP-16-7, 83 NRC 412 (2016)
- NRC Staff's practice in materials cases is to issue a license before the completion of contested hearings on environmental matters; CLI-16-13, 83 NRC 603 (2016)
- 10 C.F.R. 2.1205(c)  
standards for summary adjudication set forth in section 2.710 apply to Subpart L proceedings; LBP-16-3, 83 NRC 176 (2016)
- 10 C.F.R. 2.1207  
written prefiled testimony and exhibits are typically submitted well in advance of the evidentiary hearing, and, in most common types of NRC hearings, licensing boards themselves, rather than the parties, orally examine the witnesses; LBP-16-4, 83 NRC 211 n.171 (2016)
- 10 C.F.R. 2.1210(c)(2)-(3)  
although NRC Staff may issue a license before an adjudicatory proceeding is concluded, the Director of NMSS must thereafter deny, or insert appropriate conditions, if any, in the license based on the determinations of the licensing board and the Commission; LBP-16-7, 83 NRC 412 (2016)
- 10 C.F.R. 20.1003  
contention alleging that proposed weakening of concrete tolerance standards could result in plant workers being exposed to levels of radiation in excess of the as low as is reasonably achievable standard is dismissed; LBP-16-5, 83 NRC 266 (2016) 10 C.F.R. 20.1201, 20.1301  
dose consequence estimates from accident scenario at medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 73 (2016)
- 10 C.F.R. 40.41(e)  
although NRC Staff may issue a license before an adjudicatory proceeding is concluded, the Director of NMSS must thereafter deny, or insert appropriate conditions, if any, in the license based on the determinations of the licensing board and the Commission; LBP-16-7, 83 NRC 412 (2016)
- 10 C.F.R. pt. 40, app. A  
contention that FSEIS lacks an adequate description of the present baseline groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is inadmissible; CLI-16-13, 83 NRC 580 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 5  
criterion does not specifically apply to site characterization under NEPA; CLI-16-13, 83 NRC 582 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 5B(5)  
after receiving a license, licensee collects groundwater samples from the production and injection wells to establish post-licensing, preoperational background levels for various chemical constituents, which are then used to set restoration goals; CLI-16-13, 83 NRC 582 (2016)  
no alternate concentration limit will be approved without meeting safety criteria, regardless of whether any intervenor has contested the matter; CLI-16-13, 83 NRC 593 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 5B(5)(a)  
first option for any given hazardous constituent in groundwater is background (level present prior to operations); CLI-16-13, 83 NRC 587 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 5B(5)(b), tbl.5C  
secondary standard hazardous constituent in groundwater is a maximum contaminant level; CLI-16-13, 83 NRC 587 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 5B(5)(c)  
contention that FSEIS did not consider the extent to which groundwater will be degraded due to the establishment of alternate concentration limits for hazardous constituents after site restoration is inadmissible; CLI-16-13, 83 NRC 586 (2016)  
if licensee cannot meet primary or secondary standards for a particular constituent after restoration efforts, it may file a license amendment request for a site-specific alternate concentration limit for that constituent; CLI-16-13, 83 NRC 587 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 5B(6)  
factors precluding use of an alternate concentration limit include potential adverse effects to groundwater and to hydraulically connected surface water, current and future uses of the ground and surface waters, and possible cumulative effects with other sources of contamination; CLI-16-13, 83 NRC 587 (2016)

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- to receive a license amendment allowing use of an alternate concentration limit, licensee must demonstrate that the concentration of the particular hazardous constituent is as low as reasonably achievable and that the ACL presents no significant hazard to human health or the environment; CLI-16-13, 83 NRC 587 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 7  
 applicant for an in situ uranium recovery license must describe the hydrology of the proposed site to predict the potential effect such a facility would have on adjacent groundwater and surface waters as required by NEPA; CLI-16-13, 83 NRC 580 (2016)  
 at least 1 full year prior to any major site construction, a preoperational monitoring program must be conducted to provide complete baseline data; CLI-16-13, 83 NRC 580-81 (2016)  
 monitoring wells at the perimeter of each wellfield are used to detect leaks during operations; CLI-16-13, 83 NRC 582 (2016)
- 10 C.F.R. pt. 40, app. A, criterion 7A  
 criterion does not specifically apply to site characterization under NEPA; CLI-16-13, 83 NRC 582 (2016)  
 in situ recovery facility licensees must establish restoration goals for hazardous constituents in groundwater through post-licensing, preoperational testing; CLI-16-13, 83 NRC 587 (2016)
- 10 C.F.R. 50.2  
 definition of “safety-related structures, systems, and components” in a medical radioisotope production facility applies to only those portions that do not expressly apply to power reactors; CLI-16-4, 83 NRC 76 n.127 (2016)  
 definition of “utilization facility” was amended to include an irradiation facility; CLI-16-4, 83 NRC 74 n.113 (2016)  
 “design bases” are values chosen for controlling parameters as reference bounds for design and requirements derived from analysis of effects of a postulated accident for which a structure, system, or component must meet its functional goals; CLI-16-9, 83 NRC 488 (2016)  
 irradiation facility and the radioisotope production facility fit the “production facility” definition; CLI-16-4, 83 NRC 74 (2016)  
 subcritical irradiation units do not fit the definition of a “utilization facility”; CLI-16-4, 83 NRC 74 (2016)
- 10 C.F.R. 50.4(b)(6)  
 requirements for submission of FSAR updates are set forth; CLI-16-9, 83 NRC 486 n.83 (2016)
- 10 C.F.R. 50.10(a)(1)  
 applicant requested an exemption from definition of “construction” in this section to allow installation of crane foundation retaining walls during the excavation process prior to the issuance of combined licenses; CLI-16-2, 83 NRC 30 (2016)
- 10 C.F.R. 50.10(d)(3)  
 if applicant includes a satisfactory site redress plan, an early site permit holder may conduct certain site preparation activities under a limited work authorization; LBP-16-4, 83 NRC 191 n.4 (2016)
- 10 C.F.R. 50.10(e)  
 if applicant includes a satisfactory site redress plan, an early site permit holder may conduct certain site preparation activities under a limited work authorization; LBP-16-4, 83 NRC 191 (2016)
- 10 C.F.R. 50.12(a)  
 exemption from regulations is authorized by law if the exemption will not conflict with the AEA or any other law; CLI-16-2, 83 NRC 32 (2016)  
 NRC has not found a direct correlation between preclicensing financial reviews and later safe construction and operation, and NRC maintains other programs and processes that more directly ensure safety; CLI-16-2, 83 NRC 33 (2016)  
 NRC may grant exemptions from regulations if the exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security and when special circumstances exist; CLI-16-2, 83 NRC 32 (2016)
- 10 C.F.R. 50.12(a)(2)(ii)  
 financial qualification requirements are not necessary to prevent safety lapses from underfunded projects because license conditions will ensure that the project will only proceed once adequate funding is obtained; CLI-16-2, 83 NRC 34 n.126 (2016)

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- 10 C.F.R. 50.12(a)(2)(vi)  
material circumstance not considered when the regulation was adopted exists for which it would be in the public interest to grant an exemption from financial qualification regulations; CLI-16-2, 83 NRC 33 (2016)
- 10 C.F.R. 50.33(d)(iii)  
corporate applicant must state whether it is owned, controlled, or dominated by an alien, a foreign corporation, or foreign government, and if so, give details; CLI-16-4, 83 NRC 86 n.225 (2016)
- 10 C.F.R. 50.33(f)  
combined license applicant must submit information demonstrating that it either possesses or has reasonable assurance of obtaining funds necessary to cover estimated construction and operating costs for the term of the license; CLI-16-2, 83 NRC 30 (2016)
- 10 C.F.R. 50.33(f)(1)  
applicant for a construction permit must demonstrate that it possesses or has reasonable assurance of obtaining funds necessary to cover estimated construction costs and related fuel cycle costs; CLI-16-4, 83 NRC 85 n.214 (2016)  
applicant must demonstrate that it is financially qualified to construct the proposed medical radioisotope production facility; CLI-16-4, 83 NRC 85 (2016)
- 10 C.F.R. 50.34(a)(3)(i)  
applicant's consideration of General Design Criteria in its construction permit application for a medical radioisotope production facility is discussed; CLI-16-4, 83 NRC 76 (2016)
- 10 C.F.R. 50.34(b)  
FSAR is part of the application for an operating license and must include information that describes the facility, presents the design bases and limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole; CLI-16-9, 83 NRC 485-86 (2016)
- 10 C.F.R. 50.34(b)(1)-(12)  
information that must be included in the FSAR is described; CLI-16-9, 83 NRC 486 n.83 (2016)
- 10 C.F.R. 50.35(a)  
safety findings that NRC must make to support issuance of a construction permit for a medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 63 (2016)
- 10 C.F.R. 50.35(a)(4)(ii)  
findings for issuance of a construction permit require that NRC consider site criteria of Part 100 to ensure that the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public; CLI-16-4, 83 NRC 83 (2016)
- 10 C.F.R. 50.35(b)  
authorization of construction permit issuance for a medical radioisotope production facility does not constitute approval of the design; CLI-16-4, 83 NRC 69 n.54 (2016)
- 10 C.F.R. 50.35(c)  
operating license application and final safety analysis report will contain the final detailed design for medical radioisotope production facility; CLI-16-4, 83 NRC 69 (2016)
- 10 C.F.R. 50.36(b)  
licensees submit information from monitoring of environmental conditions to NRC on a routine basis; CLI-16-10, 83 NRC 512 (2016)
- 10 C.F.R. 50.38  
combined license application must meet foreign ownership, control, or domination requirements; CLI-16-2, 83 NRC 21 (2016)
- 10 C.F.R. 50.40(a)-(d)  
in making findings on construction permit for a medical radioisotope production facility, Commission is guided by the additional considerations in this regulation; CLI-16-4, 83 NRC 63-64 (2016)
- 10 C.F.R. 50.40(b)  
applicant must demonstrate that it is financially qualified to construct the proposed medical radioisotope production facility; CLI-16-4, 83 NRC 85 (2016)
- 10 C.F.R. 50.44  
requirement to maintain equipment needed to mitigate a design-basis loss-of-coolant accident hydrogen release, including hydrogen recombiners, was eliminated; CLI-16-2, 83 NRC 38 (2016)

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- 10 C.F.R. 50.44(c)  
regulation applies to water-cooled reactor combined licenses issued after 2003; CLI-16-2, 83 NRC 38 (2016)
- 10 C.F.R. 50.44(c)(1)  
reactor containments must be able to ensure a mixed atmosphere during design-basis and significant beyond-design-basis accidents; CLI-16-2, 83 NRC 38 (2016)
- 10 C.F.R. 50.44(c)(5)  
combined license applicants must perform a structural analysis that demonstrates containment structural integrity in the event of an accident that releases hydrogen generated from 100% fuel clad-coolant reaction accompanied by hydrogen burning; CLI-16-2, 83 NRC 38 (2016)
- 10 C.F.R. 50.50  
NRC will issue a construction permit in such form and containing such conditions and limitations that it deems appropriate and necessary; CLI-16-4, 83 NRC 64 (2016)
- 10 C.F.R. 50.54(a)(3)  
FSAR update must contain certain changes to the quality assurance program description; CLI-16-9, 83 NRC 486 n.84 (2016)
- 10 C.F.R. 50.54(f)  
board did not err in finding that NRC Staff did not amend the operating licenses when it directed licensee to perform seismic hazard reevaluation; CLI-16-9, 83 NRC 490 (2016)  
NRC's request for seismic hazard information was part of its lessons-learned activities from the Fukushima Dai-ichi accident and continuing oversight of all plants, outside of license renewal; CLI-16-11, 83 NRC 526 (2016)  
request directing licensees to conduct seismic hazard reevaluations using new information and updated methodologies did not alter the facilities' licensing bases; CLI-16-9, 83 NRC 490 (2016)  
requests issued to all power reactors are characterized as requests for information to allow NRC to determine whether each facility should require additional action; CLI-16-9, 83 NRC 490 (2016)
- 10 C.F.R. 50.54(o)  
to ensure continued integrity of reactor containment systems, primary containments shall be subject to requirements in 10 C.F.R. Part 50, Appendix J, Option B §I; CLI-16-5, 83 NRC 133 (2016)
- 10 C.F.R. 50.54(q)(4)  
application to amend an emergency plan must include a certification that the plan, as amended, will continue to meet the requirements of 10 C.F.R. 50.47(b) and Part 50, Appendix E; CLI-16-12, 83 NRC 552 (2016)  
changes to licensee's emergency plan that reduce effectiveness of the plan may not be implemented without prior approval by NRC; CLI-16-12, 83 NRC 552 (2016)  
contention that license amendment request fails to account for all credible emergency scenarios undermines effectiveness of site emergency plan and offsite emergency planning, and poses an increased risk to public health and safety is dismissed; CLI-16-12, 83 NRC 557 (2016)  
license amendment application must include the basis for concluding that licensee's emergency plan, as revised, will continue to meet requirements in Appendix E to Part 50 and, for nuclear power reactor licensees, the planning standards of section 50.47(b); CLI-16-12, 83 NRC 552 (2016)  
licensee must obtain NRC approval where a requested license amendment reduces the effectiveness of its emergency plan and emergency action level scheme; CLI-16-12, 83 NRC 557 (2016)
- 10 C.F.R. 50.55a(h)(3)  
onsite and offsite electric power systems that permit functioning of structures, systems, and components important to safety are required; CLI-16-2, 83 NRC 41 (2016)
- 10 C.F.R. 50.58  
Advisory Committee on Reactor Safeguards provides an independent assessment of the safety aspects of applications; CLI-16-4, 83 NRC 62 (2016)
- 10 C.F.R. 50.58(b)(5)  
following receipt of a license amendment application, NRC Staff publishes in the Federal Register a notice of the application, the opportunity to request a hearing, and NRC Staff's proposed no significant hazards consideration determination; CLI-16-5, 83 NRC 134 (2016)

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- 10 C.F.R. 50.58(b)(6)  
NRC Staff's no significant hazards consideration determination cannot be contested; CLI-16-5, 83 NRC 144 (2016)
- 10 C.F.R. 50.59(a)(4)  
updated FSAR is submitted in accordance with section 50.34 and updated per requirements of section 50.71(e) or (f); CLI-16-9, 83 NRC 486 n.83 (2016)
- 10 C.F.R. 50.71(e)  
each operating license holder must periodically update its FSAR to ensure that the FSAR contains the latest information developed; CLI-16-9, 83 NRC 486 n.84 (2016)  
FSAR update is not intended for the purpose of re-reviewing plants; CLI-16-9, 83 NRC 486 (2016)  
FSAR update must reflect license amendments, which will have already undergone a formal approval process, and changes that fall under 10 C.F.R. 50.59, which applies to matters that do not require NRC Staff preapproval; CLI-16-9, 83 NRC 486 (2016)  
material submitted to update the FSAR may be reviewed by NRC Staff but will not be formally approved; CLI-16-9, 83 NRC 486 n.87 (2016)  
memorandum confirming that a UFSAR revision was timely submitted and appropriately discussed license amendments, inspection reports, and Licensee Event Reports satisfies a reporting requirement; CLI-16-9, 83 NRC 487 (2016)  
NRC Staff reviews FSAR updates only as part of its oversight to ensure compliance with existing requirements; CLI-16-9, 83 NRC 486 (2016)  
NRC Staff's acceptance of a revision to the FSAR does not constitute a de facto license amendment because section 50.71(e) is only a reporting requirement that does not require Staff approval; CLI-16-9, 83 NRC 486 (2016)  
reporting requirement is intended to ensure that an updated FSAR will be available; CLI-16-9, 83 NRC 486 (2016)  
submittal of updated FSAR pages does not constitute a licensing action but is only intended to provide information; CLI-16-9, 83 NRC 486 (2016)
- 10 C.F.R. 50.71(e)(2)  
each FSAR update must include changes made via license amendment and changes made pursuant to section 50.59; CLI-16-9, 83 NRC 486 n.84 (2016)
- 10 C.F.R. 50.75  
licensees have the option of either maintaining existing license conditions governing decommissioning trusts or submitting to the new regulatory requirements; CLI-16-8, 83 NRC 464 n.3 (2016)
- 10 C.F.R. 50.75(h)(1)(iv)  
decommissioning trust disbursements are restricted to decommissioning expenses until final decommissioning has been completed; CLI-16-8, 83 NRC 464-65 (2016)  
licensee must provide 30 working days' advance notice to NRC of intended disbursements from its decommissioning trust fund; CLI-16-8, 83 NRC 464-65 (2016)
- 10 C.F.R. 50.82(a)(3)  
decommissioning must be completed within 60 years of permanent cessation of operations; CLI-16-8, 83 NRC 469 (2016)
- 10 C.F.R. 50.82(a)(8)(i)(A)  
exemption from this regulation would allow licensee to make withdrawals from the decommissioning trust fund for certain irradiated fuel management costs; CLI-16-8, 83 NRC 464 n.5 (2016)
- 10 C.F.R. 50.91(a)(4)  
license amendments were issued that increase the ultimate heat sink water temperature limit for the cooling canals; LBP-16-8, 83 NRC 420 (2016)
- 10 C.F.R. 50.91(b)(1)  
license condition requiring licensee to inform petitioner of any request to amend its license does not impose any additional administrative burden because licensee is already required by the regulations to notify petitioner of any request to amend its license; CLI-16-8, 83 NRC 468 n.32 (2016)
- 10 C.F.R. 50.92(a)  
scope of review of a license amendment application is defined; LBP-16-5, 83 NRC 277 (2016)

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- 10 C.F.R. 50.92(c)  
following receipt of a license amendment application, NRC Staff publishes in the Federal Register a notice of the application, the opportunity to request a hearing, and Staff's proposed no significant hazards consideration determination; CLI-16-5, 83 NRC 134 (2016)
- 10 C.F.R. 50.109  
by implying that NRC Staff has a duty to impose cost-beneficial SAMAs as backfits, the board mistakenly suggested that SAMA analysis conclusions are the equivalent of backfit analysis determinations; CLI-16-10, 83 NRC 515 (2016)  
NRC Staff-initiated changes in a plant's licensing basis would be evaluated in accordance with the backfit rule; CLI-16-10, 83 NRC 514 n.114 (2016)  
NRC Staff may impose a backfit modifying a current licensing basis if, following appropriate analysis, it determines that a backfit should be mandated; CLI-16-10, 83 NRC 512 (2016)
- 10 C.F.R. 50.109(a)(1)  
"backfitting" encompasses a modification of or addition to structures, systems, components, or the design of a facility, or of the procedures or organization required to operate or design a facility; CLI-16-10, 83 NRC 512 n.104 (2016)
- 10 C.F.R. 50.109(a)(3)  
backfit analysis encompasses significant considerations beyond those considered in a SAMA analysis; CLI-16-10, 83 NRC 515 (2016)  
even if a proposed modification is cost-beneficial, NRC may not impose a backfit unless the modification at issue would provide a substantial increase in protection of public health and safety or the common defense and security; CLI-16-10, 83 NRC 515 (2016)  
where a SAMA is not necessary to protect public health and safety but nonetheless may be warranted as an incremental safety improvement, NRC may impose a plant modification; CLI-16-10, 83 NRC 513 (2016)
- 10 C.F.R. 50.109(a)(3)-(4)  
type of evaluation or analysis and findings that would be required for mandating a backfit depends on NRC's basis for considering the modification; CLI-16-10, 83 NRC 512 (2016)
- 10 C.F.R. 50.109(a)(4)  
no backfit analysis is required if a plant modification is necessary for adequate protection of public health and safety or necessary to bring the facility into compliance with a license, written licensee commitments, or NRC rules or orders; CLI-16-10, 83 NRC 513 n.110 (2016)
- 10 C.F.R. 50.109(a)(4)(ii)  
NRC shall always require backfitting of a facility if it determines that such regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security; CLI-16-10, 83 NRC 513 n.108 (2016)
- 10 C.F.R. 50.109(a)(5)  
measure that is necessary for adequate protection of public health and safety is a matter for immediate action as a current operating issue; CLI-16-10, 83 NRC 510 (2016)  
plant modifications determined to be necessary for adequate protection are imposed regardless of cost, and without need of a full backfit analysis under section 50.109(a)(3); CLI-16-10, 83 NRC 513 (2016)
- 10 C.F.R. 50.109(c)  
backfit analysis may consider any relevant and material information and must consider potential safety impact of changes in plant and operational complexity, including relationship to proposed and existing regulatory requirements, resource burden on NRC and availability of such resources, and continuing costs associated with the backfit; CLI-16-10, 83 NRC 515 n.117 (2016)
- 10 C.F.R. pt. 50, app. A  
applicant's consideration of General Design Criteria in its construction permit application for a medical radioisotope production facility is discussed; CLI-16-4, 83 NRC 76 (2016)
- 10 C.F.R. pt. 50, app. A, GDC 2  
adequacy of NRC Staff's conclusions on design-basis flood level and maximum groundwater level are discussed; CLI-16-2, 83 NRC 40 n.183 (2016)
- 10 C.F.R. pt. 50, app. A, GDC 17  
onsite and offsite electric power systems that permit the functioning of structures, systems, and components important to safety are required; CLI-16-2, 83 NRC 41 (2016)

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- 10 C.F.R. pt. 50, app. A, GDC 44  
plants must provide an ultimate heat sink to transfer heat from structures, systems, and components that are important to safety; LBP-16-8, 83 NRC 421 n.5 (2016)
- 10 C.F.R. pt. 50, app. C  
applicant must demonstrate that it is financially qualified to construct a proposed medical radioisotope production facility; CLI-16-4, 83 NRC 85 (2016)  
combined license applicant must submit information demonstrating that it either possesses or has reasonable assurance of obtaining funds necessary to cover estimated construction and operating costs for the term of the license; CLI-16-2, 83 NRC 30 (2016)
- 10 C.F.R. pt. 50, app. H  
dosimeters located inside of the surveillance capsules must be tested in accordance with ASTM Guide E 482; CLI-16-2, 83 NRC 44 (2016)
- 10 C.F.R. pt. 50, app. H, § III.A  
unless the reactor vessel meets the criteria of this regulation, licensee must monitor the reactor pressure vessel beltline materials through a surveillance program that complies with ASTM E 185-82; CLI-16-2, 83 NRC 42 (2016)
- 10 C.F.R. pt. 50, app. H, § III.B.3  
applicants must submit a proposed withdrawal schedule with a technical justification; CLI-16-2, 83 NRC 43 (2016)  
licensees must analyze material specimens to evaluate changes, due to neutron irradiation and high temperatures, in the fracture toughness properties of the ferritic materials in the reactor vessel beltline region; CLI-16-2, 83 NRC 42 (2016)  
surveillance program is based on the testing of material specimens that are stored in surveillance capsules inside the reactor pressure vessel and periodically withdrawn from the vessel on an NRC-approved schedule; CLI-16-2, 83 NRC 42 (2016)
- 10 C.F.R. pt. 50, app. J  
licensees must conduct periodic tests to ensure that leakage from containment does not exceed allowable rates specified in the plant's technical specifications; CLI-16-5, 83 NRC 133 (2016)
- 10 C.F.R. pt. 50, app. J, option B  
challenge to regulation is impermissible, absent a waiver; CLI-16-5, 83 NRC 138 (2016)
- 10 C.F.R. pt. 50, app. J, option B § II  
U.S. nuclear power plants have containment systems that serve as the principal barrier, after the reactor coolant pressure boundary, to prevent release of quantities of radioactive material that would significantly affect public health; CLI-16-5, 83 NRC 132-33 (2016)
- 10 C.F.R. pt. 50, app. J, option B § III.A  
Type A tests to measure containment overall integrated leakage rate are discussed; CLI-16-5, 83 NRC 133 (2016)
- 10 C.F.R. pt. 50, app. J, option B § III.B  
licensees must perform Type B tests to detect and measure local leakage rates across pressure-retaining, leakage-limiting boundaries; CLI-16-5, 83 NRC 133 n.5 (2016)  
licensees must perform Type C tests to measure containment isolation valve leakage; CLI-16-5, 83 NRC 133 n.5 (2016)
- 10 C.F.R. 51.10  
NRC must consider impacts of its actions on environmental values; CLI-16-4, 83 NRC 64 (2016)
- 10 C.F.R. 51.14  
categorical exclusion means a category of actions that do not individually or cumulatively have a significant effect on the human environment and require neither an environmental assessment nor an environmental impact statement; LBP-16-8, 83 NRC 422 n.13 (2016)
- 10 C.F.R. 51.14(b)  
agencies must consider environmental effects that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions with the goal of making sure that individually minor but collectively significant actions are properly analyzed; LBP-16-8, 83 NRC 445 (2016)



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- 10 C.F.R. 51.20(a)(1)  
NRC Staff must prepare an environmental impact statement under NEPA for major actions that have a significant environmental effect; CLI-16-12, 83 NRC 559 n.97 (2016)
- 10 C.F.R. 51.22  
license amendment request must meet criteria for a categorical exclusion from the requirement to prepare an environmental analysis; CLI-16-5, 83 NRC 136 (2016)
- 10 C.F.R. 51.22(a)  
categories of actions are listed that are exempt from NEPA review because NRC has made a generic finding that the actions do not individually or cumulatively have a significant effect on the human environment; CLI-16-5, 83 NRC 144 n.85 (2016)
- 10 C.F.R. 51.22(b)  
environmental impact statement or environmental assessment is not required if a categorical exclusion applies; LBP-16-5, 83 NRC 290 (2016)  
specific avenues are provided for petitioners to challenge categorical exclusion determinations; CLI-16-5, 83 NRC 145 (2016)
- 10 C.F.R. 51.22(c)(9)  
assertion that license amendment would put residents of the surrounding community at greater risk from ionizing radiation exposure, if adequately supported, could identify a genuine dispute with licensee's conclusion that the license amendment falls within the categorical exclusion from NEPA review; LBP-16-5, 83 NRC 290 (2016)  
categorical exclusions involve a significant hazards consideration, which would prevent them from being exempted; CLI-16-5, 83 NRC 144 (2016)
- 10 C.F.R. 51.22(c)(9)(i)-(iii)  
conditions under which a categorical exclusion applies are described; LBP-16-5, 83 NRC 290 (2016)
- 10 C.F.R. 51.22(c)(9)(ii)  
specific avenues are provided for petitioners to challenge categorical exclusion determinations; CLI-16-5, 83 NRC 145 (2016)
- 10 C.F.R. 51.22(c)(9)(iii)  
specific avenues are provided for petitioners to challenge categorical exclusion determinations; CLI-16-5, 83 NRC 145 (2016)
- 10 C.F.R. 51.26  
NRC must publish a notice of intent to prepare an environmental impact statement; LBP-16-4, 83 NRC 194 (2016)
- 10 C.F.R. 51.45(b)(2)  
environmental impacts from severe accidents shall be discussed in proportion to their significance; CLI-16-7, 83 NRC 323 n.156 (2016)
- 10 C.F.R. 51.50(c)(1)(iii)  
applicant for a combined license that references an early site permit must provide any new and significant information for issues related to the impacts of construction and operation of the facility that were resolved in the ESP proceeding; LBP-16-4, 83 NRC 241 (2016)
- 10 C.F.R. 51.53(c)(2)  
contention alleging that environmental report does not evaluate a reasonable array of energy alternatives that are commercially viable or will become so within the next 10 years is inadmissible; CLI-16-11, 83 NRC 527 n.17 (2016)
- 10 C.F.R. 51.53(c)(3)(ii)(L)  
contention that revised SAMA analysis is not based on a sufficiently rigorous or up-to-date analysis of seismic risks is inadmissible; CLI-16-11, 83 NRC 530 (2016)  
contention that SAMA analysis did not satisfy requirements of NEPA or failed to consider information regarding an earthquake fault that is necessary to understand seismic risks to a nuclear power plant is inadmissible; CLI-16-11, 83 NRC 535 n.65 (2016)  
severe accident mitigation alternatives analysis is performed solely pursuant to NEPA and NRC's NEPA-related environmental regulations; CLI-16-10, 83 NRC 498 (2016)  
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- 10 C.F.R. 51.71(b)  
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- 10 C.F.R. 51.90-94  
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- 10 C.F.R. 51.92  
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- 10 C.F.R. 51.92(a)  
NRC Staff must prepare a supplement to a final environmental impact statement if there are substantial changes in the proposed action that are relevant to environmental concerns or new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; CLI-16-3, 83 NRC 55 (2016)
- 10 C.F.R. 51.92(a)(2)  
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- 10 C.F.R. 51.92(c)  
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- 10 C.F.R. 51.102  
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- 10 C.F.R. 51.103(a)(4)  
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NRC Staff's record of decision must explain why mitigation measures were not adopted; CLI-16-10, 83 NRC 516 (2016)
- 10 C.F.R. 51.105(a)  
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- 10 C.F.R. 51.105(a)(1)-(4)  
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- 10 C.F.R. 51.105(a)(5)  
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- 10 C.F.R. 51.107(a)  
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- summary of findings on NRC Staff's environmental review must be provided; CLI-16-2, 83 NRC 27 (2016)
- 10 C.F.R. pt. 51, subpt. A, app. A, § 1(b)  
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- 10 C.F.R. pt. 51, subpt. A, app. A, § 5  
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- 10 C.F.R. pt. 51, subpt. A, app. A, § III.C  
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- 10 C.F.R. pt. 51, subpt. A, app. B  
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- 10 C.F.R. pt. 51, subpt. A, app. B, n.2  
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- 10 C.F.R. pt. 51, subpt. A, app. B, tbl.B-1  
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- 10 C.F.R. pt. 52  
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- 10 C.F.R. 52.1(a)  
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- 10 C.F.R. 52.17(c)  
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- 10 C.F.R. 52.21  
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- 10 C.F.R. 52.24(a)  
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- 10 C.F.R. 52.24(a)(1)  
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- 10 C.F.R. 52.24(a)(1)-(6), (8)  
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- 10 C.F.R. 52.24(a)(2)  
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- 10 C.F.R. 52.24(a)(3)  
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- 10 C.F.R. 52.24(a)(4)  
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- 10 C.F.R. 52.24(a)(5)  
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- 10 C.F.R. 52.24(a)(6)  
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- 10 C.F.R. 52.24(a)(7)  
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- 10 C.F.R. 52.24(a)(8)  
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- 10 C.F.R. 52.24(b)  
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- 10 C.F.R. 52.25  
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- 10 C.F.R. 52.55(c)  
applicant for a combined license may reference a reactor design that is undergoing design certification rulemaking, doing so at its own risk, given that the design certification might not be granted; CLI-16-12, 83 NRC 555 n.70 (2016)
- 10 C.F.R. 52.73  
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- 10 C.F.R. 52.77  
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- 10 C.F.R. 52.79(a)(1)(iii)  
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- 10 C.F.R. 52.87  
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- 10 C.F.R. 52.97(a)(1)  
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- 10 C.F.R. pt. 52, app. A  
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- 10 C.F.R. pt. 52, app. A, § VII.B  
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- 10 C.F.R. pt. 52, app. D, § VIII.B.6.c(4)  
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- 10 C.F.R. 54.4  
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- 10 C.F.R. 54.21  
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- 10 C.F.R. 54.29(b)  
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- 10 C.F.R. 54.33(c)  
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- 10 C.F.R. 60.4(d)  
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- 10 C.F.R. 70.22(b)  
material control and accounting requirements do not apply to reactors or expressly contain exclusions for reactors licensed under Part 50; CLI-16-2, 83 NRC 30 (2016)
- 10 C.F.R. 70.23(a)(5)  
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- 10 C.F.R. 70.32(c)  
material control and accounting requirements do not apply to reactors or expressly contain exclusions for reactors licensed under Part 50; CLI-16-2, 83 NRC 30 (2016)
- 10 C.F.R. 73.55  
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- 10 C.F.R. 73.56(a)(2)  
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- 10 C.F.R. 73.56(f)(1)  
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- 10 C.F.R. 73.56(f)(3)  
individuals subject to an access authorization program must report any concerns arising from behavioral observation, including concerns related to any questionable behavior patterns or activities of others to a reviewing official, his or her supervisor, or other management personnel as designated in site procedures; CLI-16-6, 83 NRC 149 n.5 (2016)
- 10 C.F.R. 74.31, 74.41, 74.51  
material control and accounting requirements do not apply to reactors or expressly contain exclusions for reactors licensed under Part 50; CLI-16-2, 83 NRC 30 (2016)
- 10 C.F.R. pt. 100  
findings for issuance of a construction permit require that NRC consider site criteria to ensure that the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public; CLI-16-4, 83 NRC 83 (2016)  
site criteria do not expressly apply to a medical radioisotope production facility but NRC Staff considers conditions similar to those in Part 100 in its review of the suitability of a proposed site; CLI-16-4, 83 NRC 83 (2016)
- 10 C.F.R. 100.3  
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- 10 C.F.R. 100.10  
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- 10 C.F.R. pt. 140  
information on nuclear insurance and indemnity pursuant to the Price-Anderson Act is outside the scope of the construction permit application because applicant has not applied to possess special nuclear material; CLI-16-4, 83 NRC 85 n.219 (2016)
- 36 C.F.R. 60.4  
cemeteries, birthplaces, or graves of historical figures are not eligible for listing as a historic property unless the cemetery derives its importance through other means, such as association with historic events; LBP-16-7, 83 NRC 387 (2016)  
cursory discussions and a brief bus tour cannot be deemed to meet NHPA's requirements to identify, assess, and attempt to mitigate impacts to potential historic properties of significance to Indian tribes; LBP-16-7, 83 NRC 394 (2016)  
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historic property's attributes are location, design, setting, materials, workmanship, feeling, and association; LBP-16-7, 83 NRC 385 (2016)  
prior to 1992, historic properties could be placed on the National Register only if they met certain regulatory requirements, none of which considered the unique interests and viewpoints of Native Americans; LBP-16-7, 83 NRC 354 (2016)
- 36 C.F.R. 60.4(a)  
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- 36 C.F.R. 60.4(c)  
historic properties must embody type, period, method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; LBP-16-7, 83 NRC 386-87 (2016)
- 36 C.F.R. 800.1(a)  
Advisory Council on Historic Preservation is empowered by statute to promulgate binding regulations implementing section 106 of the National Historic Preservation Act; LBP-16-7, 83 NRC 350 n.21 (2016)
- 36 C.F.R. 800.2(a)(3)  
NHPA does not bar the use of consultants; LBP-16-7, 83 NRC 378 (2016)
- 36 C.F.R. 800.2(c)(2)(ii)(A)  
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- 36 C.F.R. 800.2(c)(2)(ii)(C)  
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- 36 C.F.R. 800.2(c)(2)(ii)(D)  
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- 36 C.F.R. 800.4(a)(4)  
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- 36 C.F.R. 800.4(b)  
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- 36 C.F.R. 800.4(b)(1)  
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- 36 C.F.R. 800.4(c)  
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- 36 C.F.R. 800.4(c)(1)  
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- 36 C.F.R. 800.4(d), 800.5(a)  
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- 36 C.F.R. 800.6(b)  
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- 40 C.F.R. 1500.1(b)  
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- 40 C.F.R. 1501.4(e)  
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- 40 C.F.R. 1502.1  
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- 40 C.F.R. 1502.2  
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- 40 C.F.R. 1502.2(g)  
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- 40 C.F.R. 1502.4(a)  
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- 40 C.F.R. 1502.7  
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- 40 C.F.R. 1502.20  
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- 40 C.F.R. 1502.21  
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- 40 C.F.R. 1506.5(c)  
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- 40 C.F.R. 1508.7  
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- 40 C.F.R. 1508.8  
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- 40 C.F.R. 1508.9  
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- 40 C.F.R. 1508.9(a)  
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- 40 C.F.R. 1508.13  
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- 40 C.F.R. 1508.25(a)  
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- 40 C.F.R. 1508.27(b)  
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- Administrative Procedure Act, 5 U.S.C. § 556(d)  
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- American Medical Isotopes Production Act, 42 U.S.C. § 2065(d)  
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- American Medical Isotopes Production Act, 42 U.S.C. § 2065(c)(3)(A)(ii)  
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88 n.242 (2016)
- Atomic Energy Act, 42 U.S.C. § 2039  
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- Atomic Energy Act, 170, 42 U.S.C. § 2210  
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- Atomic Energy Act, 182a, 42 U.S.C. § 2232(a)  
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n.119 (2016)
- NRC is required to ensure adequate protection of public health and safety; CLI-16-10, 83 NRC 496  
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- Atomic Energy Act, 182b, 42 U.S.C. § 2232(b)  
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CLI-16-2, 83 NRC 17 (2016); CLI-16-4, 83 NRC 62 (2016); LBP-16-4, 83 NRC 193 (2016)
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- NRC must hold a hearing on an application to construct a commercial production or utilization facility;  
CLI-16-4, 83 NRC 62 (2016)
- opportunity to request a hearing is required in any proceeding for the granting, suspending, revoking, or  
amending of any license; CLI-16-9, 83 NRC 474 (2016)
- Atomic Energy Act, 189a(1)(A), 42 U.S.C. § 2239(a)(1)(A)  
license amendment request would trigger an opportunity for a hearing; CLI-16-8, 83 NRC 469 (2016)  
mandatory (uncontested) hearing must be conducted for a production or utilization facility in which  
applicant and NRC Staff are the parties; LBP-16-1, 83 NRC 105 n.6 (2016)

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mandatory (uncontested) hearing must be conducted on an early site permit application; LBP-16-4, 83 NRC 191 (2016)

NRC must provide a hearing upon the request of any person whose interest may be affected by the proceeding; LBP-16-5, 83 NRC 267 (2016)

NRC shall hold a hearing on each application under section 2133 or 2134(b) of this title for a construction permit for a facility; LBP-16-4, 83 NRC 196 (2016)

petitioner must provide sufficient detail for proposed contentions to demonstrate that the issues raised are admissible and that further inquiry is warranted; LBP-16-2, 83 NRC 111 (2016)

Atomic Energy Act, 42 U.S.C. § 2241(a)

Congress specifically created licensing boards to serve as a panel of experts; LBP-16-7, 83 NRC 405, 408 (2016)

Clean Water Act, 404

mitigation measures for aquatic resources are reasonably foreseeable because applicant will be required to acquire federal permits; LBP-16-4, 83 NRC 249 (2016)

Endangered Species Act, 7(a)(2), 16 U.S.C. § 1536(a)(2)

NRC Staff, in consultation with and with assistance of the Secretary of the Interior or the Secretary of Commerce, must evaluate whether any threatened or endangered species are present onsite that could be affected by construction of the medical radioisotope production facility; CLI-16-4, 83 NRC 88 (2016) Fla. Admin. Code 62-528.450(3)(b)(5)

written authorization for operational testing to include weekly groundwater sampling of monitor wells is required; LBP-16-3, 83 NRC 184 n.29 (2016)

Fla. Admin. Code 62-528.450(3)(d)

sampling frequency may be reduced after a minimum of 6 months of operational testing if data indicate that parameter values have stabilized; LBP-16-3, 83 NRC 184 n.29 (2016)

Fla. Stat. § 120.57(1)(l) (2015)

agency may adopt the recommended order as the final order of the agency or in its final order may reject or modify the conclusions of law over which it has substantive jurisdiction; LBP-16-8, 83 NRC 429 n.71 (2016)

National Environmental Policy Act, 42 U.S.C. § 4332

license amendment request must meet criteria for a categorical exclusion from the requirement to prepare an environmental analysis; CLI-16-5, 83 NRC 136 (2016)

National Environmental Policy Act, 102(2), 42 U.S.C. § 4332(2)

NRC must consider impacts of its actions on environmental values; CLI-16-4, 83 NRC 64 (2016)

National Environmental Policy Act, 102(2)(A), 42 U.S.C. § 4332(2)(A)

agencies must use a systematic, interdisciplinary approach that will ensure the integrated use of the natural and social sciences and the environmental design arts in decisionmaking that may impact the environment; CLI-16-2, 83 NRC 48 (2016); CLI-16-4, 83 NRC 92 (2016)

National Environmental Policy Act, § 102(2)(A), (C), and (E)

summary of findings on NRC Staff's environmental review must be provided; CLI-16-2, 83 NRC 27 (2016)

National Environmental Policy Act, 42 U.S.C. § 4332(2)(C)

environmental impact statement is required for all major NRC licensing efforts significantly affecting the quality of the human environment; LBP-16-7, 83 NRC 352 (2016)

National Environmental Policy Act, 102(2)(C)(ii)-(v), 42 U.S.C. § 4332(2)(C)(ii)-(v)

NRC must assess the relationship between local short-term uses and long-term productivity of the environment, consider alternatives, and describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action; CLI-16-2, 83 NRC 49 (2016); CLI-16-4, 83 NRC 93 (2016)

National Environmental Policy Act, 102(2)(E), 42 U.S.C. § 4332(2)(E)

agencies must study, develop, and describe appropriate alternatives to the proposed action; CLI-16-2, 83 NRC 48 (2016); CLI-16-4, 83 NRC 92 (2016)

National Historic Preservation Act, 16 U.S.C. 470(f) (1988)

in 1988, NRC Staff was not obligated to consider the cultural or religious significance that tribes might ascribe to TCPs, as was required in 2007; LBP-16-7, 83 NRC 384 (2016)

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### STATUTES

- National Historic Preservation Act, 54 U.S.C. § 300308 (West 2016)  
“historic property” refers to the subset of cultural resources, that are included in or eligible for placement in the National Register of Historic Places; LBP-16-7, 83 NRC 353 n.56 (2016)
- National Historic Preservation Act, 54 U.S.C.A. § 302706 (West 2016)  
no more of a federal agency is required than to afford an opportunity for Indian tribes to consult meaningfully on federal actions that affect properties of religious or cultural significance to an Indian tribe, as well as to advise the agency on identification and evaluation of such properties, and to participate in the resolution of any possible adverse consequences; LBP-16-7, 83 NRC 382-83 (2016)
- National Historic Preservation Act, 54 U.S.C.A. § 302706(a) (West 2016)  
in 1988, NRC Staff was not obligated to consider the cultural or religious significance that tribes might ascribe to TCPs, as was required in 2007; LBP-16-7, 83 NRC 384 (2016)  
properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register; LBP-16-7, 83 NRC 354 (2016)
- National Historic Preservation Act, 54 U.S.C.A. § 302706(b) (West 2016)  
federal agency must consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties; LBP-16-7, 83 NRC 355 (2016)
- National Historic Preservation Act, 54 U.S.C.A. § 304108 (West 2016)  
Advisory Council on Historic Preservation is empowered by statute to promulgate binding regulations implementing section 106 of the NHPA; LBP-16-7, 83 NRC 350 n.21 (2016)
- National Historic Preservation Act, 106, 54 U.S.C.A. § 306108 (West 2016)  
cursory discussions and a brief bus tour cannot be deemed to meet NHPA’s requirements to identify, assess, and attempt to mitigate impacts to potential historic properties of significance to Indian tribes; LBP-16-7, 83 NRC 394 (2016)  
federal agencies must take into account the effect of an undertaking on any historic property prior to approving an action; LBP-16-7, 83 NRC 353 (2016)
- National Historic Preservation Act Amendments of 1992, Pub. L. No. 102-575 § XL, 106 Stat. 4600 (Jan. 3, 1992)  
changes made to the NHPA bestowed special protections on Native American historic properties; LBP-16-7, 83 NRC 354 (2016)
- National Historic Preservation Act Amendments of 1992, 4006  
federal agency must consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties; LBP-16-7, 83 NRC 355 (2016)  
properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register; LBP-16-7, 83 NRC 354 (2016)
- Native American Graves Protection and Repatriation Act, Pub. L. No. 101-61, 104 Stat. 3048 (1990)  
(codified at 25 U.S.C. § 3001 *et seq.*)  
cemeteries can have distinct cultural and religious importance to Indian tribes; LBP-16-7, 83 NRC 388 (2016)
- Rivers and Harbors Act of 1899, 10  
mitigation measures for aquatic resources are reasonably foreseeable because applicant will be required to acquire federal permits; LBP-16-4, 83 NRC 249 (2016)



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### OTHERS

- Exec. Order No. 12898  
because the order does not create any new rights, it cannot provide a legal basis for contentions to be litigated in NRC licensing proceedings; LBP-16-5, 83 NRC 289 (2016)  
federal agencies are directed to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations; LBP-16-5, 83 NRC 288 (2016)
- Exec. Order No. 12898 § 1-101  
each federal agency shall comply with the order; LBP-16-5, 83 NRC 288 (2016)
- Exec. Order No. 12898 § 6-604  
independent agencies are requested to comply with the provisions of this order; LBP-16-5, 83 NRC 288 (2016)
- Exec. Order No. 13175  
criteria to determine whether a federal agency has complied with its NHPA Consultation Obligations are provided; LBP-16-7, 83 NRC 366 (2016)
- Fed. R. Civ. P. 32(a)(8)  
sworn testimony from previous, related proceedings may be admitted where the same witness appears in the current proceeding; LBP-16-7, 83 NRC 410 (2016)
- Fed. R. Civ. P. 56(a)  
court shall grant summary judgment if movant shows that there is no genuine dispute as to any material fact and movant is entitled to judgment as a matter of law; LBP-16-3, 83 NRC 176 n.17 (2016)
- Fed. R. Evid. 403  
courts may exclude relevant evidence if its probative value is substantially outweighed by a danger of unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence; LBP-16-4, 83 NRC 210 n.171 (2016)
- Fed. R. Evid. 615  
at the request of any party, a court must order witnesses excluded so that they cannot hear other witnesses' testimony or the court may do so on its own; LBP-16-4, 83 NRC 210 n.169 (2016)
- Fed. R. Evid. 804(a)(4), (b)(1)  
sworn testimony from previous, related proceedings may be admitted when a witness passes before the hearing commences; LBP-16-7, 83 NRC 410 (2016)
- S. Rep. No. 102-336, at 13 (1992)  
NHPA Amendments established mechanisms for more meaningful involvement of Indian tribes in agency historic preservation efforts; LBP-16-7, 83 NRC 354 (2016)





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### ABEYANCE OF CONTENTION

if the board were to allow a contention to remain pending for a year or more in anticipation of the draft SEIS, when no genuinely contested matter remained before it, the board would have acted counter to Commission direction that a board's jurisdiction terminates when the contested matters before it have been resolved; CLI-16-11, 83 NRC 524 (2016)

### ABEYANCE OF PROCEEDING

Commission declined to hold combined license proceeding in abeyance pending completion of the design certification rulemaking for the design referenced in the application; CLI-16-12, 83 NRC 542 (2016)

### ACCESS AUTHORIZATION

individuals subject to an access authorization program must report any concerns arising from behavioral observation, including concerns related to any questionable behavior patterns or activities of others to a reviewing official, his or her supervisor, or other management personnel as designated in site procedures; CLI-16-6, 83 NRC 147 (2016)

licensee must establish, implement, and maintain an access authorization program; CLI-16-6, 83 NRC 147 (2016)

programs must include a behavioral observation program designed to detect behaviors or activities that may constitute an unreasonable risk to the public health and safety and common defense and security; CLI-16-6, 83 NRC 147 (2016)

### ACCIDENTS

dose consequence estimates from accident scenario at medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)

### ACCIDENTS, LOSS-OF-COOLANT

requirement to maintain equipment needed to mitigate a design-basis loss-of-coolant accident hydrogen release, including hydrogen recombiners, was eliminated; CLI-16-2, 83 NRC 13 (2016)

### ACCIDENTS, SEVERE

combined license applicants must perform a structural analysis that demonstrates containment structural integrity in the event of an accident that releases hydrogen generated from 100% fuel clad-coolant reaction accompanied by hydrogen burning; CLI-16-2, 83 NRC 13 (2016)

environmental impacts from severe accidents shall be discussed in proportion to their significance; CLI-16-7, 83 NRC 293 (2016)

NRC has generically determined, based on probability-weighted consequences, that environmental impacts from severe accidents at plants operating under renewed licenses are expected to be small; CLI-16-7, 83 NRC 293 (2016)

reactor containments must be able to ensure a mixed atmosphere during design-basis and significant beyond-design-basis accidents; CLI-16-2, 83 NRC 13 (2016)

See also Fukushima Accident; Severe Accident Mitigation Alternatives Analysis

### ADJUDICATORY HEARINGS

it generally is in the public interest to avoid the expense of an adjudicatory hearing when NRC Staff review of a docketed license application has been suspended; LBP-16-2, 83 NRC 107 (2016)

See also Demand for Hearing; Hearing Denials; Hearing Requests; Hearing Requirements; Hearing Rights; Notice of Hearing

### ADJUDICATORY PROCEEDINGS

withdrawal of an application moots any adjudicatory proceeding regarding that application; LBP-16-1, 83 NRC 97 (2016)

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See also Combined License Proceedings; Construction Permit Proceeding; Dismissal of Proceeding; Early Site Permit Proceedings; License Transfer Proceedings; Materials License Renewal Proceedings; Operating License Amendment Proceedings; Operating License Proceedings; Operating License Renewal Proceedings

### ADMINISTRATIVE PROCEDURE ACT

licensing board should not allow glaring gaps in NRC Staff's environmental analysis to go unexplored; LBP-16-7, 83 NRC 340 (2016)

### ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ACRS is an independent committee of technical experts who advise NRC on hazards of proposed or existing reactor facilities and adequacy of proposed reactor safety standards; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016); LBP-16-4, 83 NRC 187 (2016)

### ADVISORY COUNCIL ON HISTORIC PRESERVATION

ACHP is empowered by statute to promulgate binding regulations implementing section 106 of the National Historic Preservation Act; LBP-16-7, 83 NRC 340 (2016)  
field investigations are envisioned as a means of compliance with the ACHP; LBP-16-7, 83 NRC 340 (2016)

### ADVISORY OPINIONS

Commission disfavours issuance of advisory opinions and prefers instead to address issues in the context of a concrete dispute; CLI-16-6, 83 NRC 147 (2016)

### AFFIDAVITS

motions to reopen must be accompanied by affidavits that set forth the factual and/or technical bases for movant's claim; LBP-16-6, 83 NRC 329 (2016)  
motions to reopen must separately address each of the reopening criteria and provide a specific explanation of why it has been met; LBP-16-6, 83 NRC 329 (2016)

### AIRCRAFT CRASHES

standard design certification for U.S. Advanced Boiling Water Reactor design was amended to comply with NRC's aircraft impact assessment regulations; CLI-16-2, 83 NRC 13 (2016)

### ALARA

to receive a license amendment allowing use of an alternate concentration limit, licensee must demonstrate that the concentration of the particular hazardous constituent is as low as reasonably achievable and that the ACL presents no significant hazard to human health or the environment; CLI-16-13, 83 NRC 566 (2016)

### ALARA PRINCIPLE

contention alleging that proposed weakening of concrete tolerance standards could result in plant workers being exposed to levels of radiation in excess of the as low as is reasonably achievable standard is dismissed; LBP-16-5, 83 NRC 259 (2016)

### ALTERNATE CONCENTRATION LIMITS

contention that FSEIS did not consider the extent to which groundwater will be degraded due to the establishment of ACLs for hazardous constituents after site restoration is inadmissible; CLI-16-13, 83 NRC 566 (2016)  
if licensee cannot meet primary or secondary standards for a particular constituent after restoration efforts, it may file a license amendment request for a site-specific ACL for that constituent; CLI-16-13, 83 NRC 566 (2016)  
no ACL will be approved without meeting safety criteria, regardless of whether any intervenor has contested the matter; CLI-16-13, 83 NRC 566 (2016)  
potential adverse effects to groundwater and to hydraulically connected surface water, current and future uses of the ground and surface waters, and possible cumulative effects with other sources of contamination preclude use of an ACL; CLI-16-13, 83 NRC 566 (2016)  
to receive a license amendment allowing use of an ACL, licensee must demonstrate that the concentration of the particular hazardous constituent is as low as reasonably achievable and that the ACL presents no significant hazard to human health or the environment; CLI-16-13, 83 NRC 566 (2016)

### AMENDMENT OF CONTENTIONS

if an amended or new contention was not required in omission situations, an original contention alleging simply a failure to address a subject could readily be transformed without basis or support into a broad

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series of disparate new claims, which effectively would circumvent NRC contention-pleading standards; CLI-16-11, 83 NRC 524 (2016)

### AMENDMENT OF REGULATIONS

definition of “utilization facility” was amended to include an irradiation facility; CLI-16-4, 83 NRC 58 (2016)

### AMERICAN MEDICAL ISOTOPES PRODUCTION ACT

Department of Energy must take back and dispose of waste without a disposal path; CLI-16-4, 83 NRC 58 (2016)

### AMICUS PLEADINGS

governmental entity denied participation may, in the Commission’s discretion, file an amicus brief should there be an appeal from the board’s forthcoming initial decision; LBP-16-6, 83 NRC 329 (2016)

### APPEALS

any party may petition the Commission for review of an Initial Decision; LBP-16-8, 83 NRC 417 (2016)

appeal as of right is reserved for situations where a petition is denied in its entirety, therefore having the effect of wholly refusing a petitioner entry into a proceeding; CLI-16-1, 83 NRC 1 (2016)

appeals based on nothing more than speculation are insufficient to support Commission review; CLI-16-5, 83 NRC 131 (2016)

appeals of rulings on contention admissibility must abide the end of the case; CLI-16-1, 83 NRC 1 (2016)

governmental entity denied participation may, in the Commission’s discretion, file an amicus brief should there be an appeal from the board’s forthcoming initial decision; LBP-16-6, 83 NRC 329 (2016)

order denying a request for hearing is appealable as to the question whether the hearing request should have been granted; CLI-16-9, 83 NRC 472 (2016)

partial initial decisions are reviewable under 10 C.F.R. 2.341(b)(1) because they are considered final decisions; LBP-16-7, 83 NRC 340 (2016)

participating government may seek Commission review only on admitted contentions; CLI-16-1, 83 NRC 1 (2016)

petitioner has an automatic right to appeal a board decision on the question of whether a petition to intervene should have been granted; CLI-16-5, 83 NRC 131 (2016)

unless otherwise authorized by law, a party must file a petition for review to exhaust its administrative remedies before seeking judicial review; LBP-16-8, 83 NRC 417 (2016)

where the board has ruled only partially on the initial intervention petition, an appeal right under 10 C.F.R. 2.311 does not accrue until the board has ruled on the entire petition; CLI-16-1, 83 NRC 1 (2016); CLI-16-2, 83 NRC 13 (2016)

where without-prejudice withdrawal motion is unopposed and board has not imposed any conditions in approving the motion, it does not include in its decision a statement concerning the submission of petitions for review contesting board’s final determination; LBP-16-1, 83 NRC 97 (2016)

See also Briefs, Appellate

### APPEALS, INTERLOCUTORY

if litigant has been denied admission of certain contentions but still has other contentions pending in the proceeding, section 2.311 does not provide for immediate interlocutory review of the dismissal of those contentions; CLI-16-1, 83 NRC 1 (2016)

interlocutory appeal as of right with respect to contention admissibility rulings is allowed in two specific circumstances; CLI-16-1, 83 NRC 1 (2016)

interlocutory review was denied to interested state that attempted to appeal dismissal of particular issues it sought to litigate; CLI-16-1, 83 NRC 1 (2016)

petition for discretionary interlocutory review must demonstrate that petitioner faces immediate and serious irreparable impact which could not be alleviated through a petition for review of the presiding officer’s final decision, or that the issue affects the basic structure of the proceeding in a pervasive or unusual manner; CLI-16-1, 83 NRC 1 (2016)

petitioners must demonstrate a basis for review; CLI-16-11, 83 NRC 524 (2016)

### APPELLATE REVIEW

absent error of law or abuse of discretion, Commission gives substantial deference to board rulings on threshold procedural matters such as standing and contention admissibility; CLI-16-9, 83 NRC 472 (2016)

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Commission declines to hold oral argument where the record provides sufficient information on which to base its decision; CLI-16-10, 83 NRC 494 (2016)

Commission declines to review a board's plausible decision that rests on carefully rendered findings of fact, even where the record includes evidence that supports a different view; CLI-16-13, 83 NRC 566 (2016)

Commission defers to a board's contention admissibility rulings unless the appeal points to an error of law or abuse of discretion; CLI-16-5, 83 NRC 131 (2016); CLI-16-13, 83 NRC 566 (2016)

Commission does not consider cursory, unexplained legal arguments on appeal and will not speculate about what a pleading is supposed to mean; CLI-16-13, 83 NRC 566 (2016)

Commission reviews questions of law de novo and defers to board findings with respect to the underlying facts unless the findings are clearly erroneous; CLI-16-13, 83 NRC 566 (2016)

Commission typically declines to second-guess the board on its fact-specific conclusions, except where the decision contains obvious material factual errors and could be misleading, warranting clarification; CLI-16-7, 83 NRC 293 (2016)

Commission will grant a petition for review at its discretion, giving due weight to the existence of a substantial question with respect to one or more of the considerations in 10 C.F.R. 2.341(b)(4); CLI-16-11, 83 NRC 524 (2016)

Commission will not second-guess board's evaluation of factual support for a contention, absent an error of law or abuse of discretion; CLI-16-13, 83 NRC 566 (2016)

Commission will uphold a licensing board ruling on standing and contention admissibility unless it finds that the board erred as a matter of law or abused its discretion; CLI-16-12, 83 NRC 542 (2016)

oral argument on the merits of appeals may be allowed at the Commission's discretion; CLI-16-10, 83 NRC 494 (2016)

petition for review will be granted at the Commission's discretion upon a showing that petitioner has raised a substantial question as to any of the considerations in 10 C.F.R. 2.341(b)(4); CLI-16-13, 83 NRC 566 (2016)

where a petition for review relies primarily on claims that the Board erred in weighing the evidence in a merits decision, Commission seldom grants review; CLI-16-13, 83 NRC 566 (2016)

where board's factual finding resolved two competing technical opinions, the Commission ordinarily defers to the board's judgment; CLI-16-13, 83 NRC 566 (2016)

### APPROVAL OF LICENSE

certain NRC license applications may be granted at the conclusion of NRC Staff's review process even though a hearing is pending, but can be revoked, conditioned, modified, or affirmed, based on the evidence adduced at a licensing board evidentiary hearing; LBP-16-7, 83 NRC 340 (2016)

early site permit may issue if the board finds that any significant adverse environmental impact resulting from activities requested under section 52.17(c) can be redressed; LBP-16-4, 83 NRC 187 (2016)

early site permit may issue if the board finds that the requirements of 10 C.F.R. 52.24(a), and the incorporated provisions of 10 C.F.R. 51.105(a), are satisfied; LBP-16-4, 83 NRC 187 (2016)

NEPA does not demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act or a detailed explanation of specific measures that will be employed to mitigate the adverse impacts of a proposed action; LBP-16-8, 83 NRC 417 (2016)

NRC Staff's practice in materials cases is to issue a license before completion of contested hearings on environmental matters; CLI-16-13, 83 NRC 566 (2016)

safe design of the facility is a matter that applicant must establish to obtain a license; CLI-16-12, 83 NRC 542 (2016)

### AQUATIC IMPACTS

mitigation measures are reasonably foreseeable because applicant will be required to acquire federal permits; LBP-16-4, 83 NRC 187 (2016)

### ASSUMPTION OF COMPLIANCE

absent information to the contrary, NRC may properly assume that applicant or licensee will comply with concrete and enforceable conditions and requirements imposed by statutes, regulations, licenses, or permits issued by competent federal, state, or local governmental entities; LBP-16-8, 83 NRC 417 (2016)

NRC does not assume that licensee will ignore its obligations; CLI-16-13, 83 NRC 566 (2016)

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### ATMOSPHERIC EMISSIONS

NRC Staff is asked to explain, for the non-expert, how applicant calculated long-term atmospheric dispersion for routine releases; LBP-16-4, 83 NRC 187 (2016)

### ATOMIC ENERGY ACT

Advisory Committee on Reactor Safeguards is an independent committee of technical experts who advise NRC on hazards of proposed or existing reactor facilities and adequacy of proposed reactor safety standards; CLI-16-4, 83 NRC 58 (2016); LBP-16-4, 83 NRC 187 (2016)

AEA concentrates on licensing and regulation of nuclear materials for purpose of protecting public health and safety and the common defense and security; CLI-16-6, 83 NRC 147 (2016)

as partial construction permit applications, ESP applications are subject to the hearing requirement of AEA § 189a(1)(A); LBP-16-4, 83 NRC 187 (2016)

Congress specifically created licensing boards to serve as a panel of experts that brings all accumulated knowledge possessed by both technical members to bear on the questions before it; LBP-16-7, 83 NRC 340 (2016)

early site permit applications, as partial construction permit applications, are subject to the hearing requirement of section 189a(1)(A) of the Atomic Energy Act; LBP-16-4, 83 NRC 187 (2016)

exemption requests are not among the listed actions that are subject to a hearing, and their absence from section 189a has been interpreted as intentional; CLI-16-12, 83 NRC 542 (2016)

hearing must be held on each application to construct a nuclear power plant, regardless of whether an interested member of the public requests a hearing on the application; CLI-16-2, 83 NRC 13 (2016)

information on nuclear insurance and indemnity pursuant to the Price-Anderson Act is outside the scope of the construction permit application because applicant has not applied to possess special nuclear material; CLI-16-4, 83 NRC 58 (2016)

interested members of the public have the right to request a hearing on a license amendment application; CLI-16-12, 83 NRC 542 (2016)

NRC has broad discretion to prescribe requirements for financial qualifications; CLI-16-2, 83 NRC 13 (2016)

NRC is required to ensure adequate protection of public health and safety; CLI-16-10, 83 NRC 494 (2016)

NRC must hold a hearing on an application to construct a commercial production or utilization facility; CLI-16-4, 83 NRC 58 (2016)

NRC must provide a hearing upon the request of any person whose interest may be affected by the proceeding; LBP-16-5, 83 NRC 259 (2016)

opportunity to request a hearing is required in any proceeding for the granting, suspending, revoking, or amending of any license; CLI-16-9, 83 NRC 472 (2016)

petitioner must provide sufficient detail for proposed contentions to demonstrate that the issues raised are admissible and that further inquiry is warranted; LBP-16-2, 83 NRC 107 (2016)

specific structure for a mandatory hearing is not prescribed by the AEA and the Commission has allowed licensing boards flexibility to select the most appropriate approach in the circumstances of each individual case; LBP-16-4, 83 NRC 187 (2016)

### BACKFITTING

analysis encompasses significant considerations beyond those considered in a SAMA analysis; CLI-16-10, 83 NRC 494 (2016)

analysis may consider any relevant and material information and must consider potential safety impact of changes in plant and operational complexity, including relationship to proposed and existing regulatory requirements, resource burden on NRC and availability of such resources, and continuing costs associated with the backfit; CLI-16-10, 83 NRC 494 (2016)

by implying that NRC Staff has a duty to impose cost-beneficial SAMAs as backfits, the board mistakenly suggested that SAMA analysis conclusions are the equivalent of backfit analysis determinations; CLI-16-10, 83 NRC 494 (2016)

modification of or addition to structures, systems, components, or the design of a facility, or of the procedures or organization required to operate or design a facility is encompassed in backfitting; CLI-16-10, 83 NRC 494 (2016)

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no analysis is required if a plant modification is necessary for adequate protection of public health and safety or necessary to bring the facility into compliance with a license, written licensee commitments, or NRC rules or orders; CLI-16-10, 83 NRC 494 (2016)

NRC shall always require backfitting of a facility if it determines that such regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security; CLI-16-10, 83 NRC 494 (2016)

NRC Staff-initiated changes in a plant's licensing basis would be evaluated in accordance with the backfit rule; CLI-16-10, 83 NRC 494 (2016)

NRC Staff may impose a backfit modifying a current licensing basis if, following appropriate analysis, it determines that a backfit should be mandated; CLI-16-10, 83 NRC 494 (2016)

plant modifications determined to be necessary for adequate protection are imposed regardless of cost, and without need of a full backfit analysis under section 50.109(a)(3); CLI-16-10, 83 NRC 494 (2016)

type of evaluation or analysis and findings that would be required for mandating a backfit depends on the NRC's basis for considering the modification; CLI-16-10, 83 NRC 494 (2016)

where a SAMA is not necessary to protect public health and safety but nonetheless may be warranted as an incremental safety improvement, NRC may impose a plant modification; CLI-16-10, 83 NRC 494 (2016)

### BENEFIT-COST ANALYSIS

applicant's environmental report and NRC Staff's environmental impact statement are not required to address benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP; LBP-16-4, 83 NRC 187 (2016)

by implying that NRC Staff has a duty to impose cost-beneficial SAMAs as backfits, the board mistakenly suggested that SAMA analysis conclusions are the equivalent of backfit analysis determinations; CLI-16-10, 83 NRC 494 (2016)

NRC must assess the relationship between local short-term uses and long-term productivity of the environment, consider alternatives, and describe unavoidable adverse environmental impacts and irreversible and irretrievable commitments of resources associated with the proposed action; CLI-16-4, 83 NRC 58 (2016)

NRC must weigh unavoidable adverse environmental impacts and resource commitments (environmental costs of the project) against the project's benefits; CLI-16-2, 83 NRC 13 (2016)

safety issues are reviewed under the adequacy and sufficiency standard, and licensing boards conducting mandatory hearings must independently consider the final balance among conflicting costs and benefits when reviewing National Environmental Policy Act issues; LBP-16-4, 83 NRC 187 (2016)

SAMA adjudications would prove endless if hearings were triggered merely by suggested alternative inputs and methodologies that conceivably could alter the cost-benefit conclusions; CLI-16-11, 83 NRC 524 (2016)

### BRIEFS, APPELLATE

Commission does not consider cursory, unexplained legal arguments on appeal and will not speculate about what a pleading is supposed to mean; CLI-16-13, 83 NRC 566 (2016)

petitioner is confined to the contention as initially filed and may not rectify its deficiencies through its reply brief or on appeal; CLI-16-5, 83 NRC 131 (2016)

### BURDEN OF PERSUASION

proponent of a withdrawal condition bears the burden of offering some explanation regarding the relief sought; LBP-16-1, 83 NRC 97 (2016)

### BURDEN OF PROOF

intervenor has the burden to demonstrate admissibility of their contentions, including establishing a factual predicate for their claims; CLI-16-13, 83 NRC 566 (2016)

NRC Staff bears the ultimate burden of proof for showing that it complied with NEPA; LBP-16-7, 83 NRC 340 (2016); LBP-16-8, 83 NRC 417 (2016)

NRC Staff must present credible arguments at an evidentiary hearing to cure its deficient environmental assessment; LBP-16-7, 83 NRC 340 (2016)

petitioner has the burden to show that the proximity presumption should apply; LBP-16-5, 83 NRC 259 (2016)

petitioners are not required to demonstrate their asserted injury with certainty or to provide extensive technical studies in support of their standing argument; LBP-16-5, 83 NRC 259 (2016)

## SUBJECT INDEX

summary judgment movant's burden is to show clearly and convincingly the absence of any genuine issues of material fact; LBP-16-3, 83 NRC 169 (2016)  
where intervening parties proffer admissible contentions challenging the conclusions in the environmental assessment that underpin a FONSI determination, the EA must provide a reasonable defense of NRC Staff's position; LBP-16-7, 83 NRC 340 (2016)

### CASE MANAGEMENT

Atomic Energy Act does not prescribe a specific structure for a mandatory hearing, and the Commission has allowed licensing boards flexibility to select the most appropriate approach in the circumstances of each individual case; LBP-16-4, 83 NRC 187 (2016)  
Commission resolved petitions in its supervisory capacity and did not address procedural irregularities; CLI-16-2, 83 NRC 13 (2016)  
hearing process bogged down by time-consuming evidentiary motions of questionable value should be avoided; LBP-16-7, 83 NRC 340 (2016)  
introduction of exhibits in order to question witnesses and better understand their testimony falls within the board's general authority to regulate the course and conduct of the proceeding; LBP-16-7, 83 NRC 340 (2016)  
licensing board is expected to make full use of its broad authority under the rules to establish and maintain a fair and disciplined hearing process, avoiding extensions of time absent good cause, unnecessary multiple rounds of briefs, or other unnecessary delay; CLI-16-11, 83 NRC 524 (2016)  
licensing boards have considerable discretion in their management of adjudicatory proceedings; CLI-16-11, 83 NRC 524 (2016)  
unless a schedule is so onerous or unfair that it deprives a party of procedural due process, scheduling is a matter of licensing board discretion; CLI-16-11, 83 NRC 524 (2016)

### CASE OR CONTROVERSY

NRC is not strictly bound by the case-or-controversy requirement, but it generally follows it absent the most compelling reasons; CLI-16-6, 83 NRC 147 (2016)  
when subsequent events outrun the controversy, the Commission will ordinarily dismiss a case as moot; CLI-16-6, 83 NRC 147 (2016)

### CATEGORICAL EXCLUSION

actions that do not individually or cumulatively have a significant effect on the human environment require neither an environmental assessment nor an environmental impact statement; LBP-16-8, 83 NRC 417 (2016)  
assertion that license amendment would put residents of the surrounding community at greater risk from ionizing radiation exposure, if adequately supported, could identify a genuine dispute with licensee's conclusion that the license amendment falls within the categorical exclusion from NEPA review; LBP-16-5, 83 NRC 259 (2016)  
categorical exclusions involve a significant hazards consideration, which would prevent them from being exempted; CLI-16-5, 83 NRC 131 (2016)  
conditions under which a categorical exclusion applies are described in 10 C.F.R. 51.22(c)(9)(i)-(iii); LBP-16-5, 83 NRC 259 (2016)  
environmental impact statement or environmental assessment is not required if a categorical exclusion applies; LBP-16-5, 83 NRC 259 (2016)  
license amendment request must meet criteria for a categorical exclusion from the requirement to prepare an environmental analysis; CLI-16-5, 83 NRC 131 (2016)  
specific avenues are provided for petitioners to challenge categorical exclusion determinations; CLI-16-5, 83 NRC 131 (2016)

### CERTIFICATION

See Design Certification

### CHANGE REQUESTS

change by licensee must have NRC Staff approval in order to constitute a de facto license amendment, but not every Staff approval constitutes a license amendment; CLI-16-9, 83 NRC 472 (2016)  
NRC case law does not provide for an adjudicatory hearing based on speculative changes to a plant's licensing basis; CLI-16-9, 83 NRC 472 (2016)

## SUBJECT INDEX

### CHEMICAL CONTAMINANTS

after receiving a license, licensee collects groundwater samples from the production and injection wells to establish post-licensing, preoperational background levels for various chemical constituents, which are then used to set restoration goals; CLI-16-13, 83 NRC 566 (2016)

in situ recovery facility licensees must establish restoration goals for hazardous constituents in groundwater through post-licensing, preoperational testing; CLI-16-13, 83 NRC 566 (2016)

summary disposition of contention challenging accuracy and reliability of estimated concentrations of ethylbenzene, heptachlor, tetrachloroethylene, and toluene in wastewater is granted in part; LBP-16-3, 83 NRC 169 (2016)

summary disposition of contention challenging confining nature of hydrogeologic formations and ability of injection wells to timely identify and prevent leaks of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and efficacy of applicant's groundwater monitoring program is denied; LBP-16-3, 83 NRC 169 (2016)

### CLIMATE CHANGE

NRC Staff is asked to explain how they addressed the climate-change-induced increases in the power and frequency of hurricanes and models used in review of the early site permit application; LBP-16-4, 83 NRC 187 (2016)

### COLOCATED UNITS

board's action permitting withdrawal of combined license application for Units 3 and 4 has no effect on the efficacy of the existing Part 50 construction permits authorizing applicant to build Units 1 and 2; LBP-16-1, 83 NRC 97 (2016)

### COMBINED LICENSE APPLICATION

Advisory Committee on Reactor Safeguards provides an independent assessment of the safety aspects of a COLA; CLI-16-2, 83 NRC 13 (2016)

applicant may reference a reactor design that is undergoing design certification rulemaking, doing so at its own risk, given that the design certification might not be granted; CLI-16-12, 83 NRC 542 (2016)

applicant must submit information demonstrating that it either possesses or has reasonable assurance of obtaining funds necessary to cover estimated construction and operating costs for the term of the license; CLI-16-2, 83 NRC 13 (2016)

application must reference a standard design certification; CLI-16-2, 83 NRC 13 (2016)

application will be approved if NRC determines that applicant appears to be financially qualified to engage in the proposed activities in accordance with the regulations in Part 70; CLI-16-2, 83 NRC 13 (2016)

board's action permitting withdrawal of application for Units 3 and 4 has no effect on the efficacy of the existing Part 50 construction permits authorizing applicant to build Units 1 and 2; LBP-16-1, 83 NRC 97 (2016)

changes to any Tier 2 information with respect to the containment overpressure protection system design are subject to the change process in Part 52, Appendix A; CLI-16-2, 83 NRC 13 (2016)

circumstances under which applicant can withdraw an application docketed by the agency are set forth; LBP-16-1, 83 NRC 97 (2016)

environmental determinations that must be made for issuance of a combined license are discussed; CLI-16-2, 83 NRC 13 (2016)

hearing must be held on each application to construct a nuclear power plant, regardless of whether an interested member of the public requests a hearing on the application; CLI-16-2, 83 NRC 13 (2016)

references to an early site permit must provide any new and significant information for issues related to the impacts of construction and operation of the facility that were resolved in the ESP proceeding; LBP-16-4, 83 NRC 187 (2016)

safety determinations that must be made for issuance of a combined license are discussed; CLI-16-2, 83 NRC 13 (2016)

### COMBINED LICENSE PROCEEDINGS

application is not reviewed de novo, but rather, the Commission considers whether NRC Staff's review of the application is sufficient to support the required findings; CLI-16-2, 83 NRC 13 (2016)

Commission declined to hold the adjudicatory proceeding in abeyance pending completion of the design certification rulemaking for the design referenced in the application; CLI-16-12, 83 NRC 542 (2016)



## SUBJECT INDEX

### COMBINED LICENSES

adequacy of NRC Staff's conclusions on design-basis flood level and maximum groundwater level are discussed; CLI-16-2, 83 NRC 13 (2016)  
applicants must meet foreign ownership, control, or domination requirements; CLI-16-2, 83 NRC 13 (2016)  
applicants must perform a structural analysis that demonstrates containment structural integrity in the event of an accident that releases hydrogen generated from 100% fuel clad-coolant reaction accompanied by hydrogen burning; CLI-16-2, 83 NRC 13 (2016)  
section 50.44(c) applies to water-cooled reactor combined licenses issued after 2003; CLI-16-2, 83 NRC 13 (2016)

### COMMON DEFENSE AND SECURITY

Atomic Energy Act concentrates on licensing and regulation of nuclear materials for purpose of protecting public health and safety and the common defense and security; CLI-16-6, 83 NRC 147 (2016)

### COMMUNICATIONS

series of communications associated with replacement of a steam generator that pertained to the NRC's oversight of the facility does not constitute an ongoing de facto license amendment proceeding; CLI-16-9, 83 NRC 472 (2016)

### COMPLIANCE

vacatur does not diminish the right to challenge licensee's compliance with conditions imposed by the board; CLI-16-8, 83 NRC 463 (2016)  
See also Assumption of Compliance

### COMPUTER MODELING

severe accident mitigation alternatives analysis involves thousands of code inputs, and it will always be possible to conceive of yet another alternative input that could have been used, and in fact many different inputs and approaches may all be reasonable choices for the analysis; CLI-16-7, 83 NRC 293 (2016)

### CONCRETE

compliance with American Concrete Institute specification 349 is required under 10 C.F.R. Part 52, App. D, § VIII.B.6.c(4); LBP-16-5, 83 NRC 259 (2016)  
contention alleging that proposed weakening of concrete tolerance standards could result in plant workers being exposed to levels of radiation in excess of the as low as is reasonably achievable standard is dismissed; LBP-16-5, 83 NRC 259 (2016)  
petitioner's allegations, coupled with the acknowledged possibility of offsite consequences if CIS wall modules are structurally inadequate, satisfy the requirement that petitioner show a plausible chain of causation explaining how the amendment itself would result in a distinct new harm or threat beyond that posed by the licensed facility itself; LBP-16-5, 83 NRC 259 (2016)

### CONDITIONS

if an adequate showing is made of withdrawal-associated harm, a licensing board can grant a withdrawal without prejudice, albeit with appropriate conditions to protect a party or the public interest; LBP-16-1, 83 NRC 97 (2016)  
once a notice of hearing has been issued, any application withdrawal request must be approved by the licensing board and is subject to any appropriate conditions the board may impose; LBP-16-1, 83 NRC 97 (2016)  
withdrawal terms imposed by a board must bear a reasonable relationship to the conduct and legal harm at which they are aimed and the record must support any findings concerning the conduct and the harm in question; LBP-16-1, 83 NRC 97 (2016)

### CONFIRMATORY ORDER

challenge asserting that an order, if carried out, would be affirmatively contrary to the public health and safety could fall within the scope of a proceeding on a confirmatory order; CLI-16-6, 83 NRC 165 (2016); CLI-16-6, 83 NRC 147 (2016)  
NRC Staff must inform licensee or any other person adversely affected by the order of his or her right to demand a hearing except in a case where licensee or other person has consented in writing to the order; CLI-16-6, 83 NRC 147 (2016)  
petitioner may obtain a hearing only if the measures to be taken under the order would in themselves harm petitioner; CLI-16-6, 83 NRC 147 (2016)

## SUBJECT INDEX

threshold question in an enforcement proceeding that must be resolved relates to both standing and contention admissibility, whether the hearing request is within the scope of the proceeding as outlined in the order; CLI-16-6, 83 NRC 147 (2016)  
when licensee agrees to make positive changes or does not contest an order requiring remedial changes, it should not be at risk of being subjected to a wide-ranging hearing and further investigation; CLI-16-6, 83 NRC 147 (2016)

### CONSIDERATION OF ALTERNATIVES

agencies must study, develop, and describe appropriate alternatives to the proposed action; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016)  
alternatives analysis is the heart of the environmental impact statement; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016)  
contention alleging that environmental report does not evaluate a reasonable array of energy alternatives that are commercially viable or will become so within the next 10 years is inadmissible; CLI-16-11, 83 NRC 524 (2016)  
energy alternatives contention in license renewal proceeding must provide facts or expert opinion sufficient to raise a genuine dispute as to whether the proposed alternative technology (or combination of technologies) is currently commercially viable, or will become so in the near term to supply baseload power; CLI-16-11, 83 NRC 524 (2016)  
NRC Staff must consider alternative sites to satisfy the hard look standard required by NEPA; LBP-16-8, 83 NRC 417 (2016)  
only energy alternatives that are reasonable and will bring about the ends of the proposed action need to be discussed in the environmental report; CLI-16-11, 83 NRC 524 (2016)  
See also Severe Accident Mitigation Alternatives Analysis

### CONSTRUCTION

applicant requested an exemption from definition of "construction" in 10 C.F.R. 50.10(a)(1) to allow installation of crane foundation retaining walls during the excavation process prior to the issuance of combined licenses; CLI-16-2, 83 NRC 13 (2016)  
early site permit is not an authorization to construct or operate a nuclear power plant, but rather relates only to site suitability; LBP-16-4, 83 NRC 187 (2016)

### CONSTRUCTION OF MEANING

when evaluating whether petitioner has established standing, licensing board is to construe the intervention petition in favor of petitioner; LBP-16-5, 83 NRC 259 (2016)

### CONSTRUCTION PERMIT PROCEEDING

findings for issuance of a permit require that NRC consider site criteria to ensure that the proposed facility can be constructed and operated at the proposed location without undue risk to public health and safety; CLI-16-4, 83 NRC 58 (2016)  
realistic threat of harm conferring proximity-based standing can be assumed in construction permit and operating license proceedings for power reactors; LBP-16-5, 83 NRC 259 (2016)

### CONSTRUCTION PERMITS

Advisory Committee on Reactor Safeguards provides an independent assessment of the safety aspects of applications; CLI-16-4, 83 NRC 58 (2016)  
applicant's consideration of General Design Criteria in its construction permit application for a medical radioisotope production facility is discussed; CLI-16-4, 83 NRC 58 (2016)  
authorization of construction permit issuance for a medical radioisotope production facility does not constitute approval of the design; CLI-16-4, 83 NRC 58 (2016)  
board's action permitting withdrawal of combined license application for Units 3 and 4 has no effect on the efficacy of the existing Part 50 construction permits authorizing applicant to build Units 1 and 2; LBP-16-1, 83 NRC 97 (2016)  
Commission does not review construction permit application for a medical radioisotope production facility de novo, but rather considers the sufficiency of NRC Staff's review; CLI-16-4, 83 NRC 58 (2016)  
corporate applicant must state whether it is owned, controlled, or dominated by an alien, a foreign corporation, or foreign government, and if so, give details; CLI-16-4, 83 NRC 58 (2016)  
early site permit is a partial construction permit; LBP-16-4, 83 NRC 187 (2016)  
environmental findings that NRC must make to support issuance of a construction permit for a medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)

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in making findings on construction permit for a medical radioisotope production facility, Commission is guided by the additional considerations in 10 C.F.R. 50.40(a)-(d); CLI-16-4, 83 NRC 58 (2016)

information on nuclear insurance and indemnity pursuant to the Price-Anderson Act is outside the scope of the construction permit application because applicant has not applied to possess special nuclear material; CLI-16-4, 83 NRC 58 (2016)

NRC must hold a hearing on an application to construct a commercial production or utilization facility; CLI-16-4, 83 NRC 58 (2016)

safety findings that NRC must make to support issuance of a construction permit for a medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)

CONSULTANTS

National Historic Preservation Act does not bar the use of consultants; LBP-16-7, 83 NRC 340 (2016)

CONSULTATION DUTY

abundance of letters does not equate to meaningful or reasonable consultation with Indian tribes; LBP-16-7, 83 NRC 340 (2016)

agency consultation must provide each Indian tribe with a reasonable opportunity to identify its concerns about historic properties, advise on identification and evaluation of historic properties, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects; LBP-16-7, 83 NRC 340 (2016)

consultation efforts with Indian tribes must recognize the government-to-government relationship between the federal government and tribes and be sensitive to the needs of the tribal participants; LBP-16-7, 83 NRC 340 (2016)

consultation with Indian tribes should start as early as possible in the process; LBP-16-7, 83 NRC 340 (2016)

criteria to determine whether a federal agency has complied with its NHPA Consultation Obligations are provided; LBP-16-7, 83 NRC 340 (2016)

failure of the Bureau of Indian Affairs to make any real attempt to comply with its own policy of consultation not only violates general principles that govern administrative decisionmaking, but also violates the distinctive obligation of trust incumbent upon the government in its dealings with these dependent and sometimes exploited people; LBP-16-7, 83 NRC 340 (2016)

federal agency is required than to afford an opportunity for Indian tribes to consult meaningfully on federal actions that affect properties of religious or cultural significance to an Indian tribe, as well as to advise the agency on identification and evaluation of such properties, and to participate in the resolution of any possible adverse consequences; LBP-16-7, 83 NRC 340 (2016)

federal agency must consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties; LBP-16-7, 83 NRC 340 (2016)

federal agency must gather information from any Indian tribe to assist in identifying properties, including those located off tribal lands, which may be of religious and cultural significance to them and may be eligible for the National Register; LBP-16-7, 83 NRC 340 (2016)

NRC and the Department of Energy must ensure that their environmental reviews of facilities to produce medical radioisotopes are complementary and not duplicative; CLI-16-4, 83 NRC 58 (2016)

NRC Staff, in consultation with and with assistance of the Secretary of the Interior or the Secretary of Commerce, must evaluate whether any threatened or endangered species are present onsite that could be affected by construction of the medical radioisotope production facility; CLI-16-4, 83 NRC 58 (2016)

NRC Staff's review of license renewal application failed to meet NHPA's post-1992 tribal consultation requirements; LBP-16-7, 83 NRC 340 (2016)

CONTAINMENT

licensees must conduct periodic tests to ensure that leakage from containment does not exceed allowable rates specified in the plant's technical specifications; CLI-16-5, 83 NRC 131 (2016)

licensees must perform Type B tests to detect and measure local leakage rates across pressure-retaining, leakage-limiting boundaries; CLI-16-5, 83 NRC 131 (2016)

to ensure continued integrity of reactor containment systems, primary containments shall be subject to requirements in 10 C.F.R. Part 50, Appendix J, Option B §I; CLI-16-5, 83 NRC 131 (2016)

Type A tests to measure containment overall integrated leakage rate are discussed; CLI-16-5, 83 NRC 131 (2016)

## SUBJECT INDEX

U.S. nuclear power plants have containment systems that serve as the principal barrier, after the reactor coolant pressure boundary, to prevent release of quantities of radioactive material that would significantly affect public health; CLI-16-5, 83 NRC 131 (2016)

### CONTAINMENT DESIGN

changes to any Tier 2 information with respect to the containment overpressure protection system design are subject to the change process in Part 52, Appendix A; CLI-16-2, 83 NRC 13 (2016)

combined license applicants must perform a structural analysis that demonstrates containment structural integrity in the event of an accident that releases hydrogen generated from 100% fuel clad-coolant reaction accompanied by hydrogen burning; CLI-16-2, 83 NRC 13 (2016)

reactor containments must be able to ensure a mixed atmosphere during design-basis and significant beyond-design-basis accidents; CLI-16-2, 83 NRC 13 (2016)

### CONTAINMENT ISOLATION VALVES

licensees must perform Type C tests to measure containment isolation valve leakage; CLI-16-5, 83 NRC 131 (2016)

### CONTENTIONS

argument for alternative analyses in or refinements to a SAMA analysis might be characterized as contentions of adequacy, but the label is not the deciding factor at the contention admissibility stage; CLI-16-11, 83 NRC 524 (2016)

boards may reformulate contentions to eliminate extraneous issues or to consolidate issues for a more efficient proceeding; LBP-16-3, 83 NRC 169 (2016)

claim of failure to include an entire subject matter or study might be considered a contention of omission; CLI-16-11, 83 NRC 524 (2016)

contention of omission alleges that the application fails to contain information on a relevant matter as required by law and provides the supporting reasons for petitioner's belief; LBP-16-5, 83 NRC 259 (2016)

importance of distinction between contentions of adequacy and contentions of omission increases in the face of an argument that the contention has become moot; CLI-16-11, 83 NRC 524 (2016)

summary disposition of contention challenging accuracy and reliability of estimated concentrations of ethylbenzene, heptachlor, tetrachloroethylene, and toluene in wastewater is granted in part; LBP-16-3, 83 NRC 169 (2016)

summary disposition of contention challenging confining nature of hydrogeologic formations and ability of injection wells to timely identify and prevent leaks of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and efficacy of applicant's groundwater monitoring program is denied; LBP-16-3, 83 NRC 169 (2016)

to evade review, a challenged action must be too short to be fully litigated prior to its cessation or expiration; CLI-16-6, 83 NRC 147 (2016)

where intervening parties proffer admissible contentions challenging the conclusions in the environmental assessment that underpin a FONSI determination, the EA must provide a reasonable defense of NRC Staff's position; LBP-16-7, 83 NRC 340 (2016)

whether a contention is characterized as one of omission or adequacy is a matter of degree; CLI-16-11, 83 NRC 524 (2016)

See also Amendment of Contentions

### CONTENTIONS, ADMISSIBILITY

absent error of law or abuse of discretion, Commission gives substantial deference to board rulings on threshold procedural matters such as standing and contention admissibility; CLI-16-9, 83 NRC 472 (2016)

adequacy of the applicant's alternative methodology to demonstrate adequacy of facility's seismic design, use of which was granted by exemption from regulation, was within the scope of the underlying license proceeding and a topic suitable for a hearing; CLI-16-12, 83 NRC 542 (2016)

admissible contentions must address the six criteria of 10 C.F.R. 2.309(f)(1)(i)-(vi); LBP-16-5, 83 NRC 259 (2016)

affidavit that merely states that declarant has read and reviewed the contention and fully supports all of its statements fails to meet the affidavit requirements in 10 C.F.R. 2.326(b); LBP-16-6, 83 NRC 329 (2016)

## SUBJECT INDEX

agency rule or regulation may not be challenged in any adjudicatory proceeding absent a waiver; CLI-16-12, 83 NRC 542 (2016)

allegation that environmental report does not evaluate a reasonable array of energy alternatives that are commercially viable or will become so within the next 10 years is inadmissible; CLI-16-11, 83 NRC 524 (2016)

allegation that FSEIS did not consider the extent to which groundwater will be degraded due to the establishment of alternate concentration limits for hazardous constituents after site restoration is inadmissible; CLI-16-13, 83 NRC 566 (2016)

allegation that FSEIS lacks an adequate description of the present baseline groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner using proper sampling methodologies is inadmissible; CLI-16-13, 83 NRC 566 (2016)

allegation that proposed weakening of concrete tolerance standards could result in plant workers being exposed to levels of radiation in excess of the as low as is reasonably achievable standard is dismissed; LBP-16-5, 83 NRC 259 (2016)

allegation that some aspect of a license application is inadequate or unacceptable does not give rise to a genuine dispute unless it is supported by facts and a reasoned statement of why the application is unacceptable in some material respect; LBP-16-5, 83 NRC 259 (2016)

appeals of rulings on contention admissibility must abide the end of the case; CLI-16-1, 83 NRC 1 (2016)

arguments made and support provided for those arguments and demonstration of a genuine dispute as to whether the SAMA analysis is reasonable under NEPA determines whether a SAMA contention is admissible; CLI-16-11, 83 NRC 524 (2016)

asserted harm must arguably fall within the zone of interests of the Atomic Energy Act; CLI-16-6, 83 NRC 147 (2016)

assertion that applicant failed to consider results of a particular study in its SAMA analysis was admissible; CLI-16-11, 83 NRC 524 (2016)

assertion that license amendment would put residents of the surrounding community at greater risk from ionizing radiation exposure, if adequately supported, could identify a genuine dispute with licensee's conclusion that the license amendment falls within the categorical exclusion from NEPA review; LBP-16-5, 83 NRC 259 (2016)

because Executive Order 12898 does not create any new rights, it cannot provide a legal basis for contentions to be litigated in NRC licensing proceedings; LBP-16-5, 83 NRC 259 (2016)

board appropriately reviewed support provided for contention and determined that it did not apply to the circumstances presented; CLI-16-5, 83 NRC 131 (2016)

board did not impermissibly weigh the merits in finding that petitioners had provided no factual support for their proposed contention; CLI-16-13, 83 NRC 566 (2016)

board reformulation of the contention reflects that fact that, although the contention originally was filed based on the environmental report, information in the DEIS is sufficiently similar to information in the ER that the remaining aspect of the contention constitutes a viable challenge to the adequacy of the DEIS; LBP-16-3, 83 NRC 169 (2016)

board ruling on a request for a hearing or petition to intervene must determine, among other things, whether petitioner has an interest affected by the proceeding considering the factors enumerated in 10 C.F.R. 2.309(d)(1); LBP-16-5, 83 NRC 259 (2016)

case law sets forth the standard for determining whether a SAMA-related contention raises a genuine, material dispute; CLI-16-11, 83 NRC 524 (2016)

challenge asserting that an order, if carried out, would be affirmatively contrary to public health and safety could fall within the scope of a proceeding on a confirmatory order; CLI-16-6, 83 NRC 165 (2016); CLI-16-6, 83 NRC 147 (2016)

challenge to 10 C.F.R. Part 50, Appendix J, Option B is impermissible absent a waiver; CLI-16-5, 83 NRC 131 (2016)

claim regarding trend in Type A containment leak test results does not raise a material issue; CLI-16-5, 83 NRC 131 (2016)

claims that amount to generalized grievances and are insufficient to establish genuine, material disputes with an application; CLI-16-12, 83 NRC 542 (2016)

## SUBJECT INDEX

Commission defers to a board's contention admissibility rulings unless the appeal points to an error of law or abuse of discretion; CLI-16-5, 83 NRC 131 (2016); CLI-16-13, 83 NRC 566 (2016)

Commission has authority under Atomic Energy Act § 189a to define the scope of an enforcement proceeding and to limit that scope to whether to sustain the order; CLI-16-6, 83 NRC 147 (2016)

Commission will not second-guess board's evaluation of factual support for a contention, absent an error of law or abuse of discretion; CLI-16-13, 83 NRC 566 (2016)

Commission will uphold a licensing board ruling on standing and contention admissibility unless it finds that the board erred as a matter of law or abused its discretion; CLI-16-12, 83 NRC 542 (2016)

conclusory statements, even if made by an expert, are insufficient to support admission of a contention; CLI-16-12, 83 NRC 542 (2016)

contention submitted after the deadline to request a hearing established by notice in the Federal Register must meet the requirements of 2.309(c)(1), 2.326(d), and 2.309(f)(1); LBP-16-6, 83 NRC 329 (2016)

contention that license amendment request fails to account for all credible emergency scenarios and thus undermines effectiveness of the site emergency plan and offsite emergency planning and poses an increased risk to public health and safety is dismissed; CLI-16-12, 83 NRC 542 (2016)

contention that revised SAMA analysis is not based on a sufficiently rigorous or up-to-date analysis of seismic risks is inadmissible; CLI-16-11, 83 NRC 524 (2016)

contention that SAMA analysis did not satisfy requirements of NEPA or failed to consider information regarding an earthquake fault that is necessary for an understanding of seismic risks to the nuclear power plant is inadmissible; CLI-16-11, 83 NRC 524 (2016)

contentions are limited to issues germane to the application pending before the board, and are not cognizable unless they are material to matters that fall within the scope of the proceeding for which the licensing board has been delegated jurisdiction as set forth in the Commission's notice of opportunity for hearing; LBP-16-5, 83 NRC 259 (2016)

contentions that function as a "placeholder" for a further motion to be filed later are not allowed; CLI-16-11, 83 NRC 524 (2016)

critical safety questions should not be excluded from licensing hearings merely on the basis of an exemption label; CLI-16-12, 83 NRC 542 (2016)

energy alternatives contention in license renewal proceeding must provide facts or expert opinion sufficient to raise a genuine dispute as to whether the proposed alternative technology (or combination of technologies) is currently commercially viable, or will become so in the near term to supply baseload power; CLI-16-11, 83 NRC 524 (2016)

expert's statement that he is responsible for the factual content and expert opinions expressed in petitioner's contentions fails to satisfy pleading requirements; LBP-16-6, 83 NRC 329 (2016)

failure to meet admissibility standards of 10 C.F.R. 2.309(f)(1) will result in dismissal; CLI-16-11, 83 NRC 524 (2016)

general challenge to SAMA analysis is not within the scope of license amendment proceeding; CLI-16-5, 83 NRC 131 (2016)

generalized grievance is outside the scope of license amendment proceedings and cannot serve as a basis for identifying an admissible contention; LBP-16-5, 83 NRC 259 (2016)

if an amended or new contention was not required in omission situations, an original contention alleging simply a failure to address a subject could readily be transformed without basis or support into a broad series of disparate new claims, which effectively would circumvent NRC contention-pleading standards; CLI-16-11, 83 NRC 524 (2016)

if any one of the admissibility requirements of 10 C.F.R. 2.309(f)(1) is not met, a contention must be rejected; LBP-16-2, 83 NRC 107 (2016)

if litigant has been denied admission of certain contentions but still has other contentions pending in the proceeding, section 2.311 does not provide for immediate interlocutory review of the dismissal of those contentions; CLI-16-1, 83 NRC 1 (2016)

interlocutory appeal as of right with respect to contention admissibility rulings is allowed in two specific circumstances; CLI-16-1, 83 NRC 1 (2016)

interlocutory review was denied to interested state that attempted to appeal dismissal of particular issues it sought to litigate; CLI-16-1, 83 NRC 1 (2016)

intervenor has the burden to demonstrate admissibility of their contentions, including establishing factual predicates for their claims; CLI-16-13, 83 NRC 566 (2016)

## SUBJECT INDEX

intervention petitioner must submit at least one admissible contention that satisfies all six criteria of 10 C.F.R. 2.309(f)(1); LBP-16-2, 83 NRC 107 (2016)

issue sought to be litigated determines support required for SAMA contentions; CLI-16-11, 83 NRC 524 (2016)

it is the license application, not the NRC Staff review, that is at issue in an adjudicatory proceeding; CLI-16-12, 83 NRC 542 (2016)

late-filed contentions must address admissibility standards; CLI-16-10, 83 NRC 494 (2016)

licensing proceeding before NRC is not the proper forum for challenges to the basic structure of NRC's regulatory process; CLI-16-12, 83 NRC 542 (2016)

obvious potential for offsite consequences is not in itself sufficient to support an admissible contention; LBP-16-5, 83 NRC 259 (2016)

parties challenging an agency's NEPA process are not entitled to relief unless they demonstrate harm or prejudice; CLI-16-13, 83 NRC 566 (2016)

petitioner cannot satisfy contention admission requirements of 10 C.F.R. 2.309(f)(1) by mere notice pleading; CLI-16-5, 83 NRC 131 (2016)

petitioner does not become entitled to an evidentiary hearing merely on request, or on a bald or conclusory allegation that a dispute exists, but rather must make a minimal showing that material facts are in dispute, thereby demonstrating that an inquiry in depth is appropriate; LBP-16-5, 83 NRC 259 (2016)

petitioner failed to provide expert opinions or adequate facts in support of alleged deficiencies in license application; CLI-16-5, 83 NRC 131 (2016)

petitioner is confined to the contention as initially filed and may not rectify its deficiencies through its reply brief or on appeal; CLI-16-5, 83 NRC 131 (2016)

petitioner is not required to prove its case at the contention admissibility stage; LBP-16-5, 83 NRC 259 (2016)

petitioner must address and meet each of the six contention admission factors; CLI-16-5, 83 NRC 131 (2016); CLI-16-12, 83 NRC 542 (2016)

petitioner must explain why purported deficiencies in licensee's proposed amendment would be required under NRC regulations; CLI-16-12, 83 NRC 542 (2016)

petitioner must provide sufficient detail for proposed contentions to demonstrate that the issues raised are admissible and that further inquiry is warranted; LBP-16-2, 83 NRC 107 (2016)

petitioner must provide sufficient information to show that a genuine dispute exists with licensee on a material issue of law or fact; LBP-16-5, 83 NRC 259 (2016)

petitioner's allegations, coupled with the acknowledged possibility of offsite consequences if CIS wall modules are structurally inadequate, satisfy the requirement to show a plausible chain of causation explaining how the amendment itself would result in a distinct new harm or threat beyond that posed by the licensed facility itself; LBP-16-5, 83 NRC 259 (2016)

petitioner's issue will be ruled inadmissible if petitioner has offered no tangible information, no experts, no substantive affidavits, but instead only bare assertions and speculation; LBP-16-5, 83 NRC 259 (2016)

petitioners have an iron-clad obligation to examine publicly available documentary material with sufficient care to enable them to uncover any information that could serve as the foundation for a specific contention; LBP-16-6, 83 NRC 329 (2016)

placeholder contentions are inadmissible; CLI-16-2, 83 NRC 13 (2016)

pleading standards are strict by design and failure to fulfill any one of the requirements of 10 C.F.R. 2.309(f)(1) renders a contention inadmissible; CLI-16-5, 83 NRC 131 (2016)

providing any material or document as a basis for a contention, without setting forth an explanation of its significance, is inadequate to support its admission; LBP-16-5, 83 NRC 259 (2016)

reference to seismic hazard analysis without adequate explanation of its significance to proposed permanent extension of the Type A test interval or how it controverts the portion of the license amendment request discussing seismic impacts is neither a material issue nor establishes a genuine dispute; CLI-16-5, 83 NRC 131 (2016)

requirement to provide a concise statement of the alleged facts or expert opinions generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors

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- underlying the contention or references to documents and texts that provide such reasons; LBP-16-5, 83 NRC 259 (2016)
- requirements are strict by design to ensure that NRC hearings adjudicate genuine, substantive safety and environmental issues; CLI-16-6, 83 NRC 147 (2016)
- routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain; CLI-16-1, 83 NRC 1 (2016)
- threshold contention standards are imposed to avoid contentions based on little more than speculation and admitted intervenors who often had negligible knowledge of nuclear power issues; LBP-16-5, 83 NRC 259 (2016)
- threshold question in an enforcement proceeding that must be resolved relates to both standing and contention admissibility, whether the hearing request is within the scope of the proceeding as outlined in the Confirmatory Order; CLI-16-6, 83 NRC 147 (2016)
- to evaluate labor union's zone-of-interests claim, the Commission must first discerns the interests arguably to be protected by the statutory provision at issue and then inquires whether plaintiff's interests are affected by the agency action in question; CLI-16-6, 83 NRC 147 (2016)
- unless petitioner sets forth a supported contention pointing to an apparent error or deficiency that may have significantly skewed the environmental conclusions in the SAMA analysis, there is no genuine material dispute for hearing; CLI-16-11, 83 NRC 524 (2016)
- when petitioners bring claims that are not susceptible to adjudication, the Commission frequently directs them toward other processes or government agencies; CLI-16-6, 83 NRC 147 (2016)
- where exemption from a regulation was granted, and the new standard imposed by NRC Staff was not within an applicable regulation, the question of whether the new standard is adequate itself is within the scope of the proceeding; CLI-16-12, 83 NRC 542 (2016)
- wholesale incorporation by reference by a petitioner who, in a written submission, merely establishes standing and attempts, without more, to incorporate the issues of other petitioners is not permitted; LBP-16-8, 83 NRC 417 (2016)
- CONTENTIONS, LATE-FILED**
- contention submitted after the deadline to request a hearing established by notice in the Federal Register must meet the requirements of 2.309(c)(1), 2.326(d), and 2.309(f)(1); LBP-16-6, 83 NRC 329 (2016)
- exceptionally grave issue may be considered even if it is untimely presented; LBP-16-6, 83 NRC 329 (2016)
- late-filed contentions must address admissibility standards; CLI-16-10, 83 NRC 494 (2016)
- there simply would be no end to NRC licensing proceedings if petitioners could disregard timeliness requirements and add new contentions at their convenience during the course of a proceeding based on information that could have formed the basis for a timely contention at the outset of the proceeding; LBP-16-6, 83 NRC 329 (2016)
- time for challenging applicant's environmental report passes when NRC Staff releases its draft supplemental environmental impact statement; LBP-16-6, 83 NRC 329 (2016)
- untimeliness alone is fatal to a motion to reopen; LBP-16-6, 83 NRC 329 (2016)
- CONTESTED LICENSE APPLICATIONS**
- hearing opportunity notice in a contested case would not trigger licensing board jurisdiction over a withdrawal motion; LBP-16-1, 83 NRC 97 (2016)
- licensing board promulgation of a notice of hearing providing board jurisdiction over a withdrawal motion comes after the board has ruled on efficacy of any intervention petitions and determined that an adjudicatory hearing is warranted; LBP-16-1, 83 NRC 97 (2016)
- COOLING SYSTEMS**
- license amendments were issued that increase the ultimate heat sink water temperature limit for the cooling canals; LBP-16-8, 83 NRC 417 (2016)
- COSTS**
- See **BENEFIT-COST ANALYSIS; DECOMMISSIONING COSTS**
- COUNCIL ON ENVIRONMENTAL QUALITY**
- incorporation by reference requires a clear description of the incorporated material and specific references thereto and NRC has adopted CEQ regulations pertaining thereto; LBP-16-8, 83 NRC 417 (2016)
- NRC gives CEQ regulations substantial deference; LBP-16-7, 83 NRC 340 (2016)



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### COUNCIL ON ENVIRONMENTAL QUALITY GUIDELINES

NRC Staff developed its own guidance, using the CEQ's guidelines for implementing environmental justice as a reference; LBP-16-5, 83 NRC 259 (2016)

### COUNSEL

questions of fact are not susceptible of resolution on the basis of nothing more than generalized representations of counsel who are unequipped to attest on the basis of their own personal knowledge to the accuracy of the representations; LBP-16-3, 83 NRC 169 (2016)

### CRACKING

request for testing of permanently shutdown reactor pressure vessels for cracking is decided; DD-16-1, 83 NRC 115 (2016)

### CROSS-EXAMINATION

parties' proposed questions are provided by separate order for inclusion in the official record of the proceeding; LBP-16-8, 83 NRC 417 (2016)

### CULTURAL RESOURCES

agency consultation must provide each Indian tribe with a reasonable opportunity to identify its concerns about historic properties, advise on identification and evaluation of historic properties, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects; LBP-16-7, 83 NRC 340 (2016)

agency officials must acknowledge that Indian tribes and Native Hawaiian organizations possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them; LBP-16-7, 83 NRC 340 (2016)

cemeteries can have distinct cultural and religious importance to Indian tribes; LBP-16-7, 83 NRC 340 (2016)

changes made to the NHPA bestowed special protections on Native American historic properties; LBP-16-7, 83 NRC 340 (2016)

Class III archeological survey is an intensive, professionally conducted study of a target area; LBP-16-7, 83 NRC 340 (2016)

cursory discussions and a brief bus tour cannot be deemed to meet NHPA's requirements to identify, assess, and attempt to mitigate impacts to potential historic properties of significance to Indian tribes; LBP-16-7, 83 NRC 340 (2016)

even where tribal cultural properties have already been disturbed, there may be information they can provide about prehistory or history; LBP-16-7, 83 NRC 340 (2016)

failure to use experts in tribal cultural properties who could have added to the survey process is clearly contrary to current regulations; LBP-16-7, 83 NRC 340 (2016)

federal agency may turn to an outside entity for advice and policy recommendations, provided the agency makes the final decisions itself; LBP-16-7, 83 NRC 340 (2016)

federal agency must consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties; LBP-16-7, 83 NRC 340 (2016)

federal agency, during consultation process, must gather information from any Indian tribe to assist in identifying properties, including those located off tribal lands, which may be of religious and cultural significance to them and may be eligible for the National Register; LBP-16-7, 83 NRC 340 (2016)

field investigations are envisioned as a means of compliance with the ACHP; LBP-16-7, 83 NRC 340 (2016)

"historic property" refers to the subset of cultural resources that are included in or eligible for placement in the National Register of Historic Places; LBP-16-7, 83 NRC 340 (2016)

historic property's attributes are location, design, setting, materials, workmanship, feeling, and association; LBP-16-7, 83 NRC 340 (2016)

in 1988, NRC Staff was not obligated to consider the cultural or religious significance that tribes might ascribe to tribal cultural properties, as was required in 2007; LBP-16-7, 83 NRC 340 (2016)

insofar as there were areas that would be affected by changed operations or new construction, literature review and reliance on past surveys was inadequate for identifying tribal cultural properties and historic properties; LBP-16-7, 83 NRC 340 (2016)

literature review is inferior to the knowledge of experts in tribal cultural properties; LBP-16-7, 83 NRC 340 (2016)

## SUBJECT INDEX

NEPA requires a look at intangible, not just tangible, properties and it is not limited to a focus on historic properties in the same way as the National Historic Preservation Act; LBP-16-7, 83 NRC 340 (2016)

no more of a federal agency is required than to afford an opportunity for Indian tribes to consult meaningfully on federal actions that affect properties of religious or cultural significance to an Indian tribe, as well as to advise the agency on identification and evaluation of such properties, and to participate in the resolution of any possible adverse consequences; LBP-16-7, 83 NRC 340 (2016)

Programmatic Agreement may be used to implement the NHPA § 106 process in situations where the effects on historic properties cannot be fully determined prior to the approval of an undertaking, such as where an applicant proposes a phased approach to developing its project; LBP-16-7, 83 NRC 340 (2016)

properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register; LBP-16-7, 83 NRC 340 (2016)

reasonable effort to identify traditional cultural properties depends in part on the likelihood that such properties may be present; LBP-16-7, 83 NRC 340 (2016)

territories ceded by Indian tribes to the U.S. government are more likely to include historic properties of religious and cultural significance, which calls for greater scrutiny of the license area, not less; LBP-16-7, 83 NRC 340 (2016)

where previous or partial surveys and all other evidence indicate that a complete survey would be fruitless, NHPA does not require a complete survey of the project area; LBP-16-7, 83 NRC 340 (2016)

### CULTURAL SENSITIVITY

consultation efforts with Indian tribes must recognize the government-to-government relationship between the federal government and Indian tribes and be sensitive to the needs of the tribal participants; LBP-16-7, 83 NRC 340 (2016)

### CUMULATIVE IMPACTS ANALYSIS

agencies must consider environmental effects that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions with the goal of making sure that individually minor but collectively significant actions are properly analyzed; LBP-16-8, 83 NRC 417 (2016)

purpose of analysis is to consider whether a small change will worsen an already bad situation, like the proverbial straw that broke the camel's back; LBP-16-8, 83 NRC 417 (2016)

restricted analysis would impermissibly subject the decisionmaking process contemplated by NEPA to the tyranny of small decisions; LBP-16-8, 83 NRC 417 (2016)

small and unrelated decisions are included; LBP-16-8, 83 NRC 417 (2016)

state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 417 (2016)

### CURRENT LICENSING BASIS

distinction between Category 1 and Category 2 issues during a license renewal is based on the underlying assumption that the nuclear power plant will continue operating under its current license requirements, including license conditions and technical specifications; LBP-16-8, 83 NRC 417 (2016)

NRC case law does not provide for an adjudicatory hearing based on speculative changes to a plant's licensing basis; CLI-16-9, 83 NRC 472 (2016)

NRC Staff may impose a backfit modifying a current licensing basis if, following appropriate analysis, it determines that a backfit should be mandated; CLI-16-10, 83 NRC 494 (2016)

regulatory oversight activities such as inspection results, administrative and enforcement actions, informational meetings, and technical reports and memoranda support ongoing Staff oversight activities performed to ensure compliance with requirements and a plant's current licensing basis; CLI-16-9, 83 NRC 472 (2016)

request directing licensees to conduct seismic hazard reevaluations using new information and updated methodologies did not alter the facilities' licensing bases; CLI-16-9, 83 NRC 472 (2016)

### DECISION ON THE MERITS

board did not impermissibly weigh the merits in finding that petitioners had provided no factual support for their proposed contention; CLI-16-13, 83 NRC 566 (2016)

## SUBJECT INDEX

Commission held that petitioners had standing based on the proximity presumption without reviewing the merits at all, stating that its ruling did not signify any opinion on the admissibility or the merits of the petitioners' contention and remanding those issues to the licensing board; LBP-16-5, 83 NRC 259 (2016)

resolving standing questions is an entirely different matter than adjudicating the ultimate merits of a contention; LBP-16-5, 83 NRC 259 (2016)

where a petition for review relies primarily on claims that the Board erred in weighing the evidence in a merits decision, Commission seldom grants review; CLI-16-13, 83 NRC 566 (2016)

### DECISIONS

environmental impact statements are modified by any subsequent board or Commission decision; CLI-16-13, 83 NRC 566 (2016)

See also Initial Decisions; Licensing Board Decisions; Partial Initial Decisions; Record of Decision; Vacation of Decision

### DECOMMISSIONING

decommissioning must be completed within 60 years of permanent cessation of operations; CLI-16-8, 83 NRC 463 (2016)

### DECOMMISSIONING COSTS

licensees have the option of either maintaining existing license conditions governing decommissioning trusts or submitting to the new regulatory requirements; CLI-16-8, 83 NRC 463 (2016)

### DECOMMISSIONING FUND DISBURSEMENTS

exemption from 10 C.F.R. 50.82(a)(8)(i)(A) would allow licensee to make withdrawals from the trust fund for certain irradiated fuel management costs; CLI-16-8, 83 NRC 463 (2016)

future license amendment request relating to the trust fund would not be too short in duration to be fully litigated prior to its cessation or expiration; CLI-16-8, 83 NRC 463 (2016)

licensee must provide 30 working days' advance notice to NRC of intended disbursements from its trust fund; CLI-16-8, 83 NRC 463 (2016)

licensees have the option of either maintaining existing license conditions governing trust funds or submitting to new regulatory requirements; CLI-16-8, 83 NRC 463 (2016)

trust disbursements are restricted to decommissioning expenses until final decommissioning has been completed; CLI-16-8, 83 NRC 463 (2016)

### DEFERRAL OF RULING

board deferred ruling on motion in limine to exclude certain exhibits because they pertain to contentions that will be resolved in a subsequent Partial Initial Decision; LBP-16-7, 83 NRC 340 (2016)

### DEFINITIONS

applicant requested an exemption from definition of "construction" in 10 C.F.R. 50.10(a)(1) to allow installation of crane foundation retaining walls during the excavation process prior to issuance of combined licenses; CLI-16-2, 83 NRC 13 (2016)

"backfitting" encompasses a modification of or addition to structures, systems, components, or the design of a facility, or of the procedures or organization required to operate or design a facility; CLI-16-10, 83 NRC 494 (2016)

categorical exclusion means a category of actions that do not individually or cumulatively have a significant effect on the human environment and which the Commission has found to have no such effect and for which, therefore, neither an environmental assessment nor an environmental impact statement is required; LBP-16-8, 83 NRC 417 (2016)

Category 1 issues are those that NRC has categorized and assessed generically because the environmental effects of those issues are essentially similar for all plants; LBP-16-8, 83 NRC 417 (2016)

Category 2 issues require a plant-specific review of all environmental issues for which NRC was not able to make environmental findings on a generic basis; LBP-16-8, 83 NRC 417 (2016)

"design bases" are values chosen for controlling parameters as reference bounds for design and requirements derived from analysis of effects of a postulated accident for which a structure, system, or component must meet its functional goals; CLI-16-9, 83 NRC 472 (2016)

environmental assessment is a concise public document that contains brief discussions of the need for the proposal, of alternatives as required by NEPA § 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted; LBP-16-7, 83 NRC 340 (2016)

## SUBJECT INDEX

environmental impact statement is an expansive document that provides full and fair discussion of significant environmental impacts and must inform decisionmakers and the public of the reasonable alternatives; LBP-16-7, 83 NRC 340 (2016)

exclusion area is the area surrounding the reactor, in which licensee has the authority to determine all activities including exclusion or removal of personnel and property; LBP-16-4, 83 NRC 187 (2016)

“historic property” refers to the subset of cultural resources that are included in or eligible for placement in the National Register of Historic Places; LBP-16-7, 83 NRC 340 (2016)

irradiation facility and radioisotope production facility fit the “production facility” definition; CLI-16-4, 83 NRC 58 (2016)

material fact is one that might affect the outcome of a proceeding; LBP-16-3, 83 NRC 169 (2016)

“safety-related structures, systems, and components” in a medical radioisotope production facility applies to only those portions that do not expressly apply to power reactors; CLI-16-4, 83 NRC 58 (2016)

subcritical irradiation units do not fit the definition of “utilization facility”; CLI-16-4, 83 NRC 58 (2016)

“utilization facility” was amended to include an irradiation facility; CLI-16-4, 83 NRC 58 (2016)

**DEMAND FOR HEARING**

NRC Staff must inform licensee or any other person adversely affected by the order of his or her right to demand a hearing except in a case where licensee or other person has consented in writing to the order; CLI-16-6, 83 NRC 147 (2016)

**DEPARTMENT OF ENERGY**

DOE must take back and dispose of waste without a disposal path; CLI-16-4, 83 NRC 58 (2016)

NRC and DOE must ensure that their environmental reviews of facilities to produce medical radioisotopes are complementary and not duplicative; CLI-16-4, 83 NRC 58 (2016)

**DESIGN**

authorization of construction permit issuance for a medical radioisotope production facility does not constitute approval of the design; CLI-16-4, 83 NRC 58 (2016)

operating license application and final safety analysis report will contain the final detailed design for medical radioisotope production facility; CLI-16-4, 83 NRC 58 (2016)

safe design of the facility is a matter that applicant must establish to obtain a license; CLI-16-12, 83 NRC 542 (2016)

See also Containment Design; General Design Criteria; Reactor Design

**DESIGN BASIS**

“design bases” are values chosen for controlling parameters as reference bounds for design and requirements derived from analysis of effects of a postulated accident for which a structure, system, or component must meet its functional goals; CLI-16-9, 83 NRC 472 (2016)

**DESIGN CERTIFICATION**

applicant for a combined license may reference a reactor design that is undergoing rulemaking, doing so at its own risk, given that the certification might not be granted; CLI-16-12, 83 NRC 542 (2016)

Commission declined to hold the adjudicatory proceeding on a combined license application in abeyance pending completion of the design certification rulemaking for the design referenced in the application; CLI-16-12, 83 NRC 542 (2016)

**DESIGN CONTROL PROGRAMS**

where there is a conflict between Tier 1 and Tier 2 of a Design Control Document, Tier 1 controls; CLI-16-2, 83 NRC 13 (2016)

**DISCLOSURE**

agencies must disclose potential environmental impacts before proceeding with a planned action; LBP-16-7, 83 NRC 340 (2016)

at the heart of the disclosure-forcing function of NEPA is the EA or EIS, which assures the public that the agency has in fact considered all the impacts; LBP-16-7, 83 NRC 340 (2016)

by introducing potentially relevant background information in board exhibits, the board ensures that this information is easily available for public and appellate review, fulfilling the spirit of NEPA’s disclosure goals and the NRC’s transparency requirements; LBP-16-7, 83 NRC 340 (2016)

curbing an environmental assessment or environmental impact statement that made fundamentally erroneous statements, even if corrected later at hearing, would vitiate NEPA’s disclosure requirements; LBP-16-7, 83 NRC 340 (2016)

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- known shortcomings in available methodology and any incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these considerations credibly could or would alter the SAMA analysis conclusions, should be disclosed; CLI-16-7, 83 NRC 293 (2016)
- licensing board decision satisfies the disclosure purpose of NEPA through the public vetting of environmental issues at an evidentiary hearing; LBP-16-8, 83 NRC 417 (2016)
- NEPA's information-disclosure purpose is not satisfied where input values are not meaningfully addressed in the final supplemental environmental impact statement or the board's decision; LBP-16-8, 83 NRC 417 (2016)
- principal purpose of NEPA is to ensure public disclosure of information relevant to federal decisions significantly affecting the environment; LBP-16-8, 83 NRC 417 (2016)
- under NEPA, agency not only must evaluate all significant impacts, but also must inform the public that the agency has considered environmental concerns in its decisionmaking process; LBP-16-8, 83 NRC 417 (2016)
- DISMISSAL OF PROCEEDING**
- tribunal may dismiss those matters placed before it that have been mooted by supervening developments; CLI-16-6, 83 NRC 147 (2016)
- when subsequent events outrun the controversy, the Commission will ordinarily dismiss a case as moot; CLI-16-6, 83 NRC 147 (2016)
- DOCUMENT PRODUCTION**
- NRC Staff need not produce volumes of documents and information supporting facts and conclusions that are of small importance and are beyond dispute; LBP-16-4, 83 NRC 187 (2016)
- DOSE, RADIOLOGICAL**
- dose consequence estimates from accident scenario at medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)
- population dose risk and offsite economic cost risk are the key risk values of interest for determining for determining potentially cost-beneficial severe accident mitigation alternatives; CLI-16-7, 83 NRC 293 (2016)
- DOSIMETERS**
- equipment located inside surveillance capsules must be tested in accordance with ASTM Guide E 482; CLI-16-2, 83 NRC 13 (2016)
- DUE PROCESS**
- unless a schedule is so onerous or unfair that it deprives a party of procedural due process, scheduling is a matter of licensing board discretion; CLI-16-11, 83 NRC 524 (2016)
- EARLY SITE PERMIT APPLICATION**
- applicant is not required to select a specific unit design at the ESP stage; LBP-16-4, 83 NRC 187 (2016)
- applicant's environmental report and NRC Staff's environmental impact statement are not required to address benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP; LBP-16-4, 83 NRC 187 (2016)
- as partial construction permit applications, ESP applications are subject to the hearing requirement of Atomic Energy Act § 189a(1)(A); LBP-16-4, 83 NRC 187 (2016)
- as partial construction permit applications, ESP applications are subject to the hearing requirement of section 189a(1)(A) of the Atomic Energy Act; LBP-16-4, 83 NRC 187 (2016)
- hearing on an early site permit application is required by statute regardless of whether the application is opposed; LBP-16-4, 83 NRC 187 (2016)
- NRC Staff is asked to explain how application and review differed from previous ESPs due to events at Fukushima and subsequent evaluations and recommendations; LBP-16-4, 83 NRC 187 (2016)
- NRC Staff is asked to explain, for the non-expert, how applicant calculated long-term atmospheric dispersion for routine releases; LBP-16-4, 83 NRC 187 (2016)
- EARLY SITE PERMIT PROCEEDINGS**
- after a licensing board in an uncontested proceeding determines the NRC Staff's NEPA review is adequate, it must then independently consider the final balance among conflicting factors that is struck in the conditions recommendation; LBP-16-4, 83 NRC 187 (2016)
- board must determine, in an uncontested proceeding, whether the NEPA review conducted by NRC Staff has been adequate; LBP-16-4, 83 NRC 187 (2016)

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boards conducting mandatory hearings should not second-guess the underlying technical or factual findings by NRC Staff; LBP-16-4, 83 NRC 187 (2016)

giving appropriate deference to NRC Staff technical expertise, boards are to probe the logic and evidence supporting NRC Staff findings and decide whether those findings are sufficient to support license issuance; LBP-16-4, 83 NRC 187 (2016)

licensing board's responsibility in a mandatory hearing on an early site permit is analogous to the function of an appellate court, applying the substantial evidence test, although it is imperfect because the ASLB looks not only to the information in the record, but also to the thoroughness of the review that NRC Staff has given it; LBP-16-4, 83 NRC 187 (2016)

mitigation measures for aquatic resources are reasonably foreseeable because applicant will be required to acquire federal permits; LBP-16-4, 83 NRC 187 (2016)

NRC Staff is asked to explain how they addressed the climate-change-induced increases in the power and frequency of hurricanes and models used; LBP-16-4, 83 NRC 187 (2016)

NRC Staff's determination on the basis of experience with hydraulic modeling that improvements to resolution of the watershed basin model could not change the conclusion that storm surge is the bounding flood hazard is examined; LBP-16-4, 83 NRC 187 (2016)

NRC Staff's underlying technical and factual findings are not open to board reconsideration unless, after a review of the record, the board finds the NRC Staff review inadequate or its findings insufficient; LBP-16-4, 83 NRC 187 (2016)

safety findings that the licensing board must make to authorize issuance of an ESP are discussed; LBP-16-4, 83 NRC 187 (2016)

### EARLY SITE PERMITS

applicant for a combined license that references an ESP must provide any new and significant information for issues related to the impacts of construction and operation of the facility that were resolved in the ESP proceeding; LBP-16-4, 83 NRC 187 (2016)

ESP is a partial construction permit; LBP-16-4, 83 NRC 187 (2016)

ESP is not an authorization to construct or operate a nuclear power plant, but rather relates only to site suitability; LBP-16-4, 83 NRC 187 (2016)

ESP may issue if the board finds that any significant adverse environmental impact resulting from activities requested under section 52.17(c) can be redressed; LBP-16-4, 83 NRC 187 (2016)

ESP may issue if the board finds that the requirements of 10 C.F.R. 52.24(a), and the incorporated provisions of 10 C.F.R. 51.105(a), are satisfied; LBP-16-4, 83 NRC 187 (2016)

ESP must specify site characteristics, design parameters, and terms and conditions of the ESP that NRC deems appropriate; LBP-16-4, 83 NRC 187 (2016)

if applicant includes a satisfactory site redress plan, an ESP holder may conduct certain site preparation activities under a limited work authorization; LBP-16-4, 83 NRC 187 (2016)

### ECONOMIC EFFECTS

population dose risk and offsite economic cost risk are the key risk values of interest for determining for determining potentially cost-beneficial severe accident mitigation alternatives; CLI-16-7, 83 NRC 293 (2016)

### ECONOMIC INJURY

purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 97 (2016)

### ELECTRICAL POWER

onsite and offsite electric power systems that permit functioning of structures, systems, and components important to safety are required; CLI-16-2, 83 NRC 13 (2016)

### ELECTRONIC FILING

exemption from requirement to submit pleadings via the agency's E-Filing system may be requested; LBP-16-2, 83 NRC 107 (2016)

### EMERGENCY ACTION LEVELS

licensee must obtain NRC approval where a requested license amendment reduces the effectiveness of its emergency plan and emergency action level scheme; CLI-16-12, 83 NRC 542 (2016)

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### EMERGENCY BACKUP POWER

onsite and offsite electric power systems that permit the functioning of structures, systems, and components important to safety are required; CLI-16-2, 83 NRC 13 (2016)

### EMERGENCY PLANNING

contention that license amendment request fails to account for all credible emergency scenarios undermines effectiveness of site emergency plan and offsite emergency planning, and poses an increased risk to public health and safety is dismissed; CLI-16-12, 83 NRC 542 (2016)

### EMERGENCY PLANS

application to amend an emergency plan must include a certification that the plan, as amended, will continue to meet the requirements of 10 C.F.R. 50.47(b) and Part 50, Appendix E; CLI-16-12, 83 NRC 542 (2016)

changes to licensee's emergency plan that reduce effectiveness of the plan may not be implemented without prior approval by NRC; CLI-16-12, 83 NRC 542 (2016)

license amendment application must include the basis for concluding that licensee's emergency plan, as revised, will continue to meet requirements in Appendix E to Part 50 and, for nuclear power reactor licensees, the planning standards of section 50.47(b); CLI-16-12, 83 NRC 542 (2016)

licensee must obtain NRC approval where a requested license amendment reduces the effectiveness of its emergency plan and emergency action level scheme; CLI-16-12, 83 NRC 542 (2016)

### EMPLOYEE PROTECTION

Commission has rejected proximity standing for certain changes to worker-protection requirements; LBP-16-5, 83 NRC 259 (2016)

### ENDANGERED SPECIES ACT

NRC Staff, in consultation with and with assistance of the Secretary of the Interior or the Secretary of Commerce, must evaluate whether any threatened or endangered species are present onsite that could be affected by construction of the medical radioisotope production facility; CLI-16-4, 83 NRC 58 (2016)

### ENFORCEMENT PROCEEDINGS

challenge asserting that an order, if carried out, would be affirmatively contrary to the public health and safety could fall within the scope of a proceeding on a confirmatory order; CLI-16-6, 83 NRC 165 (2016); CLI-16-6, 83 NRC 147 (2016)

Commission has authority under AEA § 189a to define the scope of an enforcement proceeding and to limit that scope to whether to sustain the order; CLI-16-6, 83 NRC 147 (2016)

in the enforcement context, one way that an injury can fall within the zone of interests protected by the Atomic Energy Act is where it is based on the premise that the order's terms, if carried out, would be affirmatively contrary to the public health and safety; CLI-16-6, 83 NRC 147 (2016)

petitioner seeking to strengthen a confirmatory order and add new requirements lacks standing; CLI-16-6, 83 NRC 147 (2016)

threshold question in an enforcement proceeding that must be resolved relates both to standing and contention admissibility, whether the hearing request is within the scope of the proceeding as outlined in the Confirmatory Order; CLI-16-6, 83 NRC 147 (2016)

when licensee agrees to make positive changes or does not contest an order requiring remedial changes, it should not be at risk of being subjected to a wide-ranging hearing and further investigation; CLI-16-6, 83 NRC 147 (2016)

### ENVIRONMENTAL ANALYSIS

agencies must consider environmental effects that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions with the goal of making sure that individually minor but collectively significant actions are properly analyzed; LBP-16-8, 83 NRC 417 (2016)

license amendment request must meet criteria for a categorical exclusion from the requirement to prepare an environmental analysis; CLI-16-5, 83 NRC 131 (2016)

licensing board should not allow glaring gaps in NRC Staff's environmental analysis to go unexplored; LBP-16-7, 83 NRC 340 (2016)

licensing boards are obliged to ensure that NRC Staff's NEPA documents come to grips with potentially significant environmental impacts and fully justify any conclusions in this regard; LBP-16-8, 83 NRC 417 (2016)

## SUBJECT INDEX

NEPA documents must respond with appropriate scrutiny and reasoned explanations to opposing views, which includes being able to explain and make available underlying assumptions in NRC's environmental analyses; LBP-16-8, 83 NRC 417 (2016)

NEPA requires agencies to consider every significant aspect of a proposed action's environmental impact and provide a reasoned explanation for the agency's conclusions; LBP-16-8, 83 NRC 417 (2016)  
purpose of a cumulative effects analysis is to consider whether a small change will worsen an already bad situation, like the proverbial straw that broke the camel's back; LBP-16-8, 83 NRC 417 (2016)  
responding with appropriate scrutiny and reasoned explanations to opposing views is a NEPA requirement that includes being able to explain and make available underlying assumptions in environmental analyses; LBP-16-7, 83 NRC 340 (2016)

### ENVIRONMENTAL ASSESSMENT

agency may incorporate data underlying an EA by reference; LBP-16-8, 83 NRC 417 (2016)  
agency must set forth a reasoned explanation for its decision and cannot simply assert that its decision will have an insignificant effect on the environment; LBP-16-8, 83 NRC 417 (2016)

agency preparing an EA for a permit may incorporate by reference the general discussions of prior, broader environmental impact statements; LBP-16-8, 83 NRC 417 (2016)

at the heart of the disclosure-forcing function of NEPA is the EA or EIS, which assures the public that the agency has in fact considered all the impacts; LBP-16-7, 83 NRC 340 (2016)

categorical exclusion means a category of actions that do not individually or cumulatively have a significant effect on the human environment and require neither an EA nor an environmental impact statement; LBP-16-8, 83 NRC 417 (2016)

Commission directed NRC Staff to deny rulemaking petitioners' collateral request to suspend licensing decisions on all other pending proceedings and directed Staff to seek Commission approval if it determined that suspension of NRC rules or the environmental assessments considering severe accident mitigation alternatives analyses would be necessary; CLI-16-2, 83 NRC 13 (2016)

curing an environmental assessment or environmental impact statement that made fundamentally erroneous statements, even if corrected later at hearing, would vitiate NEPA's disclosure requirements; LBP-16-7, 83 NRC 340 (2016)

difference between an EA and an environmental impact statement is explained; LBP-16-7, 83 NRC 340 (2016)

EA is a concise public document that contains brief discussions of the need for the proposal, of alternatives as required by NEPA § 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted; LBP-16-7, 83 NRC 340 (2016)

EA is not required if a categorical exclusion applies; LBP-16-5, 83 NRC 259 (2016)

EA or EIS is to provide not merely the agency's general conclusions but all relevant considerations that went into reaching those conclusions; LBP-16-7, 83 NRC 340 (2016)

EA performs the critical role of first determining whether the proposed federal action may produce any such significant, unmitigated impacts; LBP-16-7, 83 NRC 340 (2016)

EA should not amass needless detail but must permit members of the public to weigh in with their views and thus inform the agency decisionmaking process; LBP-16-8, 83 NRC 417 (2016)

if an environmental impact statement is not needed, then NRC Staff must support that determination with a Finding of No Significant Impact, which briefly presents reasons why an action will not have a significant effect on the human environment; LBP-16-7, 83 NRC 340 (2016)

if the EA concludes that there will be a significant impact on the human environment that will not be mitigated, an environmental impact statement is needed; LBP-16-7, 83 NRC 340 (2016)

NEPA ensures that the agency will provide sufficient evidence and analysis to determine the reasonableness of the decision not to prepare an EIS; LBP-16-8, 83 NRC 417 (2016)

NEPA requires an agency to do more than to scatter its evaluation of environmental damage among various public documents; LBP-16-8, 83 NRC 417 (2016)

NRC Staff must present credible arguments to cure its deficient EA at an evidentiary hearing; LBP-16-7, 83 NRC 340 (2016)

state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 417 (2016)



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where an adjudicatory hearing tests the adequacy of an EA or EIS, evidence adduced at the hearing may cure a defective NEPA document because in contested proceedings with a hearing, a licensing board creates the final record of decision under NEPA; LBP-16-7, 83 NRC 340 (2016)  
where intervening parties proffer admissible contentions challenging the conclusions in the environmental assessment that underpin a FONSI determination, the EA must provide a reasonable defense of NRC Staff's position; LBP-16-7, 83 NRC 340 (2016)  
where NRC Staff must draft very long EAs to justify a Finding of No Significant Impact, it may indicate that an environmental impact statement should be written instead; LBP-16-7, 83 NRC 340 (2016)

### ENVIRONMENTAL EFFECTS

agencies must disclose potential environmental impacts before proceeding with a planned action; LBP-16-7, 83 NRC 340 (2016)  
Category 1 issues are those that NRC has categorized and assessed generically because the environmental effects of those issues are essentially similar for all plants; LBP-16-8, 83 NRC 417 (2016)  
information is sufficiently probative to demonstrate that there remains a genuine dispute of material fact concerning the ability of applicant's monitoring program to detect upward migrations of wastewater and to ensure any environmental impact would be minor; LBP-16-3, 83 NRC 169 (2016)  
license conditions relating to monitoring, recording, and reporting of environmental data are a means for NRC to keep abreast of the environmental impacts of current operating reactors; CLI-16-10, 83 NRC 494 (2016)  
licensees submit information from monitoring of environmental conditions to NRC on a routine basis; CLI-16-10, 83 NRC 494 (2016)  
NEPA does not create a substantive requirement that a federal agency affirmatively limit the environmental harms of its actions; LBP-16-7, 83 NRC 340 (2016)  
NRC has generically determined, based on probability-weighted consequences, that environmental impacts from severe accidents at plants operating under renewed licenses are expected to be small; CLI-16-7, 83 NRC 293 (2016)

### ENVIRONMENTAL IMPACT STATEMENT

agencies must study, develop, and describe appropriate alternatives to the proposed action; CLI-16-2, 83 NRC 13 (2016)  
agencies must use a systematic, interdisciplinary approach that will ensure the integrated use of the natural and social sciences and the environmental design arts in decisionmaking that may impact the environment; CLI-16-2, 83 NRC 13 (2016)  
agency may not discharge its obligation to provide the public with analysis of the environmental impacts of a project simply by incorporating documents by reference; LBP-16-8, 83 NRC 417 (2016)  
agency preparing an environmental assessment for a permit may incorporate by reference the general discussions of prior, broader EISs; LBP-16-8, 83 NRC 417 (2016)  
alternatives analysis is the heart of the EIS; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016)  
any subsequent board or Commission decision modifies the EIS; CLI-16-13, 83 NRC 566 (2016)  
at the heart of the disclosure-forcing function of NEPA is the EA or EIS, which assures the public that the agency has in fact considered all the impacts; LBP-16-7, 83 NRC 340 (2016)  
categorical exclusion means a category of actions that do not individually or cumulatively have a significant effect on the human environment and require neither an environmental assessment nor an EIS; LBP-16-8, 83 NRC 417 (2016)  
Commission and licensing board decisions can supplement the NEPA analysis to correct deficiencies in such an analysis; CLI-16-13, 83 NRC 566 (2016)  
Commission does not deny the value of an EIS that can be understood without extensive cross-reference; LBP-16-8, 83 NRC 417 (2016)  
content must be sufficient to enable those who did not have a part in its compilation to understand and meaningfully consider the factors involved; LBP-16-8, 83 NRC 417 (2016)  
curing an environmental assessment or environmental impact statement that made fundamentally erroneous statements, even if corrected later at hearing, would vitiate NEPA's disclosure requirements; LBP-16-7, 83 NRC 340 (2016)  
detailed studies done elsewhere and generally available upon request may be incorporated by reference, but cursory reference to a report falls far short of regulatory requirements; LBP-16-8, 83 NRC 417 (2016)

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difference between an environmental assessment and an EIS is explained; LBP-16-7, 83 NRC 340 (2016)

discussion of mitigation measures need only be reasonably complete; LBP-16-8, 83 NRC 417 (2016)

discussion of potential mitigation measures in an EIS must include sufficient detail to ensure that environmental consequences have been fairly evaluated; LBP-16-8, 83 NRC 417 (2016)

EA or EIS is to provide not merely the agency's general conclusions but all relevant considerations that went into reaching those conclusions; LBP-16-7, 83 NRC 340 (2016)

early site permit applicant's environmental report and NRC Staff's EIS are not required to address benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP; LBP-16-4, 83 NRC 187 (2016)

EIS is an expansive document that provides full and fair discussion of significant environmental impacts and must inform decisionmakers and the public of the reasonable alternatives; LBP-16-7, 83 NRC 340 (2016)

EIS is not a research document reflecting the frontiers of scientific methodology, studies, and data; CLI-16-7, 83 NRC 293 (2016)

EIS is not required if a categorical exclusion applies; LBP-16-5, 83 NRC 259 (2016)

EIS is required for all major NRC licensing efforts significantly affecting the quality of the human environment; LBP-16-7, 83 NRC 340 (2016)

EIS may rely on external materials, provided that the materials are reasonably available, that statements in the final EIS are understandable without undue cross-reference, and that incorporation by reference meets a general standard of reasonableness; LBP-16-8, 83 NRC 417 (2016)

environmental impacts from severe accidents shall be discussed in proportion to their significance; CLI-16-7, 83 NRC 293 (2016)

if an EIS is not needed, then NRC Staff must support that determination with a Finding of No Significant Impact, which briefly presents reasons why an action will not have a significant effect on the human environment; LBP-16-7, 83 NRC 340 (2016)

licensing board's findings and conclusions are deemed to amend NRC Staff's NEPA documents and become the agency record of decision on those matters; LBP-16-8, 83 NRC 417 (2016)

NEPA ensures that the agency will provide sufficient evidence and analysis to determine the reasonableness of the decision not to prepare an EIS; LBP-16-8, 83 NRC 417 (2016)

NEPA process would effectively become unending if it required NRC to stop and await internationally based research and potential code modifications that could take years to complete; CLI-16-7, 83 NRC 293 (2016)

NRC must assess the relationship between local short-term uses and long-term productivity of the environment, consider alternatives, and describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action; CLI-16-2, 83 NRC 13 (2016)

NRC must publish a notice of intent to prepare an EIS; LBP-16-4, 83 NRC 187 (2016)

NRC Staff must discuss mitigation measures in sufficient detail to satisfy the NEPA hard look standard; LBP-16-8, 83 NRC 417 (2016)

NRC Staff must prepare an EIS for major actions that have a significant environmental effect; CLI-16-12, 83 NRC 542 (2016)

time for challenging applicant's environmental report passes when NRC Staff releases its draft supplemental EIS; LBP-16-6, 83 NRC 329 (2016)

under NEPA, agency not only must evaluate all significant impacts, but also must inform the public that the agency has considered environmental concerns in its decisionmaking process; LBP-16-8, 83 NRC 417 (2016)

where an adjudicatory hearing tests the adequacy of an EA or EIS, evidence adduced at the hearing may cure a defective NEPA document because in contested proceedings with a hearing, a licensing board creates the final record of decision under NEPA; LBP-16-7, 83 NRC 340 (2016)

where NRC Staff must draft very long environmental assessments to justify a Finding of No Significant Impact, it may indicate that an EIS should be written instead; LBP-16-7, 83 NRC 340 (2016)

where the significance of an action is unclear because of scientific uncertainty, preferable course of action is to prepare an EIS; LBP-16-7, 83 NRC 340 (2016)

See also Final Environmental Impact Statement; Generic Environmental Impact Statement; Supplemental Environmental Impact Statement

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### ENVIRONMENTAL ISSUES

board reformulation of the contention reflects that fact that, although the contention originally was filed based on the environmental report, the information in the DEIS is sufficiently similar to the information in the ER that the remaining aspect of the contention constitutes a viable challenge to the adequacy of the DEIS; LBP-16-3, 83 NRC 169 (2016)

Category 2 issues require a plant-specific review of all environmental issues for which NRC was not able to make environmental findings on a generic basis; LBP-16-8, 83 NRC 417 (2016)

distinction between Category 1 and Category 2 issues during a license renewal is based on an extensive study of potential environmental consequences of operating a nuclear power plant for an additional 20 years; LBP-16-8, 83 NRC 417 (2016)

distinction between Category 1 and Category 2 issues during a license renewal is based on the underlying assumption that the nuclear power plant will continue operating under its current license requirements, including license conditions and technical specifications; LBP-16-8, 83 NRC 417 (2016)

environmental determinations that must be made for issuance of a combined license are discussed; CLI-16-2, 83 NRC 13 (2016)

environmental findings that NRC must make to support issuance of a construction permit for a medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)

environmental record of decision may be supplemented by the hearing and relevant board and Commission decisions; LBP-16-8, 83 NRC 417 (2016)

in reaching its independent judgment regarding NEPA issues, licensing boards are not to second-guess underlying technical or factual findings by the NRC Staff; LBP-16-4, 83 NRC 187 (2016)

parties challenging an agency's NEPA process are not entitled to relief unless they demonstrate harm or prejudice; CLI-16-13, 83 NRC 566 (2016)

### ENVIRONMENTAL JUSTICE

because Executive Order 12898 does not create any new rights, it cannot provide a legal basis for contentions to be litigated in NRC licensing proceedings; LBP-16-5, 83 NRC 259 (2016)

Executive Order 12898 does not, in itself, create new substantive authority for federal agencies; LBP-16-5, 83 NRC 259 (2016)

federal agencies are directed to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations; LBP-16-5, 83 NRC 259 (2016)

harm suffered by an environmental justice population must be disproportionate to that suffered by the general population; LBP-16-5, 83 NRC 259 (2016)

NRC carries out the principles of Executive Order 12898 as part of the agency's responsibilities under the National Environmental Policy Act; LBP-16-5, 83 NRC 259 (2016)

NRC committed to consider, in NEPA reviews, factors peculiar to minority and low-income populations and to identify significant impacts, if any, that will fall disproportionately on minority and low-income communities due to these factors; LBP-16-5, 83 NRC 259 (2016)

NRC Staff developed its own guidance, using the Council on Environmental Quality's guidelines for implementing environmental justice as a reference; LBP-16-5, 83 NRC 259 (2016)

NRC, as an independent agency, is not bound by Executive Order 12898, but voluntarily committed to undertake environmental justice reviews; LBP-16-5, 83 NRC 259 (2016)

### ENVIRONMENTAL REPORT

contention alleging that ER does not evaluate a reasonable array of energy alternatives that are commercially viable or will become so within the next 10 years is inadmissible; CLI-16-11, 83 NRC 524 (2016)

early site permit applicant's ER and NRC Staff's environmental impact statement are not required to address benefits of constructing and operating the facility as distinct from the benefits of issuing an ESP; LBP-16-4, 83 NRC 187 (2016)

only energy alternatives that are reasonable and will bring about the ends of the proposed action need to be discussed in the ER; CLI-16-11, 83 NRC 524 (2016)

time for challenging applicant's ER passes when NRC Staff releases its draft supplemental environmental impact statement; LBP-16-6, 83 NRC 329 (2016)

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### ENVIRONMENTAL REVIEW

agencies may exclude from consideration those impacts that are not reasonably foreseeable, but are remote and speculative; LBP-16-7, 83 NRC 340 (2016)

agencies must use a systematic, interdisciplinary approach that will ensure the integrated use of the natural and social sciences and the environmental design arts in decisionmaking that may impact the environment; CLI-16-4, 83 NRC 58 (2016)

agency's environmental review document provides a springboard for public comment; LBP-16-8, 83 NRC 417 (2016)

board must determine whether NRC Staff took a hard look at the potential environmental impacts of the licensing actions and whether NRC Staff adequately justified its conclusions in this regard; LBP-16-8, 83 NRC 417 (2016)

board must determine, in an uncontested proceeding, whether the NEPA review conducted by NRC Staff has been adequate; LBP-16-4, 83 NRC 187 (2016)

categories of actions that are exempt from NEPA review are listed in 10 C.F.R. 51.22(a); CLI-16-5, 83 NRC 131 (2016)

Category 2 issues require a plant-specific review of all environmental issues for which NRC was not able to make environmental findings on a generic basis; LBP-16-8, 83 NRC 417 (2016)

federal agencies must take into account the effect of an undertaking on any historic property prior to approving an action; LBP-16-7, 83 NRC 340 (2016)

impacts or effects that must be accounted for include ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative impacts; LBP-16-7, 83 NRC 340 (2016)

NEPA casts a wide net with respect to those impacts that an agency must assess; LBP-16-7, 83 NRC 340 (2016)

NEPA's hard look requires informed and reasoned decisionmaking in which the agency obtains opinions from its own experts and from experts outside the agency, and gives careful scientific scrutiny and response to all legitimate concerns that are raised; LBP-16-7, 83 NRC 340 (2016)

NRC and the Department of Energy must ensure that their environmental reviews of facilities to produce medical radioisotopes are complementary and not duplicative; CLI-16-4, 83 NRC 58 (2016)

NRC Staff bears the ultimate burden of proof for showing that it complied with NEPA; LBP-16-8, 83 NRC 417 (2016)

NRC Staff is obliged to address any new and significant information relating to Category 1 issues; LBP-16-8, 83 NRC 417 (2016)

one purpose of NEPA review is to assure that the public who might be affected by the proposed project be fully informed of the proposal, its impacts, and all major points of view; LBP-16-8, 83 NRC 417 (2016)

summary of findings on NRC Staff's environmental review must be provided; CLI-16-2, 83 NRC 13 (2016)

under NEPA's rule of reason, 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; CLI-16-11, 83 NRC 524 (2016)

when new information is presented, NRC is obliged to consider and evaluate it and to make a reasoned decision as to whether it shows that any proposed action will affect the environment in a significant manner not already considered; LBP-16-8, 83 NRC 417 (2016)

### EQUIPMENT, SAFETY-RELATED

requirement to maintain equipment needed to mitigate a design-basis loss-of-coolant accident hydrogen release, including hydrogen recombiners, was eliminated; CLI-16-2, 83 NRC 13 (2016)

### ERROR

curing an environmental assessment or environmental impact statement that made fundamentally erroneous statements, even if corrected later at hearing, would vitiate NEPA's disclosure requirements; LBP-16-7, 83 NRC 340 (2016)

it is not error for a board to rely on witness testimony; CLI-16-13, 83 NRC 566 (2016)

standard for showing clear error is difficult to meet and petitioner must demonstrate that the board's determination is not even plausible in light of the record as a whole; CLI-16-13, 83 NRC 566 (2016)

## SUBJECT INDEX

### EVIDENCE

at the pleading stage, general factual allegations of injury resulting from the defendant's conduct may suffice, and the court presumes that general allegations embrace the specific facts that are necessary to support the claim; LBP-16-5, 83 NRC 259 (2016)

courts may exclude relevant evidence if its probative value is substantially outweighed by a danger of unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence; LBP-16-4, 83 NRC 187 (2016)

if reasonable minds could differ as to the import of the evidence, summary disposition is not appropriate; LBP-16-3, 83 NRC 169 (2016)

licensing boards are expected to examine cited materials for verification that those materials do, in fact, support a party's claim; LBP-16-7, 83 NRC 340 (2016)

questions of fact are not susceptible of resolution on the basis of nothing more than the generalized representations of counsel who are unequipped to attest on the basis of their own personal knowledge to the accuracy of the representations; LBP-16-3, 83 NRC 169 (2016)

strict rules of evidence do not apply to written submissions and rarely is it productive for licensing boards to devote time and resources to trying to separate inadmissible evidence from the merely unpersuasive; LBP-16-4, 83 NRC 187 (2016)

written limited appearance statements from interested members of the public are not considered as evidence; LBP-16-4, 83 NRC 187 (2016)

written prefiled testimony and exhibits are typically submitted well in advance of the evidentiary hearing, and, in most common types of NRC hearings, licensing boards themselves rather than the parties orally examine the witnesses; LBP-16-4, 83 NRC 187 (2016)

### EVIDENTIARY HEARINGS

because members of licensing boards themselves must read challenged testimony to determine whether its probative value is substantially outweighed by the danger of unfair prejudice or confusion of the issues, excluding evidence on this ground has little practical effect; LBP-16-4, 83 NRC 187 (2016)

certain NRC license applications may be granted at the conclusion of NRC Staff's review process even though a hearing is pending, but can be revoked, conditioned, modified, or affirmed, based on the evidence adduced at a licensing board evidentiary hearing; LBP-16-7, 83 NRC 340 (2016)

competing expert opinions present the classic battle of the experts that requires an evidentiary hearing to evaluate what weight and credibility each expert opinion deserves; LBP-16-3, 83 NRC 169 (2016)

factual findings in an evidentiary dispute are based on a preponderance of the evidence; LBP-16-8, 83 NRC 417 (2016)

in a case with numerous factual issues and competing expert declarations, proceeding to an evidentiary hearing where factual claims appropriately can be weighed, clarified, and resolved with merits findings may be more efficient for all parties than granting summary disposition; LBP-16-3, 83 NRC 169 (2016)

licensing board decision satisfies the disclosure purpose of NEPA through the public vetting of environmental issues at an evidentiary hearing; LBP-16-8, 83 NRC 417 (2016)

licensing boards are not bound by formal rules of evidence; LBP-16-7, 83 NRC 340 (2016)

NRC Staff must present credible arguments to cure its deficient environmental assessment; LBP-16-7, 83 NRC 340 (2016)

NRC Staff's practice in materials cases is to issue a license before completion of contested hearings on environmental matters; CLI-16-13, 83 NRC 566 (2016)

strict rules of evidence do not apply to written submissions and rarely is it productive for licensing boards to devote time and resources to trying to separate inadmissible evidence from the merely unpersuasive; LBP-16-4, 83 NRC 187 (2016)

when considering challenges to how the board weighed the evidence, Commission defers to the board's expertise as the fact finder and declines to substitute the judgment of an intervenor's expert for that of the board; CLI-16-13, 83 NRC 566 (2016)

where an adjudicatory hearing tests the adequacy of an EA or EIS, evidence adduced at the hearing may cure a defective NEPA document because in contested proceedings with a hearing, a licensing board creates the final record of decision under NEPA; LBP-16-7, 83 NRC 340 (2016)

written prefiled testimony and exhibits are typically submitted well in advance of the evidentiary hearing, and, in most common types of NRC hearings, licensing boards themselves rather than the parties orally examine the witnesses; LBP-16-4, 83 NRC 187 (2016)

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### EXCEPTIONS

“capable of repetition, yet evading review” exception to the mootness doctrine applies only to cases in which both the challenged action was in its duration too short to be litigated and there is a reasonable expectation that the same complaining party will be subject to the same action again; CLI-16-8, 83 NRC 463 (2016)

decisions capable of repetition, yet evading review form an exception to mootness doctrine; CLI-16-8, 83 NRC 463 (2016)

exceptionally grave issue provision of 10 C.F.R. 2.326(a)(1) is a narrow exception and will be granted rarely and only in truly extraordinary circumstances; LBP-16-6, 83 NRC 329 (2016)

injury capable of repetition requires a reasonable expectation that the same complaining party would be subjected to the same action again; CLI-16-6, 83 NRC 147 (2016)

“voluntary cessation” exception is intended to prevent a party from evading review by taking temporary action to preclude a possible adverse decision; CLI-16-6, 83 NRC 147 (2016)

when a case is capable of repetition, yet evading review, an exception to the mootness doctrine exists; CLI-16-6, 83 NRC 147 (2016)

### EXCLUSION AREA

reactor licensee has authority to determine all activities including exclusion or removal of personnel and property from the area surrounding the reactor; LBP-16-4, 83 NRC 187 (2016)

### EXEMPTIONS

adequacy of the applicant’s alternative methodology to demonstrate adequacy of facility’s seismic design, use of which was granted by exemption from regulation, was within the scope of the underlying license proceeding and a topic suitable for a hearing; CLI-16-12, 83 NRC 542 (2016)

applicant requested an exemption from definition of “construction” in 10 C.F.R. 50.10(a)(1) to allow installation of crane foundation retaining walls during the excavation process prior to issuance of combined licenses; CLI-16-2, 83 NRC 13 (2016)

categorical exclusions involve a significant hazards consideration, which would prevent them from being exempted; CLI-16-5, 83 NRC 131 (2016)

categories of actions that are exempt from NEPA review are listed in 10 C.F.R. 51.22(a); CLI-16-5, 83 NRC 131 (2016)

Commission distinguishes between a hearing on an exemption and a hearing on exemption-related matters; CLI-16-12, 83 NRC 542 (2016)

critical safety questions should not be excluded from licensing hearings merely on the basis of an exemption label; CLI-16-12, 83 NRC 542 (2016)

emergency plan changes that reduce effectiveness of the plan may not be implemented without prior NRC approval; CLI-16-12, 83 NRC 542 (2016)

exemption from 10 C.F.R. 2.101(a)(5) allows applicant to submit its medical radioisotope production facility application in two parts; CLI-16-4, 83 NRC 58 (2016)

exemption from 10 C.F.R. 50.82(a)(8)(i)(A) would allow licensee to make withdrawals from the decommissioning trust fund for certain irradiated fuel management costs; CLI-16-8, 83 NRC 463 (2016)

exemption from regulations is authorized by law if the exemption will not conflict with the AEA or any other law; CLI-16-2, 83 NRC 13 (2016)

exemption requests are not among the listed actions that are subject to a hearing under the Atomic Energy Act, and their absence from section 189a has been interpreted as intentional; CLI-16-12, 83 NRC 542 (2016)

hearing opportunity is warranted when an exemption request raises material questions directly connected to an agency licensing action for which the Atomic Energy Act expressly provides a hearing right, as it does for the granting, suspending, revoking, or amending of a license; CLI-16-12, 83 NRC 542 (2016)

hearing request challenging requested exemptions from some physical security requirements was denied where licensee had not requested a license amendment; CLI-16-12, 83 NRC 542 (2016)

material circumstance not considered when financial qualification regulation was adopted exists for which it would be in the public interest to grant an exemption from the regulation; CLI-16-2, 83 NRC 13 (2016)

NRC may grant exemptions from regulations if the exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security and when special circumstances exist; CLI-16-2, 83 NRC 13 (2016)

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petitioner may request an exemption from requirement to submit pleadings via the agency's E-Filing system; LBP-16-2, 83 NRC 107 (2016)

where exemption from a regulation was granted, and the new standard imposed by the Staff was not within an applicable regulation, the question of whether the new standard was adequate itself was within the scope of the proceeding; CLI-16-12, 83 NRC 542 (2016)

### EXHIBITS

board deferred ruling on motion in limine to exclude certain exhibits because they pertain to contentions that will be resolved in a subsequent partial initial decision; LBP-16-7, 83 NRC 340 (2016)

boards have long introduced and relied on exhibits for clarifying and verifying NRC Staff's testimony to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 340 (2016)

by introducing potentially relevant background information in board exhibits, the board ensures that this information is easily available for public and appellate review, fulfilling the spirit of NEPA's disclosure goals and the NRC's transparency requirements; LBP-16-7, 83 NRC 340 (2016)

### FEDERAL REGISTER

following receipt of a license amendment application, NRC Staff publishes a notice of the application, the opportunity to request a hearing, and Staff's proposed no significant hazards consideration determination; CLI-16-5, 83 NRC 131 (2016)

### FEDERAL RULES OF CIVIL PROCEDURE

court shall grant summary judgment if movant shows that there is no genuine dispute as to any material fact and movant is entitled to judgment as a matter of law; LBP-16-3, 83 NRC 169 (2016)

NRC standards governing summary disposition are based on those the federal courts apply to motions for summary judgment under Rule 56; LBP-16-3, 83 NRC 169 (2016)

### FEDERAL RULES OF EVIDENCE

licensing boards are not bound by formal rules of evidence; LBP-16-7, 83 NRC 340 (2016)

### FINAL ENVIRONMENTAL IMPACT STATEMENT

circumstances under which NRC Staff is required to prepare a supplement if the proposed action has not yet been taken are specified; CLI-16-3, 83 NRC 52 (2016)

contention that FSEIS did not consider extent to which groundwater will be degraded due to the establishment of alternate concentration limits for hazardous constituents after site restoration is inadmissible; CLI-16-13, 83 NRC 566 (2016)

contention that FSEIS lacks adequate description of present baseline groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner using proper sampling methodologies is inadmissible; CLI-16-13, 83 NRC 566 (2016)

NEPA's information-disclosure purpose is not satisfied where input values are not meaningfully addressed in the FSEIS or the board's decision; LBP-16-8, 83 NRC 417 (2016)

NRC Staff must supplement the FEIS if there are substantial changes in the proposed action that are relevant to environmental concerns or if there are new and significant circumstances or information relevant to environmental concerns that bear on the proposed action or its impacts; CLI-16-2, 83 NRC 13 (2016)

### FINAL SAFETY ANALYSIS REPORT

each operating license holder must periodically update its FSAR to ensure that it contains the latest information developed; CLI-16-9, 83 NRC 472 (2016)

each update must include changes made via license amendment and changes made pursuant to section 50.59; CLI-16-9, 83 NRC 472 (2016)

licensee determination that a change to the FSAR does not require an amendment may be challenged through a section 2.206 petition; CLI-16-9, 83 NRC 472 (2016)

material submitted to update the FSAR may be reviewed by NRC Staff but will not be formally approved; CLI-16-9, 83 NRC 472 (2016)

NRC Staff reviews FSAR updates only as part of its oversight to ensure compliance with existing requirements; CLI-16-9, 83 NRC 472 (2016)

NRC Staff's acceptance of a revision to the FSAR does not constitute a de facto license amendment because section 50.71(e) is only a reporting requirement that does not require Staff approval; CLI-16-9, 83 NRC 472 (2016)

operating license application and FSAR will contain the final detailed design for medical radioisotope production facility; CLI-16-4, 83 NRC 58 (2016)

## SUBJECT INDEX

operating license application includes the FSAR which must describe the facility, present the design bases and limits on its operation, and present a safety analysis of the structures, systems, and components and of the facility as a whole; CLI-16-9, 83 NRC 472 (2016)

references to NRC documents and correspondence in an internal licensee document cannot, and do not, transform FSAR revision into a request for NRC approval, nor do they represent alterations to the license in and of themselves; CLI-16-9, 83 NRC 472 (2016)

reporting requirement of 10 C.F.R. 50.71(e) is intended to ensure that an updated FSAR will be available; CLI-16-9, 83 NRC 472 (2016)

submittal of updated pages does not constitute a licensing action but is only intended to provide information; CLI-16-9, 83 NRC 472 (2016)

update is not intended for the purpose of re-reviewing plants; CLI-16-9, 83 NRC 472 (2016)

update must contain certain changes to the quality assurance program description; CLI-16-9, 83 NRC 472 (2016)

updated FSAR is submitted in accordance with section 50.34 and updated per requirements of section 50.71(e) or (f); CLI-16-9, 83 NRC 472 (2016)

### FINANCIAL ASSURANCE

applicant for a construction permit must demonstrate that it possesses or has reasonable assurance of obtaining funds necessary to cover estimated construction costs and related fuel cycle costs; CLI-16-4, 83 NRC 58 (2016)

combined license applicant must submit information demonstrating that it either possesses or has reasonable assurance of obtaining funds necessary to cover estimated construction and operating costs for the term of the license; CLI-16-2, 83 NRC 13 (2016)

### FINANCIAL QUALIFICATIONS

license application will be approved if NRC determines that applicant appears to be financially qualified to engage in the proposed activities in accordance with the regulations in Part 70; CLI-16-2, 83 NRC 13 (2016)

material circumstance not considered when the financial qualification regulation was adopted exists for which it would be in the public interest to grant an exemption; CLI-16-2, 83 NRC 13 (2016)

NRC has broad discretion to prescribe requirements; CLI-16-2, 83 NRC 13 (2016)

### FINANCIAL QUALIFICATIONS REVIEW

applicant must demonstrate that it is financially qualified to construct a proposed medical radioisotope production facility; CLI-16-4, 83 NRC 58 (2016)

NRC has not found a direct correlation between preclicensing financial reviews and later safe construction and operation, and NRC maintains other programs and processes that more directly ensure safe construction and operation; CLI-16-2, 83 NRC 13 (2016)

### FINDING OF NO SIGNIFICANT IMPACT

if an environmental impact statement is not needed, then NRC Staff must support that determination with a FONSI, which briefly presents reasons why an action will not have a significant effect on the human environment; LBP-16-7, 83 NRC 340 (2016)

where NRC Staff must draft very long environmental assessments to justify a FONSI, it may indicate that an environmental impact statement should be written instead; LBP-16-7, 83 NRC 340 (2016)

### FINDINGS OF FACT

Commission typically declines to second-guess the board on its fact-specific conclusions, except where the decision contains obvious material factual errors and could be misleading, warranting clarification; CLI-16-7, 83 NRC 293 (2016)

environmental findings that NRC must make to support issuance of a construction permit for a medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)

factual findings in an evidentiary dispute are based on a preponderance of the evidence; LBP-16-8, 83 NRC 417 (2016)

findings for issuance of a construction permit require that NRC consider site criteria to ensure that the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public; CLI-16-4, 83 NRC 58 (2016)

in making findings on construction permit for a medical radioisotope production facility, Commission is guided by the additional considerations in 10 C.F.R. 50.40(a)-(d); CLI-16-4, 83 NRC 58 (2016)



## SUBJECT INDEX

licensing board's factual findings, as well as the adjudicatory record, become, in effect, part of the final NEPA document; LBP-16-7, 83 NRC 340 (2016)

FLOOD PROTECTION

adequacy of NRC Staff's conclusions on design-basis flood level and maximum groundwater level are discussed; CLI-16-2, 83 NRC 13 (2016)

FLOODS

NRC Staff's determination based on experience with hydraulic modeling that improvements to resolution of the watershed basin model could not change the conclusion that storm surge is the bounding flood hazard is examined; LBP-16-4, 83 NRC 187 (2016)

FOREIGN OWNERSHIP

combined license application must meet foreign ownership, control, or domination requirements; CLI-16-2, 83 NRC 13 (2016)

corporate applicant must state whether it is owned, controlled, or dominated by an alien, a foreign corporation, or foreign government, and if so, give details; CLI-16-4, 83 NRC 58 (2016)

FRACTURE TOUGHNESS

applicants must submit a proposed withdrawal schedule with a technical justification; CLI-16-2, 83 NRC 13 (2016)

licensees must analyze material specimens to evaluate changes, due to neutron irradiation and high temperatures, in fracture toughness properties of ferritic materials in the reactor vessel beltline region; CLI-16-2, 83 NRC 13 (2016)

FUKUSHIMA ACCIDENT

NRC Staff is asked to explain how application and review differed from previous ESPs due to events at Fukushima and subsequent evaluations and recommendations; LBP-16-4, 83 NRC 187 (2016)

NRC's request for seismic hazard information was part of its lessons-learned activities from the Fukushima Dai-ichi accident and continuing oversight of all plants, outside of license renewal; CLI-16-11, 83 NRC 524 (2016)

petitions to suspend licensing proceedings based on issues related to the Fukushima Dai-ichi accident were rejected; CLI-16-2, 83 NRC 13 (2016)

GENERAL DESIGN CRITERIA

applicant's consideration of GDC in its construction permit application for a medical radioisotope production facility is discussed; CLI-16-4, 83 NRC 58 (2016)

GENERIC ENVIRONMENTAL IMPACT STATEMENT

NRC has generically determined, based on probability-weighted consequences, that environmental impacts from severe accidents at plants operating under renewed licenses are expected to be small; CLI-16-7, 83 NRC 293 (2016)

GENERIC ISSUES

Category 1 issues are those that NRC has categorized and assessed generically because the environmental effects of those issues are essentially similar for all plants; LBP-16-8, 83 NRC 417 (2016)

GENERIC SAFETY ISSUES

whether NRC ultimately will require ice condenser plants to implement a hydrogen control SAMA would be determined as part of a then-ongoing generic safety review, outside of license renewal; CLI-16-10, 83 NRC 494 (2016)

GROUNDWATER CONTAMINATION

after receiving a license, licensee collects groundwater samples from production and injection wells to establish post-licensing, preoperational background levels for various chemical constituents, which are then used to set restoration goals; CLI-16-13, 83 NRC 566 (2016)

conducting the more detailed post-licensing analysis to establish definitively the groundwater quality baselines and upper control limits is consistent with industry practice and NRC methodology, and this analysis cannot be completed until after licensing, when an in situ leach wellfield has been installed; CLI-16-13, 83 NRC 566 (2016)

contention that FSEIS did not consider the extent to which groundwater will be degraded due to the establishment of alternate concentration limits for hazardous constituents after site restoration is inadmissible; CLI-16-13, 83 NRC 566 (2016)

## SUBJECT INDEX

contention that FSEIS lacks adequate description of present baseline groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner using proper sampling methodologies is inadmissible; CLI-16-13, 83 NRC 566 (2016)  
expert opinion is sufficient to raise a genuine issue of fact regarding whether design and testing of injection wells will prevent leakage of wastewater that could contaminate groundwater; LBP-16-3, 83 NRC 169 (2016)

first option for any given hazardous constituent in groundwater is background (level present prior to operations); CLI-16-13, 83 NRC 566 (2016)

if licensee cannot meet primary or secondary standards for a particular constituent after restoration efforts, it may file a license amendment request for a site-specific alternate concentration limit for that constituent; CLI-16-13, 83 NRC 566 (2016)

in situ recovery facility licensees must establish restoration goals for hazardous constituents in groundwater through post-licensing, preoperational testing; CLI-16-13, 83 NRC 566 (2016)

sampling frequency may be reduced after a minimum of 6 months of operational testing if data indicate that parameter values have stabilized; LBP-16-3, 83 NRC 169 (2016)

secondary standard for hazardous constituent in groundwater is a maximum contaminant level; CLI-16-13, 83 NRC 566 (2016)

summary disposition of contention challenging accuracy and reliability of estimated concentrations of ethylbenzene, heptachlor, tetrachloroethylene, and toluene in wastewater is granted in part; LBP-16-3, 83 NRC 169 (2016)

summary disposition of contention challenging confining nature of hydrogeologic formations and ability of injection wells to timely identify and prevent leaks of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and efficacy of applicant's groundwater monitoring program is denied; LBP-16-3, 83 NRC 169 (2016)

written authorization for operational testing to include weekly groundwater sampling of monitor wells is required; LBP-16-3, 83 NRC 169 (2016)

### HEALTH AND SAFETY

Atomic Energy Act concentrates on licensing and regulation of nuclear materials for purpose of protecting public health and safety and the common defense and security; CLI-16-6, 83 NRC 147 (2016)

NRC is required to ensure adequate protection of public health and safety; CLI-16-10, 83 NRC 494 (2016)

### HEARING DENIALS

order denying a request for hearing is appealable as to the question whether the hearing request should have been granted; CLI-16-9, 83 NRC 472 (2016)

### HEARING REQUESTS

petitioner's right to request a hearing when suspension of an application is lifted is consistent with longstanding agency case law; LBP-16-2, 83 NRC 107 (2016)

### HEARING REQUIREMENTS

as partial construction permit applications, ESP applications are subject to the hearing requirement of Atomic Energy Act § 189a(1)(A); LBP-16-4, 83 NRC 187 (2016)

hearing on an early site permit application is required by statute regardless of whether the application is opposed; LBP-16-4, 83 NRC 187 (2016)

NRC must provide a hearing upon the request of any person whose interest may be affected by the proceeding; LBP-16-5, 83 NRC 259 (2016)

### HEARING RIGHTS

agency action that has the effect of amending a license, whether or not formally designated a license amendment, carries with it the opportunity to request a hearing; CLI-16-9, 83 NRC 472 (2016)

denial of interested government's contentions does not deprive it of the right to continue participating in the proceeding; CLI-16-1, 83 NRC 1 (2016)

exemption requests are not among listed actions subject to a hearing under the Atomic Energy Act, and their absence from section 189a has been interpreted as intentional; CLI-16-12, 83 NRC 542 (2016)

hearing must be held on each application to construct a nuclear power plant, regardless of whether an interested member of the public requests a hearing on the application; CLI-16-2, 83 NRC 13 (2016)

## SUBJECT INDEX

hearing opportunity is warranted when an exemption request raises material questions directly connected to an agency licensing action for which the Atomic Energy Act expressly provides a hearing right, as it does for the granting, suspending, revoking, or amending of a license; CLI-16-12, 83 NRC 542 (2016)

hearing request challenging requested exemptions from some physical security requirements was denied where licensee had not requested a license amendment; CLI-16-12, 83 NRC 542 (2016)

interested members of the public have the right to request a hearing on a license amendment application; CLI-16-12, 83 NRC 542 (2016)

license amendment request would trigger an opportunity for a hearing; CLI-16-8, 83 NRC 463 (2016)

NRC case law does not provide for an adjudicatory hearing based on speculative changes to a plant's licensing basis; CLI-16-9, 83 NRC 472 (2016)

NRC must hold a hearing on an application to construct a commercial production or utilization facility; CLI-16-4, 83 NRC 58 (2016)

NRC Staff must inform licensee or any other person adversely affected by the order of his or her right to demand a hearing except in a case where licensee or other person has consented in writing to the order; CLI-16-6, 83 NRC 147 (2016)

ongoing oversight, including what may eventually result in a licensee requesting amendment of an operating license, does not constitute a license amendment proceeding that triggers hearing rights; CLI-16-9, 83 NRC 472 (2016)

opportunity for a hearing is provided for an amendment to an operating license, combined license, or manufacturing license; LBP-16-5, 83 NRC 259 (2016)

opportunity to request a hearing is required in any proceeding for the granting, suspending, revoking, or amending of any license; CLI-16-9, 83 NRC 472 (2016)

petitioner may obtain a hearing on a confirmatory order only if the measures to be taken under the order would in themselves harm petitioner; CLI-16-6, 83 NRC 147 (2016)

prospect of a future license amendment does not create a present hearing opportunity; CLI-16-9, 83 NRC 472 (2016)

### HEAT SINK

license amendments were issued that increase the ultimate heat sink water temperature limit for cooling canals; LBP-16-8, 83 NRC 417 (2016)

plants must provide an ultimate heat sink to transfer heat from structures, systems, and components that are important to safety; LBP-16-8, 83 NRC 417 (2016)

### HISTORIC SITES

cemeteries, birthplaces, or graves of historical figures are not eligible for listing as a historic property unless the cemetery derives its importance through other means, such as association with historic events; LBP-16-7, 83 NRC 340 (2016)

federal agencies must take into account the effect of an undertaking on any historic property prior to approving an action; LBP-16-7, 83 NRC 340 (2016)

federal agency must make a reasonable and good faith effort to identify historic properties; LBP-16-7, 83 NRC 340 (2016)

### HURRICANES

NRC Staff is asked to explain how they addressed the climate-change-induced increases in power and frequency of hurricanes and models used in review of the early site permit application; LBP-16-4, 83 NRC 187 (2016)

### HYDRODYNAMICS

NRC Staff's determination on the basis of experience with hydraulic modeling that improvements to resolution of the watershed basin model could not change the conclusion that storm surge is the bounding flood hazard is examined in review of the early site permit application; LBP-16-4, 83 NRC 187 (2016)

### HYDROGEN CONTROL

combined license applicants must perform a structural analysis that demonstrates containment structural integrity in the event of an accident that releases hydrogen generated from 100% fuel clad-coolant reaction accompanied by hydrogen burning; CLI-16-2, 83 NRC 13 (2016)

reactor containments must be able to ensure a mixed atmosphere during design-basis and significant beyond-design-basis accidents; CLI-16-2, 83 NRC 13 (2016)

## SUBJECT INDEX

whether NRC ultimately will require ice condenser plants to implement a hydrogen control SAMA would be determined as part of a then-ongoing generic safety review, outside of license renewal; CLI-16-10, 83 NRC 494 (2016)

### HYDROGEN IGNITION SYSTEM

requirement to maintain equipment needed to mitigate a design-basis loss-of-coolant accident hydrogen release, including hydrogen recombiners, was eliminated; CLI-16-2, 83 NRC 13 (2016)

### HYDROGEOLOGY

summary disposition of contention challenging confining nature of hydrogeologic formations and ability of injection wells to timely identify and prevent leaks of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and efficacy of applicant's groundwater monitoring program is denied; LBP-16-3, 83 NRC 169 (2016)

### ICE CONDENSER

whether NRC ultimately will require ice condenser plants to implement a hydrogen control SAMA would be determined as part of a then-ongoing generic safety review, outside of license renewal; CLI-16-10, 83 NRC 494 (2016)

### IN SITU URANIUM SOLUTION MINING

after receiving a license, licensee collects groundwater samples from the production and injection wells to establish post-licensing, preoperational background levels for various chemical constituents, which are then used to set restoration goals; CLI-16-13, 83 NRC 566 (2016)

applicant must describe hydrology of the proposed site to predict potential effect such a facility would have on adjacent groundwater and surface waters as required by NEPA; CLI-16-13, 83 NRC 566 (2016)

conducting the more detailed post-licensing analysis to establish groundwater quality baselines and upper control limits is consistent with industry practice and NRC methodology, and this analysis cannot be completed until after licensing, when an in situ leach wellfield has been installed; CLI-16-13, 83 NRC 566 (2016)

licensees must establish restoration goals for hazardous constituents in groundwater through post-licensing, preoperational testing; CLI-16-13, 83 NRC 566 (2016)

monitoring wells at the perimeter of each wellfield are used to detect leaks during operations; CLI-16-13, 83 NRC 566 (2016)

### INCORPORATION BY REFERENCE

agency may incorporate data underlying an environmental assessment by reference; LBP-16-8, 83 NRC 417 (2016)

agency may not discharge its obligation to provide the public with analysis of the environmental impacts of a project simply by incorporating documents by reference; LBP-16-8, 83 NRC 417 (2016)

agency preparing an environmental assessment for a permit may incorporate by reference the general discussions of prior, broader environmental impact statements; LBP-16-8, 83 NRC 417 (2016)

clear description of the incorporated material and specific references thereto are required under Council on Environmental Quality regulations, which NRC has adopted; LBP-16-8, 83 NRC 417 (2016)

Commission rejected proposed wholesale adoption of a large document that failed to provide a specific page reference; LBP-16-8, 83 NRC 417 (2016)

documents whose contents have been inadequately described have been disallowed; LBP-16-8, 83 NRC 417 (2016)

environmental impact statement may reference detailed studies done elsewhere, and generally available upon request, but cursory reference to a report falls far short of regulations governing incorporation by reference; LBP-16-8, 83 NRC 417 (2016)

environmental impact statement may rely on external materials, provided that the materials are reasonably available, that statements in the final EIS are understandable without undue cross-reference, and that incorporation by reference meets a general standard of reasonableness; LBP-16-8, 83 NRC 417 (2016)

referenced material must be cited in the statement and its content briefly described and no material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment; LBP-16-8, 83 NRC 417 (2016)

wholesale incorporation by reference by a petitioner who, in a written submission, merely establishes standing and attempts, without more, to incorporate the issues of other petitioners is not permitted; LBP-16-8, 83 NRC 417 (2016)

## SUBJECT INDEX

### INITIAL DECISIONS

after a licensing board has issued an initial decision, the Director of the NMSS shall issue, deny, or appropriately condition the permit, license, or license amendment in accordance with the presiding officer's initial decision; LBP-16-7, 83 NRC 340 (2016)

any party may petition the Commission for review of an Initial Decision; LBP-16-8, 83 NRC 417 (2016)

when a hearing is held on a proposed action, the initial decision of the presiding officer or the final decision of the Commissioners acting as a collegial body will constitute the record of decision; CLI-16-13, 83 NRC 566 (2016)

See also Partial Initial Decisions

### INJUNCTIVE RELIEF

Commission disfavors imposing a draconian remedy when less drastic relief will suffice; LBP-16-7, 83 NRC 340 (2016)

grant of relief is only warranted when the traditional test justifying it is met; LBP-16-7, 83 NRC 340 (2016)

injunction is not an automatic or default remedy to cure NEPA violation; CLI-16-13, 83 NRC 566 (2016)

irreparable injury must be likely, not merely possible, without an injunction; LBP-16-7, 83 NRC 340 (2016)

where an agency fails to comply with procedural statutes such as NEPA or the NHPA, an injunction is sometimes the proper recourse; LBP-16-7, 83 NRC 340 (2016)

See also Stay

### INJURY IN FACT

harm suffered by an environmental justice population must be disproportionate to that suffered by the general population; LBP-16-5, 83 NRC 259 (2016)

if an adequate showing is made of withdrawal-associated harm, a licensing board can grant a withdrawal without prejudice, albeit with appropriate conditions to protect a party or the public interest; LBP-16-1, 83 NRC 97 (2016)

injury capable of repetition requires a reasonable expectation that the same complaining party would be subjected to the same action again; CLI-16-6, 83 NRC 147 (2016)

irreparable injury must be likely, not merely possible, without an injunction; LBP-16-7, 83 NRC 340 (2016)

organization seeking representational standing on behalf of its members may meet the injury-in-fact requirement by demonstrating that at least one of its members, who has authorized the organization to represent his or her interest, will be injured by the possible outcome of the proceeding; LBP-16-5, 83 NRC 259 (2016)

See also Economic Injury; Irreparable Injury

### INTEREST

mootness is determined by looking to whether the relief sought would, if granted, make a difference to the legal interests of the parties; CLI-16-6, 83 NRC 147 (2016)

See also Property Interests; Zone of Interests

### INTERESTED GOVERNMENTAL ENTITY

as used in section 2.315(c), the phrase "that has not been admitted as a party under section 2.309" means that an entity cannot be admitted as an interested participant under section 2.315(c) if it is already admitted as a party under section 2.309; CLI-16-1, 83 NRC 1 (2016)

board denied intervention petition but granted alternative request for participation as an interested local governmental body; CLI-16-1, 83 NRC 1 (2016)

decision to deny petition for section 2.309 party status but grant a petition for section 2.315(c) interested participant status does nothing to affect the entity's status in the proceeding; CLI-16-1, 83 NRC 1 (2016)

distinction between a section 2.315(c) interested participant and a section 2.309 party is explained; CLI-16-1, 83 NRC 1 (2016)

governmental entity denied participation may, in the Commission's discretion, file an amicus brief should there be an appeal from the board's forthcoming initial decision; LBP-16-6, 83 NRC 329 (2016)

interested government may introduce evidence, cross-examine witnesses where permitted, advise the Commission without necessarily taking a position on the contention, file proposed findings in

## SUBJECT INDEX

proceedings where permitted, and petition for review under 10 C.F.R. 2.341 at the conclusion of the proceeding; CLI-16-1, 83 NRC 1 (2016)

interested government participating under section 2.315(c) may participate on any admitted contentions; CLI-16-1, 83 NRC 1 (2016)

participating government may only seek Commission review on admitted contentions; CLI-16-1, 83 NRC 1 (2016)

petition to participate as an interested governmental entity will be denied if the record remains closed; LBP-16-6, 83 NRC 329 (2016)

presiding officer will afford an interested local governmental body that has not otherwise been admitted as a party to the proceeding a reasonable opportunity to participate in a hearing; CLI-16-1, 83 NRC 1 (2016); LBP-16-6, 83 NRC 329 (2016)

**INTERESTED STATE**

denial of interested government's contentions does not deprive it of the right to continue participating in the proceeding; CLI-16-1, 83 NRC 1 (2016)

interlocutory review was denied to interested state that attempted to appeal dismissal of particular issues it sought to litigate; CLI-16-1, 83 NRC 1 (2016)

**INTERVENTION**

board denied intervention petition but granted alternative request for participation as an interested local governmental body; CLI-16-1, 83 NRC 1 (2016)

petitioner for intervention must not only establish standing, but also proffer at least one admissible contention that meets the requirements of 10 C.F.R. 2.309(f); LBP-16-5, 83 NRC 259 (2016)

**INTERVENTION PETITIONS**

boards may review petitioner's standing declarations, its petition, and relevant documents cited by participants to decide whether standing requirements have been met; LBP-16-5, 83 NRC 259 (2016)

pleadings submitted by pro se petitioners are afforded greater leniency than petitions drafted with the assistance of counsel; LBP-16-5, 83 NRC 259 (2016)

request for hearing must set forth with particularity the contentions sought to be raised; CLI-16-5, 83 NRC 131 (2016)

wholesale incorporation by reference by a petitioner who, in a written submission, merely establishes standing and attempts, without more, to incorporate the issues of other petitioners is not permitted; LBP-16-8, 83 NRC 417 (2016)

**INTERVENTION PETITIONS, LATE-FILED**

petitioner seeking to reinstate a withdrawn intervention request must show good cause under agency's then-existing late-filing requirements; LBP-16-2, 83 NRC 107 (2016)

state's petition to intervene as an interested governmental entity was denied as untimely when the state's petition was filed after the close of the adjudicatory record and on the eve of the Commission's licensing decision; LBP-16-6, 83 NRC 329 (2016)

tardy petitioner with no good excuse may be required to take the proceeding as it finds it; LBP-16-6, 83 NRC 329 (2016)

**INTERVENTION RULINGS**

absent error of law or abuse of discretion, Commission gives substantial deference to board rulings on threshold procedural matters such as standing and contention admissibility; CLI-16-9, 83 NRC 472 (2016)

appeal as of right is reserved for situations where a petition is denied in its entirety, therefore having the effect of wholly refusing a petitioner entry into a proceeding; CLI-16-1, 83 NRC 1 (2016)

Commission will uphold a licensing board ruling on standing and contention admissibility unless it finds that the board erred as a matter of law or abused its discretion; CLI-16-12, 83 NRC 542 (2016)

for standing purposes, NRC does not rule on disputes of fact but reads the petition in the light most favorable to the petitioner; CLI-16-6, 83 NRC 147 (2016)

full-blown factual inquiry is not required for the threshold legal question of standing; LBP-16-5, 83 NRC 259 (2016)

in a contested case, licensing board promulgation of a notice of hearing providing board jurisdiction over a withdrawal motion comes after the board has ruled on the efficacy of any intervention petitions and determined that an adjudicatory hearing is warranted; LBP-16-1, 83 NRC 97 (2016)

## SUBJECT INDEX

licensing board must consider the nature of the petitioner's right under the Atomic Energy Act or the National Environmental Policy Act to be made a party to the proceeding, nature and extent of petitioner's property, financial, or other interest in the proceeding, and possible effect of any decision or order that may be issued in the proceeding on petitioner's interest; LBP-16-5, 83 NRC 259 (2016)

petitioner has an automatic right to appeal a board decision on the question of whether a petition to intervene should have been granted; CLI-16-5, 83 NRC 131 (2016)

prerequisite for a section 2.311 appeal is that the board first rule fully on an intervention petition; CLI-16-1, 83 NRC 1 (2016)

routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain; CLI-16-1, 83 NRC 1 (2016)

when evaluating whether petitioner has established standing, licensing board is to construe the intervention petition in favor of the petitioner; LBP-16-5, 83 NRC 259 (2016)

where the board has ruled only partially on the initial intervention petition, an appeal right under 10 C.F.R. 2.311 does not accrue until the board has ruled on the entire petition; CLI-16-2, 83 NRC 13 (2016)

### IRREPARABLE INJURY

routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain; CLI-16-1, 83 NRC 1 (2016)

See also Economic Injury; Injury in Fact

### JURISDICTION

although state and local governmental bodies have jurisdiction over the area in which adverse effects need to be addressed and have authority to mitigate them, it would be incongruous to conclude that a federal agency has no power to act until local agencies have reached a final conclusion on what mitigating measures they consider necessary; LBP-16-8, 83 NRC 417 (2016)

### LABOR ISSUES

to evaluate labor union's zone-of-interests claim, the Commission first discerns the interests arguably to be protected by the statutory provision at issue, and then inquires whether plaintiff's interests affected by the agency action in question are among them; CLI-16-6, 83 NRC 147 (2016)

### LEAKAGE

licensees must conduct periodic tests to ensure that leakage from containment does not exceed allowable rates specified in the plant's technical specifications; CLI-16-5, 83 NRC 131 (2016)

licensees must perform Type B tests to detect and measure local leakage rates across pressure-retaining, leakage-limiting boundaries; CLI-16-5, 83 NRC 131 (2016)

licensees must perform Type C tests to measure containment isolation valve leakage; CLI-16-5, 83 NRC 131 (2016)

Type A tests to measure containment overall integrated leakage rate are discussed; CLI-16-5, 83 NRC 131 (2016)

### LEGAL AUTHORITIES

NRC cannot apply or rely upon a general statement of policy as law because it only announces what the agency seeks to establish as policy; LBP-16-5, 83 NRC 259 (2016)

because Executive Order 12898 does not create any new rights, it cannot provide a legal basis for contentions to be litigated in NRC licensing proceedings; LBP-16-5, 83 NRC 259 (2016)

### LENIENCY

pleadings submitted by pro se petitioners are afforded greater leniency than petitions drafted with the assistance of counsel; LBP-16-5, 83 NRC 259 (2016)

### LIABILITY INSURANCE

information on nuclear insurance and indemnity pursuant to the Price-Anderson Act is outside the scope of the construction permit application because applicant has not applied to possess special nuclear material; CLI-16-4, 83 NRC 58 (2016)

### LICENSE AMENDMENT PROCEEDINGS

Commission has rejected proximity standing for license amendments associated with shutdown and defueled reactors; LBP-16-5, 83 NRC 259 (2016)

## SUBJECT INDEX

general challenge to severe accident mitigation alternatives analysis is not within the scope of license amendment proceeding; CLI-16-5, 83 NRC 131 (2016)

### LICENSE AMENDMENTS

following receipt of a license amendment application, NRC Staff publishes in the Federal Register a notice of the application, the opportunity to request a hearing, and Staff's proposed no significant hazards consideration determination; CLI-16-5, 83 NRC 131 (2016)

future license amendment request relating to the decommissioning trust fund would not be too short in duration to be fully litigated prior to its cessation or expiration; CLI-16-8, 83 NRC 463 (2016)

license amendment request must meet criteria for a categorical exclusion from the requirement to prepare an environmental analysis; CLI-16-5, 83 NRC 131 (2016)

license amendment request would trigger an opportunity for a hearing; CLI-16-8, 83 NRC 463 (2016)

license condition requiring licensee to inform petitioner of any request to amend its license does not impose any additional administrative burden because licensee is already required by the regulations to notify petitioner of any request to amend its license; CLI-16-8, 83 NRC 463 (2016)

See also Operating License Amendments

### LICENSE APPLICATIONS

Commission may be called upon to review applications that make predictive findings on future actions that may or may not come to pass; CLI-16-12, 83 NRC 542 (2016)

exemption from 10 C.F.R. 2.101(a)(5) allows applicant to submit its medical radioisotope production facility application in two parts; CLI-16-4, 83 NRC 58 (2016)

filing of an application usually is voluntary, and applicant's withdrawal decision is generally considered a business judgment, the soundness of which is not a matter for licensing board consideration; LBP-16-1, 83 NRC 97 (2016)

hearing opportunity notice in a contested case would not trigger licensing board jurisdiction over a withdrawal motion; LBP-16-1, 83 NRC 97 (2016)

if an adequate showing is made of withdrawal-associated harm, a licensing board can grant a withdrawal without prejudice, albeit with appropriate conditions to protect a party or the public interest; LBP-16-1, 83 NRC 97 (2016)

license application withdrawal with prejudice precludes refiling of an application; LBP-16-1, 83 NRC 97 (2016)

licensing board has significant leeway in defining circumstances under which an application can be withdrawn; LBP-16-1, 83 NRC 97 (2016)

mandating a with-prejudice withdrawal is a severe sanction that should be reserved for unusual situations that involve substantial prejudice to a party or the public interest in general; LBP-16-1, 83 NRC 97 (2016)

motion to withdraw application without prejudice is granted where no harm accrues to the public or other parties and is unopposed by intervenors and NRC Staff; LBP-16-1, 83 NRC 97 (2016)

proponent of a withdrawal condition bears the burden of offering some explanation regarding the relief sought; LBP-16-1, 83 NRC 97 (2016)

purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 97 (2016)

withdrawal terms imposed by a board must bear a reasonable relationship to the conduct and legal harm at which they are aimed and the record must support any findings concerning the conduct and the harm in question; LBP-16-1, 83 NRC 97 (2016)

See also Approval of License; Combined License Application; Contested License Applications; Operating License Applications; Reinstatement of Application; Uncontested License Applications

### LICENSE CONDITIONS

board or Commission may appropriately modify, condition, or revoke a license, if required by circumstances of a particular proceeding; CLI-16-13, 83 NRC 566 (2016)

license conditions relating to monitoring, recording, and reporting of environmental data are a means for NRC to keep abreast of the environmental impacts of current operating reactors; CLI-16-10, 83 NRC 494 (2016)



## SUBJECT INDEX

licensees have the option of either maintaining existing license conditions governing decommissioning trusts or submitting to the new regulatory requirements; CLI-16-8, 83 NRC 463 (2016)  
requirement that licensee inform petitioner of any request to amend its license does not impose any additional administrative burden because licensee is already required by regulations to notify petitioner of any request to amend its license; CLI-16-8, 83 NRC 463 (2016)  
section 54.33(c) refers to conditions that are part of the current licensing basis at the time of issuance of the renewed license and their supplementation or amendment for the renewal term; CLI-16-10, 83 NRC 494 (2016)  
vacatur does not diminish the right to challenge licensee's compliance with conditions imposed by the board; CLI-16-8, 83 NRC 463 (2016)

### LICENSE RENEWALS

after a licensing board has issued an initial decision, the Director of the NMSS shall issue, deny, or appropriately condition the permit, license, or license amendment in accordance with the presiding officer's initial decision; LBP-16-7, 83 NRC 340 (2016)

See also Materials License Renewal; Operating License Renewal

### LICENSE TRANSFER PROCEEDINGS

Commission has rejected proximity standing for license transfer; LBP-16-5, 83 NRC 259 (2016)

### LICENSEE CHARACTER

NRC does not assume that licensee will ignore its obligations; CLI-16-13, 83 NRC 566 (2016)

### LICENSEE EMPLOYEES

individuals subject to an access authorization program must report any concerns arising from behavioral observation, including concerns related to any questionable behavior patterns or activities of others to a reviewing official, his or her supervisor, or other management personnel as designated in site procedures; CLI-16-6, 83 NRC 147 (2016)

### LICENSEES

exclusion area is the area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area; LBP-16-4, 83 NRC 187 (2016)

licensee must establish, implement, and maintain an access authorization program; CLI-16-6, 83 NRC 147 (2016)

voluntary cessation of a challenged practice does not deprive a federal court of its power to determine the legality of the practice; CLI-16-6, 83 NRC 147 (2016)

### LICENSING BOARD DECISIONS

Commission declines to review a board's plausible decision that rests on carefully rendered findings of fact, even where the record includes evidence that supports a different view; CLI-16-13, 83 NRC 566 (2016)

Commission typically declines to second-guess the board on its fact-specific conclusions, except where the decision contains obvious material factual errors and could be misleading, warranting clarification; CLI-16-7, 83 NRC 293 (2016)

licensing board function in ruling on a summary disposition motion is not to conduct a trial on the written record by weighing evidence and endeavoring to determine the truth of the matter, but rather to determine whether any genuine issue of material fact exists; LBP-16-3, 83 NRC 169 (2016)

licensing boards are obliged to ensure that NRC Staff's NEPA documents come to grips with potentially significant environmental impacts and fully justify any conclusions in this regard; LBP-16-8, 83 NRC 417 (2016)

licensing board's findings and conclusions are deemed to amend NRC Staff's NEPA documents and become the agency record of decision on those matters; LBP-16-8, 83 NRC 417 (2016)

NEPA's information-disclosure purpose is not satisfied where input values are not meaningfully addressed in the final supplemental environmental impact statement or the board's decision; LBP-16-8, 83 NRC 417 (2016)

where a petition for review relies primarily on claims that the Board erred in weighing the evidence in a merits decision, Commission seldom grants review; CLI-16-13, 83 NRC 566 (2016)

### LICENSING BOARD JUDGES

boards include technical experts who can evaluate the factual material in the record and reach their own judgment as to its significance; LBP-16-8, 83 NRC 417 (2016)

## SUBJECT INDEX

Congress specifically created licensing boards to serve as a panel of experts that brings all accumulated knowledge possessed by both technical members to bear on questions before it; LBP-16-7, 83 NRC 340 (2016)

part of the board's technical expertise is the ability to assess witnesses' testimony and relevant knowledge; LBP-16-7, 83 NRC 340 (2016)

part of the board's technical expertise is the ability to synthesize relevant background information that is undisputed by the parties; LBP-16-7, 83 NRC 340 (2016)

when considering challenges to how the board weighed the evidence, Commission defers to the board's expertise as the fact finder and declines to substitute the judgment of an intervenor's expert for that of the board; CLI-16-13, 83 NRC 566 (2016)

### LICENSING BOARDS, AUTHORITY

Atomic Energy Act does not prescribe a specific structure for a mandatory hearing, and the Commission has allowed licensing boards flexibility to select the most appropriate approach in the circumstances of each case; LBP-16-4, 83 NRC 187 (2016)

board has significant leeway in defining circumstances under which an application can be withdrawn; LBP-16-1, 83 NRC 97 (2016)

board is expected to make full use of its broad authority under the rules to establish and maintain a fair and disciplined hearing process, avoiding extensions of time absent good cause, unnecessary multiple rounds of briefs, or other unnecessary delay; CLI-16-11, 83 NRC 524 (2016)

board must determine whether NRC Staff took a hard look at potential environmental impacts of licensing actions and whether NRC Staff adequately justified its conclusions; LBP-16-8, 83 NRC 417 (2016)

board or Commission may appropriately modify, condition, or revoke a license if required by circumstances of a particular proceeding; CLI-16-13, 83 NRC 566 (2016)

boards are expected to conduct mandatory hearings on uncontested issues to take an independent hard look at NRC Staff safety and environmental findings, but are not to replicate NRC Staff work; LBP-16-4, 83 NRC 187 (2016)

boards are expected to examine cited materials for verification that those materials do, in fact, support a party's claim; LBP-16-7, 83 NRC 340 (2016)

boards are to ensure that the case record has adequate information for a reasoned decision to be issued on contested matters; LBP-16-7, 83 NRC 340 (2016)

boards conducting mandatory hearings should not second-guess the underlying technical or factual findings by NRC Staff; LBP-16-4, 83 NRC 187 (2016)

boards have an important but limited role in mandatory proceedings, in which the only parties are applicant and NRC Staff; LBP-16-4, 83 NRC 187 (2016)

boards have considerable discretion in their management of adjudicatory proceedings; CLI-16-11, 83 NRC 524 (2016)

boards have long introduced and relied on exhibits for clarifying and verifying NRC Staff's testimony to provide additional context necessary for a well-reasoned decision; LBP-16-7, 83 NRC 340 (2016)

boards in materials licensing proceedings are empowered to make findings of fact and conclusions of law on the matters put into controversy by the parties; LBP-16-7, 83 NRC 340 (2016)

boards may reformulate contentions to eliminate extraneous issues or to consolidate issues for a more efficient proceeding; LBP-16-3, 83 NRC 169 (2016)

boards may review petitioner's standing declarations, its petition, and relevant documents cited by participants to decide whether standing requirements have been met; LBP-16-5, 83 NRC 259 (2016)

boards should conduct a simple sufficiency review of uncontested issues in the uncontested hearing, not a de novo review; LBP-16-4, 83 NRC 187 (2016)

Congress specifically created licensing boards to serve as a panel of experts that brings all accumulated knowledge possessed by both technical members to bear on the questions before it; LBP-16-7, 83 NRC 340 (2016)

filing of an application usually is voluntary, and applicant's withdrawal decision is generally considered a business judgment, the soundness of which is not a matter for licensing board consideration; LBP-16-1, 83 NRC 97 (2016)

hearing process bogged down by time-consuming evidentiary motions of questionable value should be avoided; LBP-16-7, 83 NRC 340 (2016)

## SUBJECT INDEX

in reaching its independent judgment regarding NEPA issues, licensing boards are not to second-guess underlying technical or factual findings by NRC Staff; LBP-16-4, 83 NRC 187 (2016)

introduction of exhibits in order to question witnesses and better understand their testimony falls within the board's general authority to regulate the course and conduct of the proceeding; LBP-16-7, 83 NRC 340 (2016)

NRC Staff's underlying technical and factual findings are not open to board reconsideration unless, after a review of the record, the board finds the NRC Staff review inadequate or its findings insufficient; LBP-16-4, 83 NRC 187 (2016)

unless a schedule is so onerous or unfair that it deprives a party of procedural due process, scheduling is a matter of board discretion; CLI-16-11, 83 NRC 524 (2016)

### LICENSING BOARDS, JURISDICTION

hearing opportunity notice in a contested case would not trigger licensing board jurisdiction over a withdrawal motion; LBP-16-1, 83 NRC 97 (2016)

if the board were to allow a contention to remain pending for a year or more in anticipation of the draft SEIS, when no genuinely contested matter remained before it, the board would have acted counter to Commission direction that a board's jurisdiction terminates when the contested matters before it have been resolved; CLI-16-11, 83 NRC 524 (2016)

in a contested case, board promulgation of a notice of hearing providing board jurisdiction over a withdrawal motion comes after the board has ruled on the efficacy of any intervention petitions and determined that an adjudicatory hearing is warranted; LBP-16-1, 83 NRC 97 (2016)

licensing board does not retain jurisdiction over a matter after the proceeding is terminated; CLI-16-8, 83 NRC 463 (2016)

when there are no longer any contested matters pending before it, board's jurisdiction terminates; CLI-16-11, 83 NRC 524 (2016)

### LIMITED APPEARANCE STATEMENTS

written statements from interested members of the public are not considered evidence; LBP-16-4, 83 NRC 187 (2016)

### LIMITED WORK AUTHORIZATION

if applicant includes a satisfactory site redress plan, an early site permit holder may conduct certain site preparation activities; LBP-16-4, 83 NRC 187 (2016)

### LOCAL GOVERNMENTAL BODIES

although state and local governmental bodies have jurisdiction over the area in which adverse effects need to be addressed and have authority to mitigate them, it would be incongruous to conclude that a federal agency has no power to act until local agencies have reached a final conclusion on what mitigating measures they consider necessary; LBP-16-8, 83 NRC 417 (2016)

state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 417 (2016)

### MANDATORY HEARINGS

after a licensing board in an uncontested proceeding determines the NRC Staff's NEPA review is adequate, it must then independently consider the final balance among conflicting factors that is struck in the conditions recommendation; LBP-16-4, 83 NRC 187 (2016)

Atomic Energy Act does not prescribe a specific structure for a mandatory hearing, and the Commission has allowed licensing boards flexibility to select the most appropriate approach in the circumstances of each individual case; LBP-16-4, 83 NRC 187 (2016)

board must determine, in an uncontested proceeding, whether the NEPA review conducted by NRC staff has been adequate; LBP-16-4, 83 NRC 187 (2016)

board must narrow its inquiry to topics or sections in NRC Staff documents that it deems most important and should concentrate on portions of the documents that do not on their face adequately explain the logic, underlying facts, and applicable regulations and guidance; LBP-16-4, 83 NRC 187 (2016)

boards conducting mandatory hearings should not second-guess the underlying technical or factual findings by the NRC Staff; LBP-16-4, 83 NRC 187 (2016)

combined license application is not reviewed de novo, but rather, the Commission considers whether NRC Staff's review of the application is sufficient to support the required findings; CLI-16-2, 83 NRC 13 (2016)

## SUBJECT INDEX

Commission does not review construction permit application for a medical radioisotope production facility de novo, but rather considers the sufficiency of NRC Staff's review; CLI-16-4, 83 NRC 58 (2016)

early site permit applications, as partial construction permit applications, are subject to the hearing requirement of section 189a(1)(A) of the Atomic Energy Act; LBP-16-4, 83 NRC 187 (2016)

giving appropriate deference to NRC Staff technical expertise, boards are to probe the logic and evidence supporting NRC Staff findings and decide whether those findings are sufficient to support license issuance; LBP-16-4, 83 NRC 187 (2016)

hearing on an early site permit application is required by statute regardless of whether the application is opposed; LBP-16-4, 83 NRC 187 (2016)

in an uncontested case, there is no reason to exclude opinion testimony or other evidence that might be objectionable in a jury trial in a court of law; LBP-16-4, 83 NRC 187 (2016)

in reaching its independent judgment regarding NEPA issues, licensing boards are not to second-guess underlying technical or factual findings by the NRC Staff; LBP-16-4, 83 NRC 187 (2016)

licensing boards are expected to conduct mandatory hearings on uncontested issues to take an independent hard look at NRC Staff safety and environmental findings, but are not to replicate NRC Staff work; LBP-16-4, 83 NRC 187 (2016)

licensing boards have an important but limited role in mandatory proceedings, in which the only parties are applicant and NRC Staff; LBP-16-4, 83 NRC 187 (2016)

licensing board's responsibility in a mandatory hearing on an early site permit is analogous to the function of an appellate court, applying the substantial evidence test, although it is imperfect because the ASLB looks not only to the information in the record, but also to the thoroughness of the review that the Staff has given it; LBP-16-4, 83 NRC 187 (2016)

NRC Staff need not produce volumes of documents and information supporting facts and conclusions that are of small importance and are beyond dispute; LBP-16-4, 83 NRC 187 (2016)

NRC Staff's underlying technical and factual findings are not open to board reconsideration unless, after a review of the record, the board finds the NRC Staff review inadequate or its findings insufficient; LBP-16-4, 83 NRC 187 (2016)

safety issues are reviewed under the adequacy and sufficiency standard, and licensing boards conducting mandatory hearings must independently consider the final balance among conflicting costs and benefits when reviewing National Environmental Policy Act issues; LBP-16-4, 83 NRC 187 (2016)

uncontested hearing is conducted for a production or utilization facility in which applicant and NRC Staff are the parties; LBP-16-1, 83 NRC 97 (2016)

**MATERIAL CONTROL AND ACCOUNTING**

requirements do not apply to reactors or expressly contain exclusions for reactors licensed under Part 50; CLI-16-2, 83 NRC 13 (2016)

**MATERIALITY**

in determining whether a genuine issue of material fact exists, evidence of nonmovant is to be believed, and all justifiable inferences are to be drawn in nonmovant's favor; LBP-16-3, 83 NRC 169 (2016)

licensing board function in ruling on a summary disposition motion is not to conduct a trial on the written record by weighing evidence and endeavoring to determine the truth of the matter, but rather to determine whether any genuine issue of material fact exists; LBP-16-3, 83 NRC 169 (2016)

material fact is one that might affect the outcome of a proceeding; LBP-16-3, 83 NRC 169 (2016)

**MATERIALS LICENSE RENEWAL**

NRC Staff's review of license renewal application failed to meet NHPA's post-1992 tribal consultation requirements; LBP-16-7, 83 NRC 340 (2016)

**MATERIALS LICENSE RENEWAL PROCEEDINGS**

licensing boards are empowered to make findings of fact and conclusions of law on the matters put into controversy by the parties; LBP-16-7, 83 NRC 340 (2016)

NRC Staff is the party with the burden of proof at the hearing phase; LBP-16-7, 83 NRC 340 (2016)

**MATERIALS LICENSES**

NRC Staff's practice in materials cases is to issue a license before completion of contested hearings on environmental matters; CLI-16-13, 83 NRC 566 (2016)

**MAXIMUM CONTAMINANT LEVELS**

secondary standard for hazardous constituent in groundwater is a maximum contaminant level; CLI-16-13, 83 NRC 566 (2016)

## SUBJECT INDEX

### MEDICAL RADIOISOTOPE PRODUCTION FACILITY

Advisory Committee on Reactor Safeguards provides an independent assessment of the safety aspects of applications; CLI-16-4, 83 NRC 58 (2016)

applicant must demonstrate that it is financially qualified to construct the proposed facility; CLI-16-4, 83 NRC 58 (2016)

applicant's consideration of General Design Criteria in its construction permit application is discussed; CLI-16-4, 83 NRC 58 (2016)

authorization of construction permit issuance does not constitute approval of the design; CLI-16-4, 83 NRC 58 (2016)

Commission does not review construction permit application de novo, but rather considers the sufficiency of NRC Staff's review; CLI-16-4, 83 NRC 58 (2016)

corporate applicant must state whether it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government, and if so, give details; CLI-16-4, 83 NRC 58 (2016)

definition of "safety-related structures, systems, and components" applies to only those portions that do not expressly apply to power reactors; CLI-16-4, 83 NRC 58 (2016)

dose consequence estimates from accident scenario are discussed; CLI-16-4, 83 NRC 58 (2016)

environmental findings that NRC must make to support issuance of a construction permit are discussed; CLI-16-4, 83 NRC 58 (2016)

exemption from 10 C.F.R. 2.101(a)(5) allows applicant to submit its application in two parts; CLI-16-4, 83 NRC 58 (2016)

findings for issuance of a construction permit require that NRC consider site criteria to ensure that the proposed facility can be constructed and operated at the proposed location without undue risk to health and safety of the public; CLI-16-4, 83 NRC 58 (2016)

in making findings on construction permit application, Commission is guided by considerations in 10 C.F.R. 50.40(a)-(d); CLI-16-4, 83 NRC 58 (2016)

irradiation facility and radioisotope production facility fit the "production facility" definition; CLI-16-4, 83 NRC 58 (2016)

NRC must hold a hearing on an application to construct a commercial production or utilization facility; CLI-16-4, 83 NRC 58 (2016)

NRC Staff, in consultation with and with assistance of the Secretary of the Interior or the Secretary of Commerce, must evaluate whether any threatened or endangered species are present onsite that could be affected by construction of the facility; CLI-16-4, 83 NRC 58 (2016)

operating license application and final safety analysis report will contain the final detailed design for the facility; CLI-16-4, 83 NRC 58 (2016)

safety findings that NRC must make to support issuance of a construction permit are discussed; CLI-16-4, 83 NRC 58 (2016)

site criteria do not expressly apply but NRC Staff considered conditions similar to those in Part 100 in its review of the site suitability; CLI-16-4, 83 NRC 58 (2016)

### MIGRATION TENET

board reformulation of contention reflects that fact that, although the contention originally was filed based on the environmental report, the information in the DEIS is sufficiently similar to the information in the ER that the remaining aspect of the contention constitutes a viable challenge to the adequacy of the DEIS; LBP-16-3, 83 NRC 169 (2016)

### MITIGATION PLANS

although state and local governmental bodies have jurisdiction over the area in which adverse effects need to be addressed and have authority to mitigate them, it would be incongruous to conclude that a federal agency has no power to act until local agencies have reached a final conclusion on what mitigating measures they consider necessary; LBP-16-8, 83 NRC 417 (2016)

EIS discussion of potential mitigation measures must include sufficient detail to ensure that environmental consequences have been fairly evaluated; LBP-16-8, 83 NRC 417 (2016)

environmental impact statement must discuss mitigation measures in sufficient detail to satisfy the NEPA hard look standard; LBP-16-8, 83 NRC 417 (2016)

NEPA does not demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act or a detailed explanation of specific measures that will be employed to mitigate the adverse impacts of a proposed action; LBP-16-8, 83 NRC 417 (2016)

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Staff's record of decision must explain why mitigation measures were not adopted; CLI-16-10, 83 NRC 494 (2016)

state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 417 (2016)

### MODELS/MODELING

NRC Staff's determination on the basis of experience with hydraulic modeling that improvements to resolution of the watershed basin model could not change the conclusion that storm surge is the bounding flood hazard is examined in review of the early site permit application; LBP-16-4, 83 NRC 187 (2016)

NRC Staff is asked to explain how they addressed the climate-change-induced increases in the power and frequency of hurricanes and models used in review of the early site permit application; LBP-16-4, 83 NRC 187 (2016)

See also Computer Modeling

### MODIFICATION ORDER

board or Commission may appropriately modify, condition, or revoke a license, if required by circumstances of a particular proceeding; CLI-16-13, 83 NRC 566 (2016)

### MONETARY AWARDS

monetary remedies are not possible in the NRC licensing context, and failure to comply with NEPA presumptively implies environmental harms that money cannot fix; LBP-16-7, 83 NRC 340 (2016)

### MONITORING

at least 1 full year prior to any major site construction, a preoperational monitoring program must be conducted to provide complete baseline data; CLI-16-13, 83 NRC 566 (2016)

contention that FSEIS lacks an adequate description of the present baseline groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is inadmissible; CLI-16-13, 83 NRC 566 (2016)

information is sufficiently probative to demonstrate that there remains a genuine dispute of material fact concerning the ability of applicant's monitoring program to detect upward migrations of wastewater and to ensure any environmental impact would be minor; LBP-16-3, 83 NRC 169 (2016)

sampling frequency may be reduced after a minimum of 6 months of operational testing if data indicate that parameter values have stabilized; LBP-16-3, 83 NRC 169 (2016)

summary disposition of contention challenging confining nature of hydrogeologic formations and ability of injection wells to timely identify and prevent leaks of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and efficacy of applicant's groundwater monitoring program is denied; LBP-16-3, 83 NRC 169 (2016)

wells at the perimeter of each wellfield are used to detect leaks during operations; CLI-16-13, 83 NRC 566 (2016)

written authorization for operational testing to include weekly groundwater sampling of monitor wells is required; LBP-16-3, 83 NRC 169 (2016)

### MOOTNESS

although unreviewed board decisions do not create binding legal precedent, such decisions are customarily vacated as a prudential matter when appellate review is cut short by mootness; CLI-16-8, 83 NRC 463 (2016)

"capable of repetition, yet evading review" exception to the mootness doctrine applies only to cases in which both the challenged action was in its duration too short to be litigated and there is a reasonable expectation that the same complaining party will be subject to the same action again; CLI-16-8, 83 NRC 463 (2016)

case is moot where disputed license amendment request has been withdrawn; CLI-16-8, 83 NRC 463 (2016)

case or controversy is considered moot when the issues are no longer live, or the parties lack a cognizable interest in the outcome; CLI-16-6, 83 NRC 147 (2016)

decisions capable of repetition, yet evading review form an exception to mootness doctrine; CLI-16-6, 83 NRC 147 (2016); CLI-16-8, 83 NRC 463 (2016)

importance of distinction between contentions of adequacy and contentions of omission increases in the face of an argument that the contention has become moot; CLI-16-11, 83 NRC 524 (2016)

## SUBJECT INDEX

injury capable of repetition requires a reasonable expectation that the same complaining party would be subjected to the same action again; CLI-16-6, 83 NRC 147 (2016)

mootness is determined by looking to whether the relief sought would, if granted, make a difference to the legal interests of the parties; CLI-16-6, 83 NRC 147 (2016)

speculation as to future events, without more, does not shield a case from a mootness determination; CLI-16-6, 83 NRC 147 (2016)

tribunal may dismiss those matters placed before them which have been mooted by supervening developments; CLI-16-6, 83 NRC 147 (2016)

“voluntary cessation” exception is intended to prevent a party from evading review by taking temporary action to preclude a possible adverse decision; CLI-16-6, 83 NRC 147 (2016)

voluntary cessation of a challenged practice does not deprive a federal court of its power to determine the legality of the practice; CLI-16-6, 83 NRC 147 (2016)

when subsequent events outrun the controversy, the Commission will ordinarily dismiss a case as moot; CLI-16-6, 83 NRC 147 (2016)

withdrawal of an application moots any adjudicatory proceeding regarding that application; LBP-16-1, 83 NRC 97 (2016)

### MOTION IN LIMINE

board deferred ruling on motion in limine to exclude certain exhibits because they pertain to contentions that will be resolved in a subsequent partial initial decision; LBP-16-7, 83 NRC 340 (2016)

### MOTIONS TO REOPEN

affidavit that merely states that declarant has read and reviewed the contention and fully supports all of its statements fails to meet the affidavit requirements in 10 C.F.R. 2.326(b); LBP-16-6, 83 NRC 329 (2016)

affidavits accompanying motions must separately address each of the reopening criteria and provide a specific explanation of why it has been met; LBP-16-6, 83 NRC 329 (2016)

boards are not expected to search the pleadings for information that would satisfy reopening requirements; LBP-16-6, 83 NRC 329 (2016)

discretionary exception to timeliness requirement can be granted if the motion presents an exceptionally grave issue; LBP-16-6, 83 NRC 329 (2016)

exceptionally grave issue may be considered even if it is untimely presented; LBP-16-6, 83 NRC 329 (2016)

exceptionally grave issue provision of 10 C.F.R. 2.326(a)(1) is a narrow exception and will be granted rarely and only in truly extraordinary circumstances; LBP-16-6, 83 NRC 329 (2016)

intentionally heavy burden is placed on parties seeking to reopen the record because there would be little hope of completing administrative proceedings if each newly arising allegation required an agency to reopen its hearings; LBP-16-6, 83 NRC 329 (2016)

motion could be rejected solely on the basis of appellants’ failure to comply fully with section 2.326(b); LBP-16-6, 83 NRC 329 (2016)

motions must be accompanied by affidavits that set forth the factual and/or technical bases for movant’s claim; LBP-16-6, 83 NRC 329 (2016)

motions must be timely, address a significant safety or environmental issue, and demonstrate that a materially different result would be, or would have been, likely had the newly proffered evidence been considered initially; LBP-16-6, 83 NRC 329 (2016)

motions to introduce a contention not previously in controversy among the parties must satisfy 10 C.F.R. 2.326; LBP-16-6, 83 NRC 329 (2016)

petitioner must set forth information that is materially different from what was previously available; LBP-16-6, 83 NRC 329 (2016)

proponent must address the criteria of 10 C.F.R. 2.326; CLI-16-13, 83 NRC 566 (2016)

proponent must, among other things, demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially; CLI-16-13, 83 NRC 566 (2016)

there simply would be no end to NRC licensing proceedings if petitioners could disregard timeliness requirements and add new contentions at their convenience during the course of a proceeding based on information that could have formed the basis for a timely contention at the outset of the proceeding; LBP-16-6, 83 NRC 329 (2016)

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untimeliness alone is fatal to a motion to reopen; LBP-16-6, 83 NRC 329 (2016)

### MOTIONS TO WITHDRAW

hearing opportunity notice in a contested case would not trigger licensing board jurisdiction; LBP-16-1, 83 NRC 97 (2016)

if an adequate showing is made of withdrawal-associated harm, a licensing board can grant a withdrawal without prejudice, albeit with appropriate conditions to protect a party or the public interest; LBP-16-1, 83 NRC 97 (2016)

in a contested case, licensing board promulgation of a notice of hearing providing board jurisdiction over a withdrawal motion comes after the board has ruled on the efficacy of any intervention petitions and determined that an adjudicatory hearing is warranted; LBP-16-1, 83 NRC 97 (2016)

once a notice of hearing has been issued, any application withdrawal request must be approved by the licensing board and is subject to any appropriate conditions the board may impose; LBP-16-1, 83 NRC 97 (2016)

withdrawal of application without prejudice is granted where no harm accrues to the public or other parties and is unopposed by intervenors and NRC Staff; LBP-16-1, 83 NRC 97 (2016)

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agencies may exclude from consideration those impacts that are not reasonably foreseeable, but are remote and speculative; LBP-16-7, 83 NRC 340 (2016)

agencies must consider every significant aspect of a proposed action's environmental impact and provide a reasoned explanation for the agency's conclusions; LBP-16-8, 83 NRC 417 (2016)

agencies must disclose potential environmental impacts before proceeding with a planned action; LBP-16-7, 83 NRC 340 (2016)

agencies must study, develop, and describe appropriate alternatives to the proposed action; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016)

agencies must use a systematic, interdisciplinary approach that will ensure the integrated use of the natural and social sciences and the environmental design arts in decisionmaking that may impact the environment; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016)

agency must do more than scatter its evaluation of environmental damage among various public documents; LBP-16-8, 83 NRC 417 (2016)

agency must provide sufficient evidence and analysis to determine the reasonableness of a decision not to prepare an EIS; LBP-16-8, 83 NRC 417 (2016)

agency not only must evaluate all significant impacts, but also must inform the public that the agency has considered environmental concerns in its decisionmaking process; LBP-16-8, 83 NRC 417 (2016)

applicant for in situ uranium recovery license must describe the hydrology of the proposed site to predict the potential effect such a facility would have on adjacent groundwater and surface waters as required by NEPA; CLI-16-13, 83 NRC 566 (2016)

at the heart of the disclosure-forcing function of NEPA is the EA or EIS, which assures the public that the agency has in fact considered all the impacts; LBP-16-7, 83 NRC 340 (2016)

categories of actions that are exempt from NEPA review are listed in 10 C.F.R. 51.22(a); CLI-16-5, 83 NRC 131 (2016)

criteria 5 and 7A of 10 C.F.R. pt. 40, app. A do not specifically apply to site characterization under NEPA; CLI-16-13, 83 NRC 566 (2016)

decisionmaker must consider all environmental impacts of an action before making a decision; CLI-16-13, 83 NRC 566 (2016)

elimination of all potential impacts and risks, discussion of any particular mitigation plans that NRC might put in place, and implementation of plans are not required; CLI-16-10, 83 NRC 494 (2016)

environmental documents must respond with appropriate scrutiny and reasoned explanations to opposing views, which includes being able to explain and make available underlying assumptions in NRC's environmental analyses; LBP-16-8, 83 NRC 417 (2016)

environmental impact statement is required for all major NRC licensing efforts significantly affecting the quality of the human environment; LBP-16-7, 83 NRC 340 (2016)

environmental impact statement must discuss mitigation measures in sufficient detail to satisfy the NEPA hard look standard; LBP-16-8, 83 NRC 417 (2016)

federal agencies are not required to affirmatively limit the environmental harms of their actions; LBP-16-7, 83 NRC 340 (2016)



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federal agencies must take a hard look at the environmental impacts of their actions; LBP-16-7, 83 NRC 340 (2016)

final record of decision under NEPA is the entire adjudicatory record in addition to the environmental assessment or environmental impact statement; LBP-16-7, 83 NRC 340 (2016)

hard look requirement is subject to a rule of reason; LBP-16-7, 83 NRC 340 (2016)

hard look requires informed and reasoned decisionmaking in which the agency obtains opinions from its own experts and from experts outside the agency, and gives careful scientific scrutiny and response to all legitimate concerns that are raised; LBP-16-7, 83 NRC 340 (2016)

information-disclosure purpose is not satisfied where input values are not meaningfully addressed in the final supplemental environmental impact statement or the board's decision; LBP-16-8, 83 NRC 417 (2016)

injunction is not an automatic or default remedy to cure NEPA violation; CLI-16-13, 83 NRC 566 (2016)

license amendment request must meet criteria for a categorical exclusion from the requirement to prepare an environmental analysis; CLI-16-5, 83 NRC 131 (2016)

licensing board decision satisfies the disclosure purpose of NEPA through the public vetting of environmental issues at an evidentiary hearing; LBP-16-8, 83 NRC 417 (2016)

licensing board's factual findings, as well as the adjudicatory record, become, in effect, part of the final NEPA document; LBP-16-7, 83 NRC 340 (2016)

mandatory implementation of SAMA is outside the scope of license renewal proceedings because NEPA does not mandate particular results; CLI-16-10, 83 NRC 494 (2016)

neither a fully developed plan to mitigate environmental harm nor a detailed explanation of specific measures that will be employed to mitigate adverse impacts of a proposed action is required before an agency can act; LBP-16-8, 83 NRC 417 (2016)

NEPA does not require that a mitigation plan be actually formulated and adopted; CLI-16-7, 83 NRC 293 (2016)

NEPA ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process; LBP-16-8, 83 NRC 417 (2016)

NEPA process would effectively become unending if it required NRC to stop and await internationally based research and potential code modifications that could take years to complete; CLI-16-7, 83 NRC 293 (2016)

NEPA requirements are tempered by a practical rule of reason; CLI-16-7, 83 NRC 293 (2016)

NEPA requires a look at intangible, not just tangible, properties and it is not limited to a focus on historic properties in the same way as the National Historic Preservation Act; LBP-16-7, 83 NRC 340 (2016)

NEPA seeks to guarantee process, not any specific outcomes; CLI-16-7, 83 NRC 293 (2016); CLI-16-10, 83 NRC 494 (2016)

NRC carries out the environmental justice principles of Executive Order 12898 as part of the agency's responsibilities under NEPA; LBP-16-5, 83 NRC 259 (2016)

NRC must assess the relationship between local short-term uses and long-term productivity of the environment, consider alternatives, and describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016)

NRC need not obtain assurance that third parties will implement particular measures; CLI-16-10, 83 NRC 494 (2016)

NRC need not require certain mitigation measures under NEPA because NEPA is not outcome-driven; CLI-16-10, 83 NRC 494 (2016)

NRC Staff must consider alternative sites to satisfy the required hard look standard; LBP-16-8, 83 NRC 417 (2016)

NRC Staff must prepare an environmental impact statement for major actions that have a significant environmental effect; CLI-16-12, 83 NRC 542 (2016)

one purpose of environmental review is to assure that the public who might be affected by the proposed project be fully informed of the proposal, its impacts, and all major points of view; LBP-16-8, 83 NRC 417 (2016)

only a reasonably complete severe accident mitigation analysis is required; CLI-16-7, 83 NRC 293 (2016)

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principal purpose is to ensure public disclosure of information relevant to federal decisions significantly affecting the environment; LBP-16-8, 83 NRC 417 (2016)

proper question is not whether there are plausible alternative choices for use in a SAMA analysis, but whether the analysis that was done is reasonable under NEPA; CLI-16-11, 83 NRC 524 (2016)

requirement to prepare an environmental impact statement ensures that decisionmakers will have available, and will carefully consider, detailed information concerning significant environmental impacts; CLI-16-3, 83 NRC 52 (2016)

requirement to prepare an environmental impact statement guarantees that the relevant information will be made available to the larger audience that may also play a role in the decisionmaking process; CLI-16-3, 83 NRC 52 (2016)

responding with appropriate scrutiny and reasoned explanations to opposing views is a NEPA requirement that includes being able to explain and make available underlying assumptions in environmental analyses; LBP-16-7, 83 NRC 340 (2016)

safety issues are reviewed under the adequacy and sufficiency standard, and licensing boards conducting mandatory hearings must independently consider the final balance among conflicting costs and benefits when reviewing NEPA issues; LBP-16-4, 83 NRC 187 (2016)

satisfying NEPA means satisfying, at a minimum, the National Historic Preservation Act's Identification Obligations; LBP-16-7, 83 NRC 340 (2016)

severe accident mitigation alternatives analysis is performed solely pursuant to NEPA and NRC's NEPA-related environmental regulations; CLI-16-10, 83 NRC 494 (2016)

summary of findings on NRC Staff's environmental review must be provided; CLI-16-2, 83 NRC 13 (2016)

unlimited resources need not be devoted to information gathering as long as the result is reasonable; CLI-16-13, 83 NRC 566 (2016)

violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 566 (2016)

where an adjudicatory hearing tests adequacy of an EA or EIS, evidence adduced at the hearing may cure a defective NEPA document because in contested proceedings with a hearing, a licensing board creates the final record of decision under NEPA; LBP-16-7, 83 NRC 340 (2016)

**NATIONAL HISTORIC PRESERVATION ACT**

Advisory Council on Historic Preservation is empowered by statute to promulgate binding regulations implementing NHPA § 106; LBP-16-7, 83 NRC 340 (2016)

changes made to the NHPA bestowed special protections on Native American historic properties; LBP-16-7, 83 NRC 340 (2016)

consultants may be used to determine the effects on historic properties; LBP-16-7, 83 NRC 340 (2016)

criteria to determine whether a federal agency has complied with its NHPA Consultation Obligations are provided; LBP-16-7, 83 NRC 340 (2016)

cursory discussions and a brief bus tour cannot be deemed to meet NHPA's requirements to identify, assess, and attempt to mitigate impacts to potential historic properties of significance to Indian tribes; LBP-16-7, 83 NRC 340 (2016)

federal agencies must take into account the effect of an undertaking on any historic property prior to approving an action; LBP-16-7, 83 NRC 340 (2016)

federal agency may turn to an outside entity for advice and policy recommendations, provided the agency makes the final decisions itself; LBP-16-7, 83 NRC 340 (2016)

federal agency must make a reasonable and good faith effort to identify historic properties; LBP-16-7, 83 NRC 340 (2016)

in 1988, NRC Staff was not obligated to consider the cultural or religious significance that tribes might ascribe to TCPs, as was required in 2007; LBP-16-7, 83 NRC 340 (2016)

NHPA Amendments established mechanisms for more meaningful involvement of Indian tribes in agency historic preservation efforts; LBP-16-7, 83 NRC 340 (2016)

Programmatic Agreement may be used to implement the NHPA § 106 process in situations where the effects to historic properties cannot be fully determined prior to the approval of an undertaking, such as where an applicant proposes a phased approach to developing its project; LBP-16-7, 83 NRC 340 (2016)

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requirement for a reasonable and good faith effort can be satisfied merely by a review of existing information on historic properties that are located or may be located within the area of potential effects; LBP-16-7, 83 NRC 340 (2016)

satisfying NEPA means satisfying, at a minimum, the NHPA's Identification Obligations; LBP-16-7, 83 NRC 340 (2016)

where previous or partial surveys and all other evidence indicate that a complete survey would be fruitless, NHPA does not require a complete survey of the project area; LBP-16-7, 83 NRC 340 (2016)

**NATIONAL REGISTER OF HISTORIC PLACES**

cemeteries, birthplaces, or graves of historical figures are not eligible for listing as a historic property, unless the cemetery derives its importance through other means, such as association with historic events; LBP-16-7, 83 NRC 340 (2016)

four criteria must be met for the listing of properties; LBP-16-7, 83 NRC 340 (2016)

prior to 1992, historic properties could be placed on the National Register only if they met certain regulatory requirements, none of which considered the unique interests and viewpoints of Native Americans; LBP-16-7, 83 NRC 340 (2016)

properties must embody type, period, method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; LBP-16-7, 83 NRC 340 (2016)

properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register; LBP-16-7, 83 NRC 340 (2016)

property's attributes are location, design, setting, materials, workmanship, feeling, and association; LBP-16-7, 83 NRC 340 (2016)

**NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT**

cemeteries can have distinct cultural and religious importance to Indian tribes; LBP-16-7, 83 NRC 340 (2016)

**NATIVE AMERICANS**

abundance of letters does not equate to meaningful or reasonable consultation with Indian tribes; LBP-16-7, 83 NRC 340 (2016)

agency officials must acknowledge that Indian tribes and Native Hawaiian organizations possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them; LBP-16-7, 83 NRC 340 (2016)

changes made to the NHPA bestowed special protections on Native American historic properties; LBP-16-7, 83 NRC 340 (2016)

consultation efforts with Indian tribes must recognize the government-to-government relationship between the federal government and Indian tribes and be sensitive to the needs of the tribal participants; LBP-16-7, 83 NRC 340 (2016)

consultation with Indian Tribes should start as early as possible in the process; LBP-16-7, 83 NRC 340 (2016)

criteria to determine whether a federal agency has complied with its NHPA Consultation Obligations are provided; LBP-16-7, 83 NRC 340 (2016)

failure of Bureau of Indian Affairs to make any real attempt to comply with its own policy of consultation not only violates general principles that govern administrative decisionmaking, but also violates the distinctive obligation of trust incumbent upon the government in its dealings with these dependent and sometimes exploited people; LBP-16-7, 83 NRC 340 (2016)

federal agency must consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties; LBP-16-7, 83 NRC 340 (2016)

federal agency, during consultation process, must gather information from any Indian tribe to assist in identifying properties, including those located off tribal lands, which may be of religious and cultural significance to them and may be eligible for the National Register; LBP-16-7, 83 NRC 340 (2016)

Indian tribes remain separate sovereigns preexisting the Constitution and maintain their historic sovereign authority; LBP-16-7, 83 NRC 340 (2016)

literature review is inferior to the knowledge of experts in tribal cultural properties; LBP-16-7, 83 NRC 340 (2016)

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National Historic Preservation Act Amendments established mechanisms for more meaningful involvement of Indian tribes in agency historic preservation efforts; LBP-16-7, 83 NRC 340 (2016)  
no more of a federal agency is required than to afford an opportunity for Indian tribes to consult meaningfully on federal actions that affect properties of religious or cultural significance to an Indian tribe, as well as to advise the agency on identification and evaluation of such properties, and to participate in the resolution of any possible adverse consequences; LBP-16-7, 83 NRC 340 (2016)  
NRC Staff's review of license renewal application failed to meet NHPA's post-1992 tribal consultation requirements; LBP-16-7, 83 NRC 340 (2016)  
properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register; LBP-16-7, 83 NRC 340 (2016)  
territories ceded by Indian tribes to the U.S. government are more likely to encounter historic properties of religious and cultural significance, which calls for greater scrutiny of the license area, not less; LBP-16-7, 83 NRC 340 (2016)

### NEUTRON IRRADIATION

licensees must analyze material specimens to evaluate changes, due to neutron irradiation and high temperatures, in the fracture toughness properties of the ferritic materials in the reactor vessel beltline region; CLI-16-2, 83 NRC 13 (2016)

### NO SIGNIFICANT HAZARDS DETERMINATION

categorical exclusions involve a significant hazards consideration, which would prevent them from being exempted; CLI-16-5, 83 NRC 131 (2016)  
following receipt of a license amendment application, NRC Staff publishes in the Federal Register a notice of the application, the opportunity to request a hearing, and Staff's proposed no significant hazards consideration determination; CLI-16-5, 83 NRC 131 (2016)

### NONCOMPLIANCES

claims of inadequacies in licensee's technical evaluation or noncompliance with its license, standing alone, do not suffice to identify an activity that may constitute a license amendment; CLI-16-9, 83 NRC 472 (2016)

### NOTICE

following receipt of a license amendment application, NRC Staff publishes in the Federal Register a notice of the application, the opportunity to request a hearing, and Staff's proposed no significant hazards consideration determination; CLI-16-5, 83 NRC 131 (2016)

### NOTICE OF HEARING

hearing opportunity notice in a contested case would not trigger licensing board jurisdiction over a withdrawal motion; LBP-16-1, 83 NRC 97 (2016)  
once a notice of hearing has been issued, any application withdrawal request must be approved by the licensing board and is subject to any appropriate conditions the board may impose; LBP-16-1, 83 NRC 97 (2016)

### NOTICE OF INTENT

NRC must publish a notice of intent to prepare an environmental impact statement; LBP-16-4, 83 NRC 187 (2016)

### NOTICE PLEADING

petitioner cannot satisfy contention admission requirements of 10 C.F.R. 2.309(f)(1) by mere notice pleading; CLI-16-5, 83 NRC 131 (2016)

### NOTIFICATION

license condition requiring licensee to inform petitioner of any request to amend its license does not impose any additional administrative burden because licensee is already required by the regulations to notify petitioner of any request to amend its license; CLI-16-8, 83 NRC 463 (2016)  
licensee must provide 30 working days' advance notice to NRC of intended disbursements from its decommissioning trust fund; CLI-16-8, 83 NRC 463 (2016)  
NRC Staff must inform licensee or any other person adversely affected by the order of his or her right to demand a hearing except in a case where licensee or other person has consented in writing to the order; CLI-16-6, 83 NRC 147 (2016)  
parties must notify the presiding officer of relevant new developments in a proceeding; CLI-16-12, 83 NRC 542 (2016)

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### NRC GUIDANCE DOCUMENTS

NUREG-1555 is entitled to special weight in NRC proceedings; LBP-16-8, 83 NRC 417 (2016)  
special weight is accorded to NRC Staff guidance documents such as standard review plans; CLI-16-13, 83 NRC 566 (2016)

### NRC POLICY

Commission longstanding policy disfavors interlocutory, piecemeal review of board rulings, barring extraordinary circumstances; CLI-16-1, 83 NRC 1 (2016)  
contention that asserts a generalized grievance regarding NRC policy is outside the scope of license amendment proceeding; LBP-16-5, 83 NRC 259 (2016)  
general statement of policy does not establish a binding norm and is not finally determinative of the issues or rights to which it is addressed; LBP-16-5, 83 NRC 259 (2016)

### NRC STAFF

burden of proof is on NRC Staff at the hearing phase on materials license renewal; LBP-16-7, 83 NRC 340 (2016)  
Staff may exercise professional judgment in conducting post-licensing verification activities; LBP-16-4, 83 NRC 187 (2016)  
ultimate burden of proof for showing that it complied with NEPA rests on Staff; LBP-16-8, 83 NRC 417 (2016)

### NRC STAFF REVIEW

adequacy of NRC Staff's conclusions on design-basis flood level and maximum groundwater level are discussed; CLI-16-2, 83 NRC 13 (2016)  
although it is always possible to gather more data, at some point NRC Staff must move forward with decisionmaking; CLI-16-13, 83 NRC 566 (2016)  
any new and significant information relating to Category 1 issues must be addressed; LBP-16-8, 83 NRC 417 (2016)  
board must determine whether NRC Staff took a hard look at the potential environmental impacts of the licensing actions and whether NRC Staff adequately justified its conclusions in this regard; LBP-16-8, 83 NRC 417 (2016)  
board must determine, in an uncontested proceeding, whether the NEPA review conducted by NRC staff has been adequate; LBP-16-4, 83 NRC 187 (2016)  
boards conducting mandatory hearings should not second-guess the underlying technical or factual findings by the NRC Staff; LBP-16-4, 83 NRC 187 (2016)  
Category 2 issues require additional plant-specific review for operating license renewal; LBP-16-8, 83 NRC 417 (2016)  
combined license application is not reviewed de novo, but rather, the Commission considers whether NRC Staff's review of the application is sufficient to support the required findings; CLI-16-2, 83 NRC 13 (2016)  
Commission may be called upon to review applications that make predictive findings on future actions that may or may not come to pass; CLI-16-12, 83 NRC 542 (2016)  
failure to utilize experts in tribal cultural properties who could have added to the survey process, is clearly contrary to current regulations; LBP-16-7, 83 NRC 340 (2016)  
FSAR updates are reviewed only as part of Staff's oversight to ensure compliance with existing requirements; CLI-16-9, 83 NRC 472 (2016)  
giving appropriate deference to NRC Staff technical expertise, boards are to probe the logic and evidence supporting NRC Staff findings and decide whether those findings are sufficient to support license issuance; LBP-16-4, 83 NRC 187 (2016)  
impacts or effects that must be accounted for include ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative impacts; LBP-16-7, 83 NRC 340 (2016)  
in 1988, NRC Staff was not obligated to consider the cultural or religious significance that tribes might ascribe to TCPs, as was required in 2007; LBP-16-7, 83 NRC 340 (2016)  
in reaching its independent judgment regarding NEPA issues, licensing boards are not to second-guess underlying technical or factual findings by the NRC Staff; LBP-16-4, 83 NRC 187 (2016)  
it generally is in the public interest to avoid the expense of an adjudicatory hearing when NRC Staff review of a docketed license application has been suspended; LBP-16-2, 83 NRC 107 (2016)

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it is the license application, not the NRC Staff review, that is at issue in an adjudicatory proceeding; CLI-16-12, 83 NRC 542 (2016)

licensing board should not allow glaring gaps in NRC Staff's environmental analysis to go unexplored; LBP-16-7, 83 NRC 340 (2016)

licensing board's responsibility in a mandatory hearing on an early site permit is analogous to the function of an appellate court, applying the substantial evidence test, although it is imperfect because the ASLB looks not only to the information in the record, but also to the thoroughness of the review that the Staff has given it; LBP-16-4, 83 NRC 187 (2016)

licensing boards should conduct a simple sufficiency review of uncontested issues in the uncontested hearing, not a de novo review; LBP-16-4, 83 NRC 187 (2016)

material submitted to update the FSAR may be reviewed by NRC Staff but will not be formally approved; CLI-16-9, 83 NRC 472 (2016)

NRC safety review requirements and limited scope of the license renewal safety review are set forth in 10 C.F.R. Part 54; CLI-16-10, 83 NRC 494 (2016)

NRC Staff is asked to explain how application and review differed from previous ESPs due to events at Fukushima and subsequent evaluations and recommendations; LBP-16-4, 83 NRC 187 (2016)

NRC Staff must consider alternative sites to satisfy the hard look standard required by NEPA; LBP-16-8, 83 NRC 417 (2016)

NRC Staff's review of license renewal application failed to meet NHPA's post-1992 tribal consultation requirements; LBP-16-7, 83 NRC 340 (2016)

NRC Staff's underlying technical and factual findings are not open to board reconsideration unless, after a review of the record, the board finds the NRC Staff review inadequate or its findings insufficient; LBP-16-4, 83 NRC 187 (2016)

safety findings that NRC must make to support issuance of a construction permit for a medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)

scope of review of a license amendment application is defined in 10 C.F.R. 50.92(a); LBP-16-5, 83 NRC 259 (2016)

site criteria do not expressly apply to a medical radioisotope production facility but NRC Staff considered conditions similar to those in Part 100 in its review of the suitability of the proposed site; CLI-16-4, 83 NRC 58 (2016)

Staff's record of decision must either state whether it has taken all practicable measures within its jurisdiction to avoid or minimize environmental harm or explain why those measures were not adopted; CLI-16-10, 83 NRC 494 (2016)

Staff's record of decision must explain why mitigation measures were not adopted; CLI-16-10, 83 NRC 494 (2016)

summary of findings on NRC Staff's environmental review must be provided; CLI-16-2, 83 NRC 13 (2016)

when new information is presented, NRC is obliged to consider and evaluate it and to make a reasoned decision as to whether it shows that any proposed action will affect the environment in a significant manner not already considered; LBP-16-8, 83 NRC 417 (2016)

**NUCLEAR POWER PLANTS**

material control and accounting requirements do not apply to reactors or expressly contain exclusions for reactors licensed under Part 50; CLI-16-2, 83 NRC 13 (2016)

U.S. plants have containment systems that serve as the principal barrier, after the reactor coolant pressure boundary, to prevent release of quantities of radioactive material that would significantly affect public health; CLI-16-5, 83 NRC 131 (2016)

**NUCLEAR REGULATORY COMMISSION, AUTHORITY**

agency may adopt the recommended order as the final order of the agency or in its final order may reject or modify the conclusions of law over which it has substantive jurisdiction; LBP-16-8, 83 NRC 417 (2016)

authority to reconsider Commission actions is inherent in its authority to make them in the first instance; CLI-16-12, 83 NRC 542 (2016)

board or Commission may appropriately modify, condition, or revoke a license, if required by circumstances of a particular proceeding; CLI-16-13, 83 NRC 566 (2016)

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Commission has authority under section 189a of the Atomic Energy Act to define the scope of an enforcement proceeding and to limit that scope to whether to sustain the order; CLI-16-6, 83 NRC 147 (2016)

Commission may conduct its own sua sponte review of licensing board's final ruling; LBP-16-1, 83 NRC 97 (2016)

Commission may exercise its inherent supervisory authority over adjudications to review on its own motion an issue not otherwise properly before it on appeal in sufficiently significant circumstances; CLI-16-1, 83 NRC 1 (2016)

Commission resolved petitions in its supervisory capacity and did not address procedural irregularities; CLI-16-2, 83 NRC 13 (2016)

discretionary exception to the timeliness requirement can be granted if the motion presents an exceptionally grave issue; LBP-16-6, 83 NRC 329 (2016)

NRC has broad discretion to prescribe requirements for financial qualifications; CLI-16-2, 83 NRC 13 (2016)

oral argument on the merits of appeals may be allowed at the Commission's discretion; CLI-16-10, 83 NRC 494 (2016)

where a SAMA is not necessary to protect public health and safety but nonetheless may be warranted as an incremental safety improvement, NRC may impose a plant modification; CLI-16-10, 83 NRC 494 (2016)

### OFFSITE POWER

onsite and offsite electric power systems that permit the functioning of structures, systems, and components important to safety are required; CLI-16-2, 83 NRC 13 (2016)

### OPERATING LICENSE AMENDMENT APPLICATIONS

applicant must satisfy the requirements of 10 C.F.R. 50.90 and demonstrate that the requested amendment meets all applicable regulatory requirements and acceptance criteria and does not otherwise harm the public health and safety or the common defense and security; LBP-16-5, 83 NRC 259 (2016)

application must include the basis for concluding that licensee's emergency plan, as revised, will continue to meet requirements in Appendix E to Part 50 and, for nuclear power reactor licensees, the planning standards of section 50.47(b); CLI-16-12, 83 NRC 542 (2016)

petitioner's allegations, coupled with the acknowledged possibility of offsite consequences if CIS wall modules are structurally inadequate, satisfy the requirement that petitioner show a plausible chain of causation explaining how the amendment itself would result in a distinct new harm or threat beyond that posed by the licensed facility itself; LBP-16-5, 83 NRC 259 (2016)

scope of review of a license amendment application is defined in 10 C.F.R. 50.92(a); LBP-16-5, 83 NRC 259 (2016)

### OPERATING LICENSE AMENDMENT PROCEEDINGS

assertion that license amendment would put residents of the surrounding community at greater risk from ionizing radiation exposure, if adequately supported, could identify a genuine dispute with licensee's conclusion that the license amendment falls within the categorical exclusion from NEPA review; LBP-16-5, 83 NRC 259 (2016)

board must determine whether NRC Staff took a hard look at the potential environmental impacts of the licensing actions and whether NRC Staff adequately justified its conclusions in this regard; LBP-16-8, 83 NRC 417 (2016)

contention that asserts a generalized grievance regarding NRC policy is outside the scope of license amendment proceeding; LBP-16-5, 83 NRC 259 (2016)

for the proximity presumption to apply in license amendment proceedings, the proposed amendment must obviously entail increased potential for offsite consequences; LBP-16-5, 83 NRC 259 (2016)

NRC Staff bears the ultimate burden of proof for showing that it complied with NEPA; LBP-16-8, 83 NRC 417 (2016)

petitioner must explain why purported deficiencies in licensee's proposed amendment would be required under NRC regulations; CLI-16-12, 83 NRC 542 (2016)

petitioners had standing under the proximity presumption to challenge a license amendment that deleted the material specimen withdrawal schedule from the plant's technical specifications; LBP-16-5, 83 NRC 259 (2016)

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### OPERATING LICENSE AMENDMENTS

agency action that has the effect of amending a license, whether or not formally designated a license amendment, carries with it the opportunity to request a hearing; CLI-16-9, 83 NRC 472 (2016)

amendments have been issued to increase the ultimate heat sink water temperature limit for the cooling canals

change by licensee must have NRC Staff approval in order to constitute a de facto license amendment, but not every Staff approval constitutes a license amendment; CLI-16-9, 83 NRC 472 (2016)

claims of inadequacies in licensee's technical evaluation or noncompliance with its license, standing alone, do not suffice to identify an activity that may constitute a license amendment; CLI-16-9, 83 NRC 472 (2016)

each FSAR update must include changes made via license amendment and changes made pursuant to section 50.59; CLI-16-9, 83 NRC 472 (2016)

if licensee cannot meet primary or secondary standards for a particular constituent after restoration efforts, it may file a license amendment request for a site-specific alternate concentration limit for that constituent; CLI-16-13, 83 NRC 566 (2016)

interested members of the public have the right to request a hearing on a license amendment application; CLI-16-12, 83 NRC 542 (2016)

licensee cannot amend the terms of its license unilaterally; CLI-16-9, 83 NRC 472 (2016)

licensee must obtain NRC approval where a requested license amendment reduces the effectiveness of its emergency plan and emergency action level scheme; CLI-16-12, 83 NRC 542 (2016)

NRC Staff's acceptance of a revision to the FSAR does not constitute a de facto license amendment because section 50.71(e) is only a reporting requirement that does not require Staff approval; CLI-16-9, 83 NRC 472 (2016)

ongoing oversight, including what may eventually result in a licensee requesting amendment of an operating license, does not constitute a license amendment proceeding that triggers hearing rights; CLI-16-9, 83 NRC 472 (2016)

opportunity for a hearing is provided for an amendment to an operating license, combined license, or manufacturing license; LBP-16-5, 83 NRC 259 (2016)

prospect of a future license amendment does not create a present hearing opportunity; CLI-16-9, 83 NRC 472 (2016)

series of communications associated with replacement of a steam generator that pertained to the NRC's oversight of the facility does not constitute an ongoing de facto license amendment proceeding; CLI-16-9, 83 NRC 472 (2016)

state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 417 (2016)

to receive a license amendment allowing use of an alternate concentration limit, licensee must demonstrate that the concentration of the particular hazardous constituent is as low as reasonably achievable and that the ACL presents no significant hazard to human health or the environment; CLI-16-13, 83 NRC 566 (2016)

### OPERATING LICENSE APPLICATIONS

application and final safety analysis report will contain the final detailed design for medical radioisotope production facility; CLI-16-4, 83 NRC 58 (2016)

application includes the FSAR which must describe the facility, present the design bases and limits on its operation, and present a safety analysis of the structures, systems, and components and of the facility as a whole; CLI-16-9, 83 NRC 472 (2016)

### OPERATING LICENSE PROCEEDINGS

realistic threat of harm conferring proximity-based standing can be assumed in construction permit and operating license proceedings for power reactors; LBP-16-5, 83 NRC 259 (2016)

### OPERATING LICENSE RENEWAL

Category 2 issues require additional plant-specific review; LBP-16-8, 83 NRC 417 (2016)

distinction between Category 1 and Category 2 issues during a license renewal is based on an extensive study of potential environmental consequences of operating a nuclear power plant for an additional 20 years; LBP-16-8, 83 NRC 417 (2016)



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distinction between Category 1 and Category 2 issues during a license renewal is based on the underlying assumption that the nuclear power plant will continue operating under its current license requirements, including license conditions and technical specifications; LBP-16-8, 83 NRC 417 (2016)

NRC has generically determined, based on probability-weighted consequences, that environmental impacts from severe accidents at plants operating under renewed licenses are expected to be small; CLI-16-7, 83 NRC 293 (2016)

NRC safety review requirements and limited scope of the license renewal safety review are set forth in 10 C.F.R. 54.4 and 54.21; CLI-16-10, 83 NRC 494 (2016)

NRC Staff is obliged to address any new and significant information relating to Category 1 issues; LBP-16-8, 83 NRC 417 (2016)

NRC's request for seismic hazard information was part of its lessons-learned activities from the Fukushima Dai-ichi accident and continuing oversight of all plants, outside of license renewal; CLI-16-11, 83 NRC 524 (2016)

section 54.33(c) refers to conditions that are part of the current licensing basis at the time of issuance of the renewed license and their supplementation or amendment for the renewal term; CLI-16-10, 83 NRC 494 (2016)

severe accident mitigation alternatives analysis is required for license renewal if one was not previously performed; CLI-16-10, 83 NRC 494 (2016)

site-specific severe accident mitigation alternatives analysis is required for license renewal if one was not previously performed; CLI-16-7, 83 NRC 293 (2016)

when new information is presented, NRC is obliged to consider and evaluate it and to make a reasoned decision as to whether it shows that any proposed action will affect the environment in a significant manner not already considered; LBP-16-8, 83 NRC 417 (2016)

**OPERATING LICENSE RENEWAL PROCEEDINGS**

energy alternatives contention in license renewal proceeding must provide facts or expert opinion sufficient to raise a genuine dispute as to whether the proposed alternative technology (or combination of technologies) is currently commercially viable, or will become so in the near term to supply baseload power; CLI-16-11, 83 NRC 524 (2016)

mandatory implementation of SAMA is outside the scope of license renewal proceedings because NEPA does not mandate particular results; CLI-16-10, 83 NRC 494 (2016)

**OPERATING LICENSES**

material control and accounting requirements do not apply to reactors or expressly contain exclusions for reactors licensed under Part 50; CLI-16-2, 83 NRC 13 (2016)

**OPINIONS**

expert's statement that he is responsible for the factual content and expert opinions expressed in petitioner's contentions fails to satisfy the requirements of this section; LBP-16-6, 83 NRC 329 (2016)

in an uncontested case, there is no reason to exclude opinion testimony or other evidence that might be objectionable in a jury trial in a court of law; LBP-16-4, 83 NRC 187 (2016)

See also Advisory Opinions

**ORAL ARGUMENT**

Commission at its discretion may allow oral argument on the merits of appeals; CLI-16-10, 83 NRC 494 (2016)

Commission declines to hold oral argument where the record provides sufficient information on which to base its decision; CLI-16-10, 83 NRC 494 (2016)

raising issues for the first time at oral argument affords the opposing party an inadequate opportunity to address it; LBP-16-3, 83 NRC 169 (2016)

**ORDER**

See Confirmatory Order; Modification Order

**OVERPRESSURIZATION**

changes to any Tier 2 information with respect to the containment overpressure protection system design are subject to the change process in Part 52, Appendix A; CLI-16-2, 83 NRC 13 (2016)

**PARTIAL INITIAL DECISIONS**

PIDs are reviewable under 10 C.F.R. 2.341(b)(1) because they are considered final decisions; LBP-16-7, 83 NRC 340 (2016)

## SUBJECT INDEX

### PARTIES

as used in section 2.315(c), the phrase “that has not been admitted as a party under section 2.309” means that an entity cannot be admitted as an interested participant under section 2.315(c) if it is already admitted as a party under section 2.309; CLI-16-1, 83 NRC 1 (2016)

distinction between a section 2.315(c) interested participant and a section 2.309 party is explained; CLI-16-1, 83 NRC 1 (2016)

mandatory, or uncontested, hearing is conducted for a production or utilization facility in which applicant and NRC Staff are the parties; LBP-16-1, 83 NRC 97 (2016)

### PHYSICAL SECURITY

hearing request challenging requested exemptions from some physical security requirements was denied where licensee had not requested a license amendment; CLI-16-12, 83 NRC 542 (2016)

### PLEADINGS

See Amicus Pleadings

### POLICY STATEMENTS

general statement of policy does not establish a binding norm and is not finally determinative of the issues or rights to which it is addressed; LBP-16-5, 83 NRC 259 (2016)

NRC cannot apply or rely upon a general statement of policy as law because it only announces what the agency seeks to establish as policy; LBP-16-5, 83 NRC 259 (2016)

See also NRC Policy

### POWER UPRATE

in a power uprate proceeding, representational standing was granted to an organization with members who lived within 15 miles of the plant; LBP-16-5, 83 NRC 259 (2016)

### PRECEDENTIAL EFFECT

although the Commission abolished the Atomic Safety and Licensing Appeal Board Panel in 1991, its decisions still carry precedential weight; CLI-16-1, 83 NRC 1 (2016)

although unreviewed board decisions do not create binding legal precedent, such decisions are customarily vacated as a prudential matter when appellate review is cut short by mootness; CLI-16-8, 83 NRC 463 (2016)

board’s decision has no precedential effect, but it binds the parties to that case; CLI-16-8, 83 NRC 463 (2016)

### PRECONSTRUCTION ACTIVITIES

applicant requested an exemption from definition of “construction” in 10 C.F.R. 50.10(a)(1) to allow installation of crane foundation retaining walls during the excavation process prior to the issuance of combined licenses; CLI-16-2, 83 NRC 13 (2016)

### PREJUDICE

license application withdrawal with prejudice precludes refiling of an application; LBP-16-1, 83 NRC 97 (2016)

mandating a with-prejudice withdrawal is a severe sanction that should be reserved for unusual situations that involve substantial prejudice to a party or the public interest in general; LBP-16-1, 83 NRC 97 (2016)

### PRICE-ANDERSON ACT

information on nuclear insurance and indemnity pursuant to the Price-Anderson Act is outside the scope of the construction permit application because applicant has not applied to possess special nuclear material; CLI-16-4, 83 NRC 58 (2016)

### PRO SE LITIGANTS

pleadings submitted by pro se petitioners are afforded greater leniency than petitions drafted with the assistance of counsel; LBP-16-5, 83 NRC 259 (2016)

### PRODUCTION FACILITY

irradiation facility and the radioisotope production facility fit the “production facility” definition; CLI-16-4, 83 NRC 58 (2016)

### PROOF

See Burden of Proof

### PROPERTY INTERESTS

proximity presumption applies to persons who have a significant property interest in the area near a nuclear power plant; LBP-16-5, 83 NRC 259 (2016)

## SUBJECT INDEX

### PROPOSED QUESTIONS

parties' proposed cross-examination questions are provided by separate order for inclusion in the official record of the proceeding; LBP-16-8, 83 NRC 417 (2016)

### PROXIMITY PRESUMPTION

appropriate radius for claims of proximity-based standing is decided on a case-by-case basis; LBP-16-5, 83 NRC 259 (2016)

board found proximity standing based on scenario in which an accident of some sort could damage the armored pool containing the cobalt-60 at a food processing irradiator facility; LBP-16-5, 83 NRC 259 (2016)

Commission has rejected proximity standing for certain changes to worker-protection requirements; LBP-16-5, 83 NRC 259 (2016)

Commission has rejected proximity standing for license amendments associated with shutdown and defueled reactors; LBP-16-5, 83 NRC 259 (2016)

Commission has rejected proximity standing for license transfers; LBP-16-5, 83 NRC 259 (2016)

for the proximity presumption to apply in license amendment proceedings, the proposed amendment must obviously entail increased potential for offsite consequences; LBP-16-5, 83 NRC 259 (2016)

in a power uprate proceeding, representational standing was granted to an organization with members who lived within 15 miles of the plant; LBP-16-5, 83 NRC 259 (2016)

living within a specific distance from the plant is enough to confer standing on an individual or group in proceedings for construction permits, operating licenses, or significant amendments thereto; LBP-16-5, 83 NRC 259 (2016)

material condition of a plant's reactor vessel bears on the health and safety of members of the public who reside in the plant's vicinity; LBP-16-5, 83 NRC 259 (2016)

petitioner has the burden to show that the proximity presumption should apply; LBP-16-5, 83 NRC 259 (2016)

petitioners had standing under the proximity presumption to challenge a license amendment that deleted the material specimen withdrawal schedule from the plant's technical specifications; LBP-16-5, 83 NRC 259 (2016)

petitioners living or having frequent contacts or a property interest within 50 miles of a nuclear power reactor may establish standing without the need to make an individualized showing of injury, causation, and redressability; LBP-16-5, 83 NRC 259 (2016)

presumption applies across the board to all proceedings regardless of type because the underlying rationale is not based on the type of proceeding per se but on whether the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences; LBP-16-5, 83 NRC 259 (2016)

presumption applies to persons who have frequent contacts in the area near a nuclear power plant; LBP-16-5, 83 NRC 259 (2016)

presumption applies to persons who have a significant property interest in the area near a nuclear power plant; LBP-16-5, 83 NRC 259 (2016)

presumption rests on board finding, in construction permit and operating license cases, that persons living within the roughly 50-mile radius of the facility face a realistic threat of harm if a release from the facility of radioactive material were to occur; LBP-16-5, 83 NRC 259 (2016)

realistic threat of harm conferring proximity-based standing can be assumed in construction permit and operating license proceedings for power reactors; LBP-16-5, 83 NRC 259 (2016)

there are limits to proximity standing when there are no changes to the physical plant itself, its operating procedures, design basis accident analysis, management, or personnel; LBP-16-5, 83 NRC 259 (2016)

### PSYCHOLOGICAL EFFECTS

purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 97 (2016)

### PUBLIC COMMENTS

agency's environmental review document provides a springboard for public comment; LBP-16-8, 83 NRC 417 (2016)

## SUBJECT INDEX

environmental assessment should not amass needless detail but must permit members of the public to weigh in with their views and thus inform the agency decisionmaking process; LBP-16-8, 83 NRC 417 (2016)

NEPA ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process; LBP-16-8, 83 NRC 417 (2016)

### QUALIFICATIONS

boards include technical experts who can evaluate the factual material in the record and reach their own judgment as to its significance; LBP-16-8, 83 NRC 417 (2016)

### QUALITY ASSURANCE PROGRAMS

FSAR update must contain certain changes to the QA program description; CLI-16-9, 83 NRC 472 (2016)

### RADIATION SHIELDING

contention alleging that proposed weakening of concrete tolerance standards could result in plant workers being exposed to levels of radiation in excess of the as low as is reasonably achievable standard is dismissed; LBP-16-5, 83 NRC 259 (2016)

### RADIOACTIVE RELEASES

NRC Staff is asked to explain, for the non-expert, how applicant calculated long-term atmospheric dispersion for routine releases; LBP-16-4, 83 NRC 187 (2016)

proximity presumption rests on board finding, in construction permit and operating license cases, that persons living within the roughly 50-mile radius of the facility face a realistic threat of harm if a release from the facility of radioactive material were to occur; LBP-16-5, 83 NRC 259 (2016)

### RADIOACTIVE WASTE DISPOSAL

Department of Energy must take back and dispose of waste without a disposal path; CLI-16-4, 83 NRC 58 (2016)

### REACTOR DESIGN

applicant for a combined license may reference a reactor design that is undergoing design certification rulemaking, doing so at its own risk, given that the design certification might not be granted; CLI-16-12, 83 NRC 542 (2016)

combined license application must reference a standard design certification; CLI-16-2, 83 NRC 13 (2016)  
Commission declined to hold the adjudicatory proceeding on a combined license application in abeyance pending completion of the design certification rulemaking for the design referenced in the application; CLI-16-12, 83 NRC 542 (2016)

early site permit applicant is not required to select a specific unit design at the ESP stage; LBP-16-4, 83 NRC 187 (2016)

standard design certification for U.S. Advanced Boiling Water Reactor design was amended to comply with NRC's aircraft impact assessment regulations; CLI-16-2, 83 NRC 13 (2016)

### REACTOR PRESSURE VESSEL

applicants must submit a proposed withdrawal schedule with a technical justification; CLI-16-2, 83 NRC 13 (2016)

dosimeters located inside surveillance capsules must be tested in accordance with ASTM Guide E 482; CLI-16-2, 83 NRC 13 (2016)

licensees must analyze material specimens to evaluate changes, due to neutron irradiation and high temperatures, in the fracture toughness properties of the ferritic materials in the reactor vessel beltline region; CLI-16-2, 83 NRC 13 (2016)

request for testing of permanently shut down reactor pressure vessels for cracking is decided; DD-16-1, 83 NRC 115 (2016)

surveillance program is based on testing of material specimens that are stored in surveillance capsules inside the reactor pressure vessel and periodically withdrawn from the vessel on an NRC-approved schedule; CLI-16-2, 83 NRC 13 (2016)

unless the reactor vessel meets the criteria of 10 C.F.R. Part 50, Appendix H, § III.A, licensee must monitor the reactor pressure vessel beltline materials through a surveillance program that complies with ASTM E 185-82; CLI-16-2, 83 NRC 13 (2016)

### REACTOR VESSEL

material condition of a plant's reactor vessel bears on the health and safety of members of the public who reside in the plant's vicinity; LBP-16-5, 83 NRC 259 (2016)

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### RECONSIDERATION

authority to reconsider Commission actions is inherent in its authority to make them in the first instance; CLI-16-12, 83 NRC 542 (2016)  
section 2.341(d) governs reconsideration of adjudicatory decisions and does not apply to directives that the Commission issues to the Staff outside of an adjudicatory proceeding; CLI-16-12, 83 NRC 542 (2016)

### RECORD OF DECISION

board's hearing, hearing record, and subsequent decision on a contested environmental matter augment the environmental record of decision developed by NRC Staff; CLI-16-13, 83 NRC 566 (2016)  
boards are to ensure that the case record has adequate information for a reasoned decision to be issued on the contested matters; LBP-16-7, 83 NRC 340 (2016)  
Commission decision becomes part of, and serves to supplement, the environmental record of decision; CLI-16-10, 83 NRC 494 (2016)  
environmental record of decision may be supplemented by the hearing and relevant board and Commission decisions; LBP-16-8, 83 NRC 417 (2016)  
final record of decision under NEPA is the entire adjudicatory record in addition to the environmental assessment or environmental impact statement; LBP-16-7, 83 NRC 340 (2016)  
licensing board's factual findings, as well as the adjudicatory record, become, in effect, part of the final NEPA document; LBP-16-7, 83 NRC 340 (2016)  
licensing board's findings and conclusions are deemed to amend NRC Staff's NEPA documents and become the agency record of decision on those matters; LBP-16-8, 83 NRC 417 (2016)  
NRC Staff must either state whether it has taken all practicable measures within its jurisdiction to avoid or minimize environmental harm or explain why those measures were not adopted; CLI-16-10, 83 NRC 494 (2016)  
parties' proposed cross-examination questions are provided by separate order for inclusion in the official record of the proceeding; LBP-16-8, 83 NRC 417 (2016)  
Staff's record of decision must explain why mitigation measures were not adopted; CLI-16-10, 83 NRC 494 (2016)  
when a hearing is held on a proposed action, the initial decision of the presiding officer or the final decision of the Commissioners acting as a collegial body will constitute the record of decision; CLI-16-13, 83 NRC 566 (2016)  
where an adjudicatory hearing tests the adequacy of an EA or EIS, evidence adduced at the hearing may cure a defective NEPA document because in contested proceedings with a hearing, a licensing board creates the final record of decision under NEPA; LBP-16-7, 83 NRC 340 (2016)

### REDRESSABILITY

early site permit may issue if the board finds that any significant adverse environmental impact resulting from activities requested under section 52.17(c) can be redressed; LBP-16-4, 83 NRC 187 (2016)

### REGULATIONS

Advisory Council on Historic Preservation is empowered by statute to promulgate binding regulations implementing section 106 of the National Historic Preservation Act; LBP-16-7, 83 NRC 340 (2016)  
agency rule or regulation may not be challenged in any adjudicatory proceeding absent a waiver; CLI-16-12, 83 NRC 542 (2016)  
exemption from regulations is authorized by law if the exemption will not conflict with the AEA or any other law; CLI-16-2, 83 NRC 13 (2016)  
incorporation by reference requires a clear description of the incorporated material and specific references thereto and NRC has adopted Council on Environmental Quality regulations pertaining thereto; LBP-16-8, 83 NRC 417 (2016)  
material circumstance not considered when regulation was adopted exists for which grant of exemption from financial qualification regulations would be in the public interest; CLI-16-2, 83 NRC 13 (2016)  
NRC gives Council on Environmental Quality regulations substantial deference; LBP-16-7, 83 NRC 340 (2016)  
NRC may grant exemptions from regulations if the exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security and when special circumstances exist; CLI-16-2, 83 NRC 13 (2016)  
See also Amendment of Regulations

## SUBJECT INDEX

### REGULATIONS, INTERPRETATION

as used in section 2.315(c), the phrase “that has not been admitted as a party under section 2.309” means that an entity cannot be admitted as an interested participant under section 2.315(c) if it is already admitted as a party under section 2.309; CLI-16-1, 83 NRC 1 (2016)

criteria 5 and 7A of 10 C.F.R. pt. 40, app. A do not specifically apply to site characterization under NEPA; CLI-16-13, 83 NRC 566 (2016)

distinction between a section 2.315(c) interested participant and a section 2.309 party is explained; CLI-16-1, 83 NRC 1 (2016)

section 2.341(d) governs reconsideration of adjudicatory decisions and does not apply to directives that the Commission issues to the Staff outside of an adjudicatory proceeding; CLI-16-12, 83 NRC 542 (2016)

section 50.44(c) applies to water-cooled reactor combined licenses issued after 2003; CLI-16-2, 83 NRC 13 (2016)

section 51.72(a) and (b) is substantively identical to section 51.92(a) and (c); CLI-16-3, 83 NRC 52 (2016)

section 54.33(c) refers to conditions that are part of the current licensing basis at the time of issuance of the renewed license and their supplementation or amendment for the renewal term; CLI-16-10, 83 NRC 494 (2016)

where there is a conflict between Tier 1 and Tier 2 of a Design Control Document, Tier 1 controls; CLI-16-2, 83 NRC 13 (2016)

### REGULATORY OVERSIGHT PROCESS

activities such as inspection results, administrative and enforcement actions, informational meetings, and technical reports and memoranda support ongoing Staff oversight activities performed to ensure compliance with requirements and a plant’s current licensing basis; CLI-16-9, 83 NRC 472 (2016)

concerns involving ongoing oversight activities are appropriately raised via a request for enforcement action under 10 C.F.R. 2.206; CLI-16-9, 83 NRC 472 (2016)

license conditions relating to monitoring, recording, and reporting of environmental data are a means for NRC to keep abreast of the environmental impacts of current operating reactors; CLI-16-10, 83 NRC 494 (2016)

licensing proceeding before NRC is not the proper forum for challenges to the basic structure of NRC’s regulatory process; CLI-16-12, 83 NRC 542 (2016)

material submitted to update the FSAR may be reviewed by NRC Staff but will not be formally approved; CLI-16-9, 83 NRC 472 (2016)

NRC Staff reviews FSAR updates only as part of its oversight to ensure compliance with existing requirements; CLI-16-9, 83 NRC 472 (2016)

NRC Staff’s acceptance of a revision to the FSAR does not constitute a de facto license amendment because section 50.71(e) is only a reporting requirement that does not require Staff approval; CLI-16-9, 83 NRC 472 (2016)

ongoing oversight, including what may eventually result in a licensee requesting amendment of an operating license, does not constitute a license amendment proceeding that triggers hearing rights; CLI-16-9, 83 NRC 472 (2016)

series of communications associated with replacement of a steam generator that pertained to the NRC’s oversight of the facility does not constitute an ongoing de facto license amendment proceeding; CLI-16-9, 83 NRC 472 (2016)

### REINSTATEMENT OF APPLICATION

petitioner’s right to request a hearing when suspension of an application is lifted is consistent with longstanding agency case law; LBP-16-2, 83 NRC 107 (2016)

### RENEWABLE ENERGY SOURCES

contention alleging that environmental report does not evaluate a reasonable array of energy alternatives that are commercially viable or will become so within the next 10 years is inadmissible; CLI-16-11, 83 NRC 524 (2016)

energy alternatives contention in license renewal proceeding must provide facts or expert opinion sufficient to raise a genuine dispute as to whether the proposed alternative technology (or combination of technologies) is currently commercially viable, or will become so in the near term to supply baseload power; CLI-16-11, 83 NRC 524 (2016)

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only energy alternatives that are reasonable and will bring about the ends of the proposed action need to be discussed in the environmental report; CLI-16-11, 83 NRC 524 (2016)

### REOPENING A RECORD

reopening for any reason is considered to be an extraordinary action; LBP-16-6, 83 NRC 329 (2016)

See also Motions to Reopen

### REPLY BRIEFS

petitioner is confined to the contention as initially filed and may not rectify its deficiencies through its reply brief or on appeal; CLI-16-5, 83 NRC 131 (2016)

### REPORTING REQUIREMENTS

individuals subject to an access authorization program must report any concerns arising from behavioral observation, including concerns related to any questionable behavior patterns or activities of others to a reviewing official, his or her supervisor, or other management personnel as designated in site procedures; CLI-16-6, 83 NRC 147 (2016)

license conditions relating to monitoring, recording, and reporting of environmental data are a means for NRC to keep abreast of the environmental impacts of current operating reactors; CLI-16-10, 83 NRC 494 (2016)

licensees submit information from monitoring of environmental conditions to NRC on a routine basis; CLI-16-10, 83 NRC 494 (2016)

memorandum confirming that a UFSAR revision was timely submitted and appropriately discussed license amendments, inspection reports, and Licensee Event Reports satisfies a reporting requirement; CLI-16-9, 83 NRC 472 (2016)

submission of updated FSAR pages does not constitute a licensing action but is only intended to provide information; CLI-16-9, 83 NRC 472 (2016)

### REQUEST FOR ACTION

any person may request enforcement action under 10 C.F.R. 2.206; CLI-16-8, 83 NRC 463 (2016)

concerns involving ongoing oversight activities are appropriately raised via a request for enforcement action under 10 C.F.R. 2.206; CLI-16-9, 83 NRC 472 (2016)

concerns that mitigation measures at issue are necessary for adequate protection of public health and safety can be addressed in a petition for enforcement action; CLI-16-10, 83 NRC 494 (2016)

Director of NRC office responsible for the subject matter shall either institute the requested proceeding or advise the requestor in writing that no proceeding will be instituted, in whole or in part, with respect to the request, and the reason for the decision; DD-16-1, 83 NRC 115 (2016)

governmental entity may raise concerns about current or ongoing safety deficiencies at a plant at any time through a petition for enforcement action; LBP-16-6, 83 NRC 329 (2016)

licensee determination that a change to the FSAR does not require an amendment may be challenged through a section 2.206 petition; CLI-16-9, 83 NRC 472 (2016)

request for testing of permanently shut down reactor pressure vessels for cracking is decided; DD-16-1, 83 NRC 115 (2016)

section 2.206 provides a process for stakeholders to advance concerns and obtain full or partial relief, or written reasons why the requested relief is not warranted; LBP-16-6, 83 NRC 329 (2016)

vacatur does not diminish the right to challenge licensee's compliance with conditions imposed by the board; CLI-16-8, 83 NRC 463 (2016)

### REQUEST FOR ADDITIONAL INFORMATION

NRC's request for seismic hazard information was part of its lessons-learned activities from the Fukushima Dai-ichi accident and continuing oversight of all plants, outside of license renewal; CLI-16-11, 83 NRC 524 (2016)

request directing licensees to conduct seismic hazard reevaluations using new information and updated methodologies did not alter the facilities' licensing bases; CLI-16-9, 83 NRC 472 (2016)

requests issued to all power reactors are characterized as requests for information to allow the NRC to determine whether, as to each facility, it should or should not require additional action; CLI-16-9, 83 NRC 472 (2016)

### REVIEW

See Appellate Review; Environmental Review; Financial Qualifications Review; Safety Review; Standard of Review

## SUBJECT INDEX

### REVIEW, DISCRETIONARY

Commission may exercise its inherent supervisory authority over adjudications to review on its own motion an issue not otherwise properly before it on appeal in sufficiently significant circumstances; CLI-16-1, 83 NRC 1 (2016)

Commission will grant a petition for review at its discretion, giving due weight to the existence of a substantial question with respect to one or more of the considerations in 10 C.F.R. 2.341(b)(4); CLI-16-11, 83 NRC 524 (2016); CLI-16-13, 83 NRC 566 (2016)

petition for discretionary interlocutory review must demonstrate that petitioner faces immediate and serious irreparable impact which could not be alleviated through a petition for review of the presiding officer's final decision, or that the issue affects the basic structure of the proceeding in a pervasive or unusual manner; CLI-16-1, 83 NRC 1 (2016)

### REVIEW, INTERLOCUTORY

Commission longstanding policy disfavors interlocutory, piecemeal review of Bboard rulings, barring extraordinary circumstances; CLI-16-1, 83 NRC 1 (2016)

### REVIEW, SUA SPONTE

Commission may conduct its own sua sponte review of this licensing board's final ruling; LBP-16-1, 83 NRC 97 (2016)

### REVOCACTION OF LICENSES

board or Commission may appropriately modify, condition, or revoke a license, if required by circumstances of a particular proceeding; CLI-16-13, 83 NRC 566 (2016)

violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 566 (2016)

### RISK MANAGEMENT

access authorization programs must include a behavioral observation program designed to detect behaviors or activities that may constitute an unreasonable risk to the public health and safety and common defense and security; CLI-16-6, 83 NRC 147 (2016)

### RISKS

applicant for a combined license may reference a reactor design that is undergoing design certification rulemaking, doing so at its own risk, given that the design certification might not be granted; CLI-16-12, 83 NRC 542 (2016)

See also Seismic Risk

### RULE OF REASON

hard look requirement is subject to a rule of reason; LBP-16-7, 83 NRC 340 (2016)

NEPA requirements are tempered by a practical rule of reason; CLI-16-7, 83 NRC 293 (2016)

while there will always be more environmental data that could be gathered, agencies must have some discretion to draw the line and move forward with decisionmaking; CLI-16-11, 83 NRC 524 (2016)

### RULES OF PRACTICE

admissible contentions must address the six criteria of 10 C.F.R. 2.309(f)(1)(i)-(vi); LBP-16-5, 83 NRC 259 (2016)

affidavits accompanying motions to reopen must separately address each of the reopening criteria and provide a specific explanation of why it has been met; LBP-16-6, 83 NRC 329 (2016)

board denied intervention petition but granted alternative request for participation as an interested local governmental body; CLI-16-1, 83 NRC 1 (2016)

board ruling on a request for a hearing or petition to intervene must determine, among other things, whether petitioner has an interest affected by the proceeding considering the factors enumerated in 10 C.F.R. 2.309 d)(1); LBP-16-5, 83 NRC 259 (2016)

certain NRC license applications may be granted at the conclusion of NRC Staff's review process even though a hearing is pending, but can be revoked, conditioned, modified, or affirmed, based on the evidence adduced at a licensing board evidentiary hearing; LBP-16-7, 83 NRC 340 (2016)

challenge to 10 C.F.R. Part 50, Appendix J, Option B is impermissible, absent a waiver; CLI-16-5, 83 NRC 131 (2016)

Commission will grant a petition for review at its discretion, giving due weight to the existence of a substantial question with respect to one or more of the considerations in 10 C.F.R. 2.341(b)(4); CLI-16-11, 83 NRC 524 (2016)



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contention admissibility requirements are strict by design to ensure that NRC hearings adjudicate genuine, substantive safety and environmental issues; CLI-16-6, 83 NRC 147 (2016)

contention must provide sufficient information to show that a genuine dispute exists with licensee on a material issue of law or fact; LBP-16-5, 83 NRC 259 (2016)

contention submitted after the deadline to request a hearing established by notice in the Federal Register must meet the requirements of 2.309(c)(1), 2.326(d), and 2.309(f)(1); LBP-16-6, 83 NRC 329 (2016)

contentions that fail to meet admissibility standards of 10 C.F.R. 2.309(f)(1) or conflict with case law will be dismissed; CLI-16-11, 83 NRC 524 (2016)

exceptionally grave issue provision of 10 C.F.R. 2.326(a)(1) is a narrow exception and will be granted rarely and only in truly extraordinary circumstances; LBP-16-6, 83 NRC 329 (2016)

exemption from requirement to submit pleadings via the agency's E-Filing system may be requested; LBP-16-2, 83 NRC 107 (2016)

governmental entity may raise concerns about current or ongoing safety deficiencies at a plant at any time through a petition for enforcement action under 10 C.F.R. 2.206; LBP-16-6, 83 NRC 329 (2016)

if any one of the admissibility requirements of 10 C.F.R. 2.309(f)(1) is not met, a contention must be rejected; LBP-16-2, 83 NRC 107 (2016)

interested government may introduce evidence, cross-examine witnesses where permitted, advise the Commission without necessarily taking a position on the contention, file proposed findings in proceedings where permitted, and petition for review under 10 C.F.R. 2.341 at the conclusion of the proceeding; CLI-16-1, 83 NRC 1 (2016)

interested government participating under section 2.315(c) may participate on any admitted contentions; CLI-16-1, 83 NRC 1 (2016)

interlocutory appeal as of right with respect to contention admissibility rulings is allowed in two specific circumstances; CLI-16-1, 83 NRC 1 (2016)

interlocutory review petitioners must demonstrate a basis for review; CLI-16-11, 83 NRC 524 (2016)

intervention petitioner must submit at least one admissible contention that satisfies all six criteria of 10 C.F.R. 2.309(f)(1); LBP-16-2, 83 NRC 107 (2016)

it is generally sufficient if petitioner provides plausible factual allegations that satisfy each element of standing; LBP-16-5, 83 NRC 259 (2016)

late-filed contentions must address admissibility standards; CLI-16-10, 83 NRC 494 (2016)

motion for summary disposition may be granted if there is no genuine issue as to any material fact and movant is entitled to a decision as a matter of law; LBP-16-3, 83 NRC 169 (2016)

motions to reopen a proceeding to introduce a contention not previously in controversy among the parties must satisfy 10 C.F.R. 2.326; CLI-16-13, 83 NRC 566 (2016); LBP-16-6, 83 NRC 329 (2016)

motions to reopen must be accompanied by affidavits that set forth the factual and/or technical bases for movant's claim; LBP-16-6, 83 NRC 329 (2016)

motions to reopen must be timely, address a significant safety or environmental issue, and demonstrate that a materially different result would be, or would have been, likely had the newly proffered evidence been considered initially; LBP-16-6, 83 NRC 329 (2016)

oral argument on the merits of appeals may be allowed at the Commission's discretion; CLI-16-10, 83 NRC 494 (2016)

partial initial decisions are reviewable under 10 C.F.R. 2.341(b)(1) because they are considered final decisions; LBP-16-7, 83 NRC 340 (2016)

petition for discretionary interlocutory review must demonstrate that petitioner faces immediate and serious irreparable impact which could not be alleviated through a petition for review of the presiding officer's final decision, or that the issue affects the basic structure of the proceeding in a pervasive or unusual manner; CLI-16-1, 83 NRC 1 (2016)

petitioner cannot satisfy contention admission requirements of 10 C.F.R. 2.309(f)(1) by mere notice pleading; CLI-16-5, 83 NRC 131 (2016)

petitioner for intervention must not only establish standing, but also proffer at least one admissible contention that meets the requirements of 10 C.F.R. 2.309(f); LBP-16-5, 83 NRC 259 (2016)

petitioner has an automatic right to appeal a board decision on the question of whether a petition to intervene should have been granted; CLI-16-5, 83 NRC 131 (2016)

petitioner must address and meet each of the six contention admission factors; CLI-16-5, 83 NRC 131 (2016); CLI-16-12, 83 NRC 542 (2016)

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presiding officer will afford an interested local governmental body that has not otherwise been admitted as a party to the proceeding a reasonable opportunity to participate in a hearing; CLI-16-1, 83 NRC 1 (2016); LBP-16-6, 83 NRC 329 (2016)

request for hearing must set forth with particularity the contentions sought to be raised; CLI-16-5, 83 NRC 131 (2016)

requirement to provide a concise statement of the alleged facts or expert opinions generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons; LBP-16-5, 83 NRC 259 (2016)

section 2.206 provides a process for stakeholders to advance concerns and obtain full or partial relief, or written reasons why the requested relief is not warranted; LBP-16-6, 83 NRC 329 (2016)

standards for summary adjudication set forth in section 2.710 apply to Subpart L proceedings; LBP-16-3, 83 NRC 169 (2016)

statement that declarant has read and reviewed the contention and fully supports all of its statements fails to meet the affidavit requirements in 10 C.F.R. 2.326(b); LBP-16-6, 83 NRC 329 (2016)

where the board has ruled only partially on the initial intervention petition, an appeal right under 10 C.F.R. 2.311 does not accrue until the board has ruled on the entire petition; CLI-16-2, 83 NRC 13 (2016)

written limited appearance statements from interested members of the public are not considered as evidence; LBP-16-4, 83 NRC 187 (2016)

### SAFETY

NRC has not found a direct correlation between preclicensing financial reviews and later safe construction and operation, and NRC maintains other programs and processes that more directly ensure safe construction and operation; CLI-16-2, 83 NRC 13 (2016)

See also Final Safety Analysis Report

### SAFETY EVALUATION

Advisory Committee on Reactor Safeguards provides an independent assessment of the safety aspects of applications; CLI-16-2, 83 NRC 13 (2016); CLI-16-4, 83 NRC 58 (2016)

claims of inadequacies in licensee's technical evaluation or noncompliance with its license, standing alone, do not suffice to identify an activity that may constitute a license amendment; CLI-16-9, 83 NRC 472 (2016)

### SAFETY ISSUES

critical safety questions should not be excluded from licensing hearings merely on the basis of an exemption label; CLI-16-12, 83 NRC 542 (2016)

findings that the licensing board must make to authorize issuance of an early site permit are discussed; LBP-16-4, 83 NRC 187 (2016)

in making findings on construction permit for a medical radioisotope production facility, Commission is guided by the additional considerations in 10 C.F.R. 50.40(a)-(d); CLI-16-4, 83 NRC 58 (2016)

measure that is necessary for adequate protection of public health and safety is a matter for immediate action as a current operating issue; CLI-16-10, 83 NRC 494 (2016)

safety determinations that must be made for issuance of a combined license are discussed; CLI-16-2, 83 NRC 13 (2016)

these issues are reviewed under the adequacy and sufficiency standard, and licensing boards conducting mandatory hearings must independently consider the final balance among conflicting costs and benefits when reviewing National Environmental Policy Act issues; LBP-16-4, 83 NRC 187 (2016)

See also Generic Safety Issues

### SAFETY REVIEW

findings that NRC must make to support issuance of a construction permit for a medical radioisotope production facility are discussed; CLI-16-4, 83 NRC 58 (2016)

NRC Staff reviews FSAR updates only as part of its oversight to ensure compliance with existing requirements; CLI-16-9, 83 NRC 472 (2016)

requirements and limited scope of the license renewal safety review are set forth in 10 C.F.R. Part 54; CLI-16-10, 83 NRC 494 (2016)

severe accident mitigation alternatives represent only a minor portion of the Commission's overall regulatory regime, separate and apart from its safety requirements; CLI-16-10, 83 NRC 494 (2016)

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### SAFETY-RELATED

definition of “safety-related structures, systems, and components” in a medical radioisotope production facility applies to only those portions that do not expressly apply to power reactors; CLI-16-4, 83 NRC 58 (2016)

plants must provide an ultimate heat sink to transfer heat from structures, systems, and components that are important to safety; LBP-16-8, 83 NRC 417 (2016)

### SANCTIONS

mandating a with-prejudice withdrawal is a severe sanction that should be reserved for unusual situations that involve substantial prejudice to a party or the public interest in general; LBP-16-1, 83 NRC 97 (2016)

purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 97 (2016)

### SCHEDULING

unless a schedule is so onerous or unfair that it deprives a party of procedural due process, scheduling is a matter of licensing board discretion; CLI-16-11, 83 NRC 524 (2016)

### SECURITY

exclusion area is the area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area; LBP-16-4, 83 NRC 187 (2016)

See also Physical Security

### SEISMIC ANALYSIS

adequacy of applicant’s alternative methodology to demonstrate adequacy of facility’s seismic design, use of which was granted by exemption from regulation, was within the scope of the underlying license proceeding and a topic suitable for a hearing; CLI-16-12, 83 NRC 542 (2016)

NRC’s request for seismic hazard information was part of its lessons-learned activities from the Fukushima Dai-ichi accident and continuing oversight of all plants, outside of license renewal; CLI-16-11, 83 NRC 524 (2016)

request directing licensees to conduct seismic hazard reevaluations using new information and updated methodologies did not alter the facilities’ licensing bases; CLI-16-9, 83 NRC 472 (2016)

### SEISMIC ISSUES

reference to seismic hazard analysis without adequately explanation of its significance to proposed permanent extension of the Type A test interval or how it controverts the portion of the license amendment request discussing seismic impacts is neither a material issue nor establishes a genuine dispute; CLI-16-5, 83 NRC 131 (2016)

### SEISMIC RISK

contention that revised SAMA analysis is not based on a sufficiently rigorous or up-to-date analysis is inadmissible; CLI-16-11, 83 NRC 524 (2016)

contention that SAMA analysis did not satisfy requirements of NEPA or failed to consider information regarding the earthquake fault that is necessary for an understanding of seismic risks to a nuclear power plant is inadmissible; CLI-16-11, 83 NRC 524 (2016)

### SENSITIVITY ANALYSIS

disclosures of any known shortcomings in available methodology and any incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these considerations credibly could or would alter the SAMA analysis conclusions, should be provided; CLI-16-7, 83 NRC 293 (2016)

### SEVERE ACCIDENT MITIGATION ALTERNATIVES

concerns that mitigation measures at issue are necessary for adequate protection of public health and safety can be addressed in a petition for enforcement action; CLI-16-10, 83 NRC 494 (2016)

mandatory implementation of SAMA is outside the scope of license renewal proceedings because NEPA does not mandate particular results; CLI-16-10, 83 NRC 494 (2016)

NEPA does not require elimination of all potential impacts and risks, does not require agencies to discuss any particular mitigation plans that they might put in place, and does not require agencies or third parties to effect any; CLI-16-10, 83 NRC 494 (2016)

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NEPA does not require that a mitigation plan be actually formulated and adopted; CLI-16-7, 83 NRC 293 (2016)

NRC need not require certain mitigation measures under NEPA because NEPA is not outcome-driven; CLI-16-10, 83 NRC 494 (2016)

requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated is distinguished from a substantive requirement that a complete mitigation plan be actually formulated and adopted; CLI-16-10, 83 NRC 494 (2016)

SAMAs represent only a minor portion of the Commission's overall regulatory regime, separate and apart from its safety requirements; CLI-16-10, 83 NRC 494 (2016)

to satisfy NEPA, NRC need not obtain an assurance that third parties will implement particular measures; CLI-16-10, 83 NRC 494 (2016)

where a SAMA is not necessary to protect public health and safety but nonetheless may be warranted as an incremental safety improvement, NRC may impose a plant modification; CLI-16-10, 83 NRC 494 (2016)

whether NRC ultimately will require ice condenser plants to implement a hydrogen control SAMA would be determined as part of a then-ongoing generic safety review, outside of license renewal; CLI-16-10, 83 NRC 494 (2016)

### SEVERE ACCIDENT MITIGATION ALTERNATIVES ANALYSIS

adjudications would prove endless if hearings were triggered merely by suggested alternative inputs and methodologies that conceivably could alter the cost-benefit conclusions; CLI-16-11, 83 NRC 524 (2016)

arguments made and support provided for those arguments and demonstration of a genuine dispute as to whether the SAMA analysis is reasonable under NEPA determines whether a SAMA contention is admissible; CLI-16-11, 83 NRC 524 (2016)

backfit analysis encompasses significant considerations beyond those considered in a SAMA analysis; CLI-16-10, 83 NRC 494 (2016)

by implying that NRC Staff has a duty to impose cost-beneficial SAMAs as backfits, the board mistakenly suggested that SAMA analysis conclusions are the equivalent of backfit analysis determinations; CLI-16-10, 83 NRC 494 (2016)

case law sets forth the standard for determining whether a SAMA-related contention raises a genuine, material dispute for an admissible contention; CLI-16-11, 83 NRC 524 (2016)

Commission directed NRC Staff to deny rulemaking petitioners' collateral request to suspend licensing decisions on all other pending proceedings and directed Staff to seek Commission approval if it determined that suspension of NRC rules or the environmental assessments considering severe accident mitigation alternatives analyses would be necessary; CLI-16-2, 83 NRC 13 (2016)

computer modeling involves thousands of code inputs, and it will always be possible to conceive of yet another alternative input that could have been used, and in fact many different inputs and approaches may all be reasonable choices for the analysis; CLI-16-7, 83 NRC 293 (2016)

contention asserting that applicant failed to consider results of a particular study in its SAMA analysis is inadmissible; CLI-16-11, 83 NRC 524 (2016)

contention that revised SAMA analysis is not based on a sufficiently rigorous or up-to-date analysis of seismic risks is inadmissible; CLI-16-11, 83 NRC 524 (2016)

contention that SAMA analysis did not satisfy requirements of NEPA or failed to consider information regarding earthquake fault that is necessary for an understanding of seismic risks to the nuclear power plant is inadmissible; CLI-16-11, 83 NRC 524 (2016)

contentions that argue for alternative analyses or refinements to a SAMA analysis might be characterized as contentions of adequacy, but the label is not the deciding factor at the contention admissibility stage; CLI-16-11, 83 NRC 524 (2016)

general challenge to severe accident mitigation alternatives analysis is not within the scope of license amendment proceeding; CLI-16-5, 83 NRC 131 (2016)

issue sought to be litigated determines support required for SAMA contentions; CLI-16-11, 83 NRC 524 (2016)

it will always be possible to envision and propose some alternative approach, some additional detail to include, or some refinement; CLI-16-11, 83 NRC 524 (2016)

known shortcomings in available methodology and any incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these considerations

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credibly could or would alter the SAMA analysis conclusions, should be disclosed; CLI-16-7, 83 NRC 293 (2016)

NEPA requires only a reasonably complete analysis; CLI-16-7, 83 NRC 293 (2016)

petitioner failed to provide expert opinions or adequate facts in support of alleged deficiencies in SAMA; CLI-16-5, 83 NRC 131 (2016)

population dose risk and offsite economic cost risk are the key risk values of interest for determining for determining potentially cost-beneficial severe accident mitigation alternatives; CLI-16-7, 83 NRC 293 (2016)

proper question is not whether there are plausible alternative choices for use in a SAMA analysis, but whether the analysis that was done is reasonable under NEPA; CLI-16-11, 83 NRC 524 (2016)

results are not based on either best-case or worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios, with an additional uncertainty analysis also performed; CLI-16-7, 83 NRC 293 (2016)

SAMA analysis is performed solely pursuant to NEPA and NRC's NEPA-related environmental regulations; CLI-16-10, 83 NRC 494 (2016)

site-specific analysis is required for license renewal if one was not previously performed; CLI-16-7, 83 NRC 293 (2016); CLI-16-10, 83 NRC 494 (2016)

unless petitioner sets forth a supported contention pointing to an apparent error or deficiency that may have significantly skewed the environmental conclusions in the SAMA analysis, there is no genuine material dispute for hearing; CLI-16-11, 83 NRC 524 (2016)

**SHUTDOWN**

Commission has rejected proximity standing for license amendments associated with shutdown and defueled reactors; LBP-16-5, 83 NRC 259 (2016)

**SITE CHARACTERIZATION**

criteria 5 and 7A of 10 C.F.R. pt. 40, app. A do not specifically apply to site characterization under NEPA; CLI-16-13, 83 NRC 566 (2016)

**SITE HYDROLOGY**

adequacy of NRC Staff's conclusions on design-basis flood level and maximum groundwater level are discussed; CLI-16-2, 83 NRC 13 (2016)

applicant for an in situ uranium recovery license must describe the hydrology of the proposed site to predict the potential effect such a facility would have on adjacent groundwater and surface waters as required by NEPA; CLI-16-13, 83 NRC 566 (2016)

at least 1 full year prior to any major site construction, a preoperational monitoring program must be conducted to provide complete baseline data; CLI-16-13, 83 NRC 566 (2016)

**SITE REMEDIATION**

if applicant includes a satisfactory site redress plan, an early site permit holder may conduct certain site preparation activities under a limited work authorization; LBP-16-4, 83 NRC 187 (2016)

**SITE RESTORATION**

after receiving a license, licensee collects groundwater samples from the production and injection wells to establish post-licensing, preoperational background levels for various chemical constituents, which are then used to set restoration goals; CLI-16-13, 83 NRC 566 (2016)

first option for any given hazardous constituent in groundwater is background (level present prior to operations); CLI-16-13, 83 NRC 566 (2016)

if licensee cannot meet primary or secondary standards for a particular constituent after restoration efforts, it may file a license amendment request for a site-specific alternate concentration limit for that constituent; CLI-16-13, 83 NRC 566 (2016)

in situ recovery facility licensees must establish restoration goals for hazardous constituents in groundwater through post-licensing, preoperational testing; CLI-16-13, 83 NRC 566 (2016)

secondary standard for hazardous constituent in groundwater is a maximum contaminant level; CLI-16-13, 83 NRC 566 (2016)

**SITE SELECTION**

selection factors for nuclear reactor sites include population density, seismology, meteorology, geology, and hydrology; CLI-16-4, 83 NRC 58 (2016)

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### SITE SUITABILITY

early site permit is not an authorization to construct or operate a nuclear power plant, but rather relates only to site suitability; LBP-16-4, 83 NRC 187 (2016)

findings for issuance of a construction permit require that NRC consider site criteria to ensure that the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public; CLI-16-4, 83 NRC 58 (2016)

site criteria do not expressly apply to a medical radioisotope production facility but NRC Staff considered conditions similar to those in Part 100 in its review of the suitability of the proposed site; CLI-16-4, 83 NRC 58 (2016)

### SPECIFICATIONS

compliance with American Concrete Institute specification 349 is required under 10 C.F.R. Part 52, App. D, § VIII.B.6.c(4); LBP-16-5, 83 NRC 259 (2016)

### SPENT FUEL MANAGEMENT

exemption from 10 C.F.R. 50.82(a)(8)(i)(A) would allow licensee to make withdrawals from the decommissioning trust fund for certain irradiated fuel management costs; CLI-16-8, 83 NRC 463 (2016)

### STANDARD OF PROOF

factual findings in an evidentiary dispute are based on a preponderance of the evidence; LBP-16-8, 83 NRC 417 (2016)

### STANDARD OF REVIEW

absent error of law or abuse of discretion, Commission gives substantial deference to board rulings on threshold procedural matters such as standing and contention admissibility; CLI-16-9, 83 NRC 472 (2016)

appeals based on nothing more than speculation are insufficient to support Commission review; CLI-16-5, 83 NRC 131 (2016)

Commission declines to review a board's plausible decision that rests on carefully rendered findings of fact, even where the record includes evidence that supports a different view; CLI-16-13, 83 NRC 566 (2016)

Commission defers to a board's contention admissibility rulings unless the appeal points to an error of law or abuse of discretion; CLI-16-5, 83 NRC 131 (2016); CLI-16-13, 83 NRC 566 (2016)

Commission does not review construction permit application for a medical radioisotope production facility de novo, but rather considers the sufficiency of NRC Staff's review; CLI-16-4, 83 NRC 58 (2016)

Commission reviews questions of law de novo and defers to board findings with respect to the underlying facts unless the findings are clearly erroneous; CLI-16-13, 83 NRC 566 (2016)

Commission typically declines to second-guess the board on its fact-specific conclusions, except where the decision contains obvious material factual errors and could be misleading, warranting clarification; CLI-16-7, 83 NRC 293 (2016); CLI-16-13, 83 NRC 566 (2016)

Commission will uphold a licensing board ruling on standing and contention admissibility unless it finds that the board erred as a matter of law or abused its discretion; CLI-16-12, 83 NRC 542 (2016)

judicial review requires courts to ensure that agency decisions are founded on a reasoned evaluation of the relevant factors; LBP-16-8, 83 NRC 417 (2016)

licensing boards are obliged to ensure that NRC Staff's NEPA documents come to grips with potentially significant environmental impacts and fully justify any conclusions in this regard; LBP-16-8, 83 NRC 417 (2016)

petition for review will be granted at the Commission's discretion upon a showing that petitioner has raised a substantial question as to any of the considerations in 10 C.F.R. 2.341(b)(4); CLI-16-13, 83 NRC 566 (2016)

routine contention admissibility decisions do not constitute serious and irreparable impact or affect the basic structure of a proceeding in a pervasive or unusual manner, particularly when avenues for participation remain; CLI-16-1, 83 NRC 1 (2016)

standard for showing clear error is difficult to meet and petitioner must demonstrate that the board's determination is not even plausible in light of the record as a whole; CLI-16-13, 83 NRC 566 (2016)

where board's factual finding resolved two competing technical opinions, the Commission ordinarily defers to the board's judgment; CLI-16-13, 83 NRC 566 (2016)

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### STANDARD REVIEW PLANS

NRC Staff guidance documents such as standard review plans are entitled to special weight; CLI-16-13, 83 NRC 566 (2016)

### STANDING TO INTERVENE

absent error of law or abuse of discretion, Commission gives substantial deference to board rulings on threshold procedural matters such as standing and contention admissibility; CLI-16-9, 83 NRC 472 (2016)

appropriate radius for claims of proximity-based standing is decided on a case-by-case basis; LBP-16-5, 83 NRC 259 (2016)

at the pleading stage, general factual allegations of injury resulting from the defendant's conduct may suffice, and the court presumes that general allegations embrace the specific facts that are necessary to support the claim; LBP-16-5, 83 NRC 259 (2016)

board found proximity standing based on scenario in which an accident of some sort could damage the armored pool containing the cobalt-60 at a food processing irradiator facility; LBP-16-5, 83 NRC 259 (2016)

boards have found proximity standing based on unlikely but plausible risk scenarios; LBP-16-5, 83 NRC 259 (2016)

Commission has rejected proximity standing for certain changes to worker-protection requirements; LBP-16-5, 83 NRC 259 (2016)

Commission has rejected proximity standing for license amendments associated with shutdown and defueled reactors; LBP-16-5, 83 NRC 259 (2016)

Commission has rejected proximity standing for license transfers; LBP-16-5, 83 NRC 259 (2016)

Commission held that petitioners had standing based on the proximity presumption without reviewing the merits at all, stating that its ruling did not signify any opinion on the admissibility or the merits of the petitioners' contention and remanding those issues to the licensing board; LBP-16-5, 83 NRC 259 (2016)

Commission will uphold a licensing board ruling on standing and contention admissibility unless it finds that the board erred as a matter of law or abused its discretion; CLI-16-12, 83 NRC 542 (2016)

court looks for some indication that petitioner's interest is arguably among those interests protected by the relevant statute; CLI-16-6, 83 NRC 147 (2016)

for standing purposes, NRC does not rule on disputes of fact but reads the petition in the light most favorable to the petitioner; CLI-16-6, 83 NRC 147 (2016)

for the proximity presumption to apply in license amendment proceedings, the proposed amendment must obviously entail increased potential for offsite consequences; LBP-16-5, 83 NRC 259 (2016)

full-blown factual inquiry is not required for the threshold legal question of standing; LBP-16-5, 83 NRC 259 (2016)

in a power uprate proceeding, representational standing was granted to an organization with members who lived within 15 miles of the plant; LBP-16-5, 83 NRC 259 (2016)

it is generally sufficient if petitioner provides plausible factual allegations that satisfy each element of standing; LBP-16-5, 83 NRC 259 (2016)

living within a specific distance from the plant is enough to confer standing on an individual or group in proceedings for construction permits, operating licenses, or significant amendments thereto; LBP-16-5, 83 NRC 259 (2016)

material condition of a plant's reactor vessel bears on the health and safety of members of the public who reside in the plant's vicinity; LBP-16-5, 83 NRC 259 (2016)

NRC looks to contemporaneous judicial concepts of standing in assessing whether petitioner has standing to intervene; CLI-16-6, 83 NRC 147 (2016)

once a party demonstrates that it has standing to intervene on its own accord, that party may then raise any contention that, if proved, will afford the party relief from the injury it relies upon for standing; LBP-16-5, 83 NRC 259 (2016)

organization's petitions to intervene must demonstrate either organizational or representational standing; LBP-16-5, 83 NRC 259 (2016)

petitioner has the burden to show that the proximity presumption should apply; LBP-16-5, 83 NRC 259 (2016)

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petitioner must demonstrate a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision, where the injury is to an interest arguably within the zone of interests protected by the governing statute; CLI-16-6, 83 NRC 147 (2016)

petitioner seeking to strengthen a confirmatory order and add new requirements lacks standing; CLI-16-6, 83 NRC 147 (2016)

petitioners are not required to demonstrate their asserted injury with certainty, nor to provide extensive technical studies in support of their standing argument; LBP-16-5, 83 NRC 259 (2016)

petitioners had standing under the proximity presumption to challenge a license amendment that deleted the material specimen withdrawal schedule from the plant's technical specifications; LBP-16-5, 83 NRC 259 (2016)

petitioners living or having frequent contacts or a property interest within 50 miles of a nuclear power reactor may establish standing without the need to make an individualized showing of injury, causation, and redressability; LBP-16-5, 83 NRC 259 (2016)

proximity presumption applies to persons who have a significant property interest in the area near a nuclear power plant; LBP-16-5, 83 NRC 259 (2016)

proximity presumption applies to persons who have frequent contacts in the area near a nuclear power plant; LBP-16-5, 83 NRC 259 (2016)

proximity presumption is intended to be applied across the board to all proceedings regardless of type because the underlying rationale is not based on the type of proceeding per se but on whether the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences; LBP-16-5, 83 NRC 259 (2016)

proximity presumption rests on board finding, in construction permit and operating license cases, that persons living within the roughly 50-mile radius of the facility face a realistic threat of harm if a release from the facility of radioactive material were to occur; LBP-16-5, 83 NRC 259 (2016)

realistic threat of harm conferring proximity-based standing can be assumed in construction permit and operating license proceedings for power reactors; LBP-16-5, 83 NRC 259 (2016)

resolving standing questions is an entirely different matter than adjudicating the ultimate merits of a contention; LBP-16-5, 83 NRC 259 (2016)

state has standing to request a hearing if the facility is located within the state's boundaries; CLI-16-12, 83 NRC 542 (2016)

there are limits to proximity standing when there are no changes to the physical plant itself, its operating procedures, design basis accident analysis, management, or personnel; LBP-16-5, 83 NRC 259 (2016)

threshold question in an enforcement proceeding that must be resolved relates both to standing and contention admissibility, whether the hearing request is within the scope of the proceeding as outlined in the Confirmatory Order; CLI-16-6, 83 NRC 147 (2016)

under contemporaneous judicial concepts of standing applied in NRC proceedings, petitioner must allege a concrete and particularized injury that is fairly traceable to the challenged action and is likely to be redressed by a favorable decision; LBP-16-5, 83 NRC 259 (2016)

when evaluating whether petitioner has established standing, licensing board is to construe the intervention petition in favor of the petitioner; LBP-16-5, 83 NRC 259 (2016)

zone-of-interests test for standing is not meant to be especially demanding; CLI-16-6, 83 NRC 147 (2016)

**STANDING TO INTERVENE, ORGANIZATIONAL**

organization seeking standing in its own right must establish a discrete institutional injury to the organization's interests, which must be based on something more than a general environmental or policy interest in the subject matter of the proceeding; LBP-16-2, 83 NRC 107 (2016)

standing is demonstrated by showing injury-in-fact to the interests of the organization itself; LBP-16-5, 83 NRC 259 (2016)

**STANDING TO INTERVENE, REPRESENTATIONAL**

organization seeking representational standing on behalf of its members may meet the injury-in-fact requirement by demonstrating that at least one of its members, who has authorized the organization to represent his or her interest, will be injured by the possible outcome of the proceeding; LBP-16-5, 83 NRC 259 (2016)

requirements for an organization to show representational standing are outlined; LBP-16-2, 83 NRC 107 (2016)



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- standing is demonstrated by showing that at least one of the organization's members would be affected by the proceeding and identifying that member; LBP-16-5, 83 NRC 259 (2016)
- STATE GOVERNMENT
- although state and local governmental bodies have jurisdiction over the area in which adverse effects need to be addressed and have authority to mitigate them, it would be incongruous to conclude that a federal agency has no power to act until local agencies have reached a final conclusion on what mitigating measures they consider necessary; LBP-16-8, 83 NRC 417 (2016)
- state and county mitigation efforts must be considered as part of the environmental assessment's cumulative impacts analysis associated with license amendments; LBP-16-8, 83 NRC 417 (2016)
- state has standing to request a hearing if the facility is located within the state's boundaries; CLI-16-12, 83 NRC 542 (2016)
- STATE REGULATORY REQUIREMENTS
- sampling frequency may be reduced after a minimum of 6 months of operational testing if data indicate that parameter values have stabilized; LBP-16-3, 83 NRC 169 (2016)
- written authorization for operational testing to include weekly groundwater sampling of monitor wells is required; LBP-16-3, 83 NRC 169 (2016)
- STATE STATUTES
- agency may adopt the recommended order as the final order of the agency or in its final order may reject or modify the conclusions of law over which it has substantive jurisdiction; LBP-16-8, 83 NRC 417 (2016)
- STAY
- factors that proponent must address focus on whether continuing the adjudication will jeopardize health and safety, impede fair and efficient decisionmaking, and hinder implementation of rule or policy changes; CLI-16-12, 83 NRC 542 (2016)
- See also Injunctive Relief
- STRUCTURAL ANALYSIS
- combined license applicants must perform a structural analysis that demonstrates containment structural integrity in the event of an accident that releases hydrogen generated from 100% fuel clad-coolant reaction accompanied by hydrogen burning; CLI-16-2, 83 NRC 13 (2016)
- STRUCTURAL INTEGRITY
- contention alleging that proposed weakening of concrete tolerance standards could result in plant workers being exposed to levels of radiation in excess of the as low as is reasonably achievable standard is dismissed; LBP-16-5, 83 NRC 259 (2016)
- petitioner's allegations, coupled with the acknowledged possibility of offsite consequences if CIS wall modules are structurally inadequate, satisfy the requirement that petitioner show a plausible chain of causation explaining how the amendment itself would result in a distinct new harm or threat beyond that posed by the licensed facility itself; LBP-16-5, 83 NRC 259 (2016)
- to ensure continued integrity of reactor containment systems, primary containments shall be subject to requirements in 10 C.F.R. Part 50, Appendix J, Option B §I; CLI-16-5, 83 NRC 131 (2016)
- SUBPART L PROCEEDINGS
- standards for summary adjudication set forth in section 2.710 apply to Subpart L proceedings; LBP-16-3, 83 NRC 169 (2016)
- SUBSTANTIAL EVIDENCE TEST
- licensing board's responsibility in a mandatory hearing on an early site permit is analogous to the function of an appellate court, applying the substantial evidence test, although it is imperfect because the ASLB looks not only to the information in the record, but also to the thoroughness of the review that the Staff has given it; LBP-16-4, 83 NRC 187 (2016)
- SUMMARY DISPOSITION
- case law counsels against granting summary disposition when opponent provides a viable expert opinion, because competing expert opinions present the classic battle of the experts and it is up to a jury to evaluate what weight and credibility each expert opinion deserves; LBP-16-3, 83 NRC 169 (2016)
- if licensing board must make credibility determinations, weigh evidence, or draw legitimate inferences from the facts, summary disposition is not appropriate; LBP-16-3, 83 NRC 169 (2016)
- if reasonable minds could differ as to the import of the evidence, summary disposition is not appropriate; LBP-16-3, 83 NRC 169 (2016)

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in a case with numerous factual issues and competing expert declarations, proceeding to an evidentiary hearing where factual claims appropriately can be weighed, clarified, and resolved with merits findings may be more efficient for all parties than granting summary disposition; LBP-16-3, 83 NRC 169 (2016)

in determining whether a genuine issue of material fact exists, evidence of nonmovant is to be believed, and all justifiable inferences are to be drawn in nonmovant's favor; LBP-16-3, 83 NRC 169 (2016)

inquiry on summary disposition motion is whether the evidence is so one-sided that movant must prevail as a matter of law; LBP-16-3, 83 NRC 169 (2016)

licensing board function in ruling on a summary disposition motion is not to conduct a trial on the written record by weighing evidence and endeavoring to determine the truth of the matter, but rather to determine whether any genuine issue of material fact exists; LBP-16-3, 83 NRC 169 (2016)

motion for summary disposition may be granted if there is no genuine issue as to any material fact and movant is entitled to a decision as a matter of law; LBP-16-3, 83 NRC 169 (2016)

motion is granted as to challenge to accuracy and reliability of estimated concentrations of ethylbenzene, heptachlor, tetrachloroethylene, and toluene in wastewater is granted in part; LBP-16-3, 83 NRC 169 (2016)

motion is granted as to challenge to confining nature of hydrogeologic formations and ability of injection wells to timely identify and prevent leaks of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and efficacy of applicant's groundwater monitoring program is denied; LBP-16-3, 83 NRC 169 (2016)

movant's properly supported statement of material facts is considered to be admitted unless controverted by the opposing party; LBP-16-3, 83 NRC 169 (2016)

NRC standards governing summary disposition are based on those the federal courts apply to motions for summary judgment under Rule 56 of the Federal Rules of Civil Procedure; LBP-16-3, 83 NRC 169 (2016)

opponent must controvert any material fact properly set out in the statement of material facts that accompanies a summary disposition motion or that fact will be deemed admitted; LBP-16-3, 83 NRC 169 (2016)

petitioner has little to do in response to a motion for summary disposition, aside from filing a new or amended contention that challenged the adequacy of SAMA analysis revisions; CLI-16-11, 83 NRC 524 (2016)

properly supported summary disposition motion may be granted if nonmovant's evidence is merely colorable or is not significantly probative; LBP-16-3, 83 NRC 169 (2016)

standards for summary adjudication set forth in section 2.710 apply to Subpart L proceedings; LBP-16-3, 83 NRC 169 (2016)

**SUMMARY JUDGMENT**

court shall grant summary judgment if movant shows that there is no genuine dispute as to any material fact and movant is entitled to judgment as a matter of law; LBP-16-3, 83 NRC 169 (2016)

mere existence of some alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment; LBP-16-3, 83 NRC 169 (2016)

movant's burden is to show clearly and convincingly the absence of any genuine issues of material fact; LBP-16-3, 83 NRC 169 (2016)

nonmovant may defeat a summary judgment granted to movant if the parties' sworn statements are materially different; LBP-16-3, 83 NRC 169 (2016)

NRC standards governing summary disposition are based on those the federal courts apply to motions for summary judgment under Rule 56 of the Federal Rules of Civil Procedure; LBP-16-3, 83 NRC 169 (2016)

precedents hold that if the opposing party's expert provides a reliable and reasonable opinion with factual support, summary judgment is inappropriate; LBP-16-3, 83 NRC 169 (2016)

**SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

circumstances under which NRC Staff is required to prepare a supplement to FEIS if the proposed action has not yet been taken are specified; CLI-16-3, 83 NRC 52 (2016)

NEPA's information-disclosure purpose is not satisfied where input values are not meaningfully addressed in the final supplemental environmental impact statement or the board's decision; LBP-16-8, 83 NRC 417 (2016)

NRC Staff may prepare a supplement to an FEIS when, in its opinion, doing so will further the purposes of NEPA; CLI-16-3, 83 NRC 52 (2016)

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NRC Staff must prepare a supplement to an FEIS if there are substantial changes in the proposed action that are relevant to environmental concerns or new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; CLI-16-2, 83 NRC 13 (2016); CLI-16-3, 83 NRC 52 (2016)

section 51.72(a) and (b) is substantively identical to section 51.92(a) and (c); CLI-16-3, 83 NRC 52 (2016)

### SURVEILLANCE

license conditions relating to monitoring, recording, and reporting of environmental data are a means for NRC to keep abreast of the environmental impacts of current operating reactors; CLI-16-10, 83 NRC 494 (2016)

### SURVEILLANCE PROGRAMS

program is based on testing of material specimens that are stored in surveillance capsules inside the reactor pressure vessel and periodically withdrawn from the vessel on an NRC-approved schedule; CLI-16-2, 83 NRC 13 (2016)

### SURVEILLANCE TESTING

applicants must submit a proposed withdrawal schedule with a technical justification; CLI-16-2, 83 NRC 13 (2016)

dosimeters located inside surveillance capsules must be tested in accordance with ASTM Guide E 482; CLI-16-2, 83 NRC 13 (2016)

licensees must analyze material specimens to evaluate changes, due to neutron irradiation and high temperatures, in the fracture toughness properties of the ferritic materials in the reactor vessel beltline region; CLI-16-2, 83 NRC 13 (2016)

unless the reactor vessel meets the criteria of 10 C.F.R. Part 50, Appendix H, § III.A, licensee must monitor the reactor pressure vessel beltline materials through a surveillance program that complies with ASTM E 185-82; CLI-16-2, 83 NRC 13 (2016)

### SURVEYS

Class III archeological survey is an intensive, professionally conducted study of a target area; LBP-16-7, 83 NRC 340 (2016)

cursory discussions and a brief bus tour cannot be deemed to meet NHPA's requirements to identify, assess, and attempt to mitigate impacts to potential historic properties of significance to Indian tribes; LBP-16-7, 83 NRC 340 (2016)

failure to utilize experts in tribal cultural properties who could have added to the survey process, is clearly contrary to current regulations; LBP-16-7, 83 NRC 340 (2016)

field investigations are envisioned as a means of compliance with the ACHP; LBP-16-7, 83 NRC 340 (2016)

insofar as there were areas that would be affected by changed operations or new construction, literature review and reliance on past surveys was inadequate for identifying tribal cultural properties and historic properties; LBP-16-7, 83 NRC 340 (2016)

literature review is inferior to the knowledge of experts in tribal cultural properties; LBP-16-7, 83 NRC 340 (2016)

where previous or partial surveys and all other evidence indicate that a complete survey would be fruitless, NHPA does not require a complete survey of the project area; LBP-16-7, 83 NRC 340 (2016)

### SUSPENSION

it generally is in the public interest to avoid the expense of an adjudicatory hearing when NRC Staff review of a docketed license application has been suspended; LBP-16-2, 83 NRC 107 (2016)

petitioner's right to request a hearing when suspension of an application is lifted is consistent with longstanding agency case law; LBP-16-2, 83 NRC 107 (2016)

### SUSPENSION OF LICENSE

violation of NEPA, by itself, is not always sufficient to justify suspending or revoking the license; CLI-16-13, 83 NRC 566 (2016)

### SUSPENSION OF PROCEEDING

Commission directed NRC Staff to deny rulemaking petitioners' collateral request to suspend licensing decisions on all other pending proceedings and directed Staff to seek Commission approval if it determined that suspension of NRC rules or the environmental assessments considering severe accident mitigation alternatives analyses would be necessary; CLI-16-2, 83 NRC 13 (2016)

## SUBJECT INDEX

petitions to suspend licensing proceedings based on issues related to the Fukushima Dai-ichi accident were rejected; CLI-16-2, 83 NRC 13 (2016)

### TEMPERATURE LIMITS

license amendments were issued that increase the ultimate heat sink water temperature limit for the cooling canals; LBP-16-8, 83 NRC 417 (2016)

### TERMINATION OF PROCEEDING

licensing board does not retain jurisdiction over a matter after the proceeding is terminated; CLI-16-8, 83 NRC 463 (2016)

when only a single intervenor is participating, its withdrawal serves to bring the proceeding to an end; LBP-16-2, 83 NRC 107 (2016)

### TESTIMONY

because members of licensing boards themselves must read challenged testimony to determine whether its probative value is substantially outweighed by the danger of unfair prejudice or confusion of the issues, excluding evidence on this ground has little practical effect; LBP-16-4, 83 NRC 187 (2016)

expert opinion that merely states a conclusion without providing a reasoned basis or explanation for that conclusion is inadequate because it deprives the board of the ability to make the necessary, reflective assessment of the opinion; CLI-16-7, 83 NRC 293 (2016)

in an uncontested case, there is no reason to exclude opinion testimony or other evidence that might be objectionable in a jury trial in a court of law; LBP-16-4, 83 NRC 187 (2016)

it is not error for a board to rely on witness testimony; CLI-16-13, 83 NRC 566 (2016)

part of the board's technical expertise is the ability to assess witnesses' testimony and relevant knowledge; LBP-16-7, 83 NRC 340 (2016)

specific and thorough statements of an expert must be accepted as true; LBP-16-3, 83 NRC 169 (2016)

sworn testimony from previous, related proceedings may be admitted where the same witness appears in the current proceeding; LBP-16-7, 83 NRC 340 (2016)

written prefiled testimony and exhibits are typically submitted well in advance of the evidentiary hearing, and, in most common types of NRC hearings, licensing boards themselves rather than the parties orally examine the witnesses; LBP-16-4, 83 NRC 187 (2016)

### TESTING

in situ recovery facility licensees must establish restoration goals for hazardous constituents in groundwater through post-licensing, preoperational testing; CLI-16-13, 83 NRC 566 (2016)

licensees must conduct periodic tests to ensure that leakage from containment does not exceed allowable rates specified in the plant's technical specifications; CLI-16-5, 83 NRC 131 (2016)

licensees must perform Type B tests to detect and measure local leakage rates across pressure-retaining, leakage-limiting boundaries; CLI-16-5, 83 NRC 131 (2016)

licensees must perform Type C tests to measure containment isolation valve leakage; CLI-16-5, 83 NRC 131 (2016)

request for testing of permanently shutdown reactor pressure vessels for cracking is decided; DD-16-1, 83 NRC 115 (2016)

Type A tests to measure containment overall integrated leakage rate are discussed; CLI-16-5, 83 NRC 131 (2016)

See also Surveillance Testing

### TIME LIMITS

decommissioning must be completed within 60 years of permanent cessation of operations; CLI-16-8, 83 NRC 463 (2016)

### TRANSPARENCY

by introducing potentially relevant background information in board exhibits, the board ensures that this information is easily available for public and appellate review, fulfilling the spirit of NEPA's disclosure goals and the NRC's transparency requirements; LBP-16-7, 83 NRC 340 (2016)

### TRUST RELATIONSHIP DOCTRINE

failure of Bureau of Indian Affairs to make any real attempt to comply with its own policy of consultation not only violates general principles that govern administrative decisionmaking, but also violates the distinctive obligation of trust incumbent upon the Government in its dealings with these dependent and sometimes exploited people; LBP-16-7, 83 NRC 340 (2016)

## SUBJECT INDEX

### UNCERTAINTIES

disclosures of any known shortcomings in available methodology and any incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these considerations credibly could or would alter the SAMA analysis conclusions, should be provided; CLI-16-7, 83 NRC 293 (2016)

severe accident mitigation alternatives analysis results are not based on either best-case or worst-case accident scenarios, but on mean accident consequence values, averaged over the many hypothetical severe accident scenarios, with an additional uncertainty analysis also performed; CLI-16-7, 83 NRC 293 (2016)

where the significance of an action is unclear because of scientific uncertainty, preferable course of action is to prepare an environmental impact statement; LBP-16-7, 83 NRC 340 (2016)

### UNCONTESTED LICENSE APPLICATIONS

licensing boards should conduct a simple sufficiency review of uncontested issues in the uncontested hearing, not a de novo review; LBP-16-4, 83 NRC 187 (2016)

there is no reason to exclude opinion testimony or other evidence that might be objectionable in a jury trial in a court of law; LBP-16-4, 83 NRC 187 (2016)

### UTILIZATION FACILITY

definition of “utilization facility” was amended to include an irradiation facility; CLI-16-4, 83 NRC 58 (2016)

subcritical irradiation units do not fit the definition of “utilization facility”; CLI-16-4, 83 NRC 58 (2016)

### VACATION OF DECISION

although unreviewed board decisions do not create binding legal precedent, such decisions are customarily vacated as a prudential matter when appellate review is cut short by mootness; CLI-16-8, 83 NRC 463 (2016)

vacated decision’s analysis and reasoning can be cited for its persuasive value; CLI-16-8, 83 NRC 463 (2016)

### VACATUR

decision to vacate does not intimate any opinion on a decision’s soundness; CLI-16-8, 83 NRC 463 (2016)

federal courts consider the facts of each case and balance the equities in deciding whether to vacate a decision; CLI-16-8, 83 NRC 463 (2016)

vacated orders remain available for reference and will not be expunged from agency records; CLI-16-8, 83 NRC 463 (2016)

vacatur does not diminish the right to challenge licensee’s compliance with conditions imposed by the board; CLI-16-8, 83 NRC 463 (2016)

### VALVES

See Containment Isolation Valves

### VERIFICATION

NRC Staff may exercise professional judgment in conducting post-licensing verification activities; LBP-16-4, 83 NRC 187 (2016)

### WAIVER OF RULE

agency rule or regulation may not be challenged in any adjudicatory proceeding absent a waiver; CLI-16-12, 83 NRC 542 (2016)

challenge to 10 C.F.R. Part 50, Appendix J, Option B is impermissible, absent a waiver; CLI-16-5, 83 NRC 131 (2016)

### WASTE DISPOSAL

See Radioactive Waste Disposal

### WASTEWATER

expert opinion is sufficient to raise a genuine issue of fact regarding whether design and testing of injection wells will prevent leakage of wastewater that could contaminate the groundwater; LBP-16-3, 83 NRC 169 (2016)

information is sufficiently probative to demonstrate that there remains a genuine dispute of material fact concerning the ability of applicant’s monitoring program to detect upward migrations of wastewater and to ensure any environmental impact would be minor; LBP-16-3, 83 NRC 169 (2016)

## SUBJECT INDEX

summary disposition of contention challenging accuracy and reliability of estimated concentrations of ethylbenzene, heptachlor, tetrachloroethylene, and toluene in wastewater is granted in part; LBP-16-3, 83 NRC 169 (2016)

summary disposition of contention challenging confining nature of hydrogeologic formations and ability of injection wells to timely identify and prevent leaks of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and efficacy of applicant's groundwater monitoring program is denied; LBP-16-3, 83 NRC 169 (2016)

### WATER QUALITY

applicant for an in situ uranium recovery license must describe the hydrology of the proposed site to predict the potential effect such a facility would have on adjacent groundwater and surface waters as required by NEPA; CLI-16-13, 83 NRC 566 (2016)

at least 1 full year prior to any major site construction, a preoperational monitoring program must be conducted to provide complete baseline data; CLI-16-13, 83 NRC 566 (2016)

conducting the more detailed post-licensing analysis to establish definitively the groundwater quality baselines and upper control limits is consistent with industry practice and NRC methodology, and this analysis cannot be completed until after licensing, when an in situ leach wellfield has been installed; CLI-16-13, 83 NRC 566 (2016)

contention that FSEIS lacks an adequate description of the present baseline groundwater quality and fails to demonstrate that groundwater samples were collected in a scientifically defensible manner, using proper sampling methodologies is inadmissible; CLI-16-13, 83 NRC 566 (2016)

first option for any given hazardous constituent in groundwater is background (level present prior to operations); CLI-16-13, 83 NRC 566 (2016)

### WITHDRAWAL

board's action permitting withdrawal of combined license application for Units 3 and 4 has no effect on efficacy of existing Part 50 construction permits authorizing applicant to build Units 1 and 2; LBP-16-1, 83 NRC 97 (2016)

circumstances under which applicant can withdraw an application docketed by the agency are set forth; LBP-16-1, 83 NRC 97 (2016)

filing of an application usually is voluntary, and applicant's withdrawal decision is generally considered a business judgment, the soundness of which is not a matter for licensing board consideration; LBP-16-1, 83 NRC 97 (2016)

license application withdrawal with prejudice precludes refiling of an application; LBP-16-1, 83 NRC 97 (2016)

licensing board has significant leeway in defining circumstances under which an application can be withdrawn; LBP-16-1, 83 NRC 97 (2016)

mandating a with-prejudice withdrawal is a severe sanction that should be reserved for unusual situations that involve substantial prejudice to a party or the public interest in general; LBP-16-1, 83 NRC 97 (2016)

petitioner seeking to reinstate a withdrawn intervention request must show good cause under agency's then-existing late-filing requirements; LBP-16-2, 83 NRC 107 (2016)

proponent of a withdrawal condition bears the burden of offering some explanation regarding the relief sought; LBP-16-1, 83 NRC 97 (2016)

purported harms generally not considered adequate to warrant imposing conditions on a without-prejudice license withdrawal or to sustain a with-prejudice withdrawal include uncertainty and expense of additional hearings or other litigation, harm to property values, and psychological harm; LBP-16-1, 83 NRC 97 (2016)

terms imposed by a board must bear a reasonable relationship to the conduct and legal harm at which they are aimed and the record must support any findings concerning the conduct and the harm in question; LBP-16-1, 83 NRC 97 (2016)

when only a single intervenor is participating, its withdrawal serves to bring the proceeding to an end; LBP-16-2, 83 NRC 107 (2016)

withdrawal of an application moots any adjudicatory proceeding regarding that application; LBP-16-1, 83 NRC 97 (2016)

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### WITNESSES

at the request of any party, a court must order witnesses excluded so that they cannot hear other witnesses' testimony or the court may do so on its own; LBP-16-4, 83 NRC 187 (2016)  
courts routinely exclude witnesses prior to their testimony not only to discourage or expose outright fabrication, but also to exercise a restraint on the natural tendency of witnesses to tailor their testimony to that of earlier witnesses; LBP-16-4, 83 NRC 187 (2016)

### WITNESSES, EXPERT

affidavit that merely states that declarant has read and reviewed the contention and fully supports all of its statements fails to meet the affidavit requirements in 10 C.F.R. 2.326(b); LBP-16-6, 83 NRC 329 (2016)

case law counsels against granting summary disposition when opponent provides a viable expert opinion, because competing expert opinions present the classic battle of the experts and it is up to a jury to evaluate what weight and credibility each expert opinion deserves; LBP-16-3, 83 NRC 169 (2016)

competing expert opinions present the classic battle of the experts that requires an evidentiary hearing to evaluate what weight and credibility each expert opinion deserves; LBP-16-3, 83 NRC 169 (2016)

conclusory statements, even if made by an expert, are insufficient to support admission of a contention; CLI-16-12, 83 NRC 542 (2016)

expert opinion is sufficient to raise a genuine issue of fact regarding whether design and testing of injection wells will prevent leakage of wastewater that could contaminate the groundwater; LBP-16-3, 83 NRC 169 (2016)

expert opinion that merely states a conclusion without providing a reasoned basis or explanation for that conclusion is inadequate because it deprives the board of the ability to make the necessary, reflective assessment of the opinion; CLI-16-7, 83 NRC 293 (2016)

expert's statement that he is responsible for the factual content and expert opinions expressed in petitioner's contentions fails to satisfy the requirements of this section; LBP-16-6, 83 NRC 329 (2016)

precedents hold that if the opposing party's expert provides a reliable and reasonable opinion with factual support, summary judgment is inappropriate; LBP-16-3, 83 NRC 169 (2016)

specific and thorough statements of an expert must be accepted as true; LBP-16-3, 83 NRC 169 (2016)

### ZONE OF INTERESTS

court looks for some indication that petitioner's interest is arguably among those interests protected by the relevant statute; CLI-16-6, 83 NRC 147 (2016)

in the enforcement context, one way that an injury can fall within the zone of interests protected by the Atomic Energy Act is where it is based on the premise that the order's terms, if carried out, would be affirmatively contrary to the public health and safety; CLI-16-6, 83 NRC 147 (2016)





## FACILITY INDEX

BEAR LODGE PROJECT; Docket No. 40-38367-ML  
 MATERIALS LICENSE; March 23, 2016; MEMORANDUM AND ORDER (Granting Defenders of the Black Hills' Request to Withdraw Hearing Request and Terminating Proceeding); LBP-16-2, 83 NRC 107 (2016)

BELLEFONTE NUCLEAR POWER PLANT, Units 3 and 4; Docket Nos. 52-014-COL, 52-015-COL  
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IN SITU LEACH FACILITY, Crawford, Nebraska; Docket No. 40-8943  
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INDIAN POINT, Unit 2; Docket No. 50-247-LA  
 OPERATING LICENSE AMENDMENT; April 5, 2016; MEMORANDUM AND ORDER; CLI-16-5, 83 NRC 131 (2016) KEWAUNEE POWER STATION; Docket No. 50-305  
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MEDICAL RADIOISOTOPE PRODUCTION FACILITY; Docket No. 50-608-CP  
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SEABROOK STATION, Unit 1; Docket No. 50-443-LR  
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SOUTH TEXAS PROJECT, Units 3 and 4; Docket Nos. 52-012-COL, 52-013-COL  
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