

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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

In the Matter of

ENTERGY NUCLEAR OPERATIONS, INC.

(Indian Point Nuclear Generating Units 2 and 3)

Docket Nos. 50-247-LR
50-286-LR

CLI-15-6

MEMORANDUM AND ORDER

We have been asked to review the Atomic Safety and Licensing Board's partial initial decision (and related interlocutory decisions) in this license renewal proceeding. Today's decision addresses the Board's partial initial decision and the challenged interlocutory decisions relating to Contention NYS-8 (Transformers) and Contention CW-EC-3A (Environmental Justice).¹ As discussed below, we take review of these decisions in part. We reverse the Board's decision with respect to Contention NYS-8, and affirm in part, and reverse in part, its decision with respect to Contention CW-EC-3A.

¹ LBP-13-13, 78 NRC 246 (2013). Also challenged is the Board's order admitting the contentions and its denial of two motions *in limine* relating to Contention CW-EC-3A. See LBP-08-13, 68 NRC 43 (2008), Order (Granting in Part and Denying in Part Applicant's Motions *in Limine*) (Mar. 6, 2012), at 35 (unpublished); Tr. at 1265 (Oct. 15, 2012) (bench ruling denying motion *in limine*).

I. BACKGROUND

A. Procedural History

This proceeding involves the 2007 application of Entergy Nuclear Operations, Inc. to renew the operating licenses for Indian Point Nuclear Generating Units 2 and 3, located in Buchanan, New York. Renewed licenses would authorize each unit to operate for twenty years beyond the period specified in the current operating licenses.² Numerous petitioners sought to intervene in the proceeding and proposed dozens of contentions challenging the application.

The Board determined that three petitioners—the State of New York, Riverkeeper, Inc., and Hudson River Sloop Clearwater, Inc. (Clearwater)—had demonstrated standing and had offered thirteen admissible contentions between them.³ The issues admitted for litigation have evolved over the intervening years as the Staff's review has progressed, as the Board's partial initial decision describes.⁴ In short, the Board has admitted updated versions of some of the original contentions, admitted new contentions, and approved settlements with respect to two of the originally admitted contentions.⁵

In 2012, the Board determined that the Staff's review was complete with respect to ten of the pending contentions, which could, therefore, proceed to an evidentiary hearing.⁶ The Staff's

² The operating license for Unit 2 expired on September 28, 2013, and the license for Unit 3 will expire on December 12, 2015. Because the license renewal application was filed at least five years before the scheduled expiration date of the Indian Point 2 operating license, Unit 2 is in timely renewal; the existing license will not be deemed to have expired until the license renewal application has been finally determined. 10 C.F.R. § 2.109(b).

³ LBP-08-13, 68 NRC at 217-20.

⁴ See *generally* LBP-13-13, 78 NRC at 546-50.

⁵ *Id.* at 266-69.

⁶ Notice of Hearing (Application for License Renewal) (June 8, 2012), at 4-6 (unpublished). See *also* Order (Ordering the NRC Staff to Address Board Questions) (June 7, 2012), at 1-3

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final supplemental environmental impact statement for the application (FSEIS) was released in December 2010.⁷ The safety evaluation report (SER) was issued in November 2009⁸ and supplemented in August 2011.⁹ Work on the license renewal application is ongoing; the Staff has determined that it will supplement these documents with respect to certain other areas.¹⁰ The Board determined, however, that the unfinished subjects under review did not pertain to the ten hearing-ready contentions, which it designated the “Track 1” contentions and set for an evidentiary hearing. One “Track 1” contention settled prior to hearing.¹¹

(unpublished) (citing *NRC Staff’s Fourth Status Report in Response to the Atomic Safety and Licensing Board’s Order of February 16, 2012* (June 1, 2012)).

⁷ Ex. NYS00133A-J, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38 Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3,” NUREG-1437, supp. 38 (Dec. 2010).

⁸ Ex. NYS00326A-F, “Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3,” NUREG-1930 (Nov. 2009).

⁹ Ex. NYS000160, “Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3,” NUREG-1930, supp. 1 (Aug. 2011).

¹⁰ The Staff supplemented the FSEIS in 2013. “Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38 Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3,” NUREG-1437, supp. 38, vol. 4 (June 2013) (ML13162A616). The Staff issued a second supplement to its SER in November 2014. “Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3, Supplement 2,” NUREG-1930, supp. 2 (Nov. 2014) (ML14310A803). The Staff plans to issue a further supplement to the FSEIS in 2015. See *NRC Staff’s 36th Status Report In Response to the Atomic Safety and Licensing Board’s Order of February 16, 2012* (Feb. 2, 2015), at 4, 8.

¹¹ Consent Order (Approving Settlement of Consolidated Contention Riverkeeper EC-3 and Clearwater EC-1) (Oct. 17, 2012) (unpublished). The evidentiary hearing for “Track 2” contentions has not yet been scheduled. LBP-13-13, 78 NRC at 278-79. Additionally, other matters are pending. For example, in 2012, New York, Clearwater, and Riverkeeper moved for leave to file two new contentions based on the long-term on-site storage of nuclear waste at the Indian Point site. *State of New York, Riverkeeper, Inc. and Hudson River Sloop Clearwater’s Joint Contention NYS-39/RK-EC-9/CW-EC-10 Concerning the On-Site Storage of Nuclear Waste at Indian Point* (July 8, 2012); *Hudson River Sloop Clearwater, Inc.’s Motion for Leave to Add a New Contention Based Upon New Information and Petition to Add New Contention* (July 9, 2012). The Board held those contentions in abeyance pursuant to our direction. *Calvert Cliffs Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63, 68-69 (2012); Order (Holding Contentions NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4 in

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The evidentiary hearing involved enormous effort by the Board and the parties. The parties filed initial written statements of position, written testimony and exhibits, and rebuttal testimony for the Track 1 contentions between December 2011 and November 2012.¹² The Board received, admitted, and reviewed more than one thousand exhibits amounting to tens of thousands of pages.¹³ The Board held evidentiary hearings over twelve days in October, November, and December 2012.

In LBP-13-13, the Board resolved eight of the nine remaining contentions in favor of Entergy or the Staff. For three safety contentions—dealing with flow-accelerated corrosion, buried pipes, and non-environmentally qualified inaccessible cables, the Board found that Entergy had demonstrated that its aging management programs would adequately manage the effects of aging throughout the period of extended operation.¹⁴ The Board also resolved five environmental contentions in favor of the Staff, finding that no further action was required to

Abeyance) (Aug. 9, 2012) (unpublished). Following our adoption of a revised Continued Storage Rule, we directed the Atomic Safety and Licensing Boards to reject “continued storage” contentions pending before them, with the exception of the contentions pending in this matter. *Calvert Cliffs Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-14-8, 80 NRC 71, 79-80 (2014). To the extent that CW-SC-4 and NYS-39/RK-EC-9/CW-EC-10 raised issues unresolved by the Continued Storage Rule, we directed the Board to rule on the admissibility of those challenges in this license renewal proceeding. *Id.* Those contentions remain pending before the Board. Order (Requesting Briefs on NYS-39/RK-EC-9/CW-EC-10 and CW-SC-4) (Sept. 17, 2014) (unpublished).

¹² LBP-13-13, 78 NRC at 275-79.

¹³ *Id.* at 277.

¹⁴ *See id.* at 544. Specifically, the Board found that Entergy had “demonstrated that the effects of aging from [flow-accelerated corrosion] on the intended functions of the piping and components susceptible to [flow-accelerated corrosion] will be adequately managed” (*id.* at 310 (Contention RK-TC-2)); that the effects of aging on buried pipes that “contain or may contain radioactive fluids can be adequately managed” (*id.* at 372 (Contention NYS-5)); and that its aging management program for non-environmentally qualified, inaccessible medium- and low-voltage cables provides reasonable assurance that the harmful effects of aging will be managed during the period of extended operation (*id.* at 402-03 (Contention NYS-6/7)).

satisfy the requirements of the National Environmental Policy Act (NEPA).¹⁵ But with respect to one environmental contention—CW-EC-3A—the Board found that the Staff’s environmental justice analysis in the FSEIS was insufficient and only met the requirements of NEPA when supplemented by the hearing record.¹⁶ The Board resolved one safety contention, NYS-8, in New York’s favor. The Board agreed with New York that electrical transformers fit the definition of long-lived, passive components important to safety for which Entergy must have an adequate aging management program in place.¹⁷

As noted above, our decision today only addresses appeals of Board decisions related to Contentions NYS-8 and CW-EC-3A.¹⁸ Specifically, Entergy and the NRC Staff both seek review of (1) the Board’s ruling on NYS-8, and (2) the Board’s underlying rationale (although not its ultimate conclusion) on CW-EC-3A.¹⁹ Entergy also challenges the Board’s admission of the

¹⁵ National Environmental Policy Act of 1969, 42 U.S.C. § 4321 *et. seq.* The Board found that the Staff had taken the requisite “hard look” at the effects of license renewal on the property values of the surrounding area (LBP-13-13, 78 NRC at 504-05 (Contention NYS-17B)), and had adequately addressed public comments concerning the no-action alternative (*id.* at 521 (Contention NYS-37)). The Board found that Entergy’s population estimates used in its severe accident mitigation alternatives (SAMA) analysis, which the Staff later incorporated into the FSEIS, were reasonable (*id.* at 489 (Contention NYS-16B)). Finally, the Board also found that Entergy’s estimate of decontamination and cleanup costs associated with a severe accident, also incorporated into the FSEIS, was sufficiently site-specific and reasonable under NEPA (*id.* at 474 (Contention NYS-12C)). The Board’s decision with respect to Contention 12C currently is before us on appeal (discussed *infra* note 18).

¹⁶ LBP-13-13, 78 NRC at 542-44.

¹⁷ See *id.* at 448-49.

¹⁸ New York has appealed the Board’s ruling with respect to Contention 12C. 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). The Staff and Entergy also have appealed an earlier interlocutory Board ruling resolving a second SAMA contention (NYS-35/36) in New York’s favor. See LBP-11-17, 74 NRC 11 (2011). We have asked for further briefing with respect to Contentions NYS-12C and NYS-35/36. See CLI-15-2 (Feb. 18, 2015) (slip op.); CLI-15-3 (Feb. 18, 2015) (slip op.). We will address these appeals separately.

¹⁹ *NRC Staff’s Petition for 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) (Staff Petition); *Applicant’s Petition for*

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two contentions and the Board's decisions on motions *in limine* related to CW-EC-3A.²⁰ For its part, Clearwater seeks review of the Board's ultimate conclusion on Contention CW-EC-3A. Clearwater argues that the record of decision is not sufficient to allow the NRC to make an informed decision on license renewal and that the NRC should supplement the FSEIS.²¹ New York also filed an answer in support of Clearwater's appeal.²²

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) (Entergy Petition). See also 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 35/36 (Mar. 25, 2014) (New York Answer); Hudson River Sloop Clearwater, Inc.'s Combined Answer in Opposition to the Applicant's Petition for Review and the NRC Staff's Petition for Review of Board Decision Regarding Contention CW-EC-3A (Mar. 26, 2014) (Clearwater Answer). Clearwater filed an unopposed motion for a short extension of time to file its combined answer, which we grant. See Hudson River Sloop Clearwater Inc.'s Unopposed Motion for 3 Minute Extension of Time to File Combined Answer Brief (Mar. 26, 2014). See generally NRC Staff's Reply to Hudson River Sloop Clearwater Inc.'s Answer in Opposition to the NRC Staff's Petition for Review of LBP-13-13 (Contention CW-EC-3A) (Apr. 9, 2014) (Staff Reply to Clearwater); NRC Staff's Reply to State of New York's Answer in Opposition to Staff Petition for Review of LBP-13-13 and LBP-11-17 (Apr. 9, 2014) (Staff Reply to New York); Entergy's Reply to New York State Answer to Entergy and Staff Petitions for Review Regarding Contentions NYS-8 and NYS-35/36 (Apr. 9, 2014) (Entergy Reply to New York); Entergy Reply to Clearwater Answer to Entergy and Staff Petitions for Review Regarding Contention CW-EC-3A (Apr. 9, 2014) (Entergy Reply to Clearwater).

²⁰ Entergy Petition at 9-12, 33-34.

²¹ *Hudson River Sloop Clearwater, Inc. Petition for Review (Feb. 14, 2014) (Clearwater Petition); see NRC Staff's Answer in Opposition to Hudson River Sloop Clearwater, Inc.'s Petition for Review of LBP-13-13, Regarding Contention CW-EC-3A (Environmental Justice) (Mar. 25, 2014) (Staff Answer to Clearwater); Applicant's Answer Opposing Hudson River Sloop Clearwater, Inc. Petition for Review of Board Decision Regarding Contention CW-EC-3A (Environmental Justice) (Mar. 25, 2014) (Entergy Answer to Clearwater); Hudson River Sloop Clearwater, Inc. Combined Reply to Answers of Applicant and NRC Staff to Clearwater, Inc.'s Petition for Review of LBP-13-13, Regarding Contention CW-EC-3A (Environmental Justice) (Apr. 7, 2014) (Clearwater Reply).*

²² *State of New York Answer in Support of Hudson River Sloop Clearwater Inc.'s Petition for Review of the Atomic Safety and Licensing Board Decision LBP-13-13 with Respect to Contention CW-EC-3A (Mar. 11, 2014) (New York CW-EC-3A Answer); see also NRC Staff's Reply to State of New York's Answer in Opposition to Staff Petition for Review of LBP-13-13 (Contention CW-EC-3A) (Mar. 21, 2014) (Staff Reply to New York on CW-EC-3A); Entergy's*

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B. License Renewal Process

1. Safety Review

The goal of the NRC's license renewal safety review is to ensure that the licensee can successfully manage the detrimental effects of aging. As the Board explained in its partial initial decision, the license renewal regulations in 10 C.F.R. Part 54 focus on whether the licensee can manage the effects of aging on certain long-lived, passive components that are important to safety.²³ The license renewal review is not intended to duplicate the NRC's ongoing oversight of operating reactors.²⁴

Part 54 requires applicants to demonstrate that they have programs in place that will effectively manage the effects of aging during the period of extended operation. Each applicant for a renewed license must first identify all structures, systems, and components (SSCs) that serve a function relating directly or indirectly to safety, as defined by 10 C.F.R. § 54.4.²⁵ These SSCs are all "within the scope" of license renewal. The applicant then performs an integrated plant assessment to identify those structures and components that are subject to aging management review.²⁶

Reply to New York State Answer Supporting Clearwater's Petition for Review of LBP-13-13 (Mar. 21, 2014) (Entergy Reply to New York on CW-EC-3A).

²³ See LBP-13-13, 78 NRC at 279-84.

²⁴ *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 8-10 (2001).

²⁵ The safety significance of an SSC is defined in the regulation in terms of its safety related functions, and within the scope of license renewal are included those SSCs whose failure could prevent satisfactory accomplishment of the safety-related function. 10 C.F.R. § 54.4.

²⁶ *Id.* § 54.21(a). The License Renewal Rule focuses on individual structures and components, rather than on the "system" level.

Structures and components are subject to aging management review if they perform an intended function “without moving parts or without a change in configuration or properties”²⁷ and are not subject to routine replacement.²⁸ These structures and components are generally referred to as “passive” components, although the terms “active” and “passive,” do not appear in the license renewal regulations. Rather, the Statements of Consideration for the 1995 License Renewal Rule used these terms to delineate between those components that require aging management review and those that do not.²⁹ The Board used the terms in this manner, as do we. “Active” components are excluded from aging management review on the basis of existing regulatory requirements for maintenance and monitoring of SSCs, including the Maintenance Rule.³⁰

The license renewal applicant must demonstrate that the effects of aging will be managed for each passive, long-lived structure or component identified in the integrated plant assessment, such that the component will perform its intended function throughout the period of extended operation.³¹ The license renewal application includes descriptions of the license

²⁷ *Id.* § 54.21(a)(1)(i).

²⁸ *Id.* § 54.21(a)(1)(ii).

²⁹ Ex. NYS000016, Nuclear Power Plant License Renewal; Revisions; Final Rule, 60 Fed. Reg. 22,461, 22,464, 22,471-72, 22,476-78 (May 8, 1995) (1995 Statements of Consideration).

³⁰ *Id.*, 60 Fed. Reg. at 22,471-72. *See generally* 10 C.F.R. § 50.65 (Requirements for monitoring the effectiveness of maintenance at nuclear power plants). “The maintenance rule requires that power reactor licensees monitor the performance or condition of systems, structures, and components against licensee-established goals in a manner sufficient to provide reasonable assurance that these systems, structures, and components are capable of fulfilling their intended functions.” Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,470.

³¹ 10 C.F.R. § 54.21(a)(3) (An integrated plant assessment must demonstrate that the effects of aging for each structure and component will be “managed so that the intended function(s) will be maintained consistent with the [current licensing basis] for the period of extended operation”).

renewal applicant's aging management programs for these components. An NRC guidance document, the Generic Aging Lessons Learned Report (GALL Report), describes aging management programs that the Staff has found to be adequate.³² The GALL Report and the Standard Review Plan for License Renewal (SRP-LR)³³ are the principal documents guiding the Staff's safety review of a license renewal application.³⁴

In its partial initial decision, the Board found that Entergy's aging management programs with respect to flow-accelerated corrosion, certain inaccessible underground cables, and buried pipes all complied with the GALL Report.³⁵ But because the Staff has traditionally considered transformers to be "active" components, the GALL Report does not include an aging management program for transformers. As a result, although Entergy has programs and procedures in place for monitoring and maintaining transformers, including those safety-related

³² Exs. NYS00147A-NYS00147D, "Generic Aging Lessons Learned Report," NUREG-1801 (Rev. 2 Dec. 2010). According to the GALL Report, an effective aging management program includes certain elements: the specific structures and components, preventive actions, and parameters monitored or inspected are clearly defined; detection of aging effects occurs prior to loss of function; monitoring and trending predicts the extent of aging to allow timely mitigative actions; acceptance criteria ensure that the component's intended function is maintained; timely corrective actions; a confirmation process is in place to ensure that preventive actions are adequate and corrective actions are completed and effective; administrative controls provide a formal review and approval process; and due consideration is given to operating experience. This provides objective evidence that aging will be adequately managed. See Ex. NYS00147A, GALL Report, at 6. For each component requiring an aging management program, an applicant can either show that its program conforms to the GALL Report, or it can show that its own program will nonetheless effectively manage the effects of aging throughout the period of extended operation.

³³ Ex. NYS000195, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," NUREG-1800 (Rev. 2 Dec. 2010).

³⁴ Part 54 also requires applicants to reassess any time-limited aging analyses—analyses that considered the effects of aging on a component based on the original license term of 40 years—to show either that the analyses will remain valid throughout the period of extended operation or that the effects of aging on the subject component will be managed during that time period. 10 C.F.R. §§ 54.3, 54.21(c).

³⁵ See LBP-13-13, 78 NRC at 310 (flow-accelerated corrosion), 372 (buried pipes), 402 (non-environmentally qualified inaccessible medium- and low- voltage cables).

transformers that are within the scope of license renewal, those programs have not been reviewed by the Staff as part of its review of the license renewal application.

2. *Environmental Review*

The decision to renew the operating license of an existing nuclear power plant is a “major federal action” under NEPA. Assessing the environmental impacts of extended operation involves consideration of the impacts of continued operation and any impacts associated with refurbishment activities during the period of extended operation.³⁶

In the 1990s, the NRC determined that many of the environmental effects associated with renewing the licenses of existing facilities can be effectively assessed generically.³⁷ The environmental effects of existing plants are well understood from operating experience, and the future effects of continued operation are reasonably predictable.³⁸ Changes in the environment around nuclear power plants tend to be gradual, and such changes are expected to be within the range of operating experience.³⁹ Therefore, in 1996, the NRC developed a generic environmental impact statement for license renewal, which contains generic findings applicable to all nuclear power plants.⁴⁰

In the GEIS, the NRC assessed the significance of environmental impacts associated with particular issues. For each issue, the NRC made a determination whether the GEIS

³⁶ See Ex. NYS00131A, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” NUREG-1437 (May 1996), § 1.5, at 1-3 (GEIS). The complete GEIS is included in the record as Exs. NYS00131A-I.

³⁷ See *generally* Exs. NYS00131A-I, GEIS.

³⁸ *Id.* § 1.5, at 1-1.

³⁹ *Id.*

⁴⁰ Exs. NYS00131A-I, GEIS. The GEIS was revised in June 2013 “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” NUREG-1437 Rev. 1 (June 2013) (ML13106A241) (GEIS Rev. 1). The revision was finalized after the evidentiary hearing and is therefore not part of the record of this proceeding.

analysis could be applied to all plants and whether additional plant-specific mitigation measures would be warranted.⁴¹ The GEIS designated as “Category 1” issues those for which the Staff’s analysis demonstrated the following:

- (1) The environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristics;
- (2) A single significance level (i.e., small moderate, or large) has been assigned to the impacts (except for collective off-site radiological impacts from the fuel cycle and from high-level waste and spent fuel); and
- (3) Mitigation of adverse impacts associated with the issue has been considered in the analysis and it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.⁴²

Issues not fitting all of the above criteria are classified as “Category 2” issues, for which a site-specific impacts analysis is required. The findings of the NRC’s review are summarized and codified in our regulations in 10 C.F.R. Part 51, Subpart A, Appendix B. Because the generic environmental analysis is incorporated into our regulations, Category 1 generic findings may not be challenged in individual license proceedings unless accompanied by a petition for rule waiver.⁴³ The environmental portion of a license renewal application, the applicant’s environmental report, may adopt the generic findings of the GEIS, but must also include site-specific analyses of Category 2 issues.⁴⁴ The Staff uses the applicant’s environmental report as

⁴¹ See Ex. NYS00131A, GEIS, Executive Summary at xxxv; see also 10 C.F.R. Part 51, subpt. A, app. B, Table B-1.

⁴² Ex. NYS00131A, GEIS, § 1.5, at 1-5.

⁴³ See 10 C.F.R. § 2.335; see also, e.g., *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-07-3, 65 NRC 13, 17-18 (2007) (*Vermont Yankee/Pilgrim*); *Turkey Point*, CLI-01-17, 54 NRC at 21-23. The GEIS also includes a process by which the NRC can seek to waive the application of the rule if a commenter on a draft supplemental EIS provides new, site-specific information demonstrating that the analysis of an impact codified in the rule is incorrect with respect to the particular plant. Ex. NYS00131A, GEIS, § 1.7, at 1-11.

⁴⁴ 10 C.F.R. § 51.53(c).

a starting point for its own environmental review of the application, the results of which are published as a supplement to the GEIS.⁴⁵

C. Standard of Review

We defer to the Board's factual findings unless they are clearly erroneous. We generally step in only to correct factual findings "not even plausible in light of the record reviewed in its entirety"—for example, where it appears that the Board has overlooked or misunderstood important evidence.⁴⁶ In contrast, with respect to legal issues, we review the Board's rulings *de novo* and will reverse a Board's legal rulings if they are contrary to established law.⁴⁷

II. DISCUSSION

A. NYS-8: Transformers

We find that the issue involved in Contention NYS-8 raises substantial and important questions of law and material fact, and therefore merits our review.⁴⁸ The Board's ruling on NYS-8 turned on whether transformers are "active" components, as the Staff has traditionally considered them, or "passive" components, as New York claimed and the Board ultimately concluded. We are convinced that transformers function by changing their properties, and are therefore properly considered active components. We find that the Board misinterpreted the regulation's exclusion from aging management review of components that function solely through a change in properties with no moving parts. In addition, the Board misinterpreted language in the Statements of Consideration for the 1995 License Renewal Rule that relates to

⁴⁵ *Id.* § 51.95(c).

⁴⁶ See, e.g., *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-06-15, 63 NRC 687, 697 (2006); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-05-19, 62 NRC 403, 411 (2005).

⁴⁷ *Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 11, 35 (2010).

⁴⁸ 10 C.F.R. § 2.341(b)(4)(i), (iii).

the ability to monitor an active component. As a result the Board created an erroneous legal test for determining whether a component is active, which in turn led to an implausible finding of fact relating to the same issue. We therefore find that the Board erred in its factual and legal determinations that transformers are passive components that require aging management review at the time of license renewal.

1. Maintenance of “Active” and “Passive” Components

As explained above, a license renewal application must demonstrate, among other things, that the licensee will adequately manage the effects of aging on passive, long-lived components so that their intended functions will be maintained consistent with the current licensing basis for the period of extended operation.⁴⁹ The regulation requires aging management review for those components that function “without moving parts and without a change in configuration or properties,” and includes a non-exhaustive list of components that either do or do not fit this description.⁵⁰ The 1995 Statements of Consideration cautioned, however, that “industry concepts of ‘passive’ . . . do not accurately describe the structures and components that should be subject to aging management review for license renewal.”⁵¹

NRC regulations require that all structures and components that are important to safety be maintained to manage the effects of aging. But most systems, structures, and components are adequately maintained under existing programs as required by the Maintenance Rule, 10 C.F.R. § 50.65, and other NRC regulations.⁵² The 1995 Statements of Consideration

⁴⁹ 10 C.F.R. § 54.21(a)(3).

⁵⁰ *Id.* § 54.21(a)(1)(i).

⁵¹ See Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,477.

⁵² 10 C.F.R. § 50.65(b). The Maintenance Rule requires monitoring or preventive maintenance for SSCs that are safety-related or are relied upon to mitigate accidents or transients, are used in the facility’s emergency operating procedures, or the failure of which could cause a reactor scram or prevent the safety-related SSCs from performing a safety-related function. See Ex.

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discussed the relationship between the License Renewal Rule and the Maintenance Rule.⁵³ The 1995 Statements of Consideration explained that, while the Maintenance Rule applies to passive components as well as active ones, passive components would likely receive “minimal preventive maintenance or monitoring to maintain [their] functionality” under that rule.⁵⁴ The License Renewal Rule generically excludes active components from aging management review because “[f]unctional degradation resulting from the effects of aging on active functions is more readily determinable, and existing programs and requirements are expected to directly detect the effects of aging.”⁵⁵ As the Staff explained in its hearing testimony, “[t]he Maintenance Rule, along with existing monitoring, surveillance, inspection and testing programs, serves the purpose for electrical transformers that an [aging management program] would serve for a passive component.”⁵⁶

2. Transformer Description and Operation

We provide a brief description of how a transformer functions to lay the groundwork for the controversy over whether the component is active or passive. A transformer is an electrical device that either converts alternating current at a certain voltage level to alternating current at a

ENT000101, Final Rule, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, 56 Fed. Reg. 31,306 (July 10, 1991) (Maintenance Rule Statements of Consideration); Ex. ENT000102, Final Rule, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, 58 Fed. Reg. 33,993 (June 23, 1993).

⁵³ Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,462, 22,465, 22,469-72.

⁵⁴ *Id.*, 60 Fed. Reg. at 22,470.

⁵⁵ *Id.* at 22,472.

⁵⁶ Ex. NRC000031, *NRC Staff's Testimony of Roy Mathew and Sheila Ray Concerning Contention NYS-8 (Transformers)* (Mar. 22, 2012), at 20 (NRC Staff NYS-8 Testimony).

different level or that provides isolation to electrical circuits.⁵⁷ The Board explained that a transformer is formed by winding two coils of wire around an iron core, which effects a conversion between electricity and magnetic energy:

The coil or winding used to input power to the transformer is called the primary winding. The coil or winding used to output power from the transformer is called the secondary winding. The alternating current in the primary coil produces a magnetic field in the iron core that constantly varies in magnitude over time and induces a voltage in the secondary winding. Although there is a slight loss of power, the magnetic field is contained in the iron core and impacts the secondary coil. The voltages and currents at output terminals of the transformer are in close relationship to the ratio of the turns of wire that exist in the primary and secondary transformer windings.⁵⁸

The parties recognize that some transformers, specifically station auxiliary transformers and the Unit 3 gas turbine auto-start transformer, perform license renewal intended functions and are therefore within the scope of license renewal.⁵⁹

3. The Board's Ruling

The Board based its decision on three lines of reasoning. First, it looked at how a transformer performs its intended function to determine whether it undergoes "a change in configuration or properties" within the meaning of 10 C.F.R. § 54.21(a)(1)(i).⁶⁰ Second, because the 1995 Statements of Consideration distinguished between active and passive components largely on the ability to monitor the performance and condition of active components, the Board

⁵⁷ LBP-13-13, 78 NRC at 407 (quoting Ex. ENTR00091, *Testimony of Applicant Witnesses Roger Rucker, Steven Dobbs, John Craig, and Thomas McCaffrey Regarding Contention NYS-8 (Electrical Transformers)* (Mar. 28, 2012), at 26-27 (Entergy NYS-8 Testimony)).

⁵⁸ *Id.* (internal citations and quotation marks omitted).

⁵⁹ Ex. ENTR00091, Entergy NYS-8 Testimony, at 98; Ex. NRC000031, NRC Staff NYS-8 Testimony, at 11, 17; Ex. NYSR00003, *Prefiled Written Testimony of Dr. Robert C. Degeneff Regarding Contention NYS-8* (Dec. 9, 2012), at 4 (New York NYS-8 Testimony); LBP-13-13, 78 NRC at 408 & n.1127.

⁶⁰ LBP-13-13, 78 NRC at 412-19.

considered whether transformers are “readily monitorable” to predict and prevent failure.⁶¹ Third, the Board compared transformers with other types of components listed in 10 C.F.R. § 54.21(a)(1)(i) as specifically falling into one category or the other, including electrical cables (expressly subject to aging management review) and transistors and batteries (expressly excluded from aging management review).⁶² The Board found that all three considerations favored the interpretation that transformers are passive components subject to aging management review. Because Entergy’s transformers have not undergone such review, the Board held that Entergy has not demonstrated that it will adequately manage the effects of aging on these components during the period of extended operation as required by 10 C.F.R. § 54.21(a)(1).⁶³

4. Admissibility of Contention NYS-8

We consider briefly the question of contention admissibility. Entergy argues that the Board should not have admitted Contention NYS-8 in the first instance because New York provided insufficient factual support for its claim.⁶⁴ We typically defer to a Board’s judgment on issues of whether a contention had adequate factual support to raise a genuine dispute. As we recently reiterated, we afford substantial deference to a licensing board’s decision to admit a contention.⁶⁵

⁶¹ *Id.* at 419-32.

⁶² *Id.* at 432-47.

⁶³ *Id.* at 449.

⁶⁴ Entergy Petition at 9-13. The Staff did not contest the admission of this contention in its petition for review.

⁶⁵ *Crow Butte Resources, Inc. (Marsland Expansion Area)*, CLI-14-2, 79 NRC 11, 26 (2014).

In its original intervention petition, New York supported its contention with the declaration of Paul Blanch, an electrical engineer with 25 years' experience.⁶⁶ Among the assertions in his declaration, Mr. Blanch stated that he had reviewed Entergy's license renewal application, cited directly to the application, and observed that several transformers at Indian Point perform functions as described in 10 C.F.R. § 54.4.⁶⁷ He further stated that transformers function without moving parts or without a change in configuration or properties.⁶⁸ Finally, he asserted that failure to properly manage aging of transformers could result in loss of emergency power to safety equipment, and that the application included no aging management program for transformers.⁶⁹ With this support, New York argued that transformers are important to safety and cited specific portions of the application in support of its assertions.⁷⁰ In response to the proposed contention, Entergy and the Staff both argued that the applicable guidance documents considered transformers to be active components.⁷¹ The Board admitted the contention,

⁶⁶ *New York State Notice of Intention to Participate and Petition to Intervene* (Nov. 30, 2007) (New York Petition to Intervene); *Declaration of Paul Blanch* (Nov. 8, 2007), at 5-6 (enclosed in *New York State Notice of Intention to Participate and Petition to Intervene and Supporting Declarations and Exhibits*, Volume I of II (Nov. 30, 2007)) (Blanch Declaration).

⁶⁷ Blanch Declaration at 5-6.

⁶⁸ *Id.* at 5.

⁶⁹ *Id.* at 5-6.

⁷⁰ New York Petition to Intervene at 105 (citing Indian Point 2 Updated Final Safety Analysis Report (Rev. 20 2006); Indian Point 3 Updated Final Safety Analysis Report (Rev. 20 2006), (admitted as exhibits NYSR0013G, NYSR0014G)).

⁷¹ *Answer of Entergy Nuclear Operation, Inc. Opposing New York State Notice of Intention to Participate and Petition to Intervene* (Jan. 22, 2008), at 69-73 (Entergy Board Answer); *NRC Staff's Response to Petitions for Leave to Intervene Filed by (1) Connecticut Attorney General Richard Blumenthal, (2) Connecticut Residents Opposed to Relicensing of Indian Point, and Nancy Burton, (3) Hudson River Sloop Clearwater, Inc., (4) the State of New York, (5) Riverkeeper, Inc., (6) the Town of Cortlandt, and (7) Westchester County* (Jan. 22, 2008), at 45 (NRC Staff Board Answer).

reasoning that the relevant guidance documents were not legally binding and finding that New York had established a genuine dispute over the proper classification of transformers.⁷²

Entergy's argument on appeal rests largely on our 2012 decision in the *Seabrook* license renewal proceeding, where we found a similar contention "too thinly supported" to be admissible.⁷³ The petitioner in the *Seabrook* proceeding appeared to have copied, largely without change, the arguments and expert testimony that New York had used to support NYS-8 in this proceeding.⁷⁴ As a result, the contention we rejected in *Seabrook* was nearly identical to the one litigated here. Entergy's appeal reasons that if the contention in *Seabrook* was inadmissible, the nearly identical NYS-8 must also have been inadmissible here.

In relying on *Seabrook*, Entergy essentially faults the Board for not ruling as we did four years later after considering different arguments and a different record. Despite the similarities, the record we had before us in *Seabrook* differed substantially from the record the Board had before it in 2008. The *Seabrook* petitioner neither offered information specific to Seabrook Station nor challenged the Seabrook license renewal application.⁷⁵ In contrast, New York's contention and expert declaration specifically challenged portions of the Indian Point license renewal application.

New York provided application-specific support for the factual assertions in its contention sufficient to satisfy our contention admissibility requirements. Entergy argues that the expert opinion accompanying New York's intervention petition did not adequately counter the longstanding Staff position on transformers, but this is a merits determination. In ruling on the

⁷² LBP-08-13, 68 NRC at 88-89.

⁷³ See *NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301, 315-22 (2012).

⁷⁴ See *id.* at 318-19 & n.108.

⁷⁵ See *id.*

contention's admissibility, the Board weighed the arguments and support before it at the time. Given that record, the Board's decision was not unreasonable. We therefore defer to the Board's judgment in admitting NYS-8.

5. *The Board Erred in Concluding that Transformers Are "Passive" Components under the License Renewal Rule*

a. *Relevant Guidance Designates Transformers as "Active"*

As an initial matter, the Staff and Entergy point out that all relevant license renewal guidance that speaks to transformers considers them to be active.⁷⁶ Guidance documents that are developed to assist in compliance with applicable regulations are, as Entergy and the Staff correctly observe, entitled to "special weight."⁷⁷ The Staff and Entergy argue that the Board dismissed the significance of the guidance documents and did not accord them the appropriate consideration. As discussed below, we agree.

The Staff has considered transformers to be exempt from aging management review since the early days of license renewal. The Standard Review Plan identifies transformers as active components not requiring an aging management plan.⁷⁸ The Staff's position originated with a 1997 letter from the Director of the License Renewal Project Directorate (the "Grimes Letter"), in which the Staff concluded that transformers were not subject to aging management review because transformers function through a change in state and can be readily monitored:

Transformers perform their intended function through a change in state by stepping down voltage from higher to a lower value, stepping up voltage to a higher value, or providing isolation to a load. Transformers perform their intended function through a

⁷⁶ Staff Petition at 18-19; Entergy Petition at 21-22.

⁷⁷ See, e.g., *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-22, 54 NRC 255, 264 (2001); *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-05-15, 61 NRC 365, 375 n.26 (2005); *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 290 (1988); see also Entergy Petition at 21-23.

⁷⁸ Ex. NYS000195, SRP-LR, § 2.5.3.2, at 2.1-26.

change in state similar to switchgear, power supplies, battery chargers, and power inverters which have been excluded in § 54.21(a)(1)(i) from an aging management review. Any degradation of the transformer's ability to perform its intended function is readily monitorable by a change in the electrical performance of the transformer and the associated circuits. Trending electrical parameters measured during transformer surveillance and maintenance such as Doble test results, and advanced monitoring methods such as infrared thermography, and electrical circuit characterization and diagnosis provide a direct indication of the performance of the transformer. Therefore, transformers are not subject to an aging management review.⁷⁹

Industry guidance on license renewal, NEI 95-10, refers to the Grimes Letter as the basis for the position that transformers need not be included in an integrated plant assessment.⁸⁰

Subsequently, the Staff developed Regulatory Guide 1.188 to provide guidance on the content of, and standard format for, a license renewal application. That guidance in turn endorsed the industry's approach in NEI 95-10 "without exceptions," reinforcing the view that transformers are not subject to aging management review.⁸¹

The Board considered the various documents that the Staff and Entergy provided to show there is a consensus that transformers are not properly subject to aging management review, including the Standard Review Plan, NEI 95-10, and Regulatory Guide 1.188.⁸² The Board acknowledged that the interpretation expressed therein was "not beyond the bounds of

⁷⁹ Ex. ENT000097, Grimes, Christopher I., NRC, letter to Douglas J. Walters, NEI, "Determination of Aging Management Review for Electrical Components" (Sept. 19, 1997), attachment at 2.

⁸⁰ Ex. ENT000098, Nuclear Energy Institute, Industry Guideline for Implementing the Requirements of 10 C.F.R. Part 54—The License Renewal Rule (Rev. 6 June 2005), at B-14, C-14 (NEI 95-10). NEI 95-10 provides methods that the Staff considers acceptable for complying with the requirements of 10 C.F.R. Part 54 for preparing a license renewal application.

⁸¹ Ex. ENT000099, Regulatory Guide 1.188, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses" (Rev. 1 Sept. 2005), at 4, 7 (Regulatory Guide 1.188).

⁸² LBP-13-13, 78 NRC at 416-17.

reason.”⁸³ But the Board concluded that these were “not independent assessments of a transformer’s activity, but merely a repetition of the previous position expressed in the 1997 Grimes Letter,” which, the Board found, had “scant documentation justifying its technical conclusions.”⁸⁴ Therefore, the Board disregarded the guidance documents and made its own determination, based on the evidence presented about whether transformers change their configuration or properties and are readily monitorable.

To be sure, Staff guidance documents do not have the force of law and we are not bound to follow them.⁸⁵ But we see no unusual circumstance in this proceeding that makes the guidance document inapplicable to Indian Point or which would justify lightly setting the guidance aside.⁸⁶ While it is true, as the Board states, that the later guidance documents repeated the analysis contained in the Grimes Letter, we do not agree that repetition invalidated the guidance or diminished its persuasiveness. In analyzing whether various components should be classified as “active” or “passive,” the Grimes Letter explained that the Staff had compared transformers to the examples of electrical devices that were listed in the regulation as excluded from aging management review, including circuit breakers, relays, and

⁸³ *Id.* at 417.

⁸⁴ *Id.*

⁸⁵ *International Uranium (USA) Corp.* (Request for Materials License Amendment), CLI-00-1, 51 NRC 9, 19 (2000); *Curators of the University of Missouri*, CLI-95-1, 41 NRC 71, 150 (1995). In *Yankee Rowe*, we also acknowledged that a standard review plan did not have the “force and effect of law.” CLI-05-15, 61 NRC 375 n.26. See also *Shoreham*, ALAB-900, 28 NRC at 290 (guidance documents “set neither minimum nor maximum regulatory requirements,” although they are entitled to “special weight”).

⁸⁶ Where the guidance is not directly applicable to the issue at hand, we afford the presiding officer greater leeway in its application (see, e.g., *Curators of the University of Missouri*, CLI-95-1, 41 NRC at 150 (guidance formulated for use in nuclear power plant licensing was not applicable in a materials license proceeding); *Private Fuel Storage*, CLI-01-22, 54 NRC at 264-65 (where no Staff guidance was available for the particular type of facility undergoing license review, the Board reasonably selected standard for a facility most like the facility under review)).

switches.⁸⁷ The Grimes Letter pointed out that the subject electrical components are monitored in the same manner as the electrical components expressly excluded from aging management review by the regulation.⁸⁸ The Grimes Letter also explained that the Staff considered “stepping up” and “stepping down” voltage and providing isolation to electric currents to be active functions.⁸⁹

Although we consider all the evidence to determine whether Entergy’s and the Staff’s evidence so overwhelmed that of New York as to make the Board’s factual findings (and resulting legal conclusions) clearly erroneous, the longstanding guidance of the NRC Staff weighs in the Staff’s and Entergy’s favor. The Board did not provide sufficient justification to decline to accord it the “special weight” appropriate for Staff guidance.

b. Transformers Function Through a Change in “Properties”

The Staff and Entergy argue that a transformer is an “active” component because it undergoes a change in properties when it performs its intended function, as described in 10 C.F.R. § 54.21(a)(1)(i).⁹⁰ The Staff and Entergy explained, in their prefiled written testimony and during the evidentiary hearing, that a transformer changes the voltage and current of electricity passing through it by means of a changing magnetic flux in its core.⁹¹ They argue that

⁸⁷ See Ex. ENT000097, Grimes Letter, attachment at 2. In addition to transformers, the Grimes Letter evaluated the status of indicating lights, heat tracing systems, and electric heaters (found to be active); fuses (found to be passive); and recombiners (found to require plant-specific analysis). *Id.* at 1-4.

⁸⁸ *Id.* at 2. (“These techniques include performance or condition monitoring by testing and maintenance/surveillance programs that include instrument checks, functional tests, calibration functional tests, and response time verification tests. The results of these tests can be analyzed and trended to provide an indication of aging degradation for these electrical components . . .”).

⁸⁹ *Id.*

⁹⁰ Staff Petition at 16-17; Entergy Petition at 14-16.

⁹¹ See, e.g., Ex. NRC000031, NRC Staff NYS-8 Testimony, at 6, 11; Ex. ENTR00091, Entergy NYS-8 Testimony, at 10-11, 33-36; Tr. at 4335-37 (Dobbs), 4354-55 (Ray and Mathew).

this change in magnetic flux is a change in “properties” as the regulation describes.⁹² For the reasons set forth below, we agree.

The Board held that a transformer does not perform its intended function through a change in properties or state. It accepted the theory of New York’s expert, Dr. Robert Degeneff, that voltage, current and magnetism are all properties of the electricity that passes through a transformer, not of the transformer itself.⁹³ In the Board’s view, it is the electricity, not the transformer, that undergoes a change in properties:

[T]he change in magnetism does not occur in the transformer itself . . . but, rather, is caused by the changes in the alternating current flowing through the transformer. To accept Entergy’s argument one also would have to consider cables to be “active” devices because of this change in magnetism.⁹⁴

The Board rejected the argument of Entergy’s expert, Dr. Steven Dobbs, that a transformer is “active” when it is “energized from an electrical source.”⁹⁵ The Board found that by this reasoning, *all* electrical devices would be considered active when they are turned on.⁹⁶ The Board also found compelling Dr. Degeneff’s representation that it is the prevailing view of the electrical engineering community that transformers are “passive.”⁹⁷ The Board concluded that a

⁹² Staff Petition at 16; Entergy Petition at 15.

⁹³ LBP-13-13, 78 NRC at 418; *see also id.* at 415 (citing Ex. NYSR00414, New York NYS-8 Rebuttal Testimony, at 11-12; Tr. at 4343 (Degeneff)).

⁹⁴ *Id.* at 447.

⁹⁵ *Id.* at 418 (citing Ex. ENTR00091, Entergy NYS-8 Testimony, at 11).

⁹⁶ *Id.*

⁹⁷ *Id.* (citing Tr. at 4442 (Degeneff)); *see also* Ex. NYSR00003, New York NYS-8 Testimony, at 6, 8-9; Ex. NYSR00414, New York NYS-8 Rebuttal Testimony, at 6-8). In its prefiled testimony, Entergy argued that the electrical engineering community considers transformers to be, not “passive” components, but “static” ones. Ex. ENTR00091, Entergy NYS-8 Testimony, at 12, 52-53. According to Dr. Dobbs, the electrical engineering community’s concept of “static” components also applies to transistors and battery chargers, both of which are specifically excluded from aging management review by 10 C.F.R. § 54.21(a)(1)(i). *Id.* But as noted above,

(continued . . .)

transformer is not active because its parts are the same “prior to, during, and after being energized, similar to electrical cables.”⁹⁸

As an initial matter, the Board’s emphasis on whether the transformers’ “parts change” during operation misinterprets the applicable regulation. The regulation on its face excludes from aging management review components that function *solely* through a change of properties with no moving parts.

In addition, we find that the Board erred as a factual matter in finding that a transformer does not function through a change in properties. The evidence shows that a transformer performs its intended function through a change in magnetic flux, which is a property of the transformer. Dr. Dobbs, in his written testimony, explained that the transformer changes the voltage of the current entering it through a change in its magnetism:

[T]ransformers are made with magnetic core materials, the magnetism of which can be changed by applying electric current to the primary winding. A transformer’s magnetism can be made to vary between very strong (full load) and very weak (no load). In fact a transformer is designed to change its magnetism, which clearly is a change in its properties and in some cases, a change in state from being “On” to being “Off” (or vice versa). . . . These changes in a transformer’s electromagnetic properties result directly from the transformer performing its intended function of supplying a load circuit with current at a specific voltage under varying conditions.⁹⁹

Magnetic flux, when used in different applications, can result in converting electrical energy to mechanical force (as in a motor), in converting mechanical force into electricity (as in a

the NRC explicitly stated in the 1995 Statements of Consideration that the components subject to aging management review under the regulation would not necessarily coincide with industry concepts of “passive” components. Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,477.

⁹⁸ LBP-13-13, 78 NRC at 447.

⁹⁹ Ex. ENTR00091, Entergy NYS-8 Testimony, at 35.

generator), or—as in the case of a transformer—in changing the magnitude of voltage and current.

A transformer's function is similar to other "active" electrical components listed in 10 C.F.R. § 54.21(a)(1)(i). The Grimes Letter recognized this similarity in determining that "transformers perform their intended function through a change in their state similar to switchgear, power supplies, battery chargers and power inverters" (all of which are excluded from aging management review by regulation).¹⁰⁰ For example, a battery charger uses changes in electrical and magnetic properties to convert alternating current power into the direct current it supplies to the battery being charged.¹⁰¹ And a power inverter uses a similar principle in reverse to transform direct current input to alternating current output (possibly at a different voltage).¹⁰² Just as with transformers, these active components work as electrical current from another power source passes through them, even though their internal parts may be the same "prior to, during and after being energized," as the Board said of transformers.¹⁰³

A comparison of transformers and transistors is especially apt. The 1995 Statements of Consideration used the transistor as an example of a component that functions through a change of "state" without movement.¹⁰⁴ A transistor is a three-terminal device made of semiconductor material (usually silicon), which can change its resistivity, or state, from low

¹⁰⁰ Ex. ENT000097, Grimes Letter, attachment at 2.

¹⁰¹ See Ex. NRC000031, NRC Staff NYS-8 Testimony, at 21.

¹⁰² Ex. ENTR00091, Entergy NYS-8 Testimony, at 81-82.

¹⁰³ LBP-13-13, 78 NRC at 418.

¹⁰⁴ Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,477. The 1995 Statements of Consideration explained that "a change in configuration or properties' should be interpreted to include 'a change in state' which is a term sometimes found in the literature relating to 'passive.'" *Id.*

resistivity (in which state it is a conductor) to high (in which state it is an insulator).¹⁰⁵ The change in a transistor's resistivity is achieved by "applying external voltages to 'bias' the transistor into the desired state."¹⁰⁶ The change in the transistor's state involves a change in its internal electrical fields, directly analogous to the change in the magnetic fields inside a transformer through which the transformer steps up or down the voltage and current of the electricity passing through it.¹⁰⁷ Entergy explained in its prefiled testimony that "the changing resistivity of the transistor and the changing magnetism of the transformer are both created and observed at the electrical terminals of the components where the voltages and currents vary during operation."¹⁰⁸ According to Entergy's expert, because the changing electromagnetic fields in each device determine the terminal voltages and currents, "the terminal voltages and currents also must be considered properties of both devices."¹⁰⁹

As another example, from the standpoint of electrical design and operating and functional characteristics, the transformer is akin to an induction motor. Both the induction motor and the electrical transformer operate on Faraday's law of electromagnetic induction.¹¹⁰

¹⁰⁵ Ex. ENTR00091, Entergy NYS-8 Testimony, at 73-74.

¹⁰⁶ *Id.* at 74.

¹⁰⁷ *Id.* Although it did not discuss transistors specifically in its findings, the Board generally cited the testimony of Dr. Degeneff in finding that transformers are more similar to passive devices than they are to active ones. LBP-13-13, 78 NRC at 444. Dr. Degeneff testified that "resistance" is a property of a transistor, whereas a changing magnetic field is not a "property" of a transformer. *Id.* at 440 (citing Ex. NYSR00414, New York NYS-8 Rebuttal Testimony, at 28-29). We disagree with that conclusion for the reasons given here.

¹⁰⁸ Ex. ENTR00091, Entergy NYS-8 Testimony, at 75.

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at 28. See also Ex. ENT000108, *Declaration of Steven E. Dobbs in Support of Entergy's Motion for Summary Disposition of New York State Contention 8* (Aug. 12, 2009), at 2-7. Electromagnetic induction (or induction) is a process where a conductor placed in a changing magnetic field (or a conductor moving through a stationary magnetic field) causes the production of a voltage across the conductor. This process of electromagnetic induction, in turn,

(continued . . .)

An induction motor is fundamentally a transformer in which the motor's stator is analogous to the primary winding in the transformer and the rotor is analogous to the transformer's secondary winding. In an electrical transformer, when voltage is applied to the primary winding, it draws load current and magnetizing current, which is required to magnetize the core. In a transformer, this magnetizing current produces flux which travels to the transformer's secondary winding.¹¹¹ In a motor, when voltage is applied to the stator winding it produces a rotating magnetic field. The resulting magnetic flux induces an electromagnetic field in the rotor, similar to the electromagnetic field induced in the secondary winding of the transformer. The rotor turns to oppose the rotating stator magnetic field. Aside from the difference that the induction motor's rotor turns while the transformer's secondary winding remains stationary, the principles of operation are the same. Thus, induction motors can be described as rotating transformers.

The Board's conclusion that a transformer is no more active than a cable disregards the difference between the transformer's active use of electromagnetic induction and the incidental magnetic flux that occurs as a side effect to the flow of electricity.¹¹² While it is true that current flowing through a cable will produce some magnetic flux, the flux is a byproduct of the cable's primary function. In a cable, magnetic flux actually impedes the component's sole function of conducting electrical current.¹¹³ Therefore, a cable does not "function" through changing

causes (or induces) an electrical current. Faraday's law mathematically relates the rate of change of the magnetic field flux with induced voltage. Simply put, Faraday's law states that a magnetic field of changing intensity perpendicular to a wire will induce a voltage along the length of that wire. The amount of voltage induced depends on the rate of change of the magnetic field flux and the number of turns of wire (if coiled) exposed to the change in flux.

¹¹¹ Ex. ENTR00091, Entergy NYS-8 Testimony, at 27-29.

¹¹² See LBP-13-13, 78 NRC at 447.

¹¹³ See Tr. at 4398-99 (Dobbs); see *also* Ex. ENTR00091, Entergy NYS-8 Testimony, at 65-67.

magnetic flux.¹¹⁴ For this reason, we find the Board's comparison of transformers to cables inapposite. The Board's comparison disregards the fact that the change in magnetism around a cable is not the means through which the cable performs its function. The Board similarly does not acknowledge the fact that the transformer, unlike the cable, uses this flux to perform the active function of altering the magnitude of current and voltage of the electricity that passes through it.

New York argues before us that the properties of a transformer are its "turns ratio, winding conductor dimensions, insulation type and thickness, core dimensions, and cooling capacity," none of which change.¹¹⁵ But this definition would restrict a component's "properties" to those characteristics that it maintains when it is "switched off." This narrow definition of "properties" would exclude other components such as induction motors and generators that are expressly listed as active in section 54.21(a)(1)(i). We decline to adopt New York's restrictive view of what constitutes a component's properties.

Our review of the factual record in its entirety demonstrates that the Board's findings are implausible. We find that the evidence is clear that transformers function through a change in properties, as the Staff has traditionally viewed them. As such, they are properly considered active components and excluded from aging management review by the terms of 10 C.F.R. § 54.21(a)(1)(i).

*c. The Board Misinterpreted the 1995 Statements of Consideration
With Respect to the Ability to Monitor Active Components*

The Board also considered whether transformers can be easily monitored for age-related degradation, because the 1995 Statements of Consideration distinguished between active and passive components partly on the basis of the relative ease of monitoring active

¹¹⁴ See Ex. ENTR00091, Entergy NYS-8 Testimony, at 67.

¹¹⁵ New York Answer at 18.

components. The Board considered the methods Entergy uses to determine whether its transformers are currently functional, as well as its programs for maintaining and monitoring transformers for aging degradation. The Board concluded that transformers are not “readily monitorable,” and that this conclusion supported its overall finding that transformers require an aging management program.¹¹⁶

On appeal, the Staff and Entergy argue that the Board misinterpreted what the 1995 Statements of Consideration meant by describing active components as “readily monitorable.”¹¹⁷ The Staff and Entergy argue that active components are excluded from aging management review because their function can be directly verified (and their failure immediately detected).¹¹⁸

In the 1995 Statements of Consideration, the NRC stated that compared with active components, passive components “generally do not have performance and condition characteristics that are as readily monitorable.”¹¹⁹ The NRC explained that licensees will be able to verify directly that active components remain functional, and provided examples of such components:

Performance and condition monitoring for systems, structures, and components typically involves functional verification, either directly or indirectly. Direct verification is practical for active functions such as pump flow, valve stroke time, or relay actuation where the parameter of concern (required function), including any design margins, can be directly measured or observed.¹²⁰

¹¹⁶ LBP-13-13, 78 NRC at 429.

¹¹⁷ Staff Petition at 16-18, 21; Entergy Petition at 16-19.

¹¹⁸ See Staff Petition at 21 & n.90; Entergy Petition at 17.

¹¹⁹ Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,477.

¹²⁰ *Id.* The Maintenance Rule also requires monitoring of a component’s “performance or condition.” 10 C.F.R. § 50.65(a)(1). The 1991 Statements of Consideration for the Maintenance Rule noted that monitoring “can be performance oriented (such as the monitoring of reliability and availability), condition-oriented (parameter trending) or both.” Ex. ENT000101, Maintenance Rule Statements of Consideration, 56 Fed. Reg. at 31,308.

These examples suggest that the “direct verification” to which the statement refers is verification that the component is currently working (although the Board did not take that view). The NRC provided two examples of passive functions—pressure boundary and structural integrity—that “are generally verified indirectly, by confirmation of physical dimensions or component physical condition.”¹²¹ The NRC went on to determine that exemption from aging management review for components that perform active functions is justified because of existing maintenance and monitoring programs under the Maintenance Rule.¹²²

At the evidentiary hearing, Entergy presented evidence that it continuously monitors transformers to assure that they are working and performs various tests both online and offline to track the harmful effects of aging. Both the Staff and Entergy explained that monitoring a transformer’s electrical currents at the terminal will indicate degradation, through a change in the transformer’s electrical output.¹²³ In addition, both Entergy and the Staff discussed the various tests Entergy employs to detect various aging mechanisms.¹²⁴ Such tests are performed when the transformer is both online and offline.¹²⁵ In its prefiled testimony, Entergy provided evidence that the transformer maintenance plan addressed every aging mechanism

¹²¹ Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,471.

¹²² *Id.* at 22,471-72.

¹²³ See Ex. NRC000031, Staff NYS-8 Testimony, at 17, Tr. at 4410-13 (Mathew) (monitoring at terminals can show over-current and under-voltage), 4396-97 (Dobbs).

¹²⁴ See Ex. ENTR00091, Entergy NYS-8 Testimony, at 96-104 (citing Ex. ENT000125, “Indian Point Energy Center Large Power Transformer Life Cycle Management Plan” (Indian Point Transformer Management Plan)); see *also* Ex. NRC000031, Staff NYS-8 Testimony, at 15-18. See *generally* Tr. at 4264-72 (McCaffrey, Mathew, and Ray), 4275 (Ray), 4280 (McCaffrey).

¹²⁵ Tests performed while the transformer is online include dissolved gas analysis, oil quality analysis, and furanic oil compound analysis. See Tr. at 4254 (McCaffrey). Tests performed offline include power factor, capacitance, hot collar, excitation current, leakage current, transformer turns ratio, and insulation resistance analyses. *Id.* at 4253-54 (McCaffrey).

that New York's expert identified as requiring monitoring.¹²⁶ New York argued, however, that transformers are not readily monitorable because "[a]ge related degradation will not be observable through changes in the operating characteristics of a transformer during its normal operation."¹²⁷

Looking to the 1995 Statements of Consideration for guidance, the Board first determined that monitoring of an active component should be able to detect functional degradation so that necessary maintenance and repairs can be performed prior to ultimate failure.¹²⁸ It also found that the "ability to detect incremental functional degradation (as opposed to gross failure) is the important criterion for a [system, structure, or component] to be considered "readily monitorable."¹²⁹ Applying this interpretation to transformers, the Board found that transformers are not "readily monitorable" because age-related degradation would "not be reflected in any noticeable change to the electrical characteristics of transformer operations."¹³⁰ The Board found that none of the various tests Entergy performs can detect a transformer's degradation by monitoring its "allegedly 'active' function[]"—its electrical output.¹³¹ Although the Board acknowledged that a transformer's performance can be "continuously" monitored by measuring the voltage and currents at the terminals, it found that this will only indicate what the Board termed "gross failure," that is, whether the transformer is performing its intended function or not.¹³²

¹²⁶ Ex. ENTR00091, Entergy NYS-8 Testimony, at 102-04.

¹²⁷ Ex. NYSR00003, New York NYS-8 Testimony, at 29.

¹²⁸ LBP-13-13, 78 NRC at 420.

¹²⁹ *Id.* at 421.

¹³⁰ *Id.* at 429.

¹³¹ *Id.* at 430.

¹³² *Id.* (citing Ex. NYSR00414, New York NYS-8 Rebuttal Testimony, at 36-39).

The Board therefore concluded that the inability to track incremental degradation of a transformer solely through monitoring its performance weighed toward subjecting the transformer to aging management review.¹³³ The Board's findings effectively created a standard by which a component is not "readily monitorable" unless it can be monitored for incremental degradation, through flagging performance, which is measured online and signals impending failure so that repairs can be made or replacement performed prior to component failure.

We conclude that the Board erred in effectively formulating a test for active components that conflated the idea of "direct verification" of performance with the need for performance and condition monitoring. The portion of the 1995 Statements of Consideration that the Board cited for the idea that monitoring must detect incremental degradation related to the general purpose of maintenance, not to the distinction between active and passive components.¹³⁴ While the Board is correct that managing the effects of aging requires the ability to detect degradation prior to component failure, the License Renewal Rule does not require that "direct verification" of a component's active function indicate incremental degradation. The Board thus took an unnecessarily narrow view of the term "readily monitorable" to distinguish between active and passive components. Such a test is inconsistent with the agency's intent to exclude active components from aging management review under the License Renewal Rule.

Consideration of other components that are specifically excluded from aging management review confirms the view that the essential distinction between active and passive components is the ability to verify functionality *directly*, not incrementally. For example, transistors and circuit boards cannot be monitored for incremental degradation through

¹³³ *Id.* at 432.

¹³⁴ *Id.* at 419-20 (citing Ex. NYS000016, 1995 Statements of Consideration, 60 Fed. Reg. at 22,469).

“performance monitoring,” yet both are classed as “active” components.¹³⁵ Active electrical components are monitored by their output performance—in other words, their “terminal characteristics.”¹³⁶ Moreover, electrical components such as circuit breakers, relays, and switches (each is listed as component excluded from aging management review in 10 C.F.R. § 54.21(a)(1)(i)), and transformers are all monitored in a similar way.¹³⁷ This evidence supports the Staff’s interpretation that components whose function can be confirmed directly—such as transformers—are appropriately classed as “active” components. We conclude that the Board created a standard for distinguishing between active and passive components that is not consistent with our regulations, and which therefore constitutes an error of law.¹³⁸

On appeal, New York additionally argues that “the purpose of the license renewal rule is not merely to detect functionality or performance, but instead, to detect aging (i.e., functional) degradation.”¹³⁹ While we agree with New York on this point, it is equally true that the purpose of *both* the License Renewal Rule and the Maintenance Rule (as well as other requirements related to maintenance) is to counter the effects of aging so that a component’s intended function is maintained. In this vein, we are persuaded that transformers are monitored for

¹³⁵ Ex. ENTR00091, Entergy NYS-8 Testimony, at 100.

¹³⁶ Tr. at 4396-97 (Dobbs).

¹³⁷ Ex. NRC000031, NRC Staff NYS-8 Testimony, at 12-13. Tests for these components include “instrument checks functional tests, calibration tests, and response time verification,” which are trended and analyzed for indications of component degradation. *Id.*

¹³⁸ Entergy also challenges the Board’s third line of reasoning, which compared transformers to the components specifically listed in 10 C.F.R. § 54.21(a)(1)(i) as either requiring aging management review or not. Entergy Petition at 19-21. See LBP-13-13, 78 NRC at 444-47. Given its findings with respect to whether transformers change properties and are “readily monitorable,” the Board’s finding that transformers are more like the listed passive components than they are like listed active components was, perhaps, a foregone conclusion. In view of our findings with respect to the same matters, we need not address the validity of the Board’s comparisons.

¹³⁹ New York Answer at 22.

indications of aging degradation by a variety of means. In sum, we find that the Board erred in its formulation and application of the concept of ready monitorability.

d. Conclusion

For the reasons set forth above, we hold that the Board's findings of fact with respect to transformers are not plausible in light of the record viewed as a whole. Entergy and the NRC Staff have presented convincing arguments that transformers appropriately are classified as active components. Therefore, any purported deficiencies in the Indian Point Transformer Management Plan are addressed under Part 50 and as part of the Staff's ongoing oversight activities, rather than in the context of license renewal.¹⁴⁰ We reverse the Board's merits decision in LBP-13-13 with respect to Contention NYS-8. We conclude that aging management review is not needed to ensure that transformers are appropriately monitored and maintained during the period of extended operation.

B. CW-EC-3A: Environmental Justice

1. Background

Clearwater's Contention CW-EC-3A, as originally submitted, argued that the Staff's environmental justice analysis in the FSEIS failed to recognize that a severe accident at Indian Point would have potentially greater impacts to certain disadvantaged populations surrounding the facility. Clearwater questioned the effectiveness of Entergy's emergency planning for Indian Point to meet the particular needs of people who, according to Clearwater, are less able to evacuate or effectively shelter in place relative to the general population. In LBP-13-13, the Board agreed with Clearwater that the difference in ability to evacuate in an emergency could

¹⁴⁰ The Indian Point Transformer Management Plan (and related inspection, maintenance and monitoring procedures) are not before us today, and we do not review their adequacy. This program is subject to the inspection and enforcement tools that are applied as part of routine plant operations. As always, any member of the public may seek enforcement action associated with matters affecting plant operation, including the vitality of component maintenance programs, pursuant to 10 C.F.R. § 2.206.

cause a “disproportionate and adverse” effect on low-income and minority populations, but it found that the hearing record itself served to supplement the environmental justice discussion in the FSEIS.¹⁴¹ The Board therefore ruled in favor of the Staff in finding that no further supplementation of the FSEIS was needed. Parties on both sides of the issue now seek our review.

The NRC Staff and Entergy seek partial review of the Board’s ruling on the ground that the contention itself—even though ultimately resolved in the Staff’s favor—raised issues that are outside the scope of license renewal and, in part, already determined generically.¹⁴² Both the Staff and Entergy ask us to set aside the underlying rationale that the “impacts” of emergency response actions must be considered in a license renewal environmental analysis.¹⁴³ Entergy further argues that the Board’s factual finding of a disproportionate effect was not supported.¹⁴⁴ In addition, Entergy claims that the Board erred both in admitting the contention and in denying motions *in limine* filed by both itself and the Staff.¹⁴⁵ The Staff and Entergy ask that the erroneous rulings be set aside so that future boards will not be persuaded by what they see as this Board’s flawed reasoning.¹⁴⁶

Clearwater appeals the Board’s ruling that the FSEIS, as supplemented by the adjudicatory record, contained a sufficient environmental justice analysis.¹⁴⁷ Clearwater argues that the evidence adduced at hearing only touched on specific examples of how various minority

¹⁴¹ LBP-13-13, 78 NRC at 521-44.

¹⁴² See Staff Petition at 24-41; Entergy Petition at 24-43.

¹⁴³ Staff Petition at 31-41; Entergy Petition at 37-39.

¹⁴⁴ Entergy Petition at 41-42.

¹⁴⁵ *Id.* at 33-37.

¹⁴⁶ Staff Petition at 25; Entergy Petition at 31.

¹⁴⁷ See *generally* Clearwater Petition.

and low-income populations could be disproportionately and adversely affected by renewal of the Indian Point operating licenses. It asks us to remand the FSEIS to the Staff for a “detailed examination, discussion, and analysis” of these effects, including potential “mitigation measures” and recirculation for further public comment.¹⁴⁸ New York submitted an answer supporting Clearwater’s petition for review.¹⁴⁹

We find that all three petitions for review raise substantial questions of law and procedure, and therefore we grant review.¹⁵⁰ We affirm the Board’s decision as to CW-EC-3A in part and reverse it in part. Although this contention ultimately was resolved in the Staff’s favor, we will take review as a matter of discretion because the Board’s ruling raises substantial questions of precedential importance.¹⁵¹ Here, the Board’s ruling, if left to stand, reasonably would be expected to have a significant impact on future license renewal proceedings, both by widening the scope of inquiry to encompass emergency planning issues, and by restricting the Staff’s ability to rely on the GEIS.

For the reasons discussed below, we reverse the Board’s ruling insofar as it required the Staff’s environmental justice analysis to discuss emergency planning measures and to revisit impacts analyses already determined in the GEIS. But we affirm the Board’s underlying procedural ruling that a hearing record and Board decision may, as a general matter,

¹⁴⁸ *Id.* at 4.

¹⁴⁹ New York CW-EC-3A Answer. See 10 C.F.R. § 2.341(b)(3) (any other party to the proceeding may file an answer “supporting or opposing” Commission review).

¹⁵⁰ 10 C.F.R. § 2.341(a)(4)(iii), (iv).

¹⁵¹ See *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), ALAB-577, 11 NRC 18, 23-25 (1980), *modified*, CLI-80-12, 11 NRC 514 (1980); see also *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-252, 8 AEC 1175, 1177-78 (1975) (holding that a party may seek reconsideration of an earlier ruling whereby the party was not actually prejudiced, where the ruling “could well have an impact upon the course of many licensing hearings”).

supplement an environmental impact statement as well as its conclusion that this record needed no further supplementation.

a. *Environmental Justice and CW-EC-3A*

The term “environmental justice” refers to the federal policy established in 1994 by Executive Order 12898, which 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.”¹⁵² 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.¹⁵³ In a 2004 policy statement on environmental justice matters, we reiterated our 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.¹⁵⁴ The NRC Staff developed its own guidance, using the Council on Environmental Quality’s guidelines for implementing environmental justice as a reference.¹⁵⁵ As particularly relevant here, the Staff’s guidance governing its environmental

¹⁵² Ex. ENT000259, “Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations,” Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994) (E.O. 12898).

¹⁵³ See Selin, Ivan, NRC Chairman, letter to President Clinton (Mar. 31, 1994) (ML033210526). See *generally* Ex. ENT000260, Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 69 Fed. Reg. 52,040, 52,040-41 (Aug. 24, 2004) (Environmental Justice Policy Statement).

¹⁵⁴ Ex. ENT000260, Environmental Justice Policy Statement, 69 Fed. Reg. at 52,048.

¹⁵⁵ Ex. ENT000261, NRR, Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues, app. D (Rev. 1) (May 24, 2004) (NRR Procedural Guidance); see *also* Ex. ENT000266, Council on Environmental Quality, Environmental Justice Guidance Under the National Environmental Policy Act (Dec. 10, 1997) (CEQ Guidance).

review of license renewal applications sets forth its procedures for identifying and analyzing environmental justice issues.¹⁵⁶

At the outset of the proceeding, Clearwater proposed several bases for its environmental justice contention, but the Board accepted only the argument relating to emergency evacuation in the event of a severe accident at Indian Point.¹⁵⁷ The Board rejected the Staff's and Entergy's arguments that the contention impermissibly challenged "emergency planning."¹⁵⁸ While the Board acknowledged that emergency planning is not a license renewal issue with respect to *safety* contentions under Part 54 regulations, it reasoned that Part 51 environmental contentions may be broader in scope.¹⁵⁹ The Board therefore admitted the narrowed contention as CW-EC-3 (Clearwater Environmental Contention 3) and later admitted an amended version of the contention, addressing the Staff's analysis in the FSEIS, which it designated CW-EC-3A:

Entergy's environmental report and the Final Supplemental Environmental Impact Statement contain seriously flawed environmental justice analyses that do not adequately assess the impacts of relicensing Indian Point on the minority, low-income and disabled populations in the area surrounding Indian Point.¹⁶⁰

¹⁵⁶ Ex. ENT000261, NRR Procedural Guidance, app. D.

¹⁵⁷ LBP-08-13, 68 NRC at 196-201. The Board rejected as factually unsupported Clearwater's arguments relating to a claimed disproportionate rate of cancers in the area and subsistence fishing. *Id.* at 200. Clearwater does not appeal the Board's contention admissibility determination.

¹⁵⁸ NRC Board Answer at 98; *Answer of Entergy Nuclear Operations, Inc. Opposing Hudson River Sloop Clearwater Inc.'s Petition to Intervene and Request for Hearing* (Jan. 22, 2008), at 63-64.

¹⁵⁹ LBP-08-13, 68 NRC at 201.

¹⁶⁰ Order (Ruling on Pending Motions for Leave to File New and Amended Contentions) (July 6, 2011), at 52-60, 72 (unpublished).

At the same time, the Board rejected additional proposed amendments to the contention on grounds of timeliness and materiality.¹⁶¹

b. FSEIS Environmental Justice Analysis

Environmental justice is a “Category 2” issue that must be considered in each license renewal review.¹⁶² In accordance with its guidance, the Staff’s environmental justice review for license renewal consists of: (1) identifying the locations of environmental justice populations that may be affected by the license renewal, (2) determining whether there would be any potential human health or environmental effects to these populations, and (3) determining if any such effects may be disproportionately high and adverse when compared with effects on the general population.¹⁶³ Applying these standards, the Staff found no disproportionately high and adverse impacts to minority and low-income populations from the continued operation of Indian Point Units 2 and 3 during the license renewal period.

The FSEIS addresses environmental justice primarily in Chapter 4, “Environmental Impacts of Operation.”¹⁶⁴ Chapter 4 first describes the methods the Staff used to identify

¹⁶¹ *Id.* at 56-60. Clearwater does not challenge this ruling.

¹⁶² 10 C.F.R. Part 51, subpt. A, app. B, Table B-1.

¹⁶³ See Staff Petition at 30 (citing Ex. NRC000063, *NRC Staff Testimony of Jeffrey J. Rikhoff and Patricia A. Milligan Regarding Contention CW-EC-3A (Environmental Justice)* (Mar. 30, 2012), at 11-12 (Staff Environmental Justice Testimony); see also Ex. ENT000261, NRR Procedural Guidance, at D-3 to D-11.

¹⁶⁴ Ex. NYS00133B, FSEIS, § 4.4.6. Environmental justice is also discussed in Chapter 8, “Environmental Impacts of Alternatives to License Renewal,” with respect to the alternatives of renewing the Indian Point licenses with a closed cycle cooling system and of not renewing the licenses (which assumes that replacement power would be needed). The Staff did not find that any disproportionately high and adverse impacts to minority and low-income populations were likely to occur with the alternatives analyzed in Chapter 8. See Ex. NYS00133C, FSEIS, § 8.1.1, at 8-18; § 8.2, at 8-26; § 8.3.1, at 8-36 to 8-37; see also *id.*, Tables 8-1, 8-2, 8-3, 9-1.

minority and low-income populations that may be affected by the proposed license renewal.¹⁶⁵ Chapter 4 then documents the Staff's examination of potential human health or environmental effects on these populations to determine if these effects could be disproportionately high and adverse. Among the effects considered are socioeconomic impacts to minority and low-income populations, such as to employment and to the tax base. The Staff concluded that employment levels and tax revenue would not change during the license renewal term, resulting in no additional socioeconomic impact to minority and low-income populations during the period of extended operation beyond what is currently being experienced.¹⁶⁶

Chapter 4 of the FSEIS then discusses the potential radiological impacts to the environmental justice population, both from continuing normal operations and from potential accidents during the period of extended operation. The Staff concluded that severe accidents would cause no "disproportionately high" effects on the environmental justice population, because the probability-weighted consequences of such an accident are low for all populations, or, in FSEIS terms, they have a "small" impact:

Potential impacts to minority and low-income populations would mostly consist of radiological effects; however radiation doses from continued operations associated with license renewal are expected to continue at current levels, and would remain within regulatory limits. Chapter 5 discusses the environmental impacts from postulated accidents that might occur during the license renewal term, which include both design basis and severe accidents. In both cases, the Commission has generically determined that impacts associated with such accidents are SMALL because nuclear plants are designed and operated to successfully withstand design basis accidents, and the probability weighted impacts risks associated with severe accidents [are] also SMALL.¹⁶⁷

¹⁶⁵ Ex. NYS00133B, FSEIS, § 4.4.6, at 4-49 to 4-53. Clearwater does not challenge the Staff's identification of minority and low-income populations on appeal.

¹⁶⁶ *Id.*, § 4.4.6, at 4-53.

¹⁶⁷ *Id.* Design basis accidents are accidents the calculated probability of which is considered sufficiently high that the facility must be designed to withstand them without undue hazard to

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Therefore, the Staff concluded that continuing operations would have minimal radiological impact to minority and low-income populations.

Chapter 5 of the FSEIS relies on Chapter 5 of the GEIS, which explains how the Staff arrived at the determination that the “probability-weighted consequences” of postulated accidents during the period of extended operation are small.¹⁶⁸ As relevant here, the GEIS estimated the future risks associated with extending the licenses of existing reactors for an additional twenty years. The GEIS examined the severe accident consequence analyses from twenty-eight nuclear sites (comprising the forty then-most-recently licensed operating units) to extrapolate the accident consequences for all plants.¹⁶⁹ The GEIS identified severe accident consequences as a Category 1 issue and found that the probability-weighted impacts of such accidents are small for all plants.¹⁷⁰ As a general matter, GEIS Chapter 5 reflects the Commission’s generic determination that the impacts from postulated accidents that might occur during the period of extended operation are small, because nuclear plants are designed and operated to successfully withstand design basis accidents and the probability of severe accidents is so low. Chapter 5 of the FSEIS therefore relies on the GEIS’s generic finding that the probability-weighted consequences of severe accidents are “small.”¹⁷¹

public health and safety. Severe accidents are those which could cause substantial damage but which are deemed so unlikely that the overall risk from them is small. See Ex. NYS00131C, GEIS, § 5.2.1.

¹⁶⁸ See Ex. NYS00131C, GEIS, ch. 5.

¹⁶⁹ Ex. NYS00131C, GEIS, § 5.3.3. A summary of the methodology used is given in § 5.3.3.2.1, at 5-19.

¹⁷⁰ See *id.*, § 5.5 at 5-114 to 5-115. The GEIS separately analyzed impacts from atmospheric releases, fallout to open bodies of water, and groundwater contamination.

¹⁷¹ Ex. NYS00133B, FSEIS, § 5.1, at 5-3 to 5-4.

Consistent with Executive Order 12898, the Staff also examined special pathways of exposure that could lead to a higher level of radiation exposure in minority and low-income populations in the area “including subsistence consumption of fish, native vegetation, surface waters, sediments, and local produce.”¹⁷² Because Indian Point’s radiological environmental monitoring program showed that routine operations have had “no significant or measurable radiological impact on the environment,” the Staff concluded that “no disproportionately high and adverse human health impacts would be expected in special pathway receptor populations.”¹⁷³

c. The Evidentiary Hearing and the Board’s Decision

Before the Licensing Board, Clearwater’s case turned on its claim that the emergency preparedness plans for Indian Point would not provide equivalent protection for all segments of the population surrounding Indian Point.¹⁷⁴ Clearwater offered written and oral testimony of several witnesses who addressed subjects including the obstacles to evacuating prisons, hospitals, nursing homes, and other institutions.¹⁷⁵ Clearwater argued that certain populations,

¹⁷² *Id.*, § 4.4.6, at 4-54; see also Ex. ENT000259, E.O. 12898, 59 Fed. Reg. at 7631-32.

¹⁷³ See Ex. NYS00133B, FSEIS, § 4.4.6, at 4-56. Entergy’s radiological monitoring program is discussed in more detail at Ex. NYS00133A, FSEIS § 2.2.7.

¹⁷⁴ See generally Ex. CLER00002, *Initial Statement of Position for Clearwater’s Contention EC-3A Regarding Environmental Justice* (Dec. 22, 2011), at 19-32 (Clearwater Position Statement). Clearwater addressed some groups—incarcerated persons, children, the elderly and the disabled—who are not considered environmental justice populations *per se*. Executive Order 12898 specifically directs agencies only to consider special impacts to “minority and low-income populations.” Clearwater provided evidence for its assertion that there is overlap among incarcerated persons, children, the elderly, and the disabled and environmental justice populations. See, e.g., Ex. CLE000003, *Testimony of Dr. Michael Edelstein in Support of Hudson River Sloop Clearwater, Inc.’s Contention Regarding Environmental Justice* (Dec. 22, 2011), at 2 (Edelstein Testimony) (89% of Sing Sing Correctional Facility population is minority); Ex. CLE000010, *Initial Prefiled Written Testimony of Manna Jo Greene Regarding Clearwater’s Environmental Justice Contention EC-3A* (Dec. 22, 2011), at 6-7, 14 (Greene Testimony) (Head Start day care centers and nursing homes largely serve low-income populations).

¹⁷⁵ See Ex. CLE000003 (Edelstein Testimony) (impacts on prisoners); Ex. CLE000004, *Testimony of Anthony Papa in Support of Hudson River Sloop Clearwater, Inc.’s Contention Regarding Environmental Justice (EC-3A)* (Oct. 11, 2011) (Papa Testimony) (impacts on

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such as hospital patients and nursing home residents, would not be able to evacuate and would therefore have to “shelter in place,” which Clearwater argued is a less desirable alternative to evacuation.¹⁷⁶ Clearwater also argued that there would not be adequate public transportation to evacuate low-income or disabled people who do not own their own vehicles.¹⁷⁷ In addition, it claimed that language barriers would prevent some minority populations from understanding emergency instructions.¹⁷⁸

The Board rejected efforts by both the NRC Staff and Entergy to exclude emergency planning issues from the hearing at the contention admissibility stage and throughout the proceeding. In response to Clearwater’s prefiled testimony and exhibits, Entergy filed a motion *in limine* challenging all or portions of several Clearwater submissions.¹⁷⁹ The Board denied the

prisoners); Ex. CLE000005, *Initial Prefiled Written Testimony of Erik A. Larsen, MD, FACEP Regarding Clearwater’s Environmental Justice Contention EC-3A* (Dec. 22, 2011) (care of ambulatory and non-ambulatory patients under evacuation conditions); Ex. CLE000010, Greene Testimony (emergency planning issues associated with day care centers, nursing homes, hospitals, homeless shelters, and jails); Tr. at 2799-801 (Dr. Edelstein on prison conditions), 2803-06 (Mr. Papa on conditions associated with evacuation at the Sing Sing Correctional Facility).

¹⁷⁶ Ex. CLER00002, Clearwater Position Statement, at 2, 24, 26; see Ex. CLE000006, *Testimony of John Simms in Support of Hudson River Sloop Clearwater, Inc.’s Contention Regarding Environmental Justice* (Oct. 11, 2011) (assisted living facility resident’s perspective on obstacles to evacuation or sheltering in place); Ex. CLE000009, *Initial Prefiled Written Testimony of Stephen Filler Regarding Clearwater’s Environmental Justice Contention EC-3A* (Dec. 22, 2011) (attorney’s analysis of the emergency plans of Westchester County, Rockland County, and New York State concerning provisions for sheltering non-ambulatory populations in place).

¹⁷⁷ Ex. CLER00002, Clearwater Position Statement, at 2, 27-28, 29-31. See also Ex. CLE000007, *Initial Prefiled Written Testimony of Aaron Mair Regarding Clearwater’s Environmental Justice Contention* (Dec. 22, 2011), at 8-9.

¹⁷⁸ Ex. CLER00002, Clearwater Position Statement, at 28, 32; Ex. CLE000008, *Initial Prefiled Written Testimony of Dolores Guardado Regarding Clearwater’s Environmental Justice Contention EC-3A* (Dec. 22, 2011) (impacts to Hispanic community).

¹⁷⁹ Specifically, Entergy sought to exclude: (1) portions of the testimony of Dr. Edelstein, Mr. Mair, and Mr. Filler; (2) all of the testimony of Ms. Greene, Dr. Larson, Mr. Papa, Mr. Simms, and Ms. Guardado; and (3) eleven other exhibits in their entirety, to which these witnesses had

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motion in its entirety, finding that it was “capable of distinguishing between disparaging comments against Indian Point’s emergency plans and Clearwater’s witnesses’ descriptions of how certain [environmental justice] populations will be adversely harmed by a severe accident compared to the general population.”¹⁸⁰ The Board later denied, from the bench and without explanation, motions *in limine* by both Entergy and the Staff with respect to Clearwater’s rebuttal testimony.¹⁸¹

At the evidentiary hearing, the Board first questioned the Staff’s methodology for identifying minority and low-income populations.¹⁸² The Board then questioned the Staff and Entergy’s witnesses about emergency planning, such as thresholds for evacuation and the provisions made for various populations.¹⁸³ Clearwater presented testimony from nine witnesses concerning factors that Clearwater believes would interfere with either timely evacuation or effective sheltering in place.¹⁸⁴

In its partial initial decision, the Board held that the Staff’s FSEIS failed to take a “hard look” at the question whether renewing the Indian Point operating licenses would have

referred in the challenged testimony. See *Entergy’s Motion in Limine to Exclude Portions of Prefiled Testimony and Exhibits for Contention CW-EC-3A (Environmental Justice)* (Jan. 30, 2012), at 7-24.

¹⁸⁰ See Order (Granting in Part and Denying in Part Applicant’s Motions *in Limine*) (Mar. 6, 2012), at 35 (unpublished).

¹⁸¹ See Tr. at 1265 (Oct. 15, 2012); *Entergy’s Motion in Limine to Exclude Portions of Clearwater’s Rebuttal Filings on Contention CW-EC-3A (Environmental Justice)* (July 30, 2012) (seeking to eliminate challenges to the emergency plans, discussions of non-environmental justice populations, and new arguments concerning evacuations necessitated by terrorist attacks on Indian Point); *NRC Staff’s Motion in Limine to Exclude Portions of Prefiled Rebuttal Testimony and Rebuttal Exhibits Regarding Contention CW-EC-3A (Environmental Justice)* (July 30, 2012) (seeking to eliminate challenges to the emergency plans, discussions of non-environmental justice populations, and testimony not responsive to prior testimony).

¹⁸² See Tr. at 2735-57.

¹⁸³ *Id.* at 2758-83.

¹⁸⁴ *Id.* at 2783-866.

“disproportionate and adverse” impacts on the minority and low-income populations when compared to the impacts on the non-environmental justice population. The Board found that “while the risk to both the environmental justice and non-environmental justice population is small, the higher risk to environmental justice populations should be discussed.”¹⁸⁵

The Board found that the Staff had failed to follow its own internal procedure for determining if the proposed action would have disproportionately high and adverse effects on environmental justice populations and, as a consequence, that the Staff’s environmental justice analysis fell short in two respects.¹⁸⁶ First, the Board held that the Staff incorrectly compared the effects on the environmental justice populations during the period of extended operation to the effects on the same population from current operations. The Board found that the correct comparison is, rather, whether environmental justice populations would suffer “disproportionate and adverse effects” during the period of extended operations in comparison to the general population.¹⁸⁷ Second, the Board found that the FSEIS should analyze whether certain members of the public might not be able to evacuate as quickly, or shelter-in-place as effectively, as the general population.¹⁸⁸ The Board reasoned that “this type of total population analysis without a specific [environmental justice] population analysis defeats the purpose of [environmental justice] analyses under NEPA.”¹⁸⁹

Despite finding these shortcomings in the Staff’s analysis, the Board rejected Clearwater’s argument that the FSEIS should be remanded to the Staff for further discussion

¹⁸⁵ See LBP-13-13, 78 NRC at 543.

¹⁸⁶ LBP-13-13, 78 NRC at 543; see also *id.* at 540 (citing Ex. ENT000261, NRR Procedural Guidance).

¹⁸⁷ *Id.* at 541.

¹⁸⁸ *Id.* at 540-41.

¹⁸⁹ *Id.* at 541.

and analysis of mitigation measures. Relying on our 1998 decision in *Louisiana Energy Services*,¹⁹⁰ the Board held that the FSEIS was supplemented by its decision as well as by the hearing record.¹⁹¹ Specifically, the Board held that the testimony of Clearwater's witnesses "sufficiently illustrated the potentially disproportionate and adverse impacts on the environmental justice population surrounding Indian Point in the event of a severe accident."¹⁹² Therefore, the Board ultimately ruled in the Staff's favor, holding that the "record now contains evidence of informed public participation and adequate analysis to foster informed decisionmaking" and that the NRC had therefore met its burden under NEPA.¹⁹³

2. The Staff's and Entergy's Petitions for Review

Although the Staff's and Entergy's petitions do not align in all respects, they agree in their principal objection to the Board's ruling: that the Board's decision impermissibly expands the scope of license renewal to consider questions of emergency planning and "impermissibly alter[s] the generic conclusions regarding the environmental effect of license renewal."¹⁹⁴ Both also argue that, while the Board correctly resolved Contention CW-EC-3A in favor of the Staff, it

¹⁹⁰ *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 89 (1998).

¹⁹¹ LBP-13-13, 78 NRC at 542-43; *see also id.* at 543 n.2107 ("the Commission and the public have been presented with the relevant [environmental justice] facts so that an informed decision can be made"). *See* 10 C.F.R. §§ 52.102, 52.103 (the decision of the Board or Commission becomes the record of decision, which may also incorporate the final environmental impact statement); *see also Nuclear Innovation North America LLC* (South Texas Project, Units 3 and 4), CLI-11-6, 74 NRC 203, 208-09 (2011); *Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 526 (2008), *petition for review denied on other grounds, San Luis Obispo Mothers for Peace v. NRC*, 635 F.3d 1109 (9th Cir. 2011); *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 53 (2001).

¹⁹² LBP-13-13, 78 NRC at 543.

¹⁹³ *Id.* at 543-44.

¹⁹⁴ Staff Petition at 24-29; Entergy Petition at 27-36.

employed an incorrect rationale. Entergy and the Staff ask us to find that the discussion of environmental impacts to “environmental justice populations” in the FSEIS satisfied the NRC’s obligations under NEPA. We therefore discuss these two appeals together. We find, for the reasons discussed below, that the contention was legally flawed and raised issues outside the scope of license renewal.

a. The Board Erred in Allowing Collateral Attacks on Indian Point Emergency Plans

The Staff and Entergy both argue that the Board’s ruling should be reversed because emergency planning is a safety issue that is appropriately addressed as part of a facility’s current licensing basis. The adequacy of emergency planning is evaluated by the Commission on an ongoing basis as part of its oversight of operating reactors under 10 C.F.R. Part 50. Entergy and the Staff argue that emergency planning therefore falls outside the scope of this license renewal proceeding. We agree. As discussed below, we hold that the Board erred in requiring the Staff to reevaluate emergency preparedness in the context of a license renewal NEPA analysis. And although the Board has considerable discretion in the conduct of the evidentiary hearing, we find that its denial of the motions *in limine* in this instance resulted in a hearing beyond the scope of license renewal and constituted procedural error.

The NRC expressly considered whether to include a review of emergency planning considerations when it promulgated the License Renewal Rule. In the 1991 Statements of Consideration for the first License Renewal Rule, the Commission explained that the licensee must maintain an emergency plan, review it annually through an independent reviewer, and conduct periodic exercises to measure the plan’s effectiveness.¹⁹⁵ The Indian Point emergency plans, like those of any facility, are subject to ongoing regulatory oversight and periodic assessment. For example, the offsite emergency plans are reviewed biennially by the NRC and

¹⁹⁵ Ex. ENT000270, 1991 Statements of Consideration, 56 Fed. Reg. at 64,966-67; see 10 C.F.R. § 50.54(q) (emergency planning requirements).

the Federal Emergency Management Agency (FEMA) in a comprehensive emergency preparedness exercise.¹⁹⁶ In response to public comment on the subject, the Commission determined that these periodic reviews and exercises ensure that the plans will be “adequate throughout the life of any plant even in the face of changing demographics and other site-related factors.”¹⁹⁷ For these reasons, the Commission amended its emergency planning regulation to provide specifically that “[n]o finding under this section is necessary for issuance of a renewed nuclear power reactor operating license.”¹⁹⁸

Because emergency planning is addressed as part of ongoing plant oversight and is appropriately outside the scope of license renewal, the license renewal environmental review may not serve as a “back door” to litigating the effectiveness of site emergency plans. In the recently revised GEIS, the NRC reconsidered the emergency planning issue in response to public comments and reconfirmed that “there is no need for a special review of emergency planning issues in the context of an environmental review for license renewal” because emergency planning is reviewed and updated throughout the life of an operating plant:

[T]he programs for emergency preparedness at nuclear power facilities apply to all nuclear power facility licensees and require the specified levels of protection from each licensee regardless of plant design, construction, or license date. Requirements related to emergency planning . . . will continue to apply to facilities with renewed licenses. Through its standards and required exercises, the Commission reviews existing emergency preparedness plans throughout the life of any facility keeping up with changing demographics and other site-related factors.¹⁹⁹

¹⁹⁶ See 10 C.F.R. § 50.47(a)(2); 10 C.F.R. Part 50, Appendix E, § IV.F.2.

¹⁹⁷ Ex. ENT000270, 1991 Statements of Consideration, 56 Fed. Reg. at 64,966.

¹⁹⁸ 10 C.F.R. § 50.47(a)(1)(i).

¹⁹⁹ GEIS (Rev. 1), § 1.7.3, at 1-14 to 1-15; § 1.9, at 1-31.

In making this determination, the Commission again referenced the 1991 Statements of Consideration for the original License Renewal Rule to reaffirm that emergency planning is not a license renewal issue.²⁰⁰

Emergency plans are approved by the NRC and FEMA and are updated on an ongoing basis.²⁰¹ Carrying out the offsite emergency plans is primarily the responsibility of the counties surrounding the plant, with the support of the States in which the counties are located. As explained below, emergency plans include provisions to address the very concerns that Clearwater raised in its contention.

In contrast to this ongoing review, the FSEIS is a “snapshot” in time” of expected environmental consequences.²⁰² Although an environmental impact statement should discuss reasonably foreseeable environmental impacts associated with a proposed action, as well as measures to mitigate such impacts, it is not the appropriate vehicle to address the evolving circumstances that are inherent in emergency preparedness, such as changing demographics and changing offsite infrastructure. Rather, it is appropriate for the Staff to assume for purposes of its NEPA analysis that an effective emergency plan will be in place throughout the life of the plant. We find that the Board erred in admitting and litigating a contention that constituted an impermissible collateral attack on emergency preparedness plans, which are outside the scope of this proceeding.

²⁰⁰ *Id.*; see also Ex. ENT000270, 1991 Statements of Consideration, 56 Fed. Reg. at 64,966.

²⁰¹ See 10 C.F.R. § 50.47; see also Ex. NRC000063, Staff Environmental Justice Testimony, at 8, 23, 24-25.

²⁰² *Luminant Generation Co., LLC* (Comanche Peak Nuclear Power Plant, Units 3 and 4), CLI-12-7, 75 NRC 379, 391-92 (2012).

b. The Board Erred in Allowing a Collateral Attack on the GEIS Category 1 Finding Associated With Severe Accident Consequences

In LBP-13-13, the Board found that the Staff's environmental justice analysis improperly failed to assess the "disproportionate and adverse" impacts to "environmental justice populations" that might result from actions taken in response to a severe accident.²⁰³ In making this ruling, the Board in effect improperly allowed Clearwater to challenge the GEIS's generic finding regarding severe accident consequences.²⁰⁴ Although environmental justice, as stated above, is a Category 2 issue that must be addressed in individual license renewal proceedings, the environmental impact of severe accidents has been assessed generically through rulemaking and may not be revisited in individual licensing actions. As reflected in the GEIS, and codified in 10 C.F.R. Part 51, Table B-1, the probability-weighted environmental consequences of severe accidents are small.²⁰⁵ The FSEIS specifically relied on this generic determination in the GEIS.²⁰⁶

The Board found that the Staff improperly used the FSEIS finding regarding the environmental consequences of severe accidents to "exempt itself" from evaluating the potential "disproportionate and adverse" effects of a severe accident on the environmental justice

²⁰³ LBP-13-13, 78 NRC at 539; *see also id.* at 540, 541, 542.

²⁰⁴ *See* 10 C.F.R. § 2.335. The Supreme Court has approved our use of rulemaking to address generic issues. *See Balt. Gas & Elec. Co. v. Natural Res. Def. Council, Inc.*, 462 U.S. 87, 98 (1983). Where special circumstances make a generic rule inapplicable to a particular proceeding, a participant may petition for a rule waiver or exception. *See* 10 C.F.R. § 2.335(b); *Vermont Yankee/Pilgrim*, CLI-07-3, 65 NRC at 20 ("In theory, Commission approval of a waiver could allow a contention on a Category 1 issue to proceed where special circumstances exist."). Clearwater did not seek a waiver, nor do we find that Clearwater provided sufficient information to call into question the generic determination regarding severe accident consequences as it relates to Indian Point.

²⁰⁵ Ex. NYS00131C, GEIS, § 5.5, at 5-114 to 5-115.

²⁰⁶ Ex. NYS00133A, FSEIS, § 4.4.6.

population.²⁰⁷ The Board cited the U.S. Court of Appeals for the District of Columbia Circuit in *New York v. NRC* for the proposition that only if the probability of a severe accident is so small as to be effectively zero could the Staff “dispense with the consequences portion of the analysis.”²⁰⁸

As an initial matter, the Board’s repeated reference to a finding of “disproportionate and adverse” impacts misstates the provisions of Executive Order 12898: the Executive Order directs agencies to examine “*disproportionately high and adverse*” impacts to environmental justice populations.²⁰⁹ Although the Board briefly acknowledged the GEIS’s generic determination that the probability-weighted impacts of a severe accident are small, the remainder of its ruling assumes the magnitude of this impact determination is irrelevant. By the terms of the Executive Order, magnitude is relevant. In addition, Council on Environmental Quality guidance on environmental justice provides that in determining whether health effects are “disproportionately high and adverse,” agencies should consider whether the risks are “significant (as employed by NEPA) or above generally accepted norms.”²¹⁰ As discussed further in section e below, estimated doses to *all* populations in the event of a severe accident are expected to be within regulatory limits, that is, within generally accepted norms.²¹¹

²⁰⁷ LBP-13-13, 78 NRC at 542; *see also id.* at 387 (“[W]hile the risk to both the [environmental justice] and [non-environmental justice] population is small, the higher risk to the [environmental justice] population should be discussed in an adequate [environmental justice] analysis.”).

²⁰⁸ *New York*, 681 F.3d 471, 482 (D.C. Cir. 2012). The court made this statement in the context of its decision to vacate the agency’s 2010 Waste Confidence Decision and Temporary Storage Rule. As relevant here, the court found fault with the NRC’s analysis of spent fuel fires, arguing that the NRC improperly failed to assess the consequences of such fires.

²⁰⁹ Ex. ENT000259, E.O. 12898, 59 Fed. Reg. at 7629 (emphasis added).

²¹⁰ Ex. ENT000266, CEQ Guidance, at 26.

²¹¹ Ex. NRC000063, Staff Environmental Justice Testimony, at 12.

Moreover, the Board's reliance on the court's holding in *New York v. NRC* is misplaced. The court in *New York* stated that an agency conducting a NEPA analysis "must examine both the probability of a given harm occurring *and* the consequences of that harm if it does occur."²¹² In the license renewal GEIS, the Staff did not "dispense with the consequences portion of the analysis." Rather, the Staff assessed the severe accident consequences for a large number of licensed facilities in reaching its determination and came to the conclusion that the probability-weighted consequences of a severe accident are small for all plants.²¹³ In performing the environmental justice assessment for Indian Point, the Staff reasonably relied on its generic analysis, which took consequences into account.²¹⁴

We find that the Staff reasonably relied on its findings in the GEIS that the probability-weighted consequences of a severe accident are small for all populations. As the Staff observes, the GEIS evaluation took into account emergency response effectiveness and warning time as part of its consideration of severe accident consequences.²¹⁵ Clearwater provided no evidence that radiation doses received by any group as a result of a severe

²¹² *New York v. NRC*, 681 F.3d at 482.

²¹³ See, e.g., Ex. NYS00131C, GEIS, at 5-29, Table 5-5 (information used for regression analyses for expected early, latent and total dose at 28 nuclear plant sites for the license renewal period).

²¹⁴ We recently reaffirmed, in the *Pilgrim* license renewal proceeding, that the GEIS findings with respect to severe accident consequences are not subject to challenge in individual license renewal proceedings. *Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-10-11, 71 NRC 287, 316 (2010).

²¹⁵ Ex. NYS00131C, GEIS, at 5-102 (discussing uncertainties associated with modeling the atmospheric transport of radioactivity that could affect the magnitude of early and late health consequences in the event of a severe accident). In addition, when preparing the GEIS, the Staff reviewed the Final Environmental Statements for plants that had addressed severe accidents. The Staff concluded that those evaluations "consider[ed] the effects of site-specific emergency planning in calculating exposures and risks to the public." *Id.* § 5.3.3.2.1, at 5-26. The Staff found that these reviews "include sites with populations that reasonably cover the range of populations at all 74 sites" and thereby "[the] GEIS analysis should reasonably account for the effects of emergency planning." *Id.*

accident would exceed federal guidelines. The Board therefore erred in holding that the Staff must analyze “possible disproportionate and adverse” impacts to some populations when the Staff has generically determined that the societal and economic impacts from severe accidents are small for all plants.

c. The Board Erred in Finding that the Staff Analyzed the Wrong Variables in its Environmental Justice Review

The Staff asks us to set aside the Board’s finding that it “analyzed the wrong variables” in its environmental justice analysis.²¹⁶ The Board, citing the Staff’s hearing testimony, found that the Staff compared impacts on minority and low-income populations during the period of extended operation to the impacts of current operation on the same groups. The Board held that “the correct analysis” would compare impacts to “environmental justice populations” with the impacts to the general population during the period of extended operation.²¹⁷ We find that the Board did not misstate the applicable rule, but that it clearly erred by misinterpreting the Staff’s analysis.

On appeal, the Staff explains that it used the current human health and environmental effects as a “baseline” for assessing potential impacts to minority and low-income populations during the period of extended operation.²¹⁸ Because it initially determined that the current impacts to “environmental justice populations” are small, and because it expects those impacts to remain unchanged during the period of extended operation, the Staff concluded that there

²¹⁶ Staff Petition at 40-41.

²¹⁷ LBP-13-13, 78 NRC at 541 (citing Tr. at 2751-52, 2476 (Rikhoff)); see also *id.* at 540-41, 543.

²¹⁸ Staff Petition at 40.

would be no disproportionately high and adverse impacts on environmental justice populations during the period of extended operation.²¹⁹

The Staff's guidance describes the procedure it follows in performing its environmental justice analysis.²²⁰ After identifying the locations of minority and low-income populations within a 50-mile radius of the facility, the Staff determines whether there are "potentially significant environmental impacts" to minority and low-income populations.²²¹ The Staff then determines whether the impacts would be "disproportionately high and adverse" when compared to the general population. The guidance directs the Staff to consider the following questions:

- Are the radiological or other effects significant or above generally accepted norms? Is the risk or rate of hazard significant and appreciably in excess of the general population? Do the radiological or other health effects occur in groups affected by cumulative or multiple adverse exposures from environmental hazards?
- Is there an impact on the natural or physical environment that significantly and adversely affects a particular group? Are there any significant adverse impacts on a group that appreciably exceed those on the general population? Do the environmental effects occur or would they occur in groups affected by cumulative or multiple adverse exposure from environmental hazards?²²²

Applying these standards, and relying on the GEIS determination that the probability-weighted consequences of severe accidents are small, the Staff determined that there would be no "potentially significant environmental impacts to" environmental justice populations. The Board

²¹⁹ *Id.* at 41.

²²⁰ Ex. ENT000261, NRR Procedural Guidance, app. D.

²²¹ *See id.* at D-8 to D-9.

²²² *Id.* at D-10.

acknowledged that this procedural guidance, which is based on CEQ guidelines, complies with NEPA.²²³

The environmental justice discussion in the FSEIS states that radiation doses “are expected to continue at current levels and would remain within regulatory limits. Therefore, there would be no additional human health impact . . . on minority and low-income people.”²²⁴

At the hearing, Staff witness Jeffrey Rikhoff testified that the Staff looked for increased effects during the period of extended operation:

From an operational standpoint, we could not discern that there would be an increase in the workforce at the plant or that radiological effects would be increased. So we had . . . no effect to investigate, no increased new or added effect that we would be required to investigate under our current guidance.²²⁵

The Board cited Mr. Rikhoff’s testimony in concluding that the correct comparison had not been made.²²⁶ But the comparison would be incorrect only if identified environmental justice populations were already experiencing “disproportionately high and adverse” environmental effects; we find no evidence of such circumstances in the record. As discussed above, Clearwater did not establish that there would be any such effects.

We agree with the Board that an environmental justice analysis correctly compares impacts to minority and low-income populations to those experienced by the general population, but we find that this is what the Staff did in its analysis. In contrast, Clearwater did not demonstrate a disparity between impacts to the environmental justice population and impacts to the general population, such that impacts to the former would be disproportionately high and

²²³ LBP-13-13, 78 NRC at 540.

²²⁴ Ex. NYS00133B, FSEIS § 4.4.6, at 4-53.

²²⁵ Tr. at 2752 (Rikhoff).

²²⁶ LBP-13-13, 78 NRC at 532-33.

adverse, either currently or during the period of extended operation. For these reasons, we find that the Board erred in finding that the Staff compared the wrong variables in its environmental justice analysis. We reverse the Board's decision on this point.

d. The Board's Decision Does Not Reflect How It Weighed the Evidence

Entergy also argues that the Board erred in denying its motions *in limine*, which sought to exclude emergency planning issues from the evidentiary hearing.²²⁷ As a general matter, the boards have considerable discretion in their evidentiary rulings.²²⁸ But after denying the motions *in limine*, the Board failed to “distinguish between attacks on the emergency plan” and evidence concerning a disproportionately large and adverse impact on minority and low-income populations. The Board did not parse the evidence to demonstrate how it used Clearwater's witness testimony to supplement the record, nor did it address the Staff's and Entergy's contrary witness testimony in its decision. As a result, neither the parties nor the public can understand whether—and how—the Board considered and weighed that contrary testimony. The absence of such reasoning constitutes reversible procedural error. In the end, the error was not prejudicial since the Staff—as a technical matter—prevailed on the contention.

Although the Board ultimately found that the FSEIS did not need further supplementation, the Board's decision presented only Clearwater's testimony that certain populations would be left behind in the event of a severe accident. Instead of providing a clearly reasoned decision as to which, if any, of Clearwater's concerns presented a realistic obstacle to effective emergency preparedness, the Board simply recounted the testimony.²²⁹ To be sure, even had the Board provided a thorough discussion of all the parties' evidence and witness

²²⁷ Entergy Petition at 36-37.

²²⁸ See, e.g., *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 27 (2004).

²²⁹ LBP-13-13, 78 NRC at 530-39.

credibility, it would not resolve the Staff's and Entergy's fundamental objection that the emergency planning contention was litigated at all. But the Board did not present and discuss the evidence provided by the Staff and Entergy to show that the plans take into account the safety of all potentially affected populations.

The Staff's and Entergy's presentations before the Board provided evidence that the needs of "movement restricted" people are already considered—and provided for—in emergency planning.²³⁰ Each county surrounding Indian Point has an emergency plan that includes plans for transporting people who do not have access to a vehicle by bus to reception centers outside the emergency planning zone.²³¹ The State of New York also has a Radiological Emergency Preparedness Plan that sets forth its role in assisting the counties surrounding the four nuclear power plant facilities that could impact its residents.²³² The county emergency plans provide for moving schoolchildren to pre-determined, alternative locations to be reunited with their parents should their schools be evacuated.²³³ In addition, these emergency plans take into account persons who would need assistance to evacuate, such as

²³⁰ See, e.g., Ex. NRC000063, Staff Environmental Justice Testimony, at 26; Ex. ENT000258, *Testimony of Entergy Witnesses Donald P. Cleary, Jerry L. Riggs, and Michael J. Slobodien Regarding Contention CW-EC-3A (Environmental Justice)* (Mar. 29, 2012), at 49-61 (Entergy Environmental Justice Testimony); Tr. at 2769 (Slobodien).

²³¹ See, e.g., Ex. ENT00286A, "Rockland County Radiological Emergency Preparedness Plan" (May 2010), at III-35 to III-42 (Rockland Emergency Plan); ENT00285A, "Westchester County Radiological Emergency Plan for the Indian Point Energy Center" at III-32 (Westchester Emergency Plan); see also Ex. ENT000287, Westchester County Indian Point Emergency Planning Guide (2010-2011), at 9-13 (Westchester Planning Guide); Ex. ENT000288, Rockland County Emergency Planning for Indian Point Booklet (2011-2012), at 12-17 (Rockland Planning Guide).

²³² See generally Ex. ENT000272, "New York State Radiological Emergency Preparedness Plan for Commercial Nuclear Power Plants" (March 2011) (New York Emergency Plan).

²³³ See, e.g., Ex. ENT000288, Rockland Planning Guide, at 6-7 (unnumbered); Ex. ENT000287, Westchester Planning Guide, at 7-8.

residents of hospitals and nursing homes.²³⁴ People who would need assistance in evacuating but do not live in a special facility may identify themselves to emergency planners in advance of an emergency by mailing in a postcard, or during an emergency by calling a telephone number that will be furnished through the news media.²³⁵ The record also reflects that correctional facilities have evacuation plans, although sheltering in place would “likely be the initial protective action.”²³⁶

The Staff and Entergy also provided evidence that sheltering in place is not necessarily an inferior option compared to evacuation. According to Entergy’s prefiled testimony, sheltering in place is an appropriate option for protective action in accordance with FEMA regulations and Environmental Protection Agency guidelines.²³⁷ Staff witness Patricia Milligan testified that sheltering in place, contrary to being a less-protective alternative to evacuation, is “a preferred action when emergency events develop rapidly and/or evacuation would be problematic.”²³⁸ According to Ms. Milligan, “Sheltering in place does not mean that the affected populations will receive a higher or harmful radiation dose because they did not immediately evacuate.”²³⁹ She confirmed that, regardless of whether a population evacuates or shelters in place, estimated

²³⁴ See, e.g., Ex. ENT00286A, Rockland Emergency Plan, at III-39 to III-40; ENT00285A, Westchester Emergency Plan, at III-32; Ex. ENT000272, New York Emergency Plan, at III-35.

²³⁵ Ex. ENT000272, New York Emergency Plan, at III-35.

²³⁶ See Ex. ENT000258, Entergy Environmental Justice Testimony, at 53-55.

²³⁷ See *id.* at 56-57 (citing Ex. ENT00284A, U.S. Environmental Protection Agency, “Manual of Protective Action Guides and Protective Actions for Nuclear Incidents” (1992), at 1-5 (EPA Protective Action Manual)).

²³⁸ Ex. NRC000063, Staff Environmental Justice Testimony, at 28.

²³⁹ *Id.* at 31; see also Tr. at 2762-63 (Milligan).

radiation doses are conservatively estimated to be within regulatory limits.²⁴⁰ Moreover, the choice to shelter a particular population in place is not based on any characteristic peculiar to minority or low-income communities, but on considerations of the safety of the individuals involved.²⁴¹

With respect to non-English-speaking minorities, the Staff and Entergy provided evidence that provisions had been made to make emergency planning information available in other languages where necessary.²⁴² FEMA guidelines require that if any non-English language is spoken by more than five percent of a county's population, then the county must plan for communications in that language.²⁴³

In contrast to the evidence presented by the Staff and Entergy, much of Clearwater's testimony does not appear to take into account the existing emergency planning measures for Indian Point.²⁴⁴ Clearwater's testimony also focused on populations such as the elderly, pre-school children, and the disabled, which are not environmental justice populations *per se*, and on facilities such as nursing homes and day care centers, which were not shown to house

²⁴⁰ Ex. NRC000063, Staff Environmental Justice Testimony, at 12; Tr. at 2763, 2764-65 (Milligan) (in calculating projected dose from a release, no credit is given for shielding of a building).

²⁴¹ See Ex. ENT00284A, EPA Protective Action Manual, at 2-5 to 2-7.

²⁴² Ex. NRC000063, Staff Environmental Justice Testimony, at 37 (Spanish language emergency information materials are available in both Westchester and Rockland counties, in accordance with FEMA requirements).

²⁴³ See Ex. ENT000295, FEMA, Program Manual, Radiological Emergency Preparedness (2011), at II-33.

²⁴⁴ See, e.g., Tr. at 2872 (Guardado) (witness had not seen any information about evacuation planning in Spanish prior to her involvement in the proceeding below); Ex. CLE000004, Papa Testimony, at 3 (during his years at Sing Sing, witness never "saw any planning whatever for evacuation . . . and never heard anyone discuss an evacuation plan").

primarily minority or low-income populations.²⁴⁵ As a result, Clearwater's claimed "disproportionately high and adverse" effects were not shown to be primarily linked to identified environmental justice populations.

Given our ruling with respect to emergency planning and the generic findings in the GEIS, we need not consider whether the Board's findings of fact with respect to environmental justice were "clearly erroneous." Upon review of the extensive evidentiary record, however, we note that the Staff and Entergy provided substantial evidence that the emergency preparedness plans consider all segments of public in the event of a severe accident with offsite consequences at Indian Point.²⁴⁶ The purpose of the FSEIS is "to inform the decisionmaking agency and the public of a broad range of environmental impacts that will result, with a fair degree of likelihood, from a proposed project, rather than to speculate about 'worst case' scenarios and how to prevent them."²⁴⁷ Viewing the record as a whole, and giving due weight to all parties' testimony on this contention—which the Board did not do—we find that the Staff and Entergy have demonstrated that no particular population segment will suffer a disproportionately high risk of radiological exposures from a severe accident.²⁴⁸

²⁴⁵ See, e.g., Ex. CLE000010, Greene Testimony, at 6-12 (day care centers), 13-22 (nursing and retirement homes). *But see* Ex. NRC000063, Staff Environmental Justice Testimony, at 20-22 (disabled individuals and prisoners are only counted among the environmental justice population if they are also either minority or low-income).

²⁴⁶ The Board did not find that the emergency plans were insufficient to protect all populations, and correctly acknowledged that the issue of whether those plans provide adequate protection was not before it. LBP-13-13, 78 NRC at 539.

²⁴⁷ *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Facility), CLI-02-25, 56 NRC 340, 347 (2002); *see also id.* at 352 ("NEPA's mandate to federal agencies, as we see it, is to consider a broad range of environmental effects that are reasonably likely to ensue as a result of major federal action.").

²⁴⁸ Concerns about a facility's emergency plans may be raised at any time pursuant to 10 C.F.R. § 2.206. See, e.g., *Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), DD-06-2, 63 NRC 425 (2006).

In sum, as discussed above, we find that the Staff's environmental analysis in the FSEIS appropriately considered the reasonably foreseeable impacts of license renewal to environmental justice populations. Contention CW-EC-3A improperly raised matters, including emergency preparedness and challenges to the GEIS, that are outside the scope of license renewal. We conclude that the Board thus erred in both its admission of the contention and its conclusion that the Staff's environmental justice analysis required supplementation beyond what was contained in the FSEIS.

3. *Clearwater's Petition for Review*

Clearwater's petition for review raises an important legal question that is not necessarily related to the emergency planning questions. Clearwater argues that that our longstanding practice of supplementing the Staff's environmental review document with the hearing record and adjudicatory findings is contrary to NEPA. Clearwater maintains, citing the Board's own language, that the potential disparities in impacts to minority and low-income populations are merely "illustrated" by the evidentiary record, and that the Staff has yet to analyze these effects.²⁴⁹ Therefore, Clearwater argues that the Board's findings were insufficient to satisfy NEPA. New York's answer in support of Clearwater makes a similar argument, adding that, in New York's view, the Board's decision effectively circumvents the requirement that the Staff consider mitigation measures.²⁵⁰

Clearwater asserts that because the Board found the FSEIS deficient, the FSEIS must be remanded to the Staff for further supplementation, including "an examination of the circumstances and conditions and discussion and analysis of not just one or two but each of the movement restricted institutions or communities within the [environmental justice] population to

²⁴⁹ Clearwater Petition at 7.

²⁵⁰ New York CW-EC-3A Answer at 14-15.

determine the scope of the risk, impact and disparity [of impacts],” and a “detailed discussion of possible mitigation measures.”²⁵¹ Given the conclusions we reach above that the Staff was not required to address emergency planning in the context of license renewal or in the context of its environmental justice review, we find no need for further supplementation of the record of this proceeding. But even had we agreed with the Board’s finding of a disparate impact, there would not necessarily be a need to direct the Staff to supplement or recirculate the FSEIS.

Our regulations provide that 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.”²⁵² Section 51.102(c) “merges the [FSEIS] with any relevant licensing board decision.”²⁵³ The current provision replaced a previous version that expressly permitted licensing boards to “modify the content” of an environmental impact statement.²⁵⁴ We have consistently interpreted section 51.102(c) to provide that environmental impact statements are modified by any subsequent Board or Commission decision.²⁵⁵

²⁵¹ Clearwater Petition at 11. See generally New York CW-EC-3A Answer.

²⁵² 10 C.F.R. § 51.102(c).

²⁵³ See *Philadelphia Electric Co.* (Limerick Generating Company, Units 1 and 2), ALAB-819, 22 NRC 681, 706 (1985), *aff’d in part*, CLI-86-5, 23 NRC 125 (1986), *remanded in part on other grounds sub nom. Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (1989).

²⁵⁴ *Id.*

²⁵⁵ See *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 61 (2012); *LES*, CLI-06-15, 63 NRC at 700 (FEIS “as amplified by” both Board and Commission decisions, provided adequate consideration of environmental impacts of near-surface waste disposal); *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-28, 62 NRC 721, 731 (2005) (approving Board’s decision to incorporate material from a U.S. Department of Energy Programmatic Environmental Impact Statement, which was submitted in the hearing record, as part of the record of decision); see also *South Texas*, CLI-11-6, 74 NRC at 208-09; *Hydro Resources*, CLI-01-4, 53 NRC at 53. The NRC’s approach has also been approved by the courts of appeal. See, e.g., *New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87, 93-94 (1st Cir. 1978) (Licensing Board decision modifying a Final Environmental Statement “satisfied the spirit of NEPA”); *Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291, 1294 n.5 (D.C. Cir. 1975) (Appeal Board’s ruling that the environmental impact statement was “deemed

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There is good reason to deem an EIS modified by the hearing record. Our hearing procedures “[allow] for additional and a more rigorous public scrutiny of the [FSEIS] than does the usual ‘circulation for comment.’”²⁵⁶ Clearwater had months to marshal its evidence for hearing, had the opportunity to respond to the Staff’s and Entergy’s evidence, and had the benefit of extensive Board questions to party witnesses. Clearwater is mistaken that our hearing process allows an “end run” around NEPA’s requirement to engage the public in the NEPA process.²⁵⁷

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.²⁵⁸ For the

modified” by the parties’ stipulations at hearing did not violate the “letter or spirit” of NEPA); *Ecology Action v. AEC*, 492 F.2d 998, 1001-02 (2d Cir. 1974) (nothing in “any . . . decision of which we are aware holds that any deficiency in a FEIS is automatic ground for reversal of an order granting a permit although the issue has been opened for full consideration in an agency hearing”).

²⁵⁶ *Limerick*, ALAB-819, 22 NRC at 707.

²⁵⁷ Separate from the hearing process, the Staff provided extensive opportunities for public participation during the preparation of the FSEIS. The Staff held public meetings and solicited comments on the scoping process and on the draft SEIS. See Entergy Nuclear Operations, Inc. Indian Point Nuclear Generating Unit Nos. 2 and 3; Notice of Intent to Prepare an Environmental Impact Statement and Conduct Scoping Process, 72 Fed. Reg. 45,075 (Aug. 10, 2007); Indian Point Nuclear Generating Unit Nos. 2 and 3; Notice of Availability of the Draft Supplement 38 to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants and Public Meeting for the License Renewal of Indian Point Generating Unit Nos. 2 and 3, 73 Fed. Reg. 80,440 (Dec. 31, 2008). Several commenters took the opportunity to raise the concern that evacuation plans may have not kept up with changing demographics. See Ex. YS00133D, FSEIS, app. A, at A-106 to A-107.

²⁵⁸ Clearwater argues that the Board’s ruling could not supplement the FSEIS because it included no specific analysis or findings. Clearwater Petition at 7-9; see also New York CW-EC-3A Answer at 16-17. We observe that, were supplementation of the FSEIS called for in this case, the Board’s ruling on environmental justice should have been more clear. For example, it is not apparent whether the Board found that differences in the ability to evacuate would lead to higher radiological exposures to the minority and low-income populations living near Indian Point, or that the difference between self-evacuation and relying on rescuers is inherently a “disproportionate impact.” At a minimum, a ruling that supplements the record should state clearly what evidence the Board found credible, whether the evidence supports or alters the Staff’s conclusions in the environmental impact statement, and what the impact of the

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
ENTERGY NUCLEAR OPERATIONS, INC.) Docket Nos. 50-247-LR
) and 50-286-LR
(Indian Point Nuclear Generating,)
Units 2 and 3))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **COMMISSION MEMORANDUM AND ORDER CLI-15-6** have been served upon the following persons by Electronic Information Exchange.

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Dated at Rockville, Maryland
this 9th day of March, 2015