

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF'S PROPOSED FINDINGS OF FACT
AND CONCLUSIONS OF LAW
PART 10: CONTENTION CW-EC-3A (ENVIRONMENTAL JUSTICE)

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In accordance with 10 C.F.R. § 2.1209 and the Atomic Safety and Licensing Board's Orders,¹ the NRC Staff ("Staff") hereby submits its proposed findings of fact and conclusions of law ("Proposed Findings" or "PFF") regarding the nine contested "Track 1" contentions in this proceeding. The Staff's Proposed Findings are set forth in ten separate filings, as follows:

- Part 1: Overview and Regulatory Standards;
- Part 2: Contention NYS-5 (Buried Piping and Tanks);
- Part 3: Contention NYS-6/7 (Non-EQ Inaccessible Medium and Low Voltage Cables);
- Part 4: Contention NYS-8 (Transformers);
- Part 5: Contention NYS-12C (Severe Accident Mitigation Alternatives ("SAMA") Analysis Decontamination and Cleanup Costs);
- Part 6: Contention NYS-16B (SAMA Analysis Population Estimates);
- Part 7: Contention NYS-17B (Real Estate Values);
- Part 8: Contention NYS-37 (No-Action Alternative);
- Part 9: Contention RK-TC-2 (Flow Accelerated Corrosion); and

¹ See (1) Scheduling Order (July 1, 2010), at 19; (2) Order (Scheduling Post-Hearing Matters and Ruling on Motions to File Additional Exhibits) (Jan. 15, 2013) at 1; and (3) Order (Granting Parties Joint Motion for Alteration of Filing Schedule (Feb. 28, 2013).

Part 10: Contention CW-EC-3A (Environmental Justice).²

In Part 10 of the Staff's Proposed Findings, set forth below, the Staff addresses the issues raised in Contention CW-EC-3A (Environmental Justice) ("Contention CW-EC-3A"). After consideration of all relevant evidence in the record, the Board finds that, contrary to Hudson River Sloop Clearwater, Inc.'s ("Clearwater") claims in Contention CW-EC-3A, the Staff and Entergy Nuclear Operations, Inc. ("Entergy" or "Applicant") have met their burden of demonstrating that the Staff's environmental justice ("EJ") analysis in the Final Supplemental Environmental Impact Statement ("FSEIS" or "Final SEIS") is adequate under the National Environmental Policy Act ("NEPA"). We conclude, therefore, as a matter of law, that the Staff has complied with NEPA and the Commission's regulations at 10 C.F.R. Part 51.

I. BACKGROUND AND INTRODUCTION

10.1. These findings and rulings address all outstanding issues regarding Contention CW-EC-3A on environmental justice. This challenge arises in a proceeding on Entergy's license renewal application ("LRA") filed on April 23, 2007, seeking to renew the operating licenses for Indian Point Nuclear Generating Units 2 and 3 ("IP2 and IP3" or "Indian Point"), for an additional period of 20 years. An overview of this proceeding and the regulatory standards that govern consideration of the IP2 and IP3 LRA are set forth in Part 1 of the Staff's Proposed Findings, submitted simultaneously herewith. To avoid unnecessary duplication, the Staff hereby incorporates Part 1 of its Proposed Findings by reference herein.

² The Staff utilized a unique number designator for each separate Part of the Proposed Findings, whereby all paragraphs in Part 1 are consecutively numbered "1.____"; all paragraphs in Part 2 are consecutively numbered "2.____", etc. Accordingly, all paragraph numbers in this Part commence with the number 10.

10.2. On December 10, 2007, Clearwater filed a petition to intervene that included six environmental contentions, including, *inter alia*, Contention CW-EC-3.³ As originally proposed, Contention CW-EC-3 alleged,

Entergy's Environmental Report contains a seriously flawed environmental justice analysis that does not adequately assess the impacts of Indian Point [license renewal] on the minority, low-income, and disabled populations in the area surrounding Indian Point.⁴

Specifically, Clearwater argued that: (1) the EJ and demographic methodology in the ER is flawed and incomplete; (2) the ER does not adequately acknowledge the significant EJ communities within 50 miles of Indian Point or assess Indian Point's impact on them; (3) minority and low-income populations may be more susceptible to cancer from Indian Point radionuclide emissions than other populations; (4) the ER fails to take into account subsistence fishing in the Hudson River; (3) low-income populations will be more impacted by an evacuation resulting from an accident at Indian Point; (4) residents in special facilities including prisons, hospitals, and other nearby institutions would be more impacted by an evacuation or accident at Indian Point; and (5) Native American populations would be disproportionately impacted by the production, use, and storage of nuclear fuel at Indian Point.⁵

10.3. The Applicant and the Staff opposed admission of Contention CW-EC-3 on the grounds that the contention raised issues outside the scope of license renewal, was unsupported, and failed to demonstrate a genuine dispute with respect to material issue of law or fact.⁶

³ Hudson River Sloop Clearwater, Inc.'s Petition to Intervene and Request for Hearing (Dec. 10, 2007). As originally proposed, Clearwater labeled this contention, "Contention EC-3." For consistency, the Staff is referring to the original contention as "Contention CW-EC-3."

⁴ *Id.* at 31.

⁵ *Id.* at 36-55.

⁶ Answer of Entergy Nuclear Operations, Inc. Opposing Hudson River Sloop Clearwater Inc's Petition to Intervene and Request for Hearing (Jan. 22, 2008) (Agencywide Documents Access and Management System ("ADAMS") Accession No. ML080300053) at 59-71; NRC Staff's Response to Petitions for Leave to Intervene Filed by (1) Connecticut Attorney General Richard Blumenthal, (2)

Clearwater replied to Entergy's and the NRC Staff's Answers on February 8, 2008.⁷

10.4. On July 31, 2008, the Board admitted the contention, in part, after re-framing the issues raised by Clearwater. *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-08-13, 68 NRC 43, 219 (July 31, 2008). In ruling on the admissibility of Contention CW-EC-3, the Board rejected Clearwater's claims involving alleged disproportionate impacts that relied on the susceptibility of low-income and minority populations to cancer and subsistence fishing allegations. *Id.* at 200.

10.5. In admitting this contention, the Board stated:

[C]learwater identifies minority and low-income populations located in numerous institutions located near Indian Point who would not be evacuated in the event of a severe accident. Clearwater identifies Sing Sing, a maximum security correctional facility located less than 10 miles from Indian Point that houses more than 1,750 predominately minority inmates. Clearwater also identifies twenty-five other prisons and jails located within fifty miles of Indian Point. Clearwater then contends that Entergy's ER is deficient because it does not address the impact of a severe accident at Indian Point on these populations.

Id. at 202. The Board further stated that the issue in this contention is whether there is "sufficient information from which the Commission may properly consider, and publicly disclose, environmental factors that may cause harm to minority and low-income populations that would be 'disproportionate to that suffered by the general population.'" *Id.* The Board emphasized that Contention CW-EC-3 is a "Part 51 Environmental Contention brought under NEPA," not a "Part 54 Safety Contention based on emergency planning." *Id.*

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) (ADAMS Accession No. ML080300014) at 96-99.

⁷ Hudson River Sloop Clearwater Inc.'s Reply to Entergy and the Nuclear Regulatory Commission ("NRC") Responses to Clearwater Petition to Intervene and Request for Hearing (Feb. 8, 2008).

10.6. On December 22, 2008, the NRC Staff issued its Draft Supplemental Environmental Impact Statement (“DSEIS” or “Draft SEIS”) concerning the Indian Point LRA.⁸ Clearwater did not file any new contentions or amend Contention CW-EC-3 based on information in the Draft SEIS. Nearly two years after publishing the DSEIS, the Staff published the FSEIS on the Indian Point LRA on December 3, 2010.⁹ On February 3, 2011, Clearwater filed a motion seeking leave to amend and extend Contention CW-EC-3.¹⁰ In its proposed amendment, Clearwater framed Contention CW-EC-3A as a “technical change” to the previously-admitted contention and sought to have its original contention applied to the Staff’s discussion of EJ in the FSEIS.¹¹ In addition, Clearwater sought to expand the scope of its original contention to include challenges to the FSEIS’ assessment of the no-action alternative’s impacts “on potentially affected environmental justice populations” and that the FSEIS’ “assessment of the impact of adding closed cycle cooling on air quality and on potentially affected local environmental justice populations.”¹² On March 7, 2011, Entergy and the NRC Staff filed Answers supporting in part and opposing in part the amendment of Contention CW-EC-3.¹³ Clearwater replied to Entergy’s and the NRC Staff’s Answers on March 21, 2011.¹⁴

⁸ “Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38 Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Draft Report for Comment,” NUREG-1437 Supplement 38 (Dec. 2008) (Ex. NYS000132A-D).

⁹ “Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38 Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Final Report,” NUREG-1437, Supplement 38 (Dec. 2010) (“FSEIS”) (Ex. NYS000133A-J).

¹⁰ Motion for Leave to Amend and Extend Contention EC-3 Regarding Environmental Justice and Petition to Do So (Feb. 3, 2011).

¹¹ *Id.* at 3, 19.

¹² *Id.* at 16.

¹³ Applicant’s Answer to Hudson River Sloop Clearwater, Inc.’s Amended Environmental Justice Contention (Mar. 7, 2011); NRC Staff’s Answer to Amended and New Contention (EC-3) Filed by Hudson River Sloop Clearwater, Inc. Concerning the Final Supplemental Environmental Impact Statement (Mar. 7, 2011).

¹⁴ Clearwater replied to Entergy’s and the NRC Staff’s Answers on March 21, 2011. Combined

10.7. On July 6, 2011, the Board granted in part and denied in part Clearwater's motion to amend Contention CW-EC-3. *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3) (July 6, 2011) (unpublished) (Agencywide Documents and Access Management System ("ADAMS") Accession No. ML111870344). The Board rejected Clearwater's claims involving both the no-action and closed-cycle cooling alternatives. *Id.* at 59-60. Contention CW-EC-3A, as amended by the Board, states:

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.

Id. at 60.

10.8. On December 22, 2011, Clearwater filed its Initial Statement of Position on Contention CW-EC-3A.¹⁵ Clearwater's Initial Statement of Position was accompanied by pre-filed testimony of Dr. Michael Edelstein, Anthony Papa, Dr. Erik Larsen, John Simms, Aaron Mair, Dolores Guardado, Stephen Filler, and Manna Jo Greene, and supporting exhibits.¹⁶

Reply to NRC Staff and Entergy's Answers in Opposition to Clearwater's Motion for Leave and Petition to Amend Contention EC-3 (Mar. 21, 2011).

¹⁵ Initial Statement of Position for Clearwater's Contention EC-3A Regarding Environmental Justice (Jan. 5, 2012) ("Clearwater Initial Statement of Position") (Exhibit ("Ex.") CLER00002).

¹⁶ Testimony of Dr. Michael Edelstein in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (Dec. 22, 2011) ("Edelstein Testimony") (Ex. CLE000003); Environmental Justice Impacts From the Proposed Relicensing (sic) of the Indian Point Nuclear Power Complex: A Focus on Sing Sing Prison (Oct. 5, 2011) ("Edelstein Report") (Ex. CLE000012); Initial Pre-filed testimony of Anthony Papa in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (EC-3A) (Oct. 11, 2011) ("Papa Testimony") (Ex. CLE000004); Initial Prefiled Written Testimony of Erik A. Larsen, MD, FACEP Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Larsen Testimony") (Ex. CLE000005); Testimony of John Simms in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (Oct. 11, 2011) ("Simms Testimony") (Ex. CLE000006), Initial Prefiled Written Testimony of Aaron Mair Regarding Clearwater's Environmental Justice Contention (Dec. 22, 2011) ("Mair Testimony") (Ex. CLE000007); English Translation of Initial Prefiled Written Testimony of Dolores Guardado Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Guardado Testimony") (Ex. CLE000008); Initial Prefiled Written Testimony of Stephen Filler Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Filler Testimony") (Ex. CLE000009); Initial Prefiled Written Testimony of Manna Jo Greene Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Greene Testimony") (Ex. CLE000010); and Exs. CLE000011 through CLE000044.

10.9. On January 30, 2012, Entergy filed a motion *in limine* to exclude portions of Clearwater's pre-filed testimony and exhibits on Contention CW-EC-3A.¹⁷ The Staff supported Entergy's motion *in limine* and Clearwater opposed the motion.¹⁸ On March 6, 2012, the Board denied Entergy's motion *in limine* regarding Contention CW-EC-3A.¹⁹ With respect to the scope of Contention CW-EC-3A, the Board noted:

[T]he Board is capable of distinguishing between disparaging comments against Indian Point's emergency plans and Clearwater's witnesses' descriptions of how certain populations will be adversely harmed by a severe accident compared to the general population. To the extent any populations that Clearwater's witnesses describe do not fit within the definition of an EJ population and are not necessary to an EJ analysis, we will discount the weight of such evidence in ruling on the merits of the FSEIS's EJ analysis.²⁰

10.10. On March 29, 2012, Entergy filed its Statement of Position on Contention CW-EC-3A.²¹ Entergy's Statement of Position was accompanied by pre-filed testimony of Donald P. Cleary, Jerry L. Riggs, and Michael J. Slobodien, and supporting exhibits.²² On March 30, 2012, the NRC Staff filed its Statement of Position Regarding Contention CW-EC-3A.²³ The

¹⁷ Entergy's Motion in Limine to Exclude Portions of Pre-filed Testimony and Exhibits for Contention CW-EC-3A (Environmental Justice) (Jan. 30, 2012).

¹⁸ NRC Staff's Response in Support of Entergy's Motion in Limine on Contention CW-EC-3A (Environmental Justice) (Feb. 9, 2012); Clearwater Reply in Opposition to Entergy's Motion in Limine (Feb. 17, 2012).

¹⁹ *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3) (July 6, 2011) (unpublished) (ADAMS Accession No. ML12066A170).

²⁰ *Id.* at 35.

²¹ Entergy's Statement of Position on Contention CW-EC-3A (Environmental Justice) (Mar. 30, 2012) ("Entergy Statement of Position") (Ex. ENT000257).

²² Testimony of Entergy Witnesses Donald P. Cleary, Jerry L. Riggs, and Michael J. Slobodien Regarding Contention CW-EC-3A (Environmental Justice) (Mar. 29, 2012) ("Entergy Testimony on CW-EC-3A") (Ex. ENT000258); Exs. ENT000257 through ENT000299.

²³ NRC Staff Initial Statement of Position Regarding Contention CW-EC-3A (Environmental Justice) ("Staff Statement of Position") (Ex. NRC000062).

Staff Statement of Position was accompanied by pre-filed testimony of Jeffrey J. Rikhoff and Patricia A. Milligan, and supporting exhibits.²⁴

10.11. On June 28, 2012, Clearwater filed its Rebuttal Statement of Position in support of Contention CW-EC-3A.²⁵ Clearwater's Rebuttal Statement was accompanied by pre-filed rebuttal testimony of Manna Jo Greene, Dr. Michael Edelstein, and Dr. Andrew S. Kanter, and supporting rebuttal exhibits.²⁶

10.12. On July 30, 2012, the Staff and Entergy filed motions in limine to exclude portions of Clearwater's pre-filed rebuttal testimony and rebuttal exhibits for Contention CW-EC-3A.²⁷ Clearwater opposed the Staff's and Entergy's motions in limine.²⁸ On October 15, 2012, at the beginning of the evidentiary hearings for Track 1 Contentions, the Board denied the Staff's and Entergy's pending motions in limine regarding Contention CW-EC-3A. Transcript ("Tr.") at 1265.

10.13. On October 23, 2012, the Board held the evidentiary hearing for Contention CW-EC-3A. On December 5, 2012, the parties jointly proposed corrections to the hearing

²⁴ NRC Staff Testimony on CW-EC-3A of Jeffrey J. Rikhoff and Patricia A. Milligan Regarding Contention CW-EC-3A (Environmental Justice) ("Staff Testimony on CW-EC-3A") (Mar. 30, 2012) (Ex. NRC000063); Exs. NRC000062 through NRC000075.

²⁵ Hudson River Sloop Clearwater, Inc. Rebuttal Statement Supporting Contention EC-3A Regarding Environmental Justice (June 28, 2012) ("Clearwater Rebuttal Statement of Position") (Ex. CLE000045).

²⁶ Rebuttal Testimony of Manna Jo Greene Regarding Clearwater's Environmental Justice Contention EC-3A (June 28, 2012) ("Greene Rebuttal") (Ex. CLE000046); Rebuttal Testimony of Michael Edelstein Regarding Clearwater's Environmental Justice Contention EC-3A (June 28, 2012) ("Edelstein Rebuttal") (Ex. CLE000047); Rebuttal to Respondents to Testimony on the Environmental Justice Contention Report (June 28, 2012) ("Edelstein Rebuttal Report") (Ex. CLE000058); Rebuttal Testimony of Dr Andrew S. Kanter, M.D. M.P.H. in Support of Hudson River Sloop Clearwater, Inc.'s Contention EC-3A Regarding Environmental Justice (June 28, 2012) ("Kanter Rebuttal") (Ex. CLE000048); Exs. CLE000049 through CLE000059.

²⁷ NRC Staff's Motion in Limine to Exclude Portions of Pre-filed Rebuttal Testimony and Rebuttal Exhibits Regarding Contention CW-EC-3A (Environmental Justice) (July 30, 2012); Entergy's Motion in Limine to Exclude Portions of Clearwater's Rebuttal Filings on Contention CW-EC-3A (Environmental Justice) (July 30, 2012).

²⁸ Clearwater's Answer in Opposition to Entergy's Motion in Limine to Exclude Portions of Clearwater's Rebuttal Testimony on Contention CW-EC-3A (Aug. 17, 2012).

transcript for hearings held on October 15-24, 2012.²⁹ On December 27, 2012, the Board issued an Order adopting the transcript corrections.³⁰

10.14. On November 8, 2012, Clearwater filed an unopposed motion for extension of time to file a motion to supplement the record with information related to Hurricane Sandy.³¹ On November 9, 2012, the Board granted Clearwater's motion.³²

10.15. On November 14, 2012, Clearwater filed its motion to supplement the record with eleven news articles allegedly demonstrating that Hurricane Sandy had a disparate impact on environmental justice populations.³³ The Staff and Entergy opposed Clearwater's motion.³⁴ On November 26, 2012, Clearwater filed a second motion to supplement the record with four additional exhibits related to Hurricane Sandy.³⁵ On November 30, 2012, Entergy filed its answer opposing Clearwater's Second Motion to Supplement.³⁶ On December 5, 2012, the Board denied both of Clearwater's motions finding that the "documents submitted by Clearwater

²⁹ See Hearing Transcript Errata Sheet (Dec. 5, 2012) (ADAMS Accession No. ML12340A545).

³⁰ Order (Adopting Proposed Transcript Corrections with Minor Edits) (Dec. 27, 2012) (ADAMS Accession No. ML12362A278).

³¹ Clearwater's Unopposed Motion for an Extension of Time to File a Motion Regarding Relevant New Information that Became Apparent After Hurricane Sandy. (Nov. 8, 2012).

³² Order (Granting Clearwater's Motion for an Extension of Time) (Nov. 9, 2012) (ADAMS Accession No. ML12314A204).

³³ Hudson River Sloop Clearwater, Inc.'s Motion to Supplement the Record with Relevant New Information that Became Apparent after Hurricane Sandy. (Nov. 14, 2012).

³⁴ NRC Staff's Answer to "Hudson River Sloop Clearwater, Inc.'s Motion to Supplement the Record with Relevant New Information that Became Apparent after Hurricane Sandy" (Nov. 28, 2012); Entergy's Answer Opposing Hudson River Sloop Clearwater's Motion to Supplement the Record with New Information that Became Apparent after Hurricane Sandy (Nov. 28, 2012).

³⁵ Hudson River Sloop Clearwater, Inc.'s Notice of Supplemental Exhibits to Motion to Supplement the Record with Relevant New Information that Became Apparent after Hurricane Sandy (Nov. 26, 2012).

³⁶ Entergy's Answer Opposing Hudson River Sloop Clearwater's Second Motion to Supplement the Record (Nov. 30, 2012).

dealing with an unrelated weather event are immaterial and not relevant to the reasonableness of the NRC Staff's environmental justice review of Indian Point, Units 2 and 3."³⁷

II. FINDINGS OF FACT

A. Applicable Legal Standards

1. National Environmental Policy Act

10.16. Contention CW-EC-3A arises under the National Environmental Policy Act of 1969, as amended ("NEPA"), and the NRC's regulations implementing this statute.³⁸ 42 U.S.C. §§ 4321 *et seq*; 10 C.F.R. Part 51. Under NEPA, the NRC is required to take a "hard look" at the environmental impacts of a proposed action, as well as reasonable alternatives to that action. See *Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998). This "hard look" is tempered by a "rule of reason" that requires federal agencies to address only impacts that are reasonably foreseeable – not remote and speculative. See, e.g., *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973).

10.17. In other words, the Staff is excused from conducting a NEPA analysis of "remote and speculative" impacts or "worst case" scenarios. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340, 348-49 (2002). Importantly, "NEPA does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts." *Louisiana Energy Servs.* (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005) (emphasis in original).

³⁷ Order (Denying Clearwater's Motion to Supplement the Record) (Dec. 5, 2012) (unpublished) (ADAMS Accession No. ML12340A179).

³⁸ A detailed overview of the legal standards governing license renewal, NEPA, and the NRC's regulations implementing NEPA at 10 C.F.R. Part 51 are set forth in Part 1 of the Staff's Proposed Findings, submitted simultaneously herewith.

10.18. Further, “NEPA gives agencies broad discretion to keep their inquiries within appropriate and manageable boundaries.” *Louisiana Energy Servs., L.P.*, CLI-98-3, 47 NRC at 103 (citation omitted). In challenging the Staff’s environmental review, intervenors must identify, with specificity, the alleged deficiencies in the Staff’s NEPA analysis. See *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 13 (1999). The Commission has emphasized that the Staff’s NEPA analysis is adequate unless the Staff “has failed to take a ‘hard look’ at significant environmental questions – i.e., the Staff has unduly ignored or minimized pertinent environmental effects.” See *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-03-17, 58 NRC 419, 431 (2003) (discussing what an intervenor must allege, with adequate support, to litigate a NEPA claim).

10.19. Additionally, the Supreme Court has held that the NRC is not required by NEPA to consider the psychological health impacts from the risk of a nuclear accident. *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 779 (1983). The Supreme Court specified that “NEPA does not require the agency to assess every impact or effect of its proposed action,” but only those impacts with a “reasonably close causal relationship between a change in the physical environment and the effect at issue.” *Id.* at 772-74. Further, the Supreme Court found that the risk of harm “is simply too remote from the physical environment to justify requiring the NRC to evaluate the psychological health damage to these people that may be caused by renewed operation of [Three-Mile Island, Unit 1].” *Id.* at 774.

10.20. Moreover, the Supreme Court held in *Public Citizen* that “where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the effect.” *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 770 (2004).

2. The NRC's Environmental Justice Requirements

10.21. Contention CW-EC-3A concerns environmental justice, which refers to a federal policy established by Executive Order 12898 directing Federal agencies to address environmental justice issues by “identifying and addressing, as appropriate, *disproportionately high and adverse* human health or environmental effects of [an agency's] programs, policies, and activities on minority populations and low-income populations.” Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Exec. Order No. 12898, 59 Fed. Reg. 7,629 (Feb. 16, 1994) (“Executive Order 12898”) (Ex. ENT000259) (emphasis added). On December 10, 1997, the Council on Environmental Quality (“CEQ”) issued environmental justice guidance which was developed to further assist Federal agencies with their NEPA procedures. See CEQ Environmental Justice Guidance Under the National Environmental Policy Act (Dec. 1997) (“CEQ EJ Guidance”) (Ex. ENT000266).

10.22. NRC Staff offices including the Office of Nuclear Reactor Regulation developed their own EJ guidance using the CEQ EJ Guidance as a model. Office Letter 906, Revision 2, entitled, “Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues,” was issued on September 21, 1999. LIC-203, Rev. 2, Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues at 2 (Feb. 17, 2009) (Ex. ENT000264) (“LIC-203, Rev. 2”) at 2. On June 21, 2001, Office Instruction LIC-203 was initially issued as a revision to Office Letter 906, Revision 2. *Id.* On May 24, 2004, Revision 1 of LIC-203 was published. See LIC-203, Rev. 1, Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues (May 24, 2004) (“LIC-203, Rev. 1”) (Ex. ENT000261).

10.23. On August 24, 2004, the Commission issued a policy statement regarding the treatment of environmental justice issues in NRC regulatory and licensing actions. See Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing

Actions, 69 Fed. Reg. 52,040 (Aug. 24, 2004) (“EJ Policy Statement”) (Ex. ENT000260). The policy statement incorporates past Commission decisions, staff environmental guidance (including LIC-203, Rev. 1), as well as Federal case law on environmental justice. *Id.* at 52,041; *see also Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-20, 56 NRC 147, 153 (2002) (“PFS”); *Louisiana Energy Servs.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 100-10 (1998) (“LES”).

10.24. In this policy statement, the Commission explained that “E.O. 12898 does not establish new substantive or procedural requirements applicable to NRC regulatory or licensing activities.” *Id.* at 52,046. Rather, “NEPA is the only available statute under which the NRC can carry out the general goals of E.O. [12898].” *Id.* at 52,046 n.2. Thus, the Commission has emphasized that environmental justice issues “are only considered when and to the extent required by NEPA.” *Id.* at 52,047 (*quoting LES*, CLI-98-3, 47 NRC at 100). In this regard, the Commission has held that “disparate impact” analysis is the principal tool for advancing environmental justice under NEPA. *Id.* Further, the NRC’s goal is to identify and adequately weigh or mitigate environmental impacts on low-income and minority communities that become apparent only by considering factors peculiar to those communities. *Id.* The “focus of any ‘EJ’ review should be on identifying and weighing disproportionately significant and adverse environmental impacts on minority and low-income populations that may be different from the impacts on the general population.” *Id.*

10.25. The Commission has emphasized, however, that the EJ review “is not a broad-ranging or even limited review of racial or economic discrimination.” *Id.* Moreover, “NEPA is not the appropriate context in which to assess racial motivation and fairness or equity issues.” *Id.* at 52,045. The Commission noted that, “were NEPA construed broadly to require a full examination of every conceivable aspect of federally licensed projects, ‘available resources

may be spread so thin that agencies are unable adequately to pursue protection of the physical environment and natural resources.” *Id.* (quoting *LES*, CLI-98-3, 47 NRC at 102-103).

10.26. On February 17, 2009, NRR updated LIC-203 to incorporate the Commission’s Environmental Justice Policy Statement. See LIC-203, Rev. 2 (Ex. ENT000264).

3. The NRC’s Regulations Governing Environmental Impacts of Severe Accidents

10.27. In the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (“GEIS”),³⁹ the NRC addresses on a generic basis the environmental consequences that would result from severe accidents⁴⁰ at all plants. In the GEIS, the Commission generically determined that the environmental impacts of design basis accidents are of SMALL significance for all plants, and that the probability weighted consequences of severe accidents are SMALL for all plants, which applies to all populations.⁴¹ The GEIS conclusion is codified in Table B-1 of 10 C.F.R. Part 51, Appendix B, which states:

The probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants. However, alternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives. See § 51.53(c)(3)(ii)(L).

10.28. The Commission reaffirmed this GEIS finding in the Pilgrim license renewal proceeding stating that, “[b]ecause the GEIS provides a severe accident impacts analysis that envelopes the potential impacts at *all* existing plants, the environmental impacts of severe accidents during the license renewal term already have been addressed generically in bounding

³⁹ Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437, Vol. 1 (May 1996) (“GEIS”) (Ex. NYS00131A-I).

⁴⁰ The term “accident” refers to any unintentional event outside the normal plant operational envelope that results in a release or the potential for release of radioactive materials into the environment. GEIS (Ex. NYS00131C) at 5-1. Generally, the NRC categorizes accidents as “design basis” (i.e., the plant is designed specifically to accommodate these) or “severe” (i.e., those involving multiple failures of equipment or function and, therefore, whose likelihood is generally lower than design-basis accidents but where consequences may be higher), for which plants are analyzed to determine their response. *Id.*

⁴¹ *Id.* at 5-114, 5-115.

fashion.” *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 316 (2010) (emphasis in original).

4. The NRC’s Emergency Planning Requirements

10.29. The requirements for maintaining, implementing, and revising emergency preparedness programs for licensed nuclear power plants is governed by the NRC’s regulations. See 10 C.F.R. §§ 50.47, 50.54(q), 50.54(s) through (u), and 10 C.F.R. Part 50, Appendix E. Emergency preparedness is an ongoing concern not related to or unique to the license renewal process. Nuclear Power Plant License Renewal, 56 Fed. Reg. 64,943, 64,966-67 (Dec. 13, 1991) (Ex. ENT000270). As such, their adequacy is not subject to challenge in a license renewal proceeding. *Id.* at 64,967.

10.30. Notwithstanding the limited scope of this proceeding, emergency preparedness is evaluated for adequacy under 10 C.F.R. § 50.54(t). This regulation requires “a detailed annual review of the facility’s emergency preparedness plan by persons who have no direct responsibility for its implementation.” 56 Fed. Reg. (Ex. ENT000270) at 64,966, citing 10 C.F.R. § 50.54(t). This review includes an evaluation of the continued adequacy of applicable and appropriate communication and working relationships with the appropriate State and local governments. *Id.* Additionally, Appendix E to Part 50 requires licensees to perform an annual exercise of the licensee’s emergency preparedness plans evaluated by the NRC against definitive performance criteria. *Id.*

10.31. Offsite emergency preparedness plans are also subject to review and evaluation by the Federal Emergency Management Agency (“FEMA”), and the effectiveness of those plans is evaluated biennially by FEMA and the NRC in comprehensive emergency preparedness exercises. See 10 C.F.R. § 50.47(a)(2); 10 C.F.R. Part 50, Appendix E, § IV.F.2.

10.32. The Commission’s requirements in 10 C.F.R. Part 50 verify the continued adequacy of emergency preparedness in light of changes in site characteristics that may occur

during the term of the existing operating license and any renewed license's term, such as transportation systems and demographics. Nuclear Power Plant License Renewal, 56 Fed. Reg. (Ex. ENT000270) at 64,966. Thus, the Commission determined that "the current requirements, including continuing update requirements for emergency planning, provide reasonable assurance that an acceptable level of emergency preparedness exists at any operating reactor at any time in its operating lifetime." *Id.* at 64,966-64,967. Therefore, the "issue concerning the potential inadequacy of the existing plans, exercises, or evaluation time estimates to account for [changes such as demographics, land use, and transportation patterns] does not involve matters limited to the renewal of operating licenses." *Id.* at 64,967.

10.33. Accordingly, the Commission concluded that "the adequacy of existing emergency preparedness plans need not be considered anew as part of issuing a renewed operating license." *Id.* Rather, the adequacy of emergency planning is a safety issue that is evaluated by the Commission on an ongoing basis as part of its oversight of operating reactors under 10 C.F.R. Part 50.

10.34. The Commission has confirmed that a NEPA-based contention may not be used to challenge the adequacy of emergency planning in a license renewal proceeding.⁴²

B. Evidence Adduced at Hearing

1. Witnesses Presented

10.35. The evidentiary hearing on this contention was held on October 23, 2012. A total of fourteen witnesses appeared on behalf of the Entergy, the Staff, and Clearwater, as set forth below. Pre-filed testimony was submitted by each of the witnesses. All of the witnesses also provided oral testimony in response to questioning by the Licensing Board and the parties.

⁴² See *Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-10-11, 71 NRC 287, 302 (2010) (ruling that witness statements on "the issue of emergency planning—the need to provide accurate, 'real time' projections of the location and duration of potential public exposures to determine whether, when, and where particular population groups may need to be evacuated" are beyond the scope of a license renewal severe accident mitigation alternative review—a NEPA-based review).

10.36. The Applicant presented a panel of three witnesses in support of Contention CW-EC-3A. They were: (1) Donald P. Cleary; (2) Jerry L. Riggs; and (3) Michael J. Slobodien.

10.37. Applicant witness Donald P. Cleary is an Environmental Safety Consultant with Talisman International, LLC. Testimony of Entergy Witnesses Donald P. Cleary, Jerry L. Riggs, and Michael J. Slobodien Regarding Contention CW-EC-3A (Environmental Justice) (Mar. 29, 2012) (Ex. ENT000258) (“Entergy Testimony on CW-EC-3A”) at 1. He holds hold a Bachelor of Arts degree in Economics from the University of Massachusetts, Amherst, a Master of Arts degree in Economics from the University of Florida, and has taken additional graduate courses in Natural Resource Economics and Policy at the University of Michigan. *Id.* He has 38 years of experience in nuclear regulation. *Id.*

10.38. Prior to joining Talisman, Mr. Cleary was a member of the NRC Staff from 1973 to 2001. *Id.* at 2. During his time with the NRC, he had a lead role in developing and applying methodologies to assess various topics covered in environmental impact statements for nuclear power plant construction and operation, including such topics as the need for power (electrical generating capacity), alternative energy sources, and regional socioeconomic impacts. *Id.* He also played a key role in assessing severe accident socioeconomic impacts after the Three Mile Island Unit 2 (“TMI-2”) accident. *Id.*

10.39. Of particular relevance here, as NRC Section Leader of the Regional Impact Analysis Section, Mr. Cleary oversaw the Staff’s review of socioeconomic impacts in licensing nuclear power plants. *Id.* Further, he oversaw the development of research projects to better understand nuclear power plant construction and operation socioeconomic impacts to better focus licensing reviews and support environmental impact statements. *Id.* These projects included a major study of nuclear power plant construction and operation socioeconomic impacts. *Id.* That study was published in 1982 as NUREG/CR-2749, “Socioeconomic Impacts of Nuclear Generating Stations.” *Id.*

10.40. Additionally, as Task Manager for the GEIS and the license renewal rulemaking, Mr. Cleary was directly involved in license renewal environmental impact studies addressing socioeconomics, environmental justice, and environmental impacts of postulated accidents. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 2-3. He also managed several rulemakings, and the writing of technical and policy papers related to reactor license renewal. *Id.* at 3. Based on his experience, Mr. Cleary is very familiar with the NRC's requirements and guidance on the treatment of environmental justice in nuclear power plant license renewal reviews. *Id.*

10.41. Applicant witness Jerry L. Riggs is employed as a Geographic Information System ("GIS") Specialist by Enercon Services, Inc. *Id.* at 5. Mr. Riggs holds a Bachelor of Science degree in Biochemistry from the University of Oklahoma. *Id.* He also holds a Master of Arts degree in Geography from the University of Oklahoma with an emphasis in Digital Geography including GIS and Remote Sensing. *Id.* As a GIS Specialist at Enercon, he is responsible for assisting in developing combined license applications, license renewal applications, research and development of geographical information system ("GIS") operating procedures, demographic analysis, environmental justice analysis, socioeconomic impact analysis, mapping and spatial analysis, global positioning system data mapping, and project coordination. *Id.*

10.42. During his tenure at Enercon, Mr. Riggs has performed environmental justice analyses for a number of license applications. *Id.* He also has conducted extensive literature reviews on various socioeconomic subjects, including environmental justice. *Id.* Based on his experience, he is very familiar with the NRC's environmental regulations in 10 C.F.R. Part 51, and NRC's guidance on conducting environmental justice reviews. *Id.* In his capacity as a GIS Specialist at Enercon, Mr. Riggs was directly involved in preparing the Indian Point ER, including developing demographic information needed to identify minority and low-income populations near Indian Point. *Id.*

10.43. Applicant witness Michael J. Slobodien is employed by Entergy as the Director of Emergency Planning for fleet operations, including Indian Point. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 6. He holds a Bachelor of Science degree in Chemistry from Carnegie-Mellon University and a Master of Science degree in Radiation Health from the Graduate School of Public Health of the University of Pittsburgh. *Id.* Mr. Slobodien is certified in the Comprehensive Practice of Health Physics by the American Board of Health Physics and is a Diplomat of the American Academy of Health Physics. *Id.* Mr. Slobodien also has more than 40 years of professional experience in occupational and public radiation safety and health. *Id.* at 7.

10.44. As Entergy's Director of Emergency Planning, Mr. Slobodien directs and manages onsite and offsite emergency planning for Entergy's nuclear power reactor fleet and is responsible for emergency planning program design and conduct to ensure compliance with applicable federal regulations in Title 10 of the Code of Federal Regulations (NRC) and Title 44 of the Code of Federal Regulations (FEMA). *Id.* These responsibilities include selecting, qualifying, and training professional emergency planning staff; maintaining facilities and infrastructure; preparing policies, plans, and procedures; conducting drills and exercises to ensure compliance with NRC and FEMA/DHS requirements; and interfacing with off-site response organizations. *Id.* Based on this experience, Mr. Slobodien is very familiar with Indian Point emergency plans, as well as state and local emergency response plans, and applicable federal regulations and guidance pertaining to protecting the public in the event of an Indian Point radiological emergency. *Id.*

10.45. Based on their demonstrated knowledge, skill, experience, and education, we find that Applicant's witnesses, Mr. Cleary, Mr. Riggs, and Mr. Slobodien, are qualified to provide expert opinion on the areas addressed in their testimony.

10.46. The Staff presented a panel of two witnesses concerning this contention. The witnesses were: (1) Jeffrey J. Rikhoff and (2) Patricia A. Milligan.

10.47. Jeffrey J. Rikhoff is a Senior Environmental Scientist/Socioeconomist in the Division of License Renewal, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, in Washington, D.C. Rikhoff Curriculum Vitae (“CV”) (Ex. NRC000082); NRC Staff Testimony on CW-EC-3A of Jeffrey J. Rikhoff and Patricia A. Milligan Regarding Contention CW-EC-3A (Environmental Justice) (Mar. 30, 2012) (“Staff Testimony on CW-EC-3A”) (Ex. NRC000063) at 1. Mr. Rikhoff has been employed by the NRC for over six years. *Id.* Mr. Rikhoff holds a Bachelor of Arts degree in English from DePauw University and a Master of Science degree in International Economic Development and Appropriate Technology from the University of Pennsylvania. Rikhoff CV (Ex. NRC000082). Mr. Rikhoff also holds a Master of Regional Planning degree with a concentration in Regional Environmental Planning from the University of Pennsylvania. *Id.*

10.48. Mr. Rikhoff has been working on NEPA environmental reviews for 25 years. Rikhoff CV (Ex. NRC000082); Staff Testimony on CW-EC-3A (Ex. NRC000063) at 2. Prior to working for the NRC, Mr. Rikhoff worked for over 17 years as a government contractor preparing environmental NEPA documentation for the U.S. Department of Energy (“DOE”) and Department of Defense (“DOD”). *Id.* Mr. Rikhoff specializes in preparing environmental impact statements (“EISs”) and environmental assessments (“EAs”); cost analyses; socioeconomics and environmental justice impact analyses; comprehensive land-use and facility development planning studies; regulatory review and permitting; and consultations with American Indian tribal representatives. *Id.* Mr. Rikhoff also has experience in the application of GIS in environmental justice demographic analysis and project planning in the United States and abroad. Rikhoff CV (Ex. NRC000082).

10.49. In his current position as a Senior Environmental Scientist/Socioeconomist, Mr. Rikhoff conducts land use, socioeconomic, cultural resource, and environmental justice impact assessments in support of license renewal environmental reviews. Staff Testimony on

CW-EC-3A (Ex. NRC000063) at 2. Mr. Rikhoff is currently involved in the revisions to the GEIS. Rikhoff CV (Ex. NRC000082). Mr. Rikhoff has also been involved in revisions to NUREG-1555, Supplement 1, Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Operating License Renewal (Oct. 1999) (Ex. ENT00019B) and Regulatory Guide 4.2, Supplement 1, Preparation of Supplemental Environmental Reports for Application to Renew Nuclear Power Plant Operating Licenses (Sept. 2000) (Ex. ENT000136). Rikhoff CV (Ex. NRC000082). Additionally, Mr. Rikhoff was involved in the revisions to the environmental justice portion of NRR Office Instruction, LIC-203. *Id.*; see also LIC-203, Rev. 2, Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues (Feb. 11, 2009) ("LIC-203, Rev 2") (Ex. ENT000264).

10.50. Mr. Rikhoff has been conducting environmental justice impact assessments for the Federal government for the past 13 years. Rikhoff CV (Ex. NRC000082); Staff Testimony on CW-EC-3A (Ex. NRC000063) at 2. Mr. Rikhoff has been involved in more than 45 Environmental Impact Statements and approximately 60 Environmental Justice analyses for Environmental Impact Statements, Environmental Assessments for Research and Test reactor renewals, as well as for extended power uprates. Tr. at 2898. Mr. Rikhoff served as the principal reviewer of the environmental justice portions of Entergy's ER for the IP2/IP3 LRA. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 3. In this regard, Mr. Rikhoff was also responsible for preparing Section 4.4.6 of the FSEIS. *Id*

10.51. Patricia A. Milligan is employed as a Senior Level Advisor for Emergency Preparedness and Response in the NRC's Office of Nuclear Security and Incident Response (NSIR). *Id.* at 2. Ms. Milligan has held this position since November 2004 and has been employed by the NRC for over 13 years. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 1-2. Prior to assuming the position of Senior Level Advisor, Ms. Milligan served as a Senior Emergency Preparedness Specialist for the NRC from 1998 until 2004. *Id.*

10.52. Ms. Milligan holds a Bachelor of Science degree in Psychology/Biochemistry with a minor in Physics from the University of Michigan. Milligan CV (Ex. NRC000064) at 3. Ms. Milligan also studied Pharmaceutical Sciences at Drake University and received certification in Nuclear Pharmacy from Mercer Southern School of Pharmacy. *Id.* Additionally, Ms. Milligan completed graduate coursework in Risk Sciences and Public Policy at Johns Hopkins University. *Id.* Ms. Milligan is certified in the Comprehensive Practice of Health Physics by the American Board of Health Physics. *Id.* Prior to joining the NRC, Ms. Milligan was employed in the nuclear power industry working on health physics and emergency preparedness issues. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 2. Additionally, Ms. Milligan worked as a nuclear pharmacist for a private radiopharmaceutical laboratory. *Id.* Ms. Milligan has approximately 27 years of experience in emergency preparedness. Tr. at 2913.

10.53. In her position as Senior Level Advisor for Emergency Preparedness and Response, Ms. Milligan is responsible for technical leadership in the application of emergency preparedness and response activities and regulations at fixed nuclear facilities as well as in the development and documentation of NRC Staff positions and technical guidance on regulatory aspects of emergency preparedness and response. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 2. Ms. Milligan provides technical review and oversight in development and finalization of agency emergency preparedness regulations and guidance. *Id.* She also develops technical bases for emergency preparedness regulations and guidance. *Id.* Ms. Milligan supports other NRC offices, including the Regional offices as well as other Federal, State and local government agencies. *Id.* Ms. Milligan also functions as an NRC point of contact for emergency preparedness in the international community and serves on international committees dedicated to emergency preparedness and response. *Id.*

10.54. In addition, Ms. Milligan is a Technical manager for the national lab development of NUREG/CR 6981 "Assessment of Emergency Response Planning and Implementation for Large

Scale Evacuations” and NUREG/CR 7032 Developing an Emergency Risk Communication (ERC)/Joint Information Center (JIC) Plan for a Radiological Emergency and NUREG/CR-7033 Guidance on Developing Effective Radiological Risk Communication Messages: Effective Message Mapping and Risk Communication with the Public in Nuclear Plant Emergency Planning Zones.” Milligan CV (Ex. NRC000064) at 1. She is also the chair of the Expert Group on Response Implementation strategies, a subcommittee of the Working Party for Nuclear Emergency Matters for the Nuclear Energy Agency, OECD, Paris, France. *Id.*

10.55. Additionally, Ms. Milligan lectures on radiological and nuclear preparedness to include evacuation and other protective actions at the Harvard School of Public Health Continuing Education Program on Radiological Preparedness. *Id.* Ms. Milligan has delivered many speeches and workshops on emergency preparedness, including recently at the International Emergency Management Association (where she also led an emergency preparedness workshop), the National Radiological Emergency Preparedness Annual Meeting, regional meetings, and international meetings. *Id.* Ms. Milligan routinely represents the Nuclear Regulatory Commission at meetings with other federal agencies, including the Executive Office of the President at the White House. *Id.* Additionally, she has testified under oath on behalf of the NRC to a Congressional Sub-committee regarding nuclear power plant emergency preparedness matters. *Id.* Ms. Milligan is currently leading the initiative to develop a framework for emergency preparedness for small modular reactors. *Id.*

10.56. Based on their demonstrated knowledge, skill, experience, and education, we find that Staff witnesses, Mr. Rikhoff and Ms. Milligan, are qualified to provide expert opinion on the areas addressed in their testimony.

10.57. Clearwater presented a panel of nine witnesses in support of its contention. These witnesses were: (1) Dr. Michael Edelstein; (2) Stephen Filler; (3) Manna Jo Greene; (4) Dolores

Guardado; (5) Dr. Andrew S. Kanter; (6) Dr. Erik Larsen; (7) Aaron Mair; (8) Anthony Papa; and (9) John Simms.

10.58. Dr. Michael Edelstein is employed as a professor of Environmental Psychology at Ramapo College of New Jersey. Testimony of Dr. Michael Edelstein in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (Dec. 22, 2011) ("Edelstein Testimony") (Ex. CLE000003) at 1. Dr. Edelstein holds a Bachelor of Science degree in Psychology from the University of Pittsburgh and a Ph.D. in Social Psychology from the State University of New York at Buffalo. Edelstein CV (Ex. CLE000011) at 1. Dr. Edelstein has been involved with Environmental Justice issues since the early 1980's. Tr. at 2787. Based on his demonstrated knowledge, skill, experience, training, and education, we find that Dr. Edelstein is qualified to provide expert opinion on areas of his testimony concerning environmental justice and environmental psychology.

10.59. However, we afford little weight to Dr. Edelstein's testimony on issues related to NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews, severe accidents, nuclear emergency planning or response, and health physics because he has not demonstrated sufficient qualifications to support an expert opinion on these issues. Parties bear the burden of demonstrating the expert qualifications of their witnesses, which they do by pointing to relevant "knowledge, skill, experience, training, or education." *Duke Energy Corp. (Catawba Nuclear Station, Units 1 and 2)*, CLI-04-21, 60 NRC 21, 27-28 (2004). Dr. Edelstein does not have any demonstrated experience in conducting environmental justice reviews. Tr. at 2787. Additionally, Dr. Edelstein does not have any demonstrated experience in nuclear power plant emergency preparedness and response or the development and/or implementation of emergency response plans or evacuation plans for prison populations. Moreover, Dr. Edelstein has no background in accident analyses, health physics, or how radiation dose projections are used to inform the development of protective action

guidance for evacuation and sheltering-in-place in the event of a radiological incident.

Therefore, we give little weight to Dr. Edelstein's testimony on issues related to the NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews, severe accidents, nuclear emergency planning and response, and health physics.

10.60. Stephen Filler is an attorney and provides testimony in his individual capacity as a Board Member for Clearwater. Initial Prefiled Written Testimony of Stephen Filler Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Filler Testimony") (Ex. CLE000009) at 1. In his testimony, Mr. Filler discusses the purported disparate treatment of EJ populations in the New York State and County evacuation plans. *Id.* at 1-3. Mr. Filler does not have any demonstrated/listed experience in nuclear power plant emergency preparedness and response, the development of emergency preparedness/response plans, or traffic planning and management for large scale evacuations. Moreover, Mr. Filler has no demonstrated experience in conducting environmental justice impact assessments or preparing environmental impact evaluations. Therefore, we give little weight to Mr. Filler's testimony regarding the NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews and emergency preparedness and response.

10.61. Manna Jo Greene is employed as Clearwater's Environmental Director and provides testimony in her professional capacity based on her experience at Clearwater and in the environmental movement. Initial Prefiled Written Testimony of Manna Jo Greene Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Greene Testimony") (Ex. CLE000010) at 1. Ms. Greene has more than 10 years of experience in the Civil Rights movement and 3 years of experience in the environmental justice movement. *Id.* She was also a Registered Nurse from 1976 to 2001 and certified in Critical Care for more than 10 years. *Id.*

10.62. Ms. Greene provides testimony about research she conducted with other individuals at Clearwater to identify EJ populations within 50 miles of Indian Point and determine

disparate impacts on EJ populations in the event of a severe accident and what mitigation measures have already been taken. *Id.* at 2-33. Ms. Greene, however, does not have any demonstrated experience in nuclear power plant emergency planning and response or demonstrated experience in conducting environmental justice impact assessments or preparing environmental impact evaluations. Therefore, we give little weight to Ms. Greene's testimony regarding the NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews and emergency preparedness and response.

10.63. Dolores Guardado is employed by Unlimited Care, Inc. and is a certified Home Health Aide. English Translation of Initial Prefiled Written Testimony of Dolores Guardado Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Guardado Testimony") (Ex. CLE000008) at 2. She is a Hispanic resident of Peekskill, New York, an EJ community near Indian Point, and has lived there for nearly five years. *Id.* at 1-2. Ms. Guardado speaks primarily Spanish and has limited ability to understand English. *Id.* at 2. She is involved in the Hispanic community of Peekskill and provides testimony in her individual capacity based on her experience as a Hispanic Peekskill resident. *Id.* at 1-2. Ms. Guardado, however, does not have any demonstrated experience in conducting environmental justice impact assessments or preparing environmental impact evaluations experience in nuclear power plant emergency preparedness and response. Therefore, we give little weight to Ms. Guardado's testimony regarding the NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews and emergency preparedness and response.

10.64. Dr. Andrew S. Kanter is employed as an assistant professor of clinical Biomedical Informatics and Epidemiology at the Earth Institute, Columbia University. Rebuttal Testimony of Dr Andrew S. Kanter, M.D. M.P.H. in Support of Hudson River Sloop Clearwater, Inc.'s Contention EC-3A Regarding Environmental Justice (June 28, 2012) ("Kanter Rebuttal") (Ex. CLE000048) at 1. Dr. Kanter began his medical training in emergency medicine and was

previously an Assistant Administrator for Emergency Medical Services for the UCLA Department of Community Safety for about 10 months. *Id.* at 2; Kanter CV (Ex. CLE000049) at 3. He is currently President of the Board of Directors of Physicians for Social Responsibility. Kanter Rebuttal (Ex. CLE000048) at 1. He has also run simulations of nuclear reactor accidents and presented these at the UN NPT Treaty Review Conference in 2005. *Id.* at 2. In 2011, he gave a presentation on the challenges of evacuating populations around nuclear power plants to the American Public Health Association. *Id.* Dr. Kanter, however, does not have any demonstrated experience in conducting environmental justice impact assessments or preparing environmental impact evaluations. Based on his demonstrated knowledge, skill, experience, training, and education, we find that Dr. Kanter is qualified to provide expert opinion on areas of his testimony concerning potential health impacts in the event of an accident at Indian Point.

10.65. Dr. Erik Larsen is an emergency physician, currently employed as the Associate Medical Director of White Plains Hospital Center Emergency department in White Plains, New York, and as an Assistant Professor of Emergency Medicine at NY Medical College. Initial Prefiled Written Testimony of Erik A. Larsen, MD, FACEP Regarding Clearwater's Environmental Justice Contention EC-3A (Dec. 22, 2011) ("Larsen Testimony") (Ex. CLE000005) at 1. Dr. Larsen received his medical degree from Medical College of Ohio and has board certified/residency training in Emergency Medicine with experience in flight, disaster, and wilderness medicine. *Id.* Dr. Larsen is also the Associate Medical Director of LifeNet-NY and STAT Flight and has been medical director of multiple local Emergency Medical Services (EMS) agencies and SWAT teams. Larsen Testimony (Ex. CLE000005) at 1. In his testimony, Dr. Larsen provides testimony regarding the impact of an emergency on health care, particularly for non-ambulatory hospital patients. *Id.* at 2-3. Dr. Larsen, however, does not have any demonstrated experience in conducting environmental justice impact assessments or preparing environmental impact evaluations. Based on his demonstrated knowledge, skill, experience,

training, and education, we find that Dr. Larsen is qualified to provide expert opinion regarding the potential impact on health care in the event of an accident at Indian Point.

10.66. Aaron Mair is a former resident of Peekskill, New York, an EJ community close to Indian Point. Initial Prefiled Written Testimony of Aaron Mair Regarding Clearwater's Environmental Justice Contention (Dec. 22, 2011) ("Mair Testimony") (Ex. CLE000007) at 1-2. Mr. Mair has been active in the environmental justice movement for over twenty-five years. *Id.* Based on his demonstrated knowledge, skill, experience, training, and education, we find that Mr. Mair is qualified to provide expert opinion on areas of his testimony concerning environmental justice.

10.67. Mr. Mair also testifies regarding potential impacts of a severe accident at Indian Point on carless and transport-dependent residents of Peekskill. *Id.* However, Mr. Mair has not demonstrated sufficient qualifications to support an expert opinion on issues related to nuclear emergency planning and response, evacuation time estimates, or traffic management related to emergency preparedness. Moreover, Mr. Mair has no demonstrated experience in conducting environmental justice impact assessments or preparing environmental impact evaluations. Parties bear the burden of demonstrating the expert qualifications of their witnesses, which they do by pointing to relevant "knowledge, skill, experience, training, or education." *Catawba*, CLI-04-21, 60 NRC at 27-28. Therefore, we give little weight to Mr. Mair's testimony on the NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews as well as issues concerning evacuation challenges and other emergency planning issues experienced by transport-dependent populations in Peekskill, NY.

10.68. Anthony Papa is employed as the manager of media relations at the Drug Policy Alliance. Initial Pre-filed testimony of Anthony Papa in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (EC-3A) (Oct. 11, 2011) ("Papa Testimony") (Ex. CLE000004) at 3. He provides testimony in his individual capacity and as the

author of the book, *15 to Life: How I Painted My Way to Freedom*. *Id.* at 1. Mr. Papa served part of a 15 to life sentence for a non-violent drug crime involving the transportation of cocaine. *Id.* Mr. Papa served as an inmate at Sing Sing for 12 years until he was granted clemency by Governor Pataki in 1996. *Id.* In his testimony, Mr. Papa opines on prison evacuations and the shelter-in-place protocols at Sing Sing based on his time spent at Sing Sing. *Id.* at 3-5. Mr. Papa also questions the existence of evacuation plans for Sing Sing and the viability of an evacuation or sheltering-in-place at Sing Sing. *Id.* However, Mr. Papa does not have any demonstrated experience in conducting environmental justice impact assessments or preparing environmental impact evaluations, nor does he have any experience in nuclear power plant emergency preparedness and response. Therefore, we afford little weight to Mr. Papa's testimony regarding the NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews and the evacuation and emergency preparedness and response at Sing Sing.

10.69. John Simms is an 89 year old resident of a Bethel Springvale Inn, an assisted living facility within 5 miles of Indian Point. Testimony of John Simms in Support of Hudson River Sloop Clearwater, Inc.'s Contention Regarding Environmental Justice (Oct. 11, 2011) ("Simms Testimony") (Ex. CLE000006) at 1. He has lived in this facility since August, 2009. *Id.* Mr. Simms provides testimony in his individual capacity as a nursing home resident about emergency preparedness and response at Bethel Springvale Inn. *Id.* at 1-4. However, Mr. Simms does not have sufficient qualifications or expertise to discuss the NRC's NEPA requirements on the treatment of environmental justice in nuclear power plant license renewal reviews or nuclear emergency planning and response. Moreover, Mr. Simms provides no information demonstrating that the residents at Bethel Springvale Inn constitute a low-income or minority population. Therefore, we give little weight to Mr. Simms' testimony.

2. The Staff's Environmental Justice Analysis in the FSEIS and the Applicant's Environmental Justice Analysis in the ER are Adequate under NEPA

10.70. In admitting Contention CW-EC-3A, we specified that this contention “is a Part 51 Environmental Contention brought under NEPA. It is not a Part 54 Safety Contention based on emergency planning.” *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-08-13, 68 NRC 43, 202 (2008). As the Commission has stated, “the adequacy of existing emergency preparedness plans need not be considered anew as part of issuing a renewed operating license.” *Nuclear Power Plant License Renewal*, 56 Fed. Reg. (Ex. ENT000270) at 64,967. Additionally, the Commission has confirmed that a NEPA-based contention may not be used to challenge the adequacy of emergency planning in a license renewal proceeding.⁴³

10.71. At the contention admissibility stage of this proceeding, Clearwater argued that this contention did not challenge Entergy’s emergency planning, but instead “attacked the NRC ‘Staff’s failure to analyze mitigation for the disparate impacts of the proposed action’ on EJ populations” in the event of a severe accident at Indian Point. Initial Statement of Position for Clearwater’s Contention EC-3A Regarding Environmental Justice (Jan. 5, 2012) (“Clearwater Initial Statement of Position”) (Ex. CLER00002) at 6. Specifically, Clearwater asserted that the Staff failed to consider disproportionately high and adverse impacts to prison populations, non-ambulatory hospital patients, nursing home residents, transport-dependent populations, Hispanic residents, and children in the event of a severe accident. *See generally id.* Nonetheless, as discussed below, a considerable portion of the evidence proffered by Clearwater in their pre-filed testimony and at the evidentiary hearings addressed the adequacy of emergency

⁴³ *See Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-10-11, 71 NRC 287, 302 (2010) (ruling that witness statements on “the issue of emergency planning—the need to provide accurate, ‘real time’ projections of the location and duration of potential public exposures to determine whether, when, and where particular population groups may need to be evacuated” are beyond the scope of a license renewal severe accident mitigation alternative review—a NEPA-based review).

planning for IP2 and IP3, at least with respect to EJ populations. Thus, it is simply not relevant or material to this proceeding.

10.72. As described in detail below, the Staff and Entergy submitted testimony describing how the NRC's regulatory framework for emergency planning combined with New York State law provide for the protection of all populations, including low-income and minority populations, in the event of a severe accident at Indian Point through offsite and onsite emergency plans. The Staff and Entergy's witnesses explained that these emergency plans contain specific provisions to protect low-income and minority populations, such as persons who may be disabled, incarcerated, transport-dependent, and/or do not speak English, in the event of a severe accident at Indian Point. In essence, the Staff and Entergy's witnesses showed that the emergency plans would protect low-income and minority populations from precisely the adverse impacts Clearwater claims these populations will receive, such that there would be no disproportionately high and adverse impacts to those populations.

10.73. The Staff and Entergy also argue that the FSEIS reasonably incorporates the GEIS findings regarding the environmental impacts of design basis accidents and severe accidents during the license renewal term. In the GEIS, the Commission generically determined by regulation that the environmental impacts of design basis accidents are of SMALL significance for all plants, and that the probability weighted consequences of severe accidents are SMALL for all plants, which applies to all populations. See 10 C.F.R. Part 51, Table B-1.⁴⁴ Thus, both the Staff and Entergy conclude that there would be no disproportionately high and adverse impacts on minority and low-income populations due to a severe accident at Indian Point.

⁴⁴ The GEIS conclusion is codified in Table B-1 of 10 C.F.R. Part 51, Appendix B, and states: "The probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants. However, alternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives. See § 51.53(c)(3)(ii)(L)."

10.74. Having considered the evidence proffered by Clearwater, Entergy and the Staff, we agree with Entergy's and the Staff's conclusions. Therefore, as described below, we find that Clearwater's claims relating to purported impacts to EJ populations in the event of a severe accident at Indian Point fail to demonstrate a failure by Entergy and/or the Staff to properly consider the impacts of license renewal on EJ populations. More specifically, we find that Clearwater's evidence, either (1) directly challenges the adequacy of the Indian Point emergency plans and thus falls outside the scope of this license renewal proceeding, or (2) even if those claims were within the scope of this proceeding, fails to show that the impacts to low-income and minority populations would be disproportionately high and adverse as compared to the general population in the event a severe accident were to occur at IP2 or IP3 during the license renewal term if the licenses are renewed. Accordingly, Clearwater has not demonstrated that the FSEIS is deficient for failing to analyze these impacts.

a. Description of the Indian Point Site

10.75. IP2 and IP3 are located on approximately 4,239 acres of land in the Village of Buchanan in upper Westchester County, New York. FSEIS (Ex. NYS000133A) at 2-1. Indian Point Nuclear Generating Station Unit No.1 ("IP1") shares the site with IP2 and IP3 and is located between IP2 and IP3. IP1 was shut down on October 31, 1974, and is in a safe storage condition ("SAFSTOR") awaiting final decommissioning. *Id.*

10.76. The area surrounding the Indian Point site includes the Village of Buchanan, located about 0.5 mile southeast of the site and the City of Peekskill, located 2.5 miles northeast. FSEIS (Ex. NYS000133A) at 2-1. According to the 2000 U.S. Census, the populations of these towns were 2,189 and 22,441, respectively. The largest town within a 6-mi radius of the Indian Point site is Haverstraw, New York, with a population of approximately 33,811. *Id.* Several other small villages, including Verplanck and Montrose, lie within a 6-mile radius of the IP2 and IP3 site. *Id.* The area within a 6-mile radius of the site also includes several thousand acres of

the Bear Mountain State Park located across the Hudson River, the nearly 2000-acre Camp Smith (a New York State military reservation) located 2.3 miles north of the site, and a portion of the U.S. Military Academy at West Point. *Id.*

10.77. The area within a 50-mile radius of the Indian Point site includes portions of the states of New York, New Jersey, and Connecticut. *Id.* New York City, located approximately 24 miles south of the plant, is the largest city within 50 miles. In 2006, the U.S. Census estimated that the population of New York City was approximately 8,214,426. *Id.* Other population centers include Danbury and Stamford, Connecticut; Newark, New Jersey; and Poughkeepsie, New York. *Id.* The area within a 50-mile radius also includes all of the U.S. Military Academy at West Point, approximately 7.5 miles northwest of the site, and the Picatinny Arsenal, located 35.5 miles southwest of the site in New Jersey. *Id.* at 2-2.

10.78. The Indian Point facility is located on the eastern bank of the Hudson River. *Id.* at 2-1. The region surrounding the Indian Point site has undulating terrain with many peaks and valleys. *Id.* at 2-2. Dunderberg Mountain lies on the western side of the Hudson River 1-mile northwest of the site. *Id.* North of Dunderberg Mountain, high grounds reach an elevation of 800 feet above the western bank of the Hudson River. *Id.* To the east of the site lie the Spitzenberg and Blue Mountains with peaks about 600 feet in height. *Id.* There is also a weak, poorly defined series of ridges that run in a north-northeast direction east of IP2 and IP3. *Id.* The Timp Mountains are west of the facility and rise to a maximum elevation of 846 feet. *Id.* Elevations south of the site are 100 feet or less and gradually slope toward the Village of Verplanck. *Id.*

b. Entergy's Environmental Justice Analysis in the ER

10.79. Entergy's environmental justice analysis in the ER provided demographic information on environmental justice populations located within 50-miles of IP2 and IP3 in accordance with the NRC guidance set forth in Regulatory Guide (RG) 4.2, Supplement 1,

Section 4.22 (Ex. ENT000136); LIC-203, Rev. 1 (Ex. ENT000261); and the EJ Policy Statement (Ex. ENT000260). Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 25-32; Staff Testimony on CW-EC-3A (Ex. NRC000063) at 8. This information includes the composition of all minority and low-income persons residing within 50 miles of the Indian Point site. *Id.* Entergy provided this information in Section 2.6.2 as well as Chapters, 4, 5, and 6 of the environmental report. ER (Ex. ENT000015). The ER also discussed environmental impacts, including impacts to EJ populations in accordance with NRC guidance. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 25-32; Staff Testimony on CW-EC-3A (Ex. NRC000063) at 8.

10.80. Entergy's analysis identified EJ populations using the following steps set forth in LIC-203, Rev. 1: (1) determine the geographic area for comparison; (2) determine the minority and low-income composition in the geographic area; (3) determine the minority and low-income composition in the potential environmental impact area; and (4) determine if there are any minority or low income populations. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 26, citing ER at 2-40 (Ex. ENT00015B).

10.81. Because Indian Point is located in New York and is in close proximity to New Jersey, Connecticut, and Pennsylvania, Entergy's ER evaluates: (1) the combined four-state area (*i.e.*, the aggregate population data of all four states); and (2) each of these four states individually. *Id.* at 26 citing, ER (Ex. ENT00015B) at Tbl. 2-7A, Tbl. 2-7B, Tbl. 2-8. Mr. Cleary and Mr. Riggs testified that the selection of these geographic areas complies with NRC guidance because the four-state area is larger than, and completely encompasses, the Indian Point environmental impact area (*i.e.*, the 50-mile region surrounding Indian Point). Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 26.

10.82. The ER used the then-most current (2000) U.S. Census Bureau decennial census data to determine the minority and low-income composition in the geographic area. *Id.*, citing ER (Ex. ENT00015B) at 2-40. Entergy created a population table using Microsoft Excel to sort

populations into minority population categories (as defined in LIC-203, Rev.1 (Ex. ENT000261)) for each of the four states individually and for the combined four-state area. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 26-27. Entergy also created a low-income (as defined in LIC-203, Rev. 1 (Ex. ENT000261)) population table using U.S. Census data and Microsoft Excel for each of the four states individually and for the combined four-state area. *Id.* at 27.

10.83. Based on the NRC's Environmental Justice Policy Statement and LIC-203, Rev. 1, Entergy used a 50-mile radius around Indian Point as the potential environmental impact area in the ER. *Id.* at 27. Pursuant to this NRC guidance, Entergy also used Census block group⁴⁵ data to identify minority and low-income populations in the environmental impact area. *Id.*, citing ER(ENT00015B) at 2-40. Additionally, Entergy used Census data to calculate the percentages for each defined minority category living in each of the over 13,000 Census block groups in the environmental impact area surrounding Indian Point. *Id.* Further, Entergy calculated the percentages of low-income populations living in each of the approximately 13,000 Census block groups in the environmental impact area surrounding Indian Point using census data. *Id.*

10.84. Entergy used criteria set forth in LIC-203, Rev. 1 to identify minority and low-income populations within the potential environmental impact area in the ER. *Id.* at 28, 32. Specifically, if more than 50 percent of the population within the Census block group was minority or low-income, then Entergy identified that Census block group as either a minority or low-income population Census block group in the ER. *Id.* In addition, pursuant to LIC-203, Rev. 1, Entergy used the second criterion to identify minority and low-income populations by adding 20 percent to the calculated percentage of low-income populations for each geographical area evaluated. *Id.*

⁴⁵ Census blocks are the smallest geographical unit the U.S. Census Bureau uses and typically are defined by roads and other physical geography. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 22. A Census block group combines several Census blocks and typically contains between 600 and 3,000 people. *Id.* See discussion *infra* ¶¶ 10.101 – 10.110.

10.85. To apply these criteria for purposes of identifying minority and low-income population Census block groups on a map, Entergy loaded spatial U.S. Census Bureau data, called Topologically Integrated Geographic Encoding and Referencing (“TIGER”) system files, into ArcView, a widely available GIS software program. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 28, 32. These files allow for spatial sorting of data for the analysis. *Id.* Entergy joined the spatial files with the corresponding Census block group databases obtained from the Census Bureau website. *Id.* Using this combined data, Entergy identified the location of minority and low-income populations on separate maps, then compared the above criteria to demographic data for each of the over 13,000 Census block groups in the environmental impact area. *Id.*

10.86. The ER provides the number of Census block groups that met or exceeded the minority criteria. *Id.* at 29, citing ER (Ex. ENT00015B) at 2-42. ER Figures 2-8 through 2-23 displays these Census block groups on maps. *Id.* citing ER (Ex. ENT00015B) at 2-103 to 2-118. The ER also describes the resulting percentage of Census block groups with low-income populations. *Id.* at 32, citing ER (Ex. ENT00015B) at 2-44 to 2-45. ER Figure 2-24 and 2-25 display these Census block groups on maps. *Id.*, citing ER (Ex. ENT00015B) at 2-119 to 2-120.

c. The Staff’s Environmental Justice Analysis in the FSEIS

10.87. The NRC Staff’s environmental justice analysis of the human health and environmental effects from the continued operation of IP2 and IP3 on minority and low-income populations during the license renewal term is presented in Section 4.4.6 of the FSEIS.⁴⁶ FSEIS (Ex. NYS000133B) at 4-49. The NRC Staff’s environmental justice analysis of the human health and environmental effects on minority and low-income populations for the no-action alternative (plant closure) is presented in Section 8.2 of the FSEIS. FSEIS (Ex. NYS000133C) at 8-26; Tr. at

⁴⁶ Although the Staff’s environmental justice analysis of the human health and environmental effects from the continued operation is presented in Sections 4.4.6, environmental justice is also discussed in other sections throughout the FSEIS in Chapters 3, 8, 9, and Appendix A.

2741-42.

10.88. Staff witness, Mr. Rikhoff, testified that the environmental justice assessment in the FSEIS meets the regulatory requirements at 10 CFR § 51.95(c) and is consistent with the NRC Staff guidance outlined in Section 4.4.6 of NUREG-1555, Supplement 1: Standard Review Plans for Environmental Reviews for Nuclear Power Plants – Supplement 1: Operating License Renewal (October 1999) (“ESRP Supp. 1”) (Ex. NYS00019B); the EJ Policy Statement (Ex. ENT000260), and LIC-203, Rev. 2 (Ex. ENT000264). Staff Testimony on CW-EC-3A (Ex. NRC000063) at 9-10.

10.89. Additionally, Mr. Rikhoff testified that in accordance with NRC Staff guidance in LIC-203, Rev. 2 (Ex. ENT000264), the NRC Staff conducts its environmental justice review for license renewal by (1) identifying the location of minority and low-income populations that may be affected by the operation of the nuclear power plant during the license renewal term or by refurbishment activities associated with license renewal, (2) determining whether there would be any potential human health or environmental effects to these populations and special pathway receptors, and (3) determining if any of the effects may be disproportionately high and adverse. *Id.* at 11-12.

10.90. In identifying minority and low-income populations, the NRC Staff uses the same definitions of minority and low-income populations that CEQ uses in their Environmental Justice Guidance, except with updated Census Bureau definitions of race and ethnicity and editorial revisions for readability. *Id.* at 13. The definitions are as follows:

Minority individuals—Individuals who identify themselves as members of the following population groups: Hispanic or Latino, American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, or two or more races, meaning individuals who identified themselves on a Census form as being a member of two or more races, for example, Hispanic and Asian.

Minority populations—Minority populations are identified when (1) the minority population of an affected area exceeds 50 percent or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Low-income population—Low-income populations in an affected area are identified with the annual statistical poverty thresholds from the Census Bureau's Current Population Reports, Series P60, on Income and Poverty.

Staff Testimony on CW-EC-3A (Ex. NRC000063) at 13.

10.91. With respect to EJ reviews, Mr. Rikhoff testified that the NRC Staff considers radiological (human health) and socioeconomic (environmental) effects, including employment and tax-revenue impacts that could affect public services that minority and/or low-income populations may depend on during the license renewal term. *Id.* at 12-14. Additionally, the Staff conducts a special pathway receptors analysis in accordance with Section 4-4 of Executive Order 12898 directing Federal agencies, whenever practical and appropriate, to collect and analyze information on the consumption patterns of populations that rely principally on fish and/or wildlife for subsistence and to communicate the risks of these consumption patterns to the public. *Id.* at 12, citing Executive Order 12898 (Ex. ENT000259).

10.92. In the FSEIS, the Staff concluded socioeconomic conditions in minority and low-income populations and communities would not change as a result of renewing the IP2 and IP3 operating licenses. *Id.* at 14. The Staff determined that employment levels and tax revenues generated by the continued operation of IP2 and IP3 would remain relatively unchanged; therefore, direct and indirect employment opportunities and public services would remain unchanged. *Id.* Accordingly, the Staff determined that there would be no additional socioeconomic impact (environmental effect) on minority and low-income populations during the license renewal term beyond what is currently being experienced. *Id.*

10.93. In addition, the Staff determined that human health effects from the continued operation of IP2 and IP3 on the offsite population would remain unchanged. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 14. Moreover, radiation doses from continued operations associated with this license renewal are expected to continue at current levels, and remain within regulatory limits. *Id.* Therefore, the Staff concluded there would be no additional human health impact (human health effect) on minority and low-income populations during the license renewal term beyond what is currently being experienced. *Id.*

10.94. The Staff also performed a special pathway receptor assessment and concluded that no disproportionately high and adverse human health effects would be expected in special pathway receptor populations in the region as a result of subsistence consumption of fish and wildlife. *Id.* The special pathway receptor assessment was performed for the DSEIS and FSEIS based on the Radiological Environmental Monitoring Program (“REMP”) at IP2 and IP3. *Id.*

10.95. Mr. Rikhoff testified that the special pathway receptors analysis is an important part of the Staff’s environmental justice impact assessment, because consumption patterns may reflect the traditional or cultural practices of minority and low-income persons living in the area. *Id.* at 12. The Staff conducts its special pathway receptors analysis by considering whether there were any means for minority or low-income populations to be disproportionately affected by examining the potential impacts to American Indian tribes and other traditional lifestyle special pathway receptors. *Id.* Special pathways take into account the levels of radiological and non-radiological contaminants in native vegetation, crops, soils and sediments, surface water, fish, and game animals on or near the nuclear power plant site using REMP monitoring data. *Id.* at 12-13.

10.96. Entergy has a comprehensive REMP at IP2 and IP3 to assess the impact of site operations on the environment. FSEIS (Ex. NYS000133B) at 4-54. To assess the impact of

nuclear power plant operations, the Staff testified that the REMP collects samples annually from the environment, which are analyzed for radioactivity. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 14. A plant effect would be indicated if the radioactive material detected in a sample was significantly above background levels. *Id.* at 14-15. Two types of samples are collected. *Id.* at 15. The first type, control samples, are collected from areas that are beyond the measurable influence of the nuclear power plant. *Id.* These samples are used as reference data to determine normal background levels of radiation in the environment. *Id.* These samples are then compared with the second type of samples, indicator samples, collected near the nuclear power plant. *Id.* Indicator samples are collected from areas where any contribution from the nuclear plant will be at its highest concentration. *Id.* These samples are then used to evaluate the contribution of nuclear power plant operations to radiation or radioactivity levels in the environment. *Id.* An effect would be indicated if the radioactivity levels detected in an indicator sample was significantly larger than the control sample and background levels. *Id.* Indicator and control samples are collected from aquatic and terrestrial media in the vicinity of IP2 and IP3. *Id.* Aquatic media includes fish, Hudson River water, ground water, aquatic vegetation, sediment, and shoreline soil. *Id.* Terrestrial media includes airborne particulates, broad leaf vegetation, and direct radiation. *Id.* During 2006, Entergy or its contractors performed 1,342 analyses on collected samples of environmental media as part of the required REMP, which showed no significant or measurable radiological impact from IP2 and IP3 operations. *Id.*; FSEIS (Ex. NYS000133B) at 4-54.

10.97. The results from the 2006 and 2009 REMP program for IP2 and IP3 are summarized in Section 2.2.7 of the FSEIS. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 15. These results demonstrated that routine reactor operations have had no significant or measurable radiological impact on the environment. *Id.* No elevated radiation levels were detected in the offsite environment as a result of IP2 and IP3 operations and the storage of

radioactive waste. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 15. The results also demonstrated that the operation of IP2 and IP3 did not result in a significant measurable dose to a member of the general population or adversely impact the environment as a result of radiological effluents and emissions. *Id.* The dose to a member of the public from the operation of IP2 and IP3 remains significantly below the Federally required dose guidelines specified in 10 CFR Part 20 and 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations." *Id.* The REMP monitoring results also showed that concentrations of contaminants in native leafy vegetation, soils and sediments, surface water, and fish in areas surrounding IP2 and IP3 have been quite low (at or near the threshold of detection) and seldom above background levels. *Id.* at 15-16. Based on this information, the Staff concluded that no disproportionately high and adverse human health impacts would be expected in special pathway receptor populations in the region as a result of subsistence consumption of fish and wildlife. *Id.* at 16.

10.98. Additionally, the results of the 2010 REMP for the Indian Point site demonstrated that routine operations at the IP2 and IP3 site continues to have no significant or measurable radiological impact on the environment. *Id.* Entergy or its contractors performed 1,166 analyses on collected samples of environmental media, which showed no significant or measurable radiological impact above background levels from site operations. *Id.* No elevated radiation levels were detected in the offsite environment as a result of plant operations and the storage of radioactive waste. *Id.* These results continue to demonstrate that the operation of IP2 and IP3 does not result in a significant measurable dose to a member of the general population or adversely impact the environment as a result of radiological emissions and effluents. *Id.* Accordingly, the Staff determined that no disproportionately high and adverse human health impacts would be expected in special pathway receptor populations in the region as a result of subsistence consumption of water, local food, fish, and wildlife. *Id.*

10.99. Mr. Rikhoff testified that the Staff also considered the impacts of postulated accidents, including both design basis and severe accidents in its EJ analysis. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 17; *see also* Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 45. The Commission has generically determined that impacts associated with design basis accidents are SMALL because nuclear plants are designed and operated to successfully withstand such design basis accidents, and the probability weighted impact risks associated with severe accidents were also SMALL. *Id.* This finding is codified in Table B-1 of 10 C.F.R. Part 51, Appendix B and applies to *all* populations. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 45 (citing 10 C.F.R. Pt. 51, Table B-1). Thus, the Staff concluded and Entergy agrees that there would be no disproportionately high and adverse impact on minority and low-income populations due to a severe accident. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 17; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 45.

10.100. Accordingly, based on this information and the analysis of human health and environmental impacts presented in Chapters 4 and 5 of the FSEIS, the NRC Staff concluded there would be no disproportionately high and adverse impacts to minority and low-income populations from the continued operation of IP2 and IP3 during the license renewal term. *Id.*

d. The Staff and Entergy's Use of Census Block Group Data in the ER and FSEIS is Reasonable and in Accordance with NRC Guidance

10.101. In Contention CW-EC-3A, Clearwater claims that Census block data should have been used instead of Census block group data in identifying minority and low-income populations. Clearwater Initial Statement of Position (Ex. CLER00002) at 19-21. The Staff and Entergy, however, assert that the use of Census block groups in the ER and the FSEIS is reasonable because Census block group data contains poverty and income information while Census block data does not contain such information. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 18-19; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 23-25; Tr. at

2746-49.

10.102. Entergy witnesses, Mr. Cleary and Mr. Riggs, testified that Census blocks are the smallest geographical unit the U.S. Census Bureau uses and typically are defined by roads and other physical geography. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 22. A Census block group combines several Census blocks and typically contains between 600 and 3,000 people. *Id.* Several Census block groups make up a Census Tract, and several Census Tracts can be combined to make up counties. *Id.*

10.103. Mr. Cleary and Mr. Riggs further testified that the U.S. Census Bureau does not release income data at the Census block-level due to privacy concerns. *Id.* at 24, citing EJ Policy Statement (Ex. ENT000260) at 52,046. Therefore, Mr. Cleary and Mr. Riggs concluded that, “because environmental justice reviews involve examining both minority and low-income populations, performing a complete environmental justice evaluation from published census data would not be possible using only census *Block* data.” *Id.* at 24.

10.104. Moreover, NRC guidance specifically endorses the use of Census block group data to identify the location of minority and low-income populations. According to the EJ Policy Statement, the “NRC uses the Census ‘block group’ as the geographic area for evaluating census data because the U.S. Census Bureau does not report information on income for ‘blocks,’ the smaller geographic area.” EJ Policy Statement (Ex. ENT000260) at 52,046.

10.105. Similarly, LIC-203, Rev. 2 states:

The census block group was chosen because it contains information on income and poverty that is not collected for the smaller “census block,” but at the same time, it is not as large as the “census tract,” which are too large for an adequate location and identification of minority or low income communities.

LIC-203, Rev. 2 (Ex. ENT000264) at C-5, C-6.

10.106. Furthermore, Staff witness, Mr. Rikhoff, testified that the use of Census block group data is also in accordance with CEQ’s EJ Guidance. Staff Testimony on CW-EC-3A (Ex.

NRC000063) at 19. CEQ's EJ Guidance specifies that Census block group data identifies the location of minority and low-income population where the minority population percentage of the affected area exceeds 50 percent or "is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." *Id.*, citing CEQ EJ Guidance (Ex. ENT000266) at 25. Additionally, the CEQ's EJ Guidance states, "The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population." *Id.*, citing CEQ EJ Guidance (Ex. ENT000266) at 26; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 24, citing CEQ EJ Guidance (Ex. ENT000266) at 26. Thus, the CEQ EJ Guidance explicitly endorses the use of Census Tracts, which are larger than Census block groups. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 24-25.

10.107. Moreover, Staff witness, Mr. Rikhoff, testified that, "[c]hoosing Census block group data over block data does not artificially dilute or inflate the affected minority population because it allows for the consideration of poverty and income data in identifying the location of minority and low-income populations." Staff Testimony on CW-EC-3A (Ex. NRC000063) at 19.

10.108. Additionally, Clearwater disclosed that the New York State Department of Environmental Conservation ("NYSDEC") also uses Census *block group* data when implementing state environmental laws and policies. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 25, citing Email from J. Matthews, NYSDEC, to M. Greene, Clearwater, "Potential EJ Areas 10 and 50 miles from Indian Point" at 1 (Apr. 15, 2011) (Ex. CLE000029).

10.109. Clearwater witness, Dr. Edelstein, testified that an EJ analysis would be possible at a scale smaller than Census block group because the smaller scale (Census block data) includes data on minority status. Tr. at 2788-89. Although Dr. Edelstein conceded that Census block data does not include income data, Tr. at 2788, he did not explain how the Staff could have

performed any sort of income analysis at the Census block level in the FSEIS.

10.110. After reviewing the evidence submitted by all the parties, we find that the Staff's and Entergy's use of Census block group data is reasonable. As the Staff and Entergy have indicated, Census block data does not contain the poverty and income information that is included in the Census block group data, which is required for an environmental justice review. Moreover, the use of Census block group data is in accordance with both NRC and CEQ Environmental Justice Guidance. Clearwater provides little support for its assertion that Census blocks should have been used instead of Census block groups. Accordingly, we find that the Staff's and Entergy's use of Census block group data is reasonable.

e. Clearwater's Assertions Regarding Disagreement between the NYSDEC and FSEIS Maps are Without Merit

10.111. Clearwater asserts that there is disagreement between NYSDEC maps and the FSEIS maps with respect to majority minority areas between 10 and 50 miles of Indian Point because of the NRC's use of Census block groups. Clearwater Initial Statement of Position (Ex. CLER00002) at 20. Specifically, Clearwater asserts that a large "Environmental Justice" area above Poughkeepsie to the west of the Hudson is not identified in the FSEIS map and another large area east of Rhinebeck on the 50-mile boundary is omitted from the FSEIS. *Id.* Clearwater, however, provides no expert support for its assertion.

10.112. Staff witness Mr. Rikhoff noted in his testimony that the Staff's environmental justice impact assessment of the effects of license renewal conducted for the FSEIS is not limited to the Census block groups identified on the maps. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 20. Moreover, Mr. Rikhoff indicated that the Staff considered human health and environmental effects from continued nuclear power plant operations and refurbishment associated with license renewal for all minority and low-income populations within 50 miles of IP2 and IP3 whether they appeared on the representative environmental justice population maps or

not, including the environmental justice populations above Poughkeepsie to the west of the Hudson and east of Rhinebeck on the 50-mile boundary. *Id.*

10.113. We find the Staff's explanation reasonable. Accordingly, we find that Clearwater's assertions regarding disagreement between the NYSDEC and FSEIS maps are without merit.

- f. Entergy's ER and the Staff's FSEIS Identify All Members of Minority and Low-Income Populations, Including Those that Are Considered Disabled, Have Special Needs, Are Incarcerated, and/or Are Institutionalized

10.114. Clearwater claims that the NRC Staff failed to identify in the FSEIS many EJ populations present within the 50-mile radius of Indian Point including populations in prisons, nursing homes, correctional facilities, homeless shelters, hospitals, schools, and those populations that are transport dependent. Clearwater Initial Statement of Position (Ex. CLER00002) at 19-21. Clearwater witness, Mr. Mair, described EJ populations as including those people who have limited control over their ability to move and move around such as special needs populations and institutionalized populations, including those in prisons, nursing homes, schools, and hospitals. Tr. at 2825-26. Additionally, Clearwater witness, Dr. Edelstein, asserted that Sing Sing prison was not mentioned at all despite having its own Census block and 87 percent of its population being considered minority. Edelstein Testimony (CLE000003) at 2; Environmental Justice Impacts From the Proposed Relicensing (sic) of the Indian Point Nuclear Power Complex: A Focus on Sing Sing Prison (Oct. 5, 2011) ("Edelstein Report") (Ex. CLE000012) at 11-13; Tr. at 2792-95.

10.115. Staff witness, Mr. Rikhoff, testified that Executive Order 12898 and NRC guidance documents including the Commission's EJ Policy Statement direct the Staff to only consider individuals who are low-income and/or part of a minority group in the Staff's EJ assessment. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 20-21; Tr. at 2744. Further, Mr. Rikhoff testified that these NRC guidance documents do not require the Staff to consider

children or persons who are disabled, special needs, mobility-impaired, transport-dependent, or incarcerated as distinct populations in the Staff's environmental justice assessment. *Id.*

However, Mr. Rikhoff clarified that if these individuals were also considered a member of a minority race and/or are living below the poverty threshold (low-income), then, they would be considered in the Staff's EJ assessment. *Id.*

10.116. Mr. Rikhoff also testified that all minority and low-income populations within 50-miles of IP2 and IP3 are considered in the FSEIS regardless of whether they are immobilized with disabilities and/or institutionalized because the demographic data for the FSEIS environmental justice assessment was drawn from the 2000 Census data which includes populations that are immobilized with disabilities and/or institutionalized. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 21-22; *see also* Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 40-42.

10.117. The Staff and Entergy's witnesses both testified that people in prisons and other institutions, including Sing Sing, were included in the 2000 Census as a component of the group quarters institutionalized population. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 21, citing Census SF-1, Appendix C (Ex. ENT000265) at C-2; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 41-42; 61-62; Tr. at 2747, 2911. Institutionalized people included in the 2000 Census consist of "[p]eople under formally authorized, supervised care or custody, such as in federal or state prisons; local jails; federal detention centers; juvenile institutions; nursing or convalescent homes for the aged or dependent; or homes, schools, hospitals, or wards for the physically handicapped, mentally retarded, or mentally ill; or in drug/alcohol recovery facilities were counted at these places." Staff Testimony on CW-EC-3A (Ex. NRC000063) at 22, citing Census SF-1, Appendix C (Ex. ENT000265) at C-2; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 41-42.

10.118. After considering the evidence proffered by Clearwater, the Staff, and Entergy, we find that all minority and low-income populations were reasonably identified in the Staff's FSEIS and Entergy's ER. Specifically, those EJ populations in Sing Sing and other prisons and institutions were identified in the Staff's and Entergy's EJ assessments because they were included in the 2000 Census as a component of the group quarters institutionalized population. *Id.* We also find that Executive Order 12898 and NRC guidance including the Commission's EJ Policy Statement do not require the Staff to consider children or persons who are disabled, special needs, mobility-impaired, transport-dependent, or incarcerated as distinct populations in the Staff's environmental justice assessment.

g. The NRC Staff Considered Factors Peculiar to EJ Communities in the FSEIS

10.119. Clearwater asserts that the FSEIS failed to identify EJ communities and factors peculiar to these communities. Clearwater Initial Statement of Position (Ex. CLER00002) at 5-12. Along those lines, Clearwater witness, Dr. Edelstein, testified that a key EJ population such as Sing Sing should not have been missed and that it is not enough to simply identify an EJ population, but that the specific impact on that EJ community should be studied. Tr. at 2792. Additionally, Dr. Edelstein, testified that the Staff could have worked at a scale smaller than Census block groups, taking into account the demographics and populations that exist in the area that may be reasonably impacted. Tr. at 2789.

10.120. Specifically, Dr. Edelstein refers to the Clearwater Exhibit 51, a presentation by the NRC Division of New Reactors. Rebuttal Testimony of Michael Edelstein Regarding Clearwater's Environmental Justice Contention EC-3A (June 28, 2012) ("Edelstein Rebuttal") (Ex. CLE000047) at 4. Clearwater Exhibit 51 describes how in the VC Summer EJ analysis, the NRC Staff took a "harder look" at the community and found disparate impacts from construction because "the local roads in Jenkinsville (the only route to the site) were narrow, two-lane blacktop, with little or no shoulder" and "[a] large proportion of the population walked as their normal means

of transportation.” (Ex. CLE000051) at 16. Dr. Edelstein testified that for VC Summer, the NRC Staff “made themselves available and learned about a community that was an EJ community, that they were then able to . . . meet with and to identify what the issues were, and to accommodate in a mitigation the needs of that community.” Tr. at 2790.

10.121. At the hearing, Staff witness Mr. Rikhoff explained that the NRC presentation referenced by Clearwater pertained to VC Summer, a proceeding involving the construction of a new nuclear power plant. Tr. at 2908. Mr. Rikhoff further testified that the impacts for licensing a new reactor include construction impacts, which are not considered in license renewal. *Id.* As outlined in Clearwater Exhibit 51, the disparate impacts found by the NRC and referenced by Clearwater’s witnesses pertained only to construction impacts. (Ex. CLE000051) at 16-18.

10.122. Additionally, Mr. Rikhoff testified that in the FSEIS, the Staff conducted a special pathway receptor assessment regarding the consumption patterns of EJ populations. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 12. The Staff conducts its special pathway receptors analysis by considering whether there were any means for minority or low-income populations to be disproportionately affected by examining the potential impacts to American Indian tribes and other traditional or cultural lifestyle special pathway receptors. *Id.* Special pathways take into account the levels of radiological and non-radiological contaminants in native vegetation, crops, soils and sediments, surface water, fish, and game animals on or near the nuclear power plant site using REMP monitoring data.⁴⁷ Staff Testimony on CW-EC-3A (Ex. NRC000063) at 12-13. The 2006, 2009, and 2010 REMP monitoring results demonstrated that routine reactor operations have had no significant or measureable radiological impact on the environment. *Id.* at 15-16. Based on the REMP monitoring results, the Staff concluded that no disproportionately high and adverse human health impacts would be expected in special pathway

⁴⁷ See *supra* ¶¶ 10.94 – 10.98 for a detailed discussion of the Staff’s special pathway receptor analysis and the Indian Point REMP results.

receptor populations in the region as a result of subsistence consumption of water, local food, fish, and wildlife. *Id.* at 16.

10.123. Moreover, Mr. Rikhoff testified that under the Staff's current guidance for license renewal, as part of the Staff's EJ analysis, the Staff would have tried to determine whether the minority population at Sing Sing would be disproportionately affected as compared to the general population if the Staff had determined that there was an environmental effect that the Staff needed to investigate further. Tr. at 2750-51.

10.124. To clarify this point, Judge McDade posed a hypothetical to Mr. Rikhoff asking that if there was an environmental justice community down river from a facility and there was anticipated leakage of radionuclides, whether the Staff would view that environmental justice community separately, even though the population generally might not be affected and other EJ communities within the 50-mile radius might not be affected. Tr. at 2750-51. Mr. Rikhoff testified that this sort of analysis is something the Staff would do based on current Staff guidance. Tr. at 2751. Mr. Rikhoff indicated that the Staff did not perform this sort of analysis in its EJ analysis for Indian Point because the Staff could not discern any increased or added environmental effects from license renewal, which the Staff would be required to investigate under current guidance. Tr. at 2752.

10.125. After reviewing the evidence submitted by Clearwater and the Staff, we find that the Staff has considered factors peculiar to EJ communities. Specifically, the Staff conducted a special pathway receptor analysis based on the REMP program. Further, the Staff indicated that the Staff could not discern any increased or added environmental effects from license renewal, which the Staff would be required to investigate under current guidance. Accordingly, we find that contrary to Clearwater's claims, the Staff has reasonably considered peculiar impacts to EJ communities in the FSEIS.

h. The Staff's EJ Analysis in the FSEIS Reasonably Relies on the Analysis of Environmental Impacts for Severe Accident in the GEIS

10.126. Clearwater asserts in Contention CW-EC-3A that Entergy's ER and the Staff's FSEIS do not address the disproportionate impacts of severe accidents on special needs and prison populations. *See generally* Clearwater Initial Statement of Position (Ex. CLER00002). Clearwater's Contention CW-EC-3A assumes that an accident occurring at one of the Indian Point units would require the activation of the emergency plan. *Id.* Clearwater further assumes that the consequences of that accident would require the evacuation of the general population around the Indian Point site. *Id.* Clearwater contends that special needs populations and prisoners housed in facilities located within 50 miles of Indian Point would not be treated the same as the general population in this scenario. *Id.*

10.127. However, the NRC generically addressed the environmental consequences that would result from all design basis and severe accidents⁴⁸ at all plants in the GEIS and specifically considered the effects of emergency preparedness and planning in its assessment. Specifically, section 5.23 of the GEIS discusses mitigation of accident consequences through onsite and offsite emergency plans. GEIS (Ex. NYS000131C) at 5-10. The GEIS states that these emergency plans include, "provisions for dissemination to the public of basic emergency planning information; provisions for rapid notification of the public during a serious reactor emergency; and methods, systems, and equipment for assessing and monitoring actual or potential off-site consequences in the event of a radiological emergency condition." *Id.*

⁴⁸ *See supra* note 40 for the definitions of design basis and severe accidents.

10.128. Further, section 5.3.3.2 of the GEIS regarding dose and adverse health effects of severe accidents states:

Emergency planning. Even in the event of a release of radioactive material from a plant, protective actions can be taken to move or shelter members of the public in the projected path of the radioactive cloud. The success of these actions in preventing exposure of members of the public to the radioactive material is dependent upon the warning time available prior to the release and the time it takes to carry out the protective actions. In general, this latter item (the time to carry out the protective action) is mostly influenced by the size of the population around the plant. Each FES [final environmental statement] that addresses severe accidents considers the effects of site-specific emergency planning in calculating exposures and risks to the public. Since the FES plants include sites with populations that reasonably cover the range of populations at all 74 sites, a range of emergency planning is considered in the data used for the predictions of early and latent fatalities during the license renewal period. Thus, this GEIS analysis should reasonably account for the effects of emergency planning.

GEIS (Ex. NYS000131C) at 5-26. Accordingly, in as much as the environmental impacts related to emergency planning have already been considered in the GEIS, we do not consider those impacts here, except as necessary to address Clearwater's contention.

10.129. Moreover, the GEIS' severe accident evaluation specifically considered uncertainties associated with emergency planning and evacuation-related risks including, "evacuation effectiveness under different circumstances, possible sheltering and its effectiveness, the effectiveness of population relocation, and the fraction of people assumed not to relocate." *Id.* at 5-102.

10.130. With respect to the environmental consequences that would result from severe accidents at all plants, the GEIS concludes:

[T]he predicted effects of a severe accident during [the middle year of license renewal period] at the 74 sites of nuclear power plants in the United States are not expected to exceed a small fraction of that risk to which the population is already exposed. . . . Results indicate that the highest individual dose would be 3×10^{-4} rem/[reactor-year (RY)]. This dose compares to an average of 3×10^{-1} rem/person/year for all other causes, including radon. Therefore, the probability-weighted consequences from atmospheric releases associated with severe accidents is judged to be of *small significance for all plants*.

Id. at 5-115 (emphasis added).

10.131. The GEIS finding was codified in 10 C.F.R. Part 51, Table B1, which states that “[t]he probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants.” Moreover, as Entergy’s witnesses stated, the Commission determined by regulation that the impacts from severe accidents are SMALL for all plants, which applies to *all* populations. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 45 (citing 10 C.F.R. Pt. 51, Table B-1).

10.132. In Chapter 5 of the FSEIS, the Staff did not identify any new and significant information regarding the environmental impacts from postulated accidents, and thus incorporated the GEIS analysis regarding the environmental impacts from postulated accidents that might occur during the license renewal term. FSEIS (Ex. NYS000133B) at 5-1 to 5-4.

10.133. Specifically, with respect to design basis accidents, Entergy stated in its ER that it is not aware of any new and significant information associated with the renewal of the IP2 and IP3 operating licenses. *Id.* at 5-2. Similarly, the Staff did not identify any new and significant information during its independent review of the IP2 and IP3 ER, the site visit, the scoping process, or evaluation of other available information. *Id.* at 5-2, 5-3. Therefore, the Staff

concluded in the FSEIS that “there are no impacts related to [design basis accidents] beyond those discussed in the GEIS.” *Id.*

10.134. With respect to severe accidents, the FSEIS states:

In the GEIS, the NRC staff also assessed the impacts of severe accidents using the results of existing analyses and site-specific information to conservatively predict the environmental impacts of severe accidents for each plant during the renewal period. Severe accidents initiated by external phenomena, such as tornadoes, floods, earthquakes, fires, and sabotage, traditionally have not been discussed in quantitative terms in FESs and were not specifically considered for IP2 and IP3 in the GEIS. However, in the GEIS, the NRC staff did evaluate existing impact assessments performed by the NRC and by the industry at 44 nuclear plants in the United States and concluded that the risk from beyond-design-basis earthquakes at existing nuclear power plants is SMALL In the GEIS, the Commission concluded that the risk from sabotage and beyond-design-basis earthquakes at existing nuclear power plants is small and, additionally, that the risks from other external events are adequately addressed by a generic consideration of internally initiated severe accidents (see Volume 1 of the GEIS, page 5-18).

FSEIS (Ex. NYS000133B) at 5-3.

10.135. Further, the NRC staff did not identify any new and significant information with regard to the consequences from severe accidents during its independent review of the IP2 and IP3 ER, the site visit, the scoping process, or evaluation of other available information. *Id.* at 5-3 to 5-4. Therefore, the NRC staff concluded in the FSEIS that “there are no impacts of severe accidents beyond those discussed in the GEIS.”⁴⁹ *Id.*

⁴⁹ Moreover, in accordance with 10 C.F.R. 51.53(c)(3)(ii)(L), the NRC Staff reviewed severe accident mitigation alternatives (“SAMAs”) for IP2 and IP3 in Section 5.2 of the FSEIS. (Ex. NYS000133A-J). Challenges to the SAMA analysis were raised by the State of New York in Contentions NYS-12C and NYS-16B.

Clearwater, however, has not challenged the SAMA analysis in Contention CW-EC-3A. See *also Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-08-13, 68 NRC 43, 201-203 (July 31, 2008) (rejecting admission of Clearwater Contention EC-4 which asserted that Entergy’s SAMA analysis does not adequately consider the impacts of a possible terrorist attack, a radiological event, or an evacuation at Indian Point, particularly the impact on the EJ communities discussed in Clearwater EC-3.).

10.136. The NRC Staff's Environmental Justice Assessment in section 4.4.6 of the FSEIS specifically relies on these findings in Chapter 5 and the GEIS to conclude that there would be no disproportionately high and adverse impacts to EJ populations during the license renewal term:

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 were also SMALL.

Therefore, based on this information and the analysis of human health and environmental impacts presented in Chapters 4 and 5 of this SEIS, there would be no disproportionately high and adverse impacts to minority and low-income populations from the continued operation of IP2 and IP3 during the license renewal period.

FSEIS (EX. NYS000133B) at 4-53; *see also* Staff Testimony on CW-EC-3A (Ex. NRC000063) at 17; Tr. at 2756-57, 2774-75, 2907.

10.137. Thus, the Staff concluded and Entergy agrees that there would be no disproportionately high and adverse impact on minority and low-income populations due to a severe accident. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 17; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 45.

10.138. At the hearing, Staff witness, Mr. Rikhoff, appeared to testify that there could theoretically be a situation where EJ populations could be disproportionately affected even though the generic determination in the GEIS was that the impact would be small. Tr. at 2757-58. However, the Staff never identified any such scenario applicable to Indian Point that would require such analysis. As stated previously in ¶ 10.124, Mr. Rikhoff indicated that the Staff could not discern any increased or added environmental effects from license renewal, which the Staff would be required to investigate under current guidance. Tr. at 2752. Moreover, as stated

above, the Staff concluded in Chapter 5 of the FSEIS that “there are no impacts of severe accidents beyond those discussed in the GEIS.” FSEIS (Ex. NYS000133B) at 5-3, 5-4.

10.139. In his direct testimony, Dr. Edelstein acknowledged that the FSEIS discussed the impacts from design basis and severe accidents and asserted that the Staff should have considered the impacts on incarcerated populations during an emergency “since unlikely events do occur.” Edelstein Report (Ex. CLE000012) at 4-5. In his rebuttal testimony, Dr. Edelstein asserted that a severe accident “is reasonably foreseeable and must therefore be included in the environmental analysis. Edelstein Rebuttal (Ex. CLE000047) at 2.

10.140. Additionally, in his rebuttal testimony, Dr. Edelstein did not deny that the GEIS finding applies, but stated:

This rhetorical and tautological position represents just the kind of regulatory rationalization for permitting environmental injustices that Executive Order [12898] was intended to overcome. The Commission has also tacitly rejected this argument, because the Commission took action to require more in-depth EJ assessment in response to the Executive Order. Had the Commission adopted the Staff’s current argument, it would not have required the additional EJ analysis.

Rebuttal to Respondents to Testimony on the Environmental Justice Contention Report (June 28, 2012) (“Edelstein Rebuttal Report”) (Ex. CLE000058) at 5.

- i. The NRC Has Reasonable Assurance that Adequate Protective Measures Will Be Taken for All Populations in the Event of a Severe Accident at Indian Point

10.141. Although the adequacy of emergency planning protective measures are not properly within the scope of a license renewal proceeding, the Staff and Entergy submitted evidence that protective measures identified in the onsite and offsite emergency plans would be taken for all populations, including EJ populations, in the event of a severe accident at Indian Point. Staff witness, Ms. Milligan, testified that in accordance with 10 C.F.R. § 50.47, before a plant is licensed to operate, the NRC must have “reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.” Staff Testimony on

CW-EC-3A (Ex. NRC000063) at 23. NRC regulations require licensees to maintain emergency preparedness plans to be implemented in the event of an emergency at a nuclear power plant. See 10 C.F.R. §§ 50.47, 50.54(q), (s)-(u); 10 C.F.R. Part 50, Appendix E. Applicants must submit to the NRC radiological emergency response plans of state and local governments that are within the in the 10-mile plume exposure emergency planning zone (“EPZ”) and the 50-mile ingestion pathway EPZ. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 47-48. State and local governments generally are responsible for developing, maintaining, and implementing emergency plans that adequately protect the public health and safety through appropriate offsite protective measures. *Id.* at 48, citing 44 C.F.R. § 350.5(b).

10.142. Entergy witness, Mr. Slobodien, testified that there are two levels of planning standards/regulatory requirements which Westchester County or other government entities must meet in developing emergency plans. Tr. at 2874. The first comes from the federal government and is found in NUREG-0654/FEMA-REP-1 (Ex. ENT000271). Tr. at 2874. The second set of requirements come from New York state level codes and laws that “direct specific requirements for emergency planning for a variety of institutions including schools, daycare centers, hospitals, nursing homes and the like.” Tr. at 2874. New York State Executive Law 2b is the overarching emergency planning law, which directs counties to carry out emergency planning functions to protect public health and safety for their citizens for disasters including radiological emergencies. Tr. at 2874-76.

10.143. Staff witness, Ms. Milligan, testified that the emergency preparedness plans and programs for nuclear power plant licensees and offsite authorities cover preparations for evacuation, sheltering, and other actions to protect residents near plants in the event of a serious accident. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 23. She further stated that these emergency plans are developed and implemented to provide adequate protection to *all populations* within the EPZs around nuclear power plants. *Id.* at 23-24; Tr. at 2761; 2877.

10.144. Similarly, Mr. Slobodien testified that the county emergency plans have considered the need to evacuate all populations including individuals with limited resources, those who are transportation dependent, those who are not ambulatory, those who are sick, those who are in schools, and those who are in nursing homes. Tr. at 2878. Additionally, facilities including nursing homes, assisted living facilities, schools, prisons, and hospitals are required by state code to have their own supplementary emergency plans. Tr. at 2878-79, citing (Ex. ENT000289, ENT000292, ENT000293, ENT000294).

10.145. Further, Ms. Milligan testified that the NRC's requirements for emergency planning in NUREG-0654/FEMA-REP-1, Rev. 1, Section J, Protective Response element 10.d, state that plans to implement protective measures for plume exposure pathways must include, "means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement." Staff Testimony on CW-EC-3A (Ex. NRC000063) at 26, citing NUREG-0654/FEMA-REP-1 (Ex. NRC000066).

10.146. Ms. Milligan also testified that the NRC's overall decision of reasonable assurance is based on licensees complying with NRC regulations and guidance as well as the adequacy of State/local emergency plans as determined by FEMA. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 23. Oversight of emergency preparedness for licensed nuclear power plants and surrounding communities is shared by the NRC and FEMA. *Id.* The NRC and FEMA have a Memorandum of Understanding, under which FEMA has the lead in overseeing offsite planning and response and the NRC assists FEMA in carrying out this role. *Id.*, citing Memorandum of Understanding between FEMA and NRC, 58 Fed. Reg. (Ex. NRC000065) 47,997, 47,998 (Sep. 14, 1993) ("FEMA/NRC MOU"). FEMA reviews and evaluates the offsite emergency plans developed by the State and counties to verify that the plans, as developed, can be effectively implemented for the populations in the 10- and 50-mile EPZs. *Id.* In accordance with 10 C.F.R. § 50.47(a)(2), the NRC will base its finding of reasonable assurance:

on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented.

10.147. Further, Mr. Slobodien testified that the effectiveness of these emergency plans is evaluated biennially by FEMA and the NRC in comprehensive emergency preparedness exercises. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 48, citing 10 C.F.R. § 50.47(a)(2); 10 C.F.R. Part 50, Appendix E, § IV.F.2; Tr. at 2884-85. Staff witness Ms. Milligan testified that, "[t]he biennial exercise is an event involving organizational responses to a simulated commercial nuclear power plant accident with radiological and other offsite consequences." Staff Testimony on CW-EC-3A (Ex. NRC000063) at 25. The purpose of such an exercise is to test the integrated capabilities of involved offsite response organizations to implement the emergency functions set forth in State, Tribal, and local radiological emergency response plans and procedures. *Id.* These exercises typically involve hundreds of participants and last for several hours. *Id.* Additionally, every biennial exercise has used potential radiological releases that require an evacuation of at least a portion of the planning zone. *Id.* The exercises designed to test the ingestion pathway plans can extend for several days. *Id.* Furthermore, the licensee as well as the State and local officials are evaluated by the NRC and FEMA during these exercises. *Id.*

10.148. Entergy witness Mr. Slobodien testified that, as confirmed in the most recent FEMA Indian Point radiological exercise report: "State and local preparedness is adequate to protect the health and safety of the public living in the vicinity of the Indian Point Energy Center and . . . there is reasonable assurance that appropriate measures can be taken offsite in the event of a radiological emergency." Entergy Testimony (Ex. ENT000258) at 49, citing Letter from L. Canton, FEMA, to D. Tailleart, NRC (Dec. 5, 2011) (transmitting the Final Exercise Report for the

Indian Point Energy Center Radiological Emergency Preparedness Plume Pathway Exercise Conducted on September 14, 2010 (Nov. 30, 2011) (“FEMA Final Exercise Report”) (ENT000273). Moreover, as Mr. Slobodien states in his testimony, “[t]his conclusion is consistent with numerous prior FEMA findings that appropriate measures to protect the health and safety of *all communities* surrounding Indian Point can be taken and are capable of being implemented.” *Id.*

j. The NRC Will Initiate an Enforcement Action or Plant Shutdown if the Emergency Plans are Found to be Deficient

10.149. Staff witness, Ms. Milligan, states in her pre-filed testimony that if serious problems or deficiencies with implementation of the offsite emergency plans are identified during the exercise process or during an event, these problems must be corrected and the sufficiency of those corrections must be demonstrated. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 25. If these problems are not corrected or a plan to correct the identified deficiency is not submitted within 120 days (four months) then FEMA will initiate a process which may result in a withdrawal of FEMA’s finding of reasonable assurance.⁵⁰ *Id.* Upon notification of such action, the NRC will review FEMA’s findings. *Id.*; FEMA/NRC MOU (Ex. NRC000065) at 48,000.

10.150. In accordance with 10 C.F.R. 50.54(s)(2)(ii), if the NRC finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency and if the deficiencies are not corrected within four months of that finding, the Commission will determine whether the reactor shall be shut down until such deficiencies are remedied or whether other enforcement action is appropriate. *Id.* In determining whether a shutdown or other enforcement action is appropriate, the Commission shall take into account, among other factors, whether the licensee

⁵⁰ If FEMA determines under 44 CFR § 350.13 of its regulations that offsite emergency plans or preparedness are not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of radiological emergency to protect the health and safety of the public, FEMA shall, withdraw approval. FEMA/NRC MOU at 48,000.

can demonstrate to the Commission's satisfaction that the deficiencies in the plan are not significant for the plant in question, adequate interim compensating actions have been or will be taken promptly, or there are other compelling reasons for continued operation. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 25-26. If, under 10 CFR 50.54(s)(2)(ii) and 50.54(s)(3), the NRC determines that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the NRC will notify the licensee and start the 120-day clock under Section 50.54(s)(2)(ii). *Id.* at 26; FEMA/NRC MOU (Ex. NRC000065) at 48,000.

10.151. Ms. Milligan further testified that the NRC oversees the licensee's performance in following and maintaining its emergency plan via the Reactor Oversight Process, through monitoring of performance indicators, direct inspections of the licensee's program, and exercise and actual event observations. *Id.* Should such oversight identify a performance deficiency with the licensee's program, a program of progressive enforcement actions will be initiated as necessary to correct the licensee's performance. *Id.* If at any time the NRC determines that it no longer has reasonable assurance with regard to the adequacy of the licensee's plan or the licensee's ability to take appropriate protective measures in the event of an accident, and that the issues are not resolved within four months, the Commission will determine whether the reactor should be shutdown or if other actions are appropriate. *Id.* The Commission may take action earlier than four months, if warranted. *Id.*

k. A Severe Accident Would Not Result in a Disproportionately High and Adverse Environmental Impact to Residents of Sing Sing and Other Correctional Facilities

1. Sheltering-in-Place as a Protective Action

10.152. Clearwater asserts that prison populations, including those in Sing Sing, will be disproportionately impacted compared to the general public in the event of a severe accident because they will shelter-in-place in accordance with the emergency plans and will not be

evacuated. Clearwater's Initial Statement of Position (Ex. CLER00002) at 22-26; Edelstein Report (Ex. CLE00012) at 5; Filler Testimony (Ex. CLE000009) at 1-2. Mr. Filler testified that a disparate impact was written into the emergency plans for Westchester County, Rockland County, and New York State, because these plans call for sheltering-in-place for special populations such as those in prisons, schools, and hospitals. Filler Testimony (Ex. CLE000009) at 1-3; Tr. at 2857. Further, Mr. Filler testified that the Westchester and Rockland county emergency plans do not contain the level of detail "you really want to see to do the evacuation or shelter in place." Filler Testimony (Ex. CLE000009) at 1-3; Tr. at 2858. Specifically, he asserted that the Westchester plan does not account for getting food, water, and proper ventilation for those sheltering-in-place and Rockland County plan does not contain sufficient detail about buses. *Id.*

10.153. The Staff and Entergy submitted evidence that the designation of sheltering-in-place as an appropriate protective action option in the emergency plans is in accordance with NRC and FEMA regulations and guidance documents as well as guidance documents from the Environmental Protection Agency ("EPA"). Staff Testimony on CW-EC-3A (Ex. NRC000063) at 29-35; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 48-50.⁵¹ Entergy witness Mr. Slobodien testified that NRC regulations specifically require that licensee emergency plans consider a range of protective actions for all members of the public within the 10-mile EPZ, including, evacuation and sheltering. 10 C.F.R. § 50.47(b)(10).

10.154. Additionally, both the Staff and Entergy's witnesses testified sheltering-in-place is a preferred and/or superior protective action when emergency events develop rapidly and/or

⁵¹ See also 10 C.F.R. § 50.47(b)(10); NRC Regulatory Issue Summary 2004-13, Consideration of Sheltering in Licensee's Range of Protective Action Recommendations (Aug. 2, 2004) (Ex. ENT000290); NUREG/CR-6953, Review of NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 3, Criteria for Protective Action Recommendations for Severe Accidents at 59 (Dec. 2007) ("NUREG/CR-6953") (Ex. ENT000291); Manual of Protective Action Guides and Protective Actions for Nuclear Incidents at 2-5 to -6 (1991) (Ex. ENT00284A).

evacuation would be problematic, such as if a roadway has been disrupted. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 35; Tr. at 2879. Staff witness, Ms. Milligan, testified that “the NRC has spent a lot of time looking at the impacts of evacuation, sheltering, and some combination thereof” and that the work the NRC has done suggests that “the best alternative going forward is to . . . do a combination of both” to achieve a lower dose. Tr. at 2766.

10.155. Further, Ms. Milligan testified that during a severe accident, after the plume has passed or release has ended, sheltering-in-place would be accompanied by plans to evacuate or relocate individuals out of the impacted area if conditions require such action. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 33. Thus, if plant conditions indicate that doses exceeding the federal dose guidelines⁵² are projected to the populations at Sing Sing or any other such special facilities, then the emergency plan would drive the evacuation of that population. *Id.* Moreover, local, State and Federal emergency management officials are committed to ensuring that the emergency plans provide for adequate protection of public health and safety for the residents and others in the communities surrounding the Indian Point. *Id.*

10.156. Additionally, as Entergy’s witness Mr. Slobodien described in his pre-filed testimony, the designation of shelter-in-place as a protective action is not based on any characteristics unique to low-income or minority communities. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 57. This is demonstrated by the fact that shelter-in-place also is designated as an appropriate protective action for other institutions near Indian Point that do not contain environmental justice populations including Hudson Valley Hospital Center, Helen Hayes Rehabilitation Hospital, and the Robert E. Yeager Health Center. *Id.* Any decision to implement the shelter-in-place response option would consider a number of factors, including mobility, the radiological dose reduction compared with other options, and whether the individuals involved would suffer any other nonradiological harm as a result of the evacuation. *Id.*, citing Westchester

⁵² See discussion *infra* ¶¶ 10.158 – 10.162.

REPP at III-30 (ENT00285A). With regard to the facilities listed in the county plans as primary locations for the selective shelter-in-place response option, sheltering is likely to be the protective action of choice for these facilities based on their distances from Indian Point, population mobility, and their physical characteristics and construction, not on any characteristics unique to minority or low-income communities. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 57.

2. Projected Doses to Prison Populations in Sing Sing and Other Facilities Would be Within Federal Guidelines in the Event of a Severe Accident at Indian Point

10.157. Clearwater asserts that if the populations within special facilities such as prisons (including Sing Sing), hospitals, and nursing homes shelter-in-place in accordance with the emergency plans, these populations will be disproportionately impacted because they will receive higher doses than the general public. Clearwater Initial Statement of Position at 22-26 (Ex. CLER00002). Dr. Edelstein testified that incarcerated populations would be allowed to receive a higher dose, as much as ten times higher than those who were not incarcerated. Tr. at 2799-2800.

10.158. The Staff and Entergy's witnesses, however, testified that the EJ populations at Sing Sing and other correctional facilities would not receive a dose that was disproportionately high and adverse as a result sheltering-in-place in the event of a severe accident at Indian Point. Staff witness, Ms. Milligan, testified that sheltering-in-place does not mean that the affected populations will receive a higher or harmful radiation dose because they did not immediately evacuate. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 31. Ms. Milligan testified that there would not be disproportionately high and adverse impact on prisoners because any doses received would be well within established federal guidelines. Tr. At 2762-63, 2778-79.

10.159. Ms. Milligan explained in her testimony that the emergency plans that are developed by State and local officials incorporate, at a minimum, federal guidance from the EPA

Manual of Protective Action Guides, which identifies recommended dose guidelines.⁵³ Staff Testimony on CW-EC-3A (Ex. NRC000063) at 32; Tr. at 2762; see Manual of Protective Action Guides and Protective Actions for Nuclear Accidents, U.S. EPA, Office of Radiation Programs (May 1992) (EX. ENT000284A-B) (“EPA PAGs”). The EPA guidelines note that implementation of protective actions should consider the risks of the radiation exposure versus other risks inherent in the evacuation process itself. Staff Testimony on CW-EC-3A (Ex. NRC000063), citing EPA PAGs (Ex. ENT00284A) at 2-5 to 2-6; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 51.

10.160. Specifically, Section 2.3.1 of the EPA guidelines states:

Sheltering may be preferable to evacuation as a protective action in some situations. Because of the higher risk associated with evacuation of some special groups in the population (e.g. those who are not readily mobile), sheltering may be the preferred alternative for such groups as a protective action at projected doses up to 5 rem. In addition under unusually hazardous environmental conditions use of sheltering at projected doses up to 5 rem for the general population (and up to 10 rem to special groups) may become justified. Sheltering may also provide protection equal to or greater than evacuation due to the nature of the source term and/or the presence of temporal or other site specific conditions. Illustrative examples of situations or groups for which evacuation may not be appropriate at 1 rem include: a) the presence of severe weather, b) competing disasters, c) institutionalized persons who are not readily mobile, and d) local physical factors which impede evacuation.

EPA PAGs (Ex. ENT00284A) at 2-5 to 2-6; see *also* Staff Testimony on CW-EC-3A (Ex. NRC000063) at 32-33; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 51-52; Tr. at 2762.

10.161. Ms. Milligan further testified that based on the EPA guidelines, decisions to evacuate or shelter are made on the basis of plant conditions and a forward-looking dose projection over four days. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 35; Tr. at

⁵³ NUREG-0654/FEMA-REP-1 states that the “overall objective of emergency response plans is to provide dose savings (and in some cases immediate life saving) for a spectrum of accidents that could produce offsite doses in excess of the Protective Action Guides.” (Ex. NRC000066) at 6.

2763-64. The forward-looking dose projections consider the maximally-exposed individual and do not consider any reduction resulting from shielding (e.g. building walls). Tr. at 2764-2765; 2894. Further, the dose projections factor in both internal and external dose, including inhalation and four-day groundshine. Tr. at 2766.

10.162. Moreover, Ms. Milligan testified that the Staff looks at the impact to the entire population including environmental justice populations to verify that all populations will be protected and receive doses within federal guidelines. Tr. at 2894-95. Ms. Milligan acknowledged that while the dose to populations in Sing Sing might be different from the general population; however, she clarified that the dose would not be inappropriate because it would be well within federal dose guidelines. Tr. at 2763, 2780.

10.163. Additionally, Entergy witness, Mr. Riggs, reiterated at the hearing that in an environmental justice analysis, the standard is whether impacts would be “*disproportionately high and adverse*.”⁵⁴ Tr. at 2777 (emphasis added). Entergy witness, Mr. Slobodien, testified that “adverse” is determined by “a dose that creates a clinical response or a clinical[ly] measurable symptom.” Tr. at 2781. Mr. Slobodien referred to EPA guidance that describe the thresholds for recognizing the clinical effects of radiation exposure, and stated that “the clinical thresholds typically seem in the range of about 50 rem.” *Id.* Therefore, Mr. Slobodien concluded that the EPA guidance for taking a protective action for incarcerated populations at 10 rem “is far less [than 50 rem] and is designed to ensure that there is no adverse action. *Id.*

⁵⁴ See Executive Order 12898 (Ex. ENT000259) (“each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. See also CEQ Environmental Justice Guidance (Ex. ENT000266); NRC Environmental Justice Policy Statement (Ex. ENT000260); LIC-203, Rev. 2 (Ex. ENT000264).

10.164. Staff witness, Ms. Milligan, clarified at the hearing that the CEQ EJ Guidelines define “disproportionately high and adverse human health effects” as follows:

Disproportionately high and adverse human health effects: When determining whether human health effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:

(a) Whether the health effects, which may be measured in risks and rates, are significant (as employed by NEPA), or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death; and

(b) Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and

(c) Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

CEQ EJ Guidelines (Ex. ENT000266) at 26; Tr. at 2782-83.⁵⁵

10.165. Ms. Milligan testified at the hearing that “from this understanding, we would not see an adverse or disproportionately high impact to EJ populations as a result of the severe accident with the implementation of emergency-planning protective action guides.” Tr. at 2783.

10.166. In response to Mr. Slobodien’s testimony, Clearwater witness, Dr. Kanter, testified that with respect to potential clinical exposure, there is no cutoff under which there is no risk of danger or radiation, and that there is a linear relationship of radiation to health risk and health damage. Tr. at 2855. Dr. Kanter further testified that while the 50-rem limit might be a reasonable limit for acute radiation sickness, radiation potentially causes cancer and other types of ailments. Tr. at 2855. Thus, Dr. Kanter asserted that people forced to shelter because of

⁵⁵ NRC Guidance, LIC-203, Rev. 2, indicates that the NRC specifically considered CEQ’s EJ Guidance in coming up with its guidance in LIC-203, Rev. 2. Further, LIC-203, Rev. 2 incorporates CEQ’s definition of “disproportionately high and adverse human health effects.” LIC-203, Rev. 2 (Ex. ENT000264) at C-1.

their circumstances are putting themselves at greater risk because they are getting more radiation exposure. Tr. at 2856.

10.167. However, as stated above, both Mr. Slobodien for Entergy and Ms. Milligan for the Staff testified, any doses received would be well within established federal guidelines. Tr. at 2763, 2780-2783. The federal dose guidelines for taking a protective action for special groups, including incarcerated populations, is 10 rem, which “is far less [than 50 rem].” EPA PAGs (Ex. ENT00284A) at 2-5 to 2-6; Tr. at 2781. Accordingly, based on the implementation of the EPA protective action guides, Ms. Milligan concluded that there would not be a disproportionately high and adverse impact on prisoners or other EJ populations in the event of a severe accident at Indian Point. Tr. at 2762-63, 2778-79, 2783.

10.168. Clearwater’s witnesses, Dr. Edelstein and Mr. Papa, also assert that the physical structure of Sing Sing prison is not adequate for sheltering-in-place. Edelstein Testimony (Ex. CLE000003) at 3; Edelstein Report (Ex. CLE000012) at 30; Papa Testimony (Ex. CLE000004) at 4; Tr. at 2801. Mr. Papa testified that he resided in Sing Sing prison from 1985 to 1997 and during that time there was no ventilation system at Sing Sing. Papa Testimony (Ex. CLE000004) at 4; Tr. at 2803-05.

10.169. However, Entergy witness, Mr. Slobodien, testified that consistent with federal guidance, Westchester County has designated shelter-in-place as an appropriate protective action option for certain institutions including Sing Sing Correctional Facility, Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 52, citing Westchester County Radiological Emergency Plan at III-30 (Mar. 2011) (“Westchester REPP”) (ENT00285A). Moreover, Mr. Slobodien testified that institutional structures are often superior in terms of dose reduction “because of the nature of the structure and the fact that shielding is provided not only for the passing plume but also for ground deposition.” Tr. at 2880.

10.170. After reviewing the evidence submitted by Clearwater, the Staff, and Entergy, we find that the sheltering-in-place of prisoners is a protective action governed by the emergency plans; therefore, Clearwater's claims regarding the adequacy of sheltering-in-place at Sing Sing and other facilities directly challenge the adequacy of emergency planning and thus fall outside the scope of this proceeding. Even if these claims were within the scope of this proceeding, we find that the Staff and Entergy have sufficiently demonstrated that any dose received by the prison population at Sing Sing and other correctional facilities would be within federal dose guidelines and thus would not be disproportionately high and adverse as compared to the general population.

3. Prison Populations in Sing Sing and other Facilities
Would be Evacuated if Necessary in the Event of a
Severe Accident at Indian Point

10.171. Clearwater asserts that the impacts on populations within correctional facilities such as Sing Sing will be disproportionately high and adverse because they will shelter-in-place and will not be evacuated in the event of a severe accident at Indian Point. Clearwater Initial Statement of Position (Ex. CLE000002) at 22-26; Edelstein Testimony (Ex. CLE000003) at 2-3; Edelstein Report (Ex. CLE000012) at 20-21. Mr. Papa testified that during the time he resided at Sing Sing between 1985 and 1997, he never saw or heard of any evacuation plans or saw any drills for prisoners or Staff. Papa Testimony (Ex. CLE000004) at 3. Mr. Papa also testified that it would be extremely difficult to evacuate Sing Sing in a reasonable amount of time because it would take about 6 days to shackle prisoners together. *Id.*

10.172. Dr. Edelstein and Ms. Greene both testified, however, that the emergency procedures for Rockland County Jail include sheltering in place and evacuation of prisoners, and that evacuation decisions would be made by New York State officials. Edelstein Testimony (Ex. CLE000003) at 5; Greene Testimony (Ex. CLE000010) at 28.

10.173. The Staff and Entergy testified, however, that the emergency plans allow for the evacuation of all prison populations, including the inmates in Sing Sing. Staff witness Ms. Milligan testified that New York State law specifically allows for the evacuation of prison populations during a state of emergency. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 29-30. In accordance with New York State Executive law,

Whenever a local state of emergency is declared by the chief executive of a local government pursuant to this section, the chief executive of the county in which such local state of emergency is declared, or where a county is wholly contained within a city, the mayor of the city, may request the governor to remove all or any number of sentenced inmates from institutions maintained by such county in accordance with section ninety-three of the correction law.

Staff Testimony on CW-EC-3A (Ex. NRC000063) at 30, citing, N.Y. Exec. Law § 24 (Consol. 2012) (Ex. ENT000283).

10.174. Ms. Milligan testified that the evacuation of the prison population is under the authority of the New York State Department of Corrections (“NYSDOC”), which plans to provide for protection of the safety of the prison population. *Id.* at 29. State corrections officials work closely with State and county officials. *Id.*

10.175. Entergy witness, Mr. Slobodien, testified that Sing Sing is a NYSDOC facility located in Westchester County. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 54. He further testified that in the unlikely event of a severe accident, the County will notify NYSDOC of protective action orders so that NYSDOC may consider implementing actions for Sing Sing. *Id.*, citing Westchester REPP, Implementation Procedure 1.0, Attach. 1, at. 33 (ENT00285A). NYSDOC makes decisions on protective actions for its facilities. *Id.*, citing NYS REPP at III-11 (ENT000272). Although the details of such plans are not publicly-available due to security concerns, New York State regulations require correctional facilities to maintain detailed emergency plans and well-trained staff. *Id.* at 55. Specifically, each NYSDOC correctional

facility must have a written health services emergency and disaster preparedness plan, and NYSDOC must “provide a formal orientation and training program for new health care staff which shall include . . . training in all aspects of the emergency and disaster preparedness plan.” *Id.*, citing 9 NYCRR AA § 7651.32; § 7651.31(c)(4) (ENT000289).

10.176. Further, Staff witness, Ms. Milligan, testified that NYSDOC makes decisions on the movement of prisoners based upon their internal plans and procedures. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 30. State facilities may shift prisoners within the State system. *Id.* Upon the request of county officials, the State Commission on Corrections will advise the county and NYSDOC as to the protective action that is to be taken relative to incarcerated individuals. *Id.* NYSDOC routinely moves prisoners within New York State and has the capability to quickly evacuate and relocate prisoners when faced with conditions such as fires or flooding. *Id.*

10.177. Ms. Milligan also testified that she has spoken with New York State officials regarding emergency planning procedures for the prison populations at Sing Sing. On March 19, 2012, Ms. Milligan spoke with Mr. Theodore J. Fisch, Chief of Radiological Emergency Preparedness Program, New York State Department of Homeland Security and Emergency Services, Office of Emergency Management, regarding the evacuation of prison populations at Sing Sing. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 30. Mr. Fisch indicated to Ms. Milligan that as Chief of Radiological Emergency Preparedness Program, he personally was aware of the Department of Corrections plans to provide for protection of the safety of the prison population. *Id.*

10.178. Ms. Milligan testified at the hearing that on September 30, 2012, she met with Colonel Michael Kirkpatrick, the highest-ranking official at the NYSDOC, for about three hours and went through the entire emergency planning for Sing Sing and other correctional facilities in New York State. Tr. at 2768-69. She further testified that:

New York Department of Corrections is absolutely confident that they would be able to evacuate Sing Sing Prison should they be notified by the Westchester County Emergency Management or by the governor that it would be necessary to do. And, having reviewed their plans and talked extensively to staff, I am very confident that would be able to occur.

Tr. At 2769. Ms. Milligan also testified that “upon notification by Westchester County and the governor, they will be able to evacuate the population [at Sing Sing] in a timely manner to ensure that they don’t receive doses in excess of federal guidelines.” Tr. At 2771. Ms. Milligan also testified that Colonel Kirkpatrick “had absolute confidence that they would be able to safely evacuate all the prisoners at Sing Sing including special needs populations at Sing Sing in a very timely fashion.” Tr. at 2917.

10.179. Further, as Entergy witness Mr. Slobodien testified, county plans account for correctional facilities located within the 10-mile EPZ. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 54. The Rockland County Plan addresses the Rockland County Correctional Facility, local police lock ups, and jails. *Id.*, citing Rockland REPP III-31; Procedure DOH-8, § 5.4 (ENT00286C). In the unlikely event of a severe accident, the Rockland County Plan directs the County contact facilities to confirm how many persons and staff they have, and implement any necessary protective actions for prisoners of the county jail. *Id.*, citing Rockland REPP Procedure RCS-1, §§ 5.3.9.7, 5.3.9.8, 5.3.9.9 (ENT00286C).

10.180. Mr. Slobodien further testified that although the Westchester County Correctional Facility is not within the EPZ, the Westchester County Emergency Plan nonetheless accounts for correctional facility actions in the unlikely event of an emergency at Indian Point. *Id.* at 55, citing See Westchester REPP, Implementation Procedure 17.0, at 16 (ENT00285D). Should an emergency occur at Indian Point, Westchester County Correctional Facility personnel are to “provide and ensure a safe environment for its detainees and staff,” are to “assist the Public Safety Department with a number of law enforcement related duties,” and will make “additional

internal agency notifications.” *Id.*, citing Westchester REPP, Implementation Procedure 15.0, at 3 (ENT00285D).

10.181. After reviewing the evidence submitted by Clearwater, the Staff, and Entergy, we find that the emergency plans govern the evacuation of prisoners in the event of an emergency at Indian Point and therefore Clearwater’s claims directly challenge the adequacy of emergency planning and thus fall outside the scope of this proceeding. Even if Clearwater’s claims were within the scope, we find that the Staff and Entergy have sufficiently demonstrated that contrary to Clearwater’s assertions, the prison population at Sing Sing and other correctional facilities would be evacuated, if necessary, in the event of a severe accident at Indian Point such that doses received would remain within federal guidelines and thus would not be disproportionately high and adverse as compared to the general population.

4. A Severe Accident at Indian Point Would Not Result in Similar Conditions for Inmates as Experienced After Hurricane Katrina

10.182. Clearwater also claims that EJ populations will be disproportionately impacted because both shelter-in-place and evacuation proved to be inadequate protection for prisoners in the aftermath of Hurricane Katrina leading to problems including horrendous conditions for prisoners and a chaotic violent situation during evacuation. Clearwater Initial Statement of Position (Ex. CLER00002) at 22-26; Edelstein Report (Ex. CLE000012) at 7-11, 21-23. Further, Mr. Papa and Dr. Larsen asserted that prisoners would try to escape and they would become violent putting other prisoners as well as guards at risk. Tr. at 2806, 2815. Dr. Larsen also testified that medical care may be an issue for prison populations in the event of a severe accident. Tr. at 2815-16.

10.183. Clearwater’s witnesses, Dr. Edelstein and Mr. Papa also asserted that there were psycho-social impacts to prison populations that needed to be considered such as the loss of control over decision-making, apprehension from the risk of radiation exposure, potential for a

breakdown in social order, potential for the mistreatment of prisoners, and a potentially smaller guard population in the event of a severe accident. Edelstein Report (Ex. CLE000012) at 8-18, 31-32; Papa Testimony (Ex. CLE000004) at 3; Tr. at 2795-98, 2805-6, 2815.

10.184. The Staff and Entergy assert that a severe accident at Indian Point would not result in the same conditions for the inmates as experienced during Hurricane Katrina. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 33-34; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 64. Staff witness, Ms. Milligan, testified that the rigorousness of the preparedness planning for nuclear power plants is unique. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 33. The emergency plans, both on and offsite for Indian Point are routinely exercised and evaluated by the NRC and FEMA to verify that the impacted populations can be safely protected from adverse effects resulting from a nuclear power plant accident. *Id.*

10.185. In addition, Ms. Milligan testified that the size of the potentially impacted area surrounding Indian Point Energy Center or any nuclear power plant is small (10+/- miles) compared to the large area impacted by Hurricane Katrina (400+/- miles). *Id.* Further, the type of impact from a radiological emergency at the Indian Point Nuclear Power plant (potential radioactive contamination) would be quite different than that from a hurricane (high winds and heavy rains which contribute to widespread physical damage and failures in infrastructure). *Id.* at 33-34.

10.186. Moreover, Ms. Milligan testified that the catastrophic failure of the levees and the subsequent flooding was responsible for the horrific conditions at the Orlean Parish Prison. *Id.* at 34. The Staff and Entergy's witnesses both testified that on its own, a radiological emergency at Indian Point would not result in such conditions. *Id.*; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 64. Nonetheless, in spite of the significant challenges in the aftermath of Hurricane Katrina, Ms. Milligan testified that "over 7500 prisoners were evacuated in three days out of nightmare conditions to multiple locations more than 60 miles away, with no loss of life,

serious injuries or escapes.” Staff Testimony on CW-EC-3A (Ex. NRC000063) at 34, citing Hurricanes Katrina and Rita Incident Review at 21 (Ex. NRC000073).

10.187. Additionally, Entergy witnesses, Mr. Cleary and Mr. Slobodien, testified that an NRC-sponsored study assessing Hurricanes Katrina, Rita, and Wilma, and other large scale evacuations, found that current emergency plans for nuclear power plants already address the lessons learned in the large scale evacuations studied (including issues identified as part of the Hurricane Katrina evacuations). Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 64, citing NUREG/CR-6981, Assessment of Emergency Response Planning and Implementation for Large Scale Evacuations at 65 (Oct. 2008) (“NUREG/CR-6981”) (ENT000298).

10.188. With respect to the assertion that there would be a breakdown in social order in the prison population, Staff witness, Ms. Milligan, testified that she spoke with Colonel Michael Kirkpatrick regarding the potential for the breakdown of social order during a prison evacuation and his experiences in a variety of emergencies. Tr. at 2910. Ms. Milligan testified that Colonel Kirkpatrick “explained that prisoners . . . become more cooperative rather than less cooperative because it’s been in their interest to be more cooperative in order to be assisted in terms of evacuations.”⁵⁶ Tr. at 2910.

10.189. As we stated above, the emergency plans govern the evacuation of prisoners in the event of an emergency at Indian Point; therefore, Clearwater’s claims directly challenge the adequacy of emergency planning and thus fall outside the scope of this proceeding. Even if Clearwater’s claims were within the scope, we find that Clearwater has not demonstrated that a severe accident at Indian Point would result in disproportionately high and adverse impacts to EJ populations similar to those experienced by inmates in the aftermath of Hurricane Katrina.

⁵⁶ Ms. Milligan also noted that Colonel Kirkpatrick has been working in the correctional system in New York for a very long time, approximately 20 years. Tr. at 2910.

I. A Severe Accident Would Not Result in a Disproportionately High and Adverse Environmental Impact to Transit Dependent Populations

10.190. Clearwater's witnesses assert that in the event of an evacuation, there will be a disproportionate impact on transit dependent populations including those who do not have private transportation. Clearwater's Initial Statement of Position at 29-30 (Ex. CLER00002); Greene Testimony (Ex. CLE000010) at 4-6; Tr. at 2813-14. Ms. Guardado and Mr. Filler testified about their concerns regarding adverse effects to transport dependent populations that must wait at bus stops instead of sheltering in a building until transport is available and wait until after school evacuation is complete. Guardado Testimony (Ex. CLE000008) at 5; Filler Testimony (Ex. CLE000009) at 2.

10.191. Mr. Mair testified about the difficulty of evacuation from the City of Peekskill because of the low rate of car ownership, congestion/gridlock due to topography, limited highways and roads, and narrow "two-lane" roads in the main routes leading out of Peekskill. Mair Testimony (Ex. CLE000007) at 7-9; Tr. at 2828-32. Mr. Mair also testified that public transportation is designed to go from Peekskill to New York; and would therefore take the transport-dependent into "harm's way" in the event of an evacuation due to a severe accident. Mair Testimony (Ex. CLE000007) at 9-10; Tr. at 2832. Further, Mr. Mair asserts that potential mitigation actions could include investing in a supply of public transport as well as emergency transport. Mair Testimony (Ex. CLE000007) at 10-11; Tr. at 2834-35. Mr. Mair also asserted that there should be a better understanding and analysis of how evacuate to low-income and institutionalized populations. *Id.*

10.192. The Staff and Entergy assert, however, that the emergency plans include provisions such that there would not be a disproportionately high and adverse impact on minority and low-income residents who are dependent on public transportation in the event of a severe radiological accident at Indian Point. Entergy witness, Mr. Slobodien, indicates that the

Westchester and Rockland County plans each address evacuation of transport-dependent individuals. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 53, citing Westchester REPP, Implementation Procedure 5.0, Attach. 2 (ENT00285C); Rockland REPP at Procedures DPT-1, DPT-2, § 5.4, Attach. 3 (ENT00286B).

10.193. Staff witness, Ms. Milligan, indicated in her pre-filed testimony that the emergency plan for Westchester County includes the provision to call on New York State resources to assist when County resources become overwhelmed. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 30, citing Westchester County Radiological Emergency Plan for the Indian Point Energy Center (Ex. CLE000014) at 1-13. Further, the New York Emergency Plan includes provisions for evacuation which encompasses not only the movement of people out of a threatened area but also the resources necessary to support this movement. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 30, citing Westchester County Radiological Emergency Plan for the Indian Point Energy Center (Ex. CLE000014) at 1-13, 1-15. The emergency plan also includes provisions for the movement of people from designated areas over designated routes; keeping these routes clear for travel; the identification of needs of special populations (e.g., mobility impaired, hearing impaired, school children, and transportation dependent); and the care and support of evacuees. *Id.* at 31, citing Westchester IP Emergency Guide at 7-18 (Ex. ENT000287).

10.194. The witnesses for the Staff and Entergy also testified that bus routes and stops are predetermined and publicized in emergency planning booklets and on county websites. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 53, citing Westchester County Indian Point Emergency Guide at 9-13 (2010- 2011) (ENT000287); Rockland County Emergency Planning for Indian Point Booklet (2011- 2012) at 12-17 (ENT000288); Staff Testimony on CW-EC-3A (Ex. NRC000063) at 36.

10.195. For example, the Westchester County Indian Point Emergency Guide clearly explains that free emergency buses will pick up individuals along designated routes and take them to a reception center. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 53, citing Westchester County Indian Point Emergency Guide at 6 (ENT000287); Staff Testimony on CW-EC-3A (Ex. NRC000063) at 36. Buses cover all portions of the EPZ, beyond areas normally served by public transportation routes. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 53, citing Westchester Emergency Guide Pullout at 9-13 (ENT000287). This route coverage is intended to serve any member of the public, regardless of income or minority status, including individuals who do not own or do not have access to vehicles at the time of evacuation. *Id.* The routes end at pre-designated general population reception centers located well outside of the emergency planning zone. *Id.*, citing Westchester County Indian Point Emergency Guide at 5 (ENT000287).

10.196. Additionally, Staff witness, Ms. Milligan, testified that if an evacuation is ordered, emergency messages will notify residents when the buses will be picking up people. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 36. Residents will be directed to leave their homes or shelters and go to the nearest bus stop at the time directed by the emergency management officials. *Id.* The County emergency plan brochures contains sections devoted to bus routes including identification of bus stops to ensure that those populations relying on public buses for evacuation are able to do so. *Id.*

10.197. Additionally, Entergy witness, Mr. Slobodien, indicated that the New York State and County emergency plans specifically provide that state and county governments will provide assistance for those who cannot evacuate on their own. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 53-54, citing Indian Point Emergency Plan § J.10.d (CLE000042); NYS REPP at III-35 (ENT000272) ("Public transportation will be provided to persons without transportation."); Westchester REPP, Implementation Procedure 1.0, Attach. 1, at 32 (ENT00285A); Rockland

REPP, Procedure EC-1, Attach. 1, at 5 (ENT00286B).

10.198. Further, Ms. Milligan testified that transportation dependent individuals who cannot easily get to a bus stop will be picked up at their homes by buses. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 36. Individuals who are not able to utilize bus transportation are urged to register their status with the County to ensure that they are on the appropriate list for home pickup in an emergency condition. *Id.*

10.199. Additionally, Mr. Slobodien testified that evacuation time estimates are considered as part of Indian Point's emergency preparedness plans. Tr. at 2914. 10 C.F.R. Part 50, Appendix E requires evacuation time estimates for the 10-mile EPZ around Indian Point. Tr. at 2914-15. Thus, Mr. Slobodien testified that FEMA has considered the adequacy of the roads and the evacuation time estimates that Entergy has prepared. Tr. at 2915.

10.200. After reviewing the evidence submitted by Clearwater, the Staff, and Entergy, we find that the emergency plans govern the evacuation of transport-dependent populations and therefore Clearwater's claims directly challenge the adequacy of emergency planning and thus fall outside the scope of this proceeding. Even if Clearwater's claims were within the scope of this proceeding, we find that the Staff and Entergy have submitted sufficient evidence to demonstrate that the impact of a severe accident at Indian Point on transport dependent populations would not be disproportionately high and adverse as compared to the general population.

- m. A Severe Accident Would Not Result in a Disproportionately High and Adverse Environmental Impact to Residents of Nursing Homes, Hospitals, and Other Assisted-Living Facilities

10.201. Clearwater asserts that residents of special facilities including nursing homes, hospitals, homeless shelters, and other assisted-living facilities and others who cannot self-evacuate will be disproportionately affected in the event of a severe accident at Indian Point. Greene Testimony (Ex. CLE000010) at 2, 13-26, 29; Tr. at 2807. Dr. Larsen testified about his

concerns regarding whether medical personnel as well as emergency responders such as police, firemen, and EMS would be able to perform their duties because they would be extremely concerned about their own families in the event of a severe accident. Larsen Testimony (Ex. CLE000005) at 2; Tr. at 2809-10. Dr. Larsen testified that in an emergency, there would be less medical care available for low-income and minority populations in the event of a severe accident and low-income populations would be disadvantaged because they would be unable to transport out of the area to receive and seek medical treatment. Tr. at 2811. Further, if the low-income populations stayed in the area, they would be unable to get follow-up care for any exposure they may have received. Larsen Testimony (Ex. CLE000005) at 3; Tr. at 2812.

10.202. The Staff and Entergy assert that New York State regulations require that each nursing home and hospital have comprehensive, biennially-updated written emergency and disaster preparedness plans that include provisions accounting for nuclear accidents. See 10 NYCRR § 405.24 (g) (ENT000292); *see also* 10 NYCRR § 702.7 (ENT000293) (applying the same requirements to other medical facilities). Hospitals are also required to have evacuation plans, and to train personnel in patient evacuation. See 10 NYCRR § 405.24 (b)(2)-(3) (ENT000292). Nursing homes are subject to almost identical regulations, with the additional requirement that all personnel receive training on each facility's safety program, including resident emergency procedures. See 10 NYCRR § 415.26 (c)(iii)(4), (f)(1) (ENT000294).

10.203. Additionally, the Rockland and Westchester County emergency plans account for nursing homes, hospitals, and other "special facilities" in the event of a severe accident. Rockland is to "determine protective actions for special facilities (e.g. nursing homes, hospitals, etc.); Westchester REPP at I-8 to -9 (ENT00285A) ("If protective actions are required, the county will . . . notify hospitals, nursing homes and other special facilities.").

10.204. These plans also provide for transportation assistance to and/or planning with these facilities. See Rockland REPP at III- 35 (ENT00286A); Westchester REPP, Implementation

Procedure 10.0, at 3; *id.* at Implementation Procedure 16.0, 9-10 (ENT00285D). Additionally, Mr. Slobodien testified that the emergency plans for offsite populations in nursing home and other facilities housing special needs populations include provisions for vehicles including buses, ambulances, and other special vehicles to evacuate residents. Tr. at 2915. Moreover, in accordance with FEMA's requirements, the counties have Letters of Agreement with various providers of those services. Tr. at 2915-16.

10.205. Clearwater witnesses Dr. Larsen, Mr. Simms, and Ms. Greene also expressed concerns regarding the evacuation of non-ambulatory patients in assisted care facilities and nursing homes who require walkers, wheelchairs, ventilators, or other forms of support. Larsen Testimony (Ex. CLE000005) at 3; Simms Testimony (Ex. CLE000006) at 2; Greene Testimony (Ex. CLE000010) at 14; Tr. at 2848-49. Additionally, Mr. Simms expressed concern regarding the availability of staff, transportation, and medication for elderly patients in the event of an evacuation. Simms Testimony (Ex. CLE000006) at 3; Tr. at 2849-52. Ms. Guardado also expressed her concerns about the elderly in the event of a severe accident. Guardado Testimony (Ex. CLE000008) at 4-5; Tr. at 2842-43.

10.206. However, Entergy witness, Mr. Slobodien, testified that in the event of an evacuation, the institution would provide these patients with their medication, and/or they will also be administered at reception centers if necessary. Tr. at 2916. Mr. Slobodien also testified that the offsite plans for these institutions generally assure that there will be a nurse or other care provider available to assist in the transportation of persons who need assistance. Tr. at 2916-17.

10.207. After considering the evidence submitted by the parties, we find that the evacuation of residents of special facilities such as those in nursing homes, hospitals, and other assisted-living facilities is governed by the emergency plans; therefore, Clearwater's claims directly challenge the adequacy of emergency planning and fall outside the scope of this proceeding. Even if Clearwater's claims were within the scope of this proceeding, we find that

Clearwater's claims with respect to elderly and institutionalized populations fall outside the scope of this contention because Clearwater has not demonstrated that these populations are EJ populations (low-income and/or minority) that the Staff is required to evaluate. Nevertheless, we find that the Staff and Entergy have submitted sufficient evidence to demonstrate that the impact on populations in nursing homes, hospitals, and other assisted-living facilities would not be disproportionately high and adverse in the event of a severe accident at Indian Point.

n. A Severe Accident Would Not Result in a Disproportionately High and Adverse Environmental Impact to Hispanic Residents

10.208. Clearwater asserts that Hispanic residents will be disproportionately affected because the limited ability of many Hispanic residents to speak English would impair their ability to understand instructions regarding evacuation, bus provision, and family reunification. Clearwater Initial Statement of Position (Ex. CLER00002) at 28. Ms. Guardado testified that she believed that in the event of a severe accident, it would be difficult for the Spanish-speaking population because evacuation instructions would be given in English. Guardado Testimony (Ex. CLE000008) at 4-5; Tr. at 2842-43. Further, Ms. Guardado testified that prior to her involvement in this proceeding, she was unaware of any Spanish-language sources of emergency preparedness information for Indian Point. Guardado Testimony (Ex. CLE000008) at 3; Tr. at 2844-45.

10.209. However, the Staff and Entergy's witnesses testified that the emergency plans will not have a disproportionately high and adverse impact on Hispanic residents in the communities surrounding Indian Point because several emergency planning mechanisms have been implemented to meet the needs of Hispanic and other minority populations who do not speak English. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 37-38; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 59. Specifically, FEMA requires that emergency information materials be based on an analysis of the target population and contain information that addresses

all aspects, such as language spoken, of a site-specific audience profile. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 37, citing FEMA REP Manual at II-41 (ENT000295).

Additionally, FEMA recognizes that “sometimes, special population groups, such as foreign language speaking populations, mobility limited or physically impaired persons, farmers, and transients, live in or commute to the EPZ and may have unique information requirements” and directs that any such requirements be considered and integrated into the relevant information materials. *Id.* at 37-38, citing FEMA REP Manual at II-41 to II-45.

10.210. Moreover, if a non-English language is spoken by more than 5 percent of a county’s population, then FEMA requires that radiological emergency preparedness plans address communications with those who speak that language. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 38; Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 59, citing FEMA REPP Manual at Page II-32 (ENT000295); Tr. at 2881. In the case of Indian Point, Westchester County has such a population. Tr. at 2881. As such, the Westchester County Community Emergency Planning for Indian Point booklet is available in Spanish on the county website, and informational materials distributed at the county reception centers for evacuees are also available in Spanish. *Id.*; see also Westchester County Indian Point Emergency Guide (Spanish Translation) (ENT000296); Westchester REPP, Implementation Procedure 10, at 4 (ENT00285D).

10.211. The County also has a comprehensive public outreach and information program, and maintains an ongoing working relationship with the news media, including those that serve non-English speaking communities. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 59, citing Westchester County Emergency Plan at Vol. 2, Procedure 10, § 3.10 (ENT00285D).

10.212. In the event of an emergency, the emergency alert system (“New York Alert”) messages will be broadcast in English and Spanish to ensure that the populations are alerted of problems at the plant and the actions they should take. Staff Testimony on CW-EC-3A (Ex.

NRC000063) at 38, citing FEMA REPP Manual (Ex. ENT000295) at IV-61; Tr. at 2882. Also, emergency information would be provided on television, the radio, the County website, and the State website in both English and Spanish in Westchester County. Tr. at 2882. Additionally, the State of New York has a 1-800 number through its Taxation and Finance Division, which would be activated in the event of a radiological emergency and would be accessible to those who speak English, Spanish, and a wide variety of other languages. Tr. at 2882-83.

10.213. After reviewing the evidence submitted by Clearwater, the Staff, and Entergy, we find that the FEMA emergency planning guidance and the State and local emergency plans specifically contemplate mechanisms to aid Hispanic populations and other non-English speaking residents in the event of a severe accident. We therefore find that Clearwater's claims directly challenge the adequacy of emergency planning and thus fall outside the scope of this proceeding. Even if Clearwater's claims were in scope, we find that the Staff and Entergy have submitted sufficient evidence to demonstrate that the impact to Hispanic and other non-English speaking populations will not disproportionately high and adverse as compared to the general population in the event of a severe accident at Indian Point.

o. A Severe Accident Would Not Result in a Disproportionately High and Adverse Environmental Impact to Children

10.214. Clearwater asserts that children in schools, daycare centers, and headstart programs will be disproportionately affected in the event of a severe accident at Indian Point. Greene Testimony (Ex. CLE000010) at 6-13. Ms. Guardado and Ms. Greene also expressed concerns about the evacuation of children from schools and family reunification. Guardado Testimony (Ex. CLE000008) at 4-5; Greene Testimony (Ex. CLE000010) at 2, 29; Tr. at 2842-43.

10.215. Entergy witness, Mr. Slobodien, testified that although head-start programs, nursery schools, and day care are not individually addressed in County plans, they are captured by other planning categories. Entergy Testimony on CW-EC-3A (Ex. ENT000258) at 60.

Further, the NYS Office of Children and Family Services (“OCFS”) registers, licenses, and oversees day care centers, family day care homes, group family day care homes, school-age child care programs, nursery schools, pre-kindergartens, and head-start centers which are targeted for preschool-age children from low income families. *Id.*, citing NY CLS Social Service § 390 2-a (a) (ENT000281). Additionally, every facility under OCFS control is required to have an emergency plan. 18 NYCRR § 414.5(b) (ENT000297); *see also* Westchester County Indian Point Emergency Guide at 7 (ENT000287) (“Parents of children attending Day Care Facilities or Nursery Schools in the Indian Point Emergency Planning Zone (EPZ) should contact that facility or schools administration to learn more about their individual emergency plans.”).

10.216. After reviewing the evidence submitted by the parties, we find that the emergency plans govern the evacuation of children in schools, daycare centers, and headstart programs in the event of a severe accident at Indian Point. Therefore, Clearwater’s claims directly challenge the adequacy of emergency planning and thus fall outside the scope of this proceeding. Moreover, as described above, Clearwater’s claims are out of scope because while individual children may fall into the category of low-income or minority, as group, children are not an EJ population that the Staff is required to evaluate. Nevertheless, even if Clearwater’s claims were within scope, we find that the Staff and Entergy have submitted sufficient evidence to demonstrate that the impact to children in schools, daycare centers, and headstart programs will not disproportionately high and adverse in the event of a severe accident at Indian Point.

p. Potassium Iodide Would Be Distributed in Accordance With the Emergency Plans

10.217. Clearwater asserts that a number of prison, nursing homes, assisted living, adult care, and rehabilitation facilities did not have potassium iodide available for distribution. Clearwater Initial Statement of Position (Ex. CLER00002) at 27-30; Greene Testimony (Ex. CLE000010) at 29; Tr. at 2866.

10.218. Staff witness Ms. Milligan testified, however, that according to Westchester County emergency plans, potassium iodide is made available to all hospitals and nursing homes, as well as schools, and licensed day-care facilities within the 10-mile emergency planning zone. Staff Testimony on CW-EC-3A (Ex. NRC000063) at 37, citing Westchester IP Emergency Guide (Ex. ENT000287) at 15-17. Moreover, the emergency plans, including potassium iodide plans, used by the State and Counties are routinely evaluated by FEMA. *Id.* Discrepancies observed by FEMA are reported to State/County authorities and must be corrected. *Id.*

10.219. We find that Clearwater's claims regarding the availability of potassium iodide directly challenges emergency planning for Indian Point and are therefore outside the scope of this hearing.

3. Summary of Findings

10.220. We find that the Staff's and Entergy's use of Census block group data is reasonable. Census block data does not contain the poverty and income information that is included in Census block group data, which is required for environmental justice reviews. Moreover, the use of Census block group data is in accordance with both NRC and CEQ Environmental Justice Guidance.

10.221. We find that Clearwater's assertions regarding disagreement between the NYSDEC and FSEIS maps are without merit.

10.222. We further find that all minority and low-income populations were reasonably identified in the Staff's FSEIS and Entergy's ER. Specifically, those EJ populations in Sing Sing and other prisons and institutions were identified in the Staff's and Entergy's EJ assessments because they were included in the 2000 Census as a component of the group quarters institutionalized population.

10.223. Additionally, we find that the Staff has reasonably considered peculiar impacts to EJ communities in the FSEIS. Specifically, the Staff conducted a special pathway receptor

analysis based on the REMP program. Further, the Staff indicated that the Staff could not discern any increased or added environmental effects from license renewal, which the Staff would be required to investigate under current guidance.

10.224. We find that Executive Order 12898 and NRC guidance including the Commission's EJ Policy Statement do not require the Staff to consider children or persons who are disabled, special needs, mobility-impaired, transport-dependent, or incarcerated as distinct populations in the Staff's environmental justice assessment. For these reasons, we find that Clearwater's claims with respect to the elderly; institutionalized populations in nursing homes, hospitals, and other assisted-living facilities; and children in schools, daycare centers, and headstart programs fall outside the scope of this contention because Clearwater has not demonstrated that these populations are EJ populations (low-income and/or minority) that the Staff is required to evaluate.

10.225. We find that the State and local emergency plans govern the sheltering-in-place and evacuation of prisoners; the evacuation of transport-dependent populations; the evacuation of residents of special facilities such as those in nursing homes, hospitals, and other assisted-living facilities; the evacuation children in schools, daycare centers, and headstart programs; the aid to Hispanic and other non-English speaking residents during an evacuation; and the availability of potassium iodide in the event of an emergency at Indian Point. Therefore, Clearwater's claims related to these issues directly challenge the adequacy of emergency planning and thus fall outside the scope of this proceeding.

10.226. Even if Clearwater's claims were in scope, we find that the Staff and Entergy have submitted sufficient evidence to demonstrate the impact of a severe accident at Indian Point on prison populations; transport dependent populations; populations in nursing homes, hospitals, and other assisted-living facilities; Hispanic and other non-English speaking populations; and children in schools, daycare centers, and headstart programs would not be disproportionately

high and adverse. We also find that the Staff and Entergy have sufficiently demonstrated that appropriate protective actions have been provided in State and local emergency plans for the prison population at Sing Sing and other correctional facilities, including sheltering-in-place and evacuation, so that any doses received would remain within federal guidelines, as a result, there would be no disproportionately high and adverse impact to these populations as compared to the general population. Further, we find that Clearwater has not demonstrated that a severe accident at Indian Point would result in disproportionately high and adverse impacts to EJ populations similar to those experienced by inmates in the aftermath of Hurricane Katrina.

10.227. Based on the above findings, we find that Clearwater's evidence fails to show that the impacts to low-income and minority populations will be disproportionately high and adverse as compared to the general population in the event a severe accident were to occur at IP2 or IP3 during the license renewal term if the licenses are renewed.

III. CONCLUSIONS OF LAW

10.228. The Licensing Board has considered all of the evidence presented by the parties on Contention CW-EC-3A. Based upon a review of the entire record in this proceeding and the proposed findings of fact and conclusions of law submitted by the parties, and based upon the findings of fact set forth above, which are supported by reliable, probative and substantial evidence in the record, the Board has decided all matters in controversy concerning this contention and reaches the following conclusions:

10.229. We conclude that because the GEIS provides a severe accident impacts analysis that envelopes the potential impacts at all existing plants, the environmental impacts of severe accidents during the license renewal term already have been addressed generically in bounding fashion. See *Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-10-11, 71 NRC 287, 316 (2010). Accordingly, we conclude that the NRC Staff's reliance on the GEIS conclusion regarding the probability-weighted environmental consequences of severe

accidents as codified in Table B-1 was reasonable and that the FSEIS was not required to further consider the environmental impacts of a severe accident at Indian Point on minority and low-income populations beyond what is already discussed in the GEIS.

10.230. We also conclude that the NRC is not required by NEPA to consider psychological health impacts due to concerns over the risk of a nuclear accident. See *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 779 (1983). Further, “where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant “cause” of the effect.” *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 770 (2004). Therefore, the NRC Staff was not required to consider psycho-social impacts from the risk of a nuclear accident at Indian Point such as the loss of control over decision-making, apprehension from the risk of radiation exposure, or the potential for a breakdown in social order within prison populations.

10.231. Moreover, NEPA is governed by a “rule of reason” that requires agencies to address only impacts that are reasonably foreseeable – not remote and speculative. See, e.g., *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973). “NEPA does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts.” *Louisiana Energy Servs.* (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005) (emphasis in original). For example, NEPA does not require consideration of a severe accident scenario that is so unlikely that it can be characterized as remote and speculative. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-90-4, 31 NRC 333, 335 (1990).

10.232. In the GEIS, the Commission generically determined by regulation that the environmental impacts of design basis accidents are of SMALL significance for all plants, and that the probability-weighted consequences of severe accidents are SMALL for all plants, which applies to all populations. See 10 C.F.R. Part 51, Table B-1. Therefore, we conclude that

Clearwater's assertions regarding the purported impacts of a severe accident on low-income and minority populations within 50 miles of IP2 and IP3 are not reasonably foreseeable under NEPA such that the NRC Staff would be required to consider them in its NEPA analysis.

10.233. Further, we conclude Clearwater's assertions that the onsite and offsite emergency plans for Indian Point are deficient and that emergency response personnel will be unable to fulfill their duties or take actions necessary to mitigate a possible severe accident in accordance with NRC and FEMA guidance and New York State law are speculative and unreasonable under NEPA, and are in any event beyond the scope of this proceeding.

10.234. In its EJ analysis in the FSEIS, the NRC Staff considered both radiological (human health) and socioeconomic (environmental) effects to minority and low-income populations during the license renewal term. Additionally, the Staff conducted a special pathway receptors analysis in accordance with Section 4-4 of Executive Order 12898. The Staff concluded that there would be no disproportionately high and adverse impacts to minority and low-income population as compared to the general population. As described above, Clearwater's evidence fails to show that the impacts to low-income and minority populations would be disproportionately high and adverse as compared to the general population in the event a severe accident were to occur during the license renewal term if the IP2 and IP3 licenses are renewed. Therefore, Clearwater has not demonstrated that the ER and FSEIS are deficient for failing to analyze these impacts. Accordingly, we conclude that the NRC Staff took a "hard look" as required under NEPA at the environmental effects from continued operation of IP2 and IP3 during the license renewal term on minority and low-income populations and reasonably concluded that there would be no disproportionately high and adverse impacts to minority and low-income population as compared to the general population.

10.235. We conclude that the NRC Staff did not need to consider mitigation measures to reduce the environmental impacts associated with a severe accident on low-income and minority

populations because the Staff reasonably determined that the environmental impacts of license renewal would not be disproportionately high and adverse to minority and low-income populations.

10.236. After consideration of all relevant evidence in the record, the Board finds that, contrary to the claims in Contention CW-EC-3A, the NRC Staff and the Applicant have met their burden of demonstrating that the Applicant's EJ analysis in the ER and the NRC Staff's EJ analysis in the FSEIS are adequate under NEPA. We conclude, therefore, as a matter of law, that the Staff and Applicant have complied with NEPA and the Commission's regulations at 10 C.F.R. Part 51, with respect to the matters raised in Contention CW-EC-3A.

Respectfully submitted,

/Signed (electronically) by/

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Dated at Rockville, Maryland
this 22nd day of March 2013

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

Pursuant to 10 C.F.R § 2.305 (revised), I hereby certify that copies of the foregoing "NRC STAFF'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW PART 10: CONTENTION CW-EC-3A (ENVIRONMENTAL JUSTICE)," dated March 22, 2013, have been served upon the Electronic Information Exchange, the NRC's E-Filing System, in the above captioned proceeding, this 22nd day of March, 2013.

/Signed (electronically) by/

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