

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Michael M. Gibson, Chairman  
Dr. Michael F. Kennedy  
Dr. William W. Sager

In the Matter of

FLORIDA POWER & LIGHT COMPANY

(Turkey Point Nuclear Generating, Units 3 and 4)

Docket Nos. 50-250-LA and 50-251-LA

ASLBP No. 15-935-02-LA-BD01

May 31, 2016

INITIAL DECISION

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## I. INTRODUCTION

Pursuant to 10 C.F.R. § 50.91(a)(4), in August 2014, the Nuclear Regulatory Commission (NRC) issued license amendments to Florida Power & Light Company (FPL) that increase the ultimate heat sink water temperature limit for the cooling canals at Turkey Point Nuclear Generating Units 3 and 4, located approximately 25 miles south of Miami.<sup>1</sup> Citizens Allied for Safe Energy, Inc. (CASE) has challenged the adequacy of the 2014 Environmental Assessment (2014 EA) associated with the granting of these license amendments.<sup>2</sup> We conclude that the 2014 EA fails to satisfy the requirements of the National Environmental Policy Act (NEPA) because of its deficient discussion of saltwater migration, saltwater intrusion,<sup>3</sup> and aquifer withdrawals. Nevertheless, we further conclude that the NRC Staff will not need to revise the 2014 EA because record evidence developed in this adjudicatory proceeding cures the identified deficiencies in the 2014 EA.<sup>4</sup>

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<sup>1</sup> See License Amendment; Issuance, Opportunity to Request a Hearing, and Petition for Leave to Intervene, 79 Fed. Reg. 47,689, 47,689–90 (Aug. 14, 2014); see also LBP-15-13, 81 NRC 456, 459–60, aff'd, CLI-15-25, 82 NRC 389, 407 (2015).

<sup>2</sup> [CASE] Petition to Intervene and Request for a Hearing (Oct. 14, 2014) [hereinafter Petition]; see Environmental Assessment and Final Finding of No Significant Impact, Issuance, 79 Fed. Reg. 44,464, 44,466 (July 31, 2014) [hereinafter 2014 EA]. The NRC Staff also provided the 2014 EA as Ex. NRC-009.

<sup>3</sup> Saltwater intrusion describes the movement of saltwater into a freshwater aquifer. In this proceeding, saltwater intrusion refers to the potential inland/westward movement of the freshwater/saltwater interface. See Ex. NRC-001, NRC Staff Testimony of Audrey L. Klett, Briana A. Grange, William Ford, and Nicholas P. Hobbs Concerning Contention 1, at 23 (Nov. 10, 2015) [hereinafter Ex. NRC-001, Staff Written Testimony]; Ex. NRC-036, Scott T. Prinos, et al., Origins and Delineation of Saltwater Intrusion in the Biscayne Aquifer and Changes in the Distribution of Saltwater in Miami-Dade County, Florida, at 2 (Feb. 2014); see also Ex. FPL-001, Initial Written Testimony of [FPL] Witnesses Steve Scroggs, Jim Bolleter, and Pete Andersen on Contention 1, at 47–48 (Nov. 10, 2015) [hereinafter Ex. FPL-001, FPL Written Testimony].

<sup>4</sup> See Notice of Hearing, 80 Fed. Reg. 76,324, 76,324 (Dec. 8, 2015); Tr. at 259–571.

## II. BACKGROUND

Turkey Point Units 3 and 4 employ a cooling canal system as their ultimate heat sink.<sup>5</sup> After being discharged from the plant into the cooling canal system, heated water flows over a 13-mile loop before returning to the plant, where the water is recirculated for cooling purposes and the entire process is repeated.<sup>6</sup> The operating licenses for Units 3 and 4 were renewed in 2002.<sup>7</sup> Those licenses included Technical Specifications that set an ultimate heat sink water temperature limit of 100 degrees Fahrenheit (°F) in the cooling canals,<sup>8</sup> as measured at the point of intake back into the component cooling water system.<sup>9</sup> In the event FPL exceeded this temperature limit, these renewed licenses required FPL to shut down Units 3 and 4.<sup>10</sup>

In early July 2014, the water temperature in the cooling canals began to approach the permissible limit. Consequently, on July 10, 2014, FPL sought license amendments to raise the limit to 104 °F.<sup>11</sup> A week later, as water temperatures continued to rise, FPL asked the NRC Staff to respond to its amendment request on an emergency basis “to avoid a dual unit shutdown that could affect grid reliability.”<sup>12</sup> FPL did not submit an Environmental Report with its

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<sup>5</sup> 2014 EA, 79 Fed. Reg. at 44,465. Plants must provide an ultimate heat sink to transfer heat from structures, systems, and components that are important to safety. See 10 C.F.R. § 50, app. A (referencing Criterion 44 of General Design Criteria for Nuclear Power Plants).

<sup>6</sup> 2014 EA, 79 Fed. Reg. at 44,466.

<sup>7</sup> Florida Power and Light Company, Turkey Point Nuclear Generating Units Nos. 3 and 4; Notice of Issuance of Renewed Facility Operating Licenses Nos. DPR-31 and DPR-41 for an Additional 20-Year Period, 69 Fed. Reg. 40,754, 40,754 (June 13, 2002).

<sup>8</sup> 2014 EA, 79 Fed. Reg. at 44,465; see also 79 Fed. Reg. at 47,690.

<sup>9</sup> 2014 EA, 79 Fed. Reg. at 44,465–66.

<sup>10</sup> Id. at 44,466.

<sup>11</sup> Id. at 44,465; see Ex. FPL-008, Letter from Michael Kiley, Vice President, Turkey Point Nuclear Plant, to NRC, License Amendment Request No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit (July 10, 2014) [hereinafter Ex. FPL-008, LAR].

<sup>12</sup> 79 Fed. Reg. at 47,690 (referencing Letter from Michael Kiley, Vice President, Turkey Point Nuclear Plant, to NRC, License Amendment Request No. 231, Application to Revise Ultimate

amendment request. FPL instead invoked a categorical exclusion<sup>13</sup> from the environmental review process.<sup>14</sup>

While the NRC Staff was considering FPL's license amendment request, the cooling canals exceeded the 100 °F water temperature limit on July 20, 2014.<sup>15</sup> FPL sought and received a "Notice of Enforcement Discretion" authorizing the plant to operate with cooling canal water temperatures up to 103 °F for 20 days<sup>16</sup> while the NRC Staff continued its review of FPL's license amendment request.<sup>17</sup>

On July 30, 2014, the NRC Staff published a notice in the Federal Register advising that the license amendments involved no significant hazards considerations.<sup>18</sup> That notice also indicated that, because of the risk of a dual unit shutdown, the NRC would be foregoing its customary 30 days for public comment before acting on FPL's application.<sup>19</sup> Rather than

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Heat Sink Temperature Limit—Request for Emergency Approval at 1 (July 17, 2014) (ADAMS Accession No. ML14202A392)).

<sup>13</sup> Under the agency's regulations implementing NEPA, a categorical exclusion "means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which the Commission has found to have no such effect . . . and for which, therefore, neither an environmental assessment nor an environmental impact statement is required." 10 C.F.R. § 51.14.

<sup>14</sup> Ex. FPL-008, LAR at 16–17.

<sup>15</sup> Ex. NRC-025, NextEra Energy, Turkey Point Canal Temperature Exceeded 100 degrees F (Nov. 21, 2014), attach. at 2 [hereinafter Ex. NRC-025, Root Cause Evaluation].

<sup>16</sup> See Ex. NRC-018, Letter from Victor McCree, Regional Administrator, NRC Region II, to Michael Kiley, Turkey Point Nuclear Plant Vice President, Extension of Notice of Enforcement Discretion (NOED) for [FPL] Regarding Turkey Point Nuclear Generating Station Units Nos. 3 and 4 [NOED No. 14-2-001], at 1 (July 31, 2014). On July 20, 2014, the NRC granted FPL a Notice of Enforcement discretion that expired 10 days later on July 30. Id. The NRC Staff later extended the expiration date to August 9, 2014. Id. at 2.

<sup>17</sup> Id. at 1.

<sup>18</sup> See License Amendment Application; Opportunity to Comment, Request a Hearing, and Petition for Leave to Intervene, 79 Fed. Reg. 44,214, 44,215 (July 30, 2014).

<sup>19</sup> Id. Pursuant to the July 30, 2014 Federal Register Notice, interested members of the public were directed to submit comments by August 13, 2014, and to submit requests for a hearing or petition for leave to intervene by September 29, 2014. Id. at 44,214. However, once the NRC

invoking the categorical exclusion suggested by FPL, on July 31, 2014, the NRC Staff issued the 2014 EA, which concluded there would be no significant environmental impacts associated with approving the license amendments.<sup>20</sup>

The NRC Staff granted the license amendments on August 8, 2014.<sup>21</sup> Six days later, the NRC published a notice in the Federal Register informing the public of the opportunity to request a hearing.<sup>22</sup> In response, CASE filed a petition to intervene and proffered four contentions challenging the license amendments.<sup>23</sup> After this Board was established on October 21, 2014,<sup>24</sup> we heard oral argument on January 14, 2015, in Homestead, Florida, to consider the admissibility of CASE's four contentions.<sup>25</sup>

We granted CASE's hearing request on March 23, 2015, and admitted one of CASE's four proffered contentions.<sup>26</sup> As reformulated by the Board, the admitted contention states:

The NRC's environmental assessment, in support of its finding of no significant impact related to the 2014 Turkey Point Units 3 and 4 license amendments, does

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granted the license amendments on August 8, 2014, the NRC published a second notice of opportunity to intervene in the Federal Register on August 14, 2014. See 79 Fed. Reg. at 47,690. In this notice, the NRC reset the period to request a hearing or petition for leave to intervene because the original July 30, 2014 Federal Register notice had been superseded by FPL's license amendment supplement. See id.

<sup>20</sup> 2014 EA, 79 Fed. Reg. at 44,469.

<sup>21</sup> Ex. NRC-006, Letter from Audrey Klett, Project Manager, NRC, to Mano Nazar, President and Chief Nuclear Officer, NextEra Energy, Turkey Point Nuclear Generating Units Nos. 3 and 4— Issuance of Amendments Under Exigent Circumstances Regarding Ultimate Heat Sink and Component Cooling Water Technical Specifications (Aug. 8, 2014).

<sup>22</sup> 79 Fed. Reg. at 47,690.

<sup>23</sup> Petition at 5; see also NRC Staff's Answer to [CASE's] Petition for Leave to Intervene and Request for Hearing (Nov. 10, 2014); FPL's Answer to [CASE's] Petition to Intervene and Request for a Hearing (Nov. 10, 2014); [CASE's] Reply to FPL and to NRC Staff Answers to Its Petition to Intervene and Request for a Hearing (Nov. 17, 2014).

<sup>24</sup> [FPL]: Establishment of Atomic Safety and Licensing Board, 79 Fed. Reg. 64,840, 64,840 (Oct. 31, 2014).

<sup>25</sup> Tr. at 1–210.

<sup>26</sup> LBP-15-13, 81 NRC at 476.

not adequately address the impact of increased temperature and salinity in the CCS [cooling canal system] on saltwater intrusion arising from (1) migration out of the CCS; and (2) the withdrawal of fresh water from surrounding aquifers to mitigate conditions within the CCS.<sup>27</sup>

In admitting this contention, we explained that CASE had demonstrated there is a genuine dispute as to whether the NRC Staff considered both the potential migration of saltwater from the canals into nearby groundwater and the effects of aquifer withdrawals on the aquifers themselves, as well as the impact of such migration and withdrawals on the saltwater/freshwater interface.<sup>28</sup>

In accordance with the Board's orders regarding evidentiary hearing-associated scheduling,<sup>29</sup> in October and November 2015, the parties timely filed their written testimony, exhibits, and statements of position concerning the admitted contention.<sup>30</sup> The parties also filed several prehearing motions.<sup>31</sup> Those motions were resolved in a December 22, 2015 order.<sup>32</sup>

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<sup>27</sup> Id.

<sup>28</sup> Id. at 473–75.

<sup>29</sup> Licensing Board Initial Scheduling Order (May 8, 2015) at 8 (unpublished); see Licensing Board Order (Granting Request for Extension of Time) (Oct. 19, 2015) (unpublished).

<sup>30</sup> Ex. INT-000, [CASE] Initial Statement of Position, Testimony, Affidavits and Exhibits (Oct. 9, 2015) [hereinafter CASE Statement of Position]; Ex. NRC-049, NRC Staff's Initial and Rebuttal Statement of Position Regarding Contention 1 (Nov. 10, 2015) [hereinafter Staff Statement of Position]; [FPL's] Initial Statement of Position (Nov. 10, 2015) [hereinafter FPL Statement of Position].

<sup>31</sup> See [FPL's] Motion to Strike Portions of [CASE Statement of Position] or, in the Alternative, Motion In Limine to Exclude it and its Cited Documents from Evidence (Oct. 19, 2015); [FPL's] Motion to Dismiss CASE Contention 1 or, in the Alternative, for Summary Disposition (Dec. 3, 2015); CASE Second Motion Requesting Subpoenas for Expert Witnesses for January, 2016 (Dec. 9, 2015); NRC Staff's Motion in Limine to Exclude Portions of the Prefiled Rebuttal Testimony or in the Alternative Strike Portions of the Prefiled Rebuttal Testimony and Rebuttal Statement of Position (Dec. 14, 2015); see also CASE Motion Requesting Subpoenas for Expert Witnesses for January, 2016 Evidentiary Hearing (Nov. 3, 2015).

<sup>32</sup> Licensing Board Order (Denying Application for Subpoenas, Denying Motion for Summary Disposition, and Granting in Part and Denying in Part Motions to Strike) (Dec. 22, 2015) (unpublished); see also Licensing Board Order (Denying CASE's Application for Subpoenas) (Nov. 12, 2015) (unpublished).

During a January 4, 2016 teleconference, the Board admitted most of the parties' proffered exhibits.<sup>33</sup>

On January 11–12, 2016, the Board held an evidentiary hearing in Homestead, Florida, using the procedures set forth in 10 C.F.R. Part 2, Subpart L.<sup>34</sup> Briana Grange, a biologist,<sup>35</sup> Audrey Klett, the Project Manager for Turkey Point Units 3 & 4,<sup>36</sup> William Ford, a geologist,<sup>37</sup> and Nick Hobbs, a nuclear engineer,<sup>38</sup> testified on behalf of the NRC Staff. Steven Scroggs, FPL's senior director of project management,<sup>39</sup> and two civil engineers, Jim Bolleter<sup>40</sup> and Peter Andersen,<sup>41</sup> testified for FPL. Dr. Philip Stoddard, a biologist,<sup>42</sup> testified for CASE. The Board examined the parties' witnesses and afforded the parties an opportunity to submit proposed cross-examination questions.<sup>43</sup> Following the hearing, the parties submitted their proposed findings of fact and conclusions of law.<sup>44</sup>

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<sup>33</sup> Tr. at 244–52; see Licensing Board Order (Admitting Exhibits) (Jan. 4, 2016) (unpublished).

<sup>34</sup> Tr. at 259–571; Licensing Board Initial Scheduling Order (May 8, 2015) at 2 (unpublished).

<sup>35</sup> Ex. NRC-003, Statement of Professional Qualifications of Briana A. Grange (Nov. 10, 2015).

<sup>36</sup> Ex. NRC-002, Resume of Audrey L. Klett (Nov. 10, 2015).

<sup>37</sup> Ex. NRC-004, Statement of Professional Qualifications of William H. Ford (Nov. 10, 2015).

<sup>38</sup> Ex. NRC-005, Resume of Nick Hobbs (Nov. 10, 2015).

<sup>39</sup> Ex. FPL-002, Declaration of Steven D. Scroggs (Nov. 10, 2015).

<sup>40</sup> Ex. FPL-003, Declaration of Jim M. Bolleter (Nov. 10, 2015).

<sup>41</sup> Ex. FPL-004, Declaration of Peter F. Andersen (Nov. 10, 2015).

<sup>42</sup> Tr. at 277; see [CASE's] Joint Rebuttal to NRC Staff's and FPL's Initial Statements of Position, Exhibit List and Exhibits at 4 (Dec. 1, 2015).

<sup>43</sup> The Board will provide these questions by separate order “for inclusion in the official record of the proceeding.” 10 C.F.R. § 2.1207(a)(3)(iii).

<sup>44</sup> NRC Staff's Proposed Findings of Fact and Conclusions of Law Concerning Contention 1 (Mar. 28, 2016) [hereinafter Staff Proposed Findings]; [FPL's] Proposed Findings of Fact and Conclusions of Law (Mar. 28, 2016) [hereinafter FPL Proposed Findings]; [CASE] Proposed Findings of Facts and Conclusions of Law Regarding the August 14, 2014 NRC EA and FONSI (Mar. 28, 2016) [hereinafter CASE Proposed Findings]; see also Staff's Reply Findings of Fact



### III. PARTIES' POSITIONS

#### A. Factual Positions

The parties dispute few of the underlying facts regarding the cooling canal system's interaction with groundwater or the state of Florida's regulatory efforts to reduce the inland migration of saltwater from the cooling canals. We set forth the undisputed facts immediately below.

##### 1. Cooling Canal Interactions with Groundwater

The saltwater in the canals cools through evaporation, leaving behind salt that both makes the canals increasingly more saline and eventually sinks into the groundwater.<sup>45</sup> Higher water temperatures in the cooling canals also result in higher evaporation rates, which in turn lead to even higher salinity levels.<sup>46</sup> Over the past four decades of operation, the canal water has gone from approximately 34 practical salinity units (psu), essentially the same salinity as the ocean water in nearby Biscayne Bay, to a hypersaline state, i.e., salinity above 40 psu. At times, the canal's salinity has reached concentrations that are more than twice that of Biscayne Bay.<sup>47</sup>

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and Conclusions of Law Concerning Contention 1 (Apr. 12, 2016); [FPL's] Reply Findings of Fact and Conclusions of Law (Apr. 12, 2016).

<sup>45</sup> Tr. at 352–55, 462–63; see FPL Proposed Findings ¶ 53; Staff Proposed Findings ¶ 5.48; CASE Proposed Findings ¶¶ 32, 68.

<sup>46</sup> Ex. NRC-001, Staff Written Testimony at 50; see FPL Proposed Findings ¶¶ 53, 70; Staff Proposed Findings ¶ 2.16; CASE Proposed Findings ¶¶ 23, 34.

<sup>47</sup> Tr. at 310; Ex. FPL-001, FPL Written Testimony at 13, 28; Ex. NRC-001, Staff Written Testimony at 27–28; see FPL Proposed Findings ¶ 53; Staff Proposed Findings ¶ 5.66; CASE Proposed Findings ¶ 32. Salinity can be expressed in several ways: 1 psu is equivalent to 1 part per thousand or 1,000 milligrams per liter. FPL Written Testimony at 13 n.1.

Although the saltwater in FPL's unlined cooling canals does not discharge directly into fresh or marine surface waters, it does interact with groundwater.<sup>48</sup> The direction of the flow varies based on the hydraulic pressure of water in the cooling canals, which is influenced by salinity levels, temperature, and the depth of the water in the canals.<sup>49</sup> When the water levels of the cooling canals are low, groundwater flow into the canals helps replace water lost from evaporation.<sup>50</sup> In other instances, dense saline water from the cooling canals seeps into the underlying Biscayne Aquifer,<sup>51</sup> and once it reaches the base of the Biscayne Aquifer, it begins to spread laterally.<sup>52</sup> Higher salinity in the cooling canals could increase the spread of the hypersaline plume beneath the cooling canals because the greater dissolved solids content increases canal water density, causing a greater negative buoyancy and a tendency for the canal water to sink into the Biscayne Aquifer below.<sup>53</sup> Since the cooling canal system began operation in the 1970s, hypersaline water that originated in the cooling canal system has migrated at least three miles west of the cooling canal system.<sup>54</sup>

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<sup>48</sup> Tr. at 426–27; Ex. NRC-001, Staff Written Testimony at 26, 28; see FPL Proposed Findings ¶ 58; Staff Proposed Findings ¶ 5.46; CASE Proposed Findings ¶ 33.

<sup>49</sup> Tr. at 357–58, 435–46, 501; see FPL Proposed Findings ¶¶ 58, 77; Staff Proposed Findings ¶ 5.57; CASE Proposed Findings ¶ 50.

<sup>50</sup> Tr. at 367–68; Ex. FPL-001, FPL Written Testimony at 35; see FPL Proposed Findings ¶ 58; Staff Proposed Findings ¶¶ 2.16, 5.76; CASE Proposed Findings ¶ 23.

<sup>51</sup> Tr. at 355; see FPL Proposed Findings ¶ 58; Staff Proposed Findings ¶¶ 5.57, 5.59; CASE Proposed Findings ¶ 50.

<sup>52</sup> Tr. at 310, 347–48, 519; see FPL Proposed Findings ¶¶ 58–59; Staff Proposed Findings ¶ 5.57; CASE Proposed Findings ¶ 58.

<sup>53</sup> Tr. at 310; see FPL Proposed Findings ¶ 59; CASE Proposed Findings ¶ 58.

<sup>54</sup> Ex. INT-004, Florida Department of Environmental Protection, Administrative Order, OGC No. 14-0741, ¶ 23 (Dec. 23, 2014) [hereinafter Ex. INT-004, FDEP Administrative Order]; Ex. FPL-001, FPL Written Testimony at 29; Ex. FPL-037, State of Florida Division of Administrative Hearing, Recommended Order at 8 (Dec. 31, 2015) [hereinafter Ex. FPL-037, State L-31E Canal System Order]; see FPL Proposed Findings ¶ 59; CASE Proposed Findings ¶¶ 54, 58, 97.

## 2. Regulatory Oversight of the Cooling Canal System

Before constructing the cooling canal system in the 1970s, FPL consulted with the South Florida Water Management District (the Water District<sup>55</sup>) regarding how it might limit the potential for hypersaline water to spread inland and thereby threaten freshwater drinking supplies.<sup>56</sup> As a result of those discussions with the Water District, FPL agreed to build and operate an interceptor ditch to a depth of 18 feet that would run along the west side of the cooling canals in order to restrict the inland movement of saline water in the Biscayne Aquifer.<sup>57</sup> This agreement has been updated several times. The most recent of these updates occurred on October 16, 2009, when FPL and the Water District executed their Fifth Supplemental Agreement.<sup>58</sup> It provides for an extensive monitoring program for the cooling canal system<sup>59</sup>

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<sup>55</sup> The Water District “is a regional governmental agency that manages the water resources in the southern half of [Florida], covering 16 counties from Orlando to the Florida Keys and serving a population of 8.1 million residents.” South Florida Water Management District, About Us, <http://www.sfwmd.gov/portal/page/portal/xweb%20about%20us/sfwmd%20about%20us> (last visited May 31, 2016). As used here, the Water District includes not only the South Florida Water Management District, but all of its predecessor agencies.

<sup>56</sup> Tr. at 543–45; Ex. INT-006, Consent Agreement Between Miami-Dade County’s Division of Environmental Resources Management and FPL at 2 (Oct. 6, 2015) [hereinafter Ex. INT-006, Consent Agreement]; Ex. FPL-001, FPL Written Testimony at 24–25; see FPL Proposed Findings ¶ 60; Staff Proposed Findings ¶ 5.44; CASE Proposed Findings ¶ 79.

<sup>57</sup> Tr. at 518; Ex. INT-006, Consent Agreement at 2; see FPL Proposed Findings ¶ 60; Staff Proposed Findings ¶¶ 5.44, 5.48; CASE Proposed Findings ¶ 58.

<sup>58</sup> Ex. NRC-033, Fifth Supplemental Agreement Between the [Water District] and [FPL] at 1–2 (Oct. 16, 2009) [hereinafter Ex. NRC-033, Fifth Supplemental Agreement]; see FPL Proposed Findings ¶ 164; Staff Proposed Findings ¶ 6.35; CASE Proposed Findings ¶¶ 58, 79, 119.

<sup>59</sup> Ex. NRC-033, Fifth Supplemental Agreement, Ex. B, FPL Turkey Point Power Plant Groundwater, Surface Water and Ecological Monitoring Plan (Oct. 14, 2009). Although the monitoring plan incorporated into the Fifth Supplemental Agreement predates FPL’s 2010 request for an extended power uprate, in its pleadings in this proceeding, FPL refers to these monitoring requirements as the “Uprate Monitoring Plan.” See, e.g., Ex. FPL-001, FPL Written Testimony at 26.

and requires FPL to reduce the westward spread of all hypersaline water except for “those amounts which would occur without the existence of the cooling canal system.”<sup>60</sup>

In 2010, when FPL sought permission from the NRC for an extended power uprate, both FPL and the NRC Staff examined the uprate’s potential environmental impact on the cooling canal system.<sup>61</sup> FPL and the NRC Staff claim that they expected the power uprate to increase the average temperature in the cooling canal system by 2.5 °F and to increase the salinity of the cooling canals by approximately 2 to 3 parts per thousand (ppt).<sup>62</sup> In its 2012 Uprate EA, the NRC Staff concluded that there would be no significant environmental impacts from such minor increases in temperature and salinity it anticipated from the uprate.<sup>63</sup>

On April 16, 2013, based on the results of FPL’s 2012 Comprehensive Pre-Uprate Monitoring Report,<sup>64</sup> the Water District determined that water from the cooling canals had migrated outside the geographic boundaries of the cooling canal system in violation of the Fifth Supplemental Agreement.<sup>65</sup> After the Water District and FPL consulted for nearly two years about this migration, the Florida Department of Environmental Protection (FDEP) issued an

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<sup>60</sup> Ex. NRC-033, Fifth Supplemental Agreement at 3; see FPL Proposed Findings ¶ 164; Staff Proposed Findings ¶ 6.23 n.37; CASE Proposed Findings ¶ 119.

<sup>61</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062–63; see FPL Proposed Findings ¶¶ 61, 164; Staff Proposed Findings ¶ 6.23 n.37.

<sup>62</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062; see FPL Proposed Findings ¶ 61; Staff Proposed Findings ¶ 2.12.

<sup>63</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062, 20,070; see FPL Proposed Findings ¶ 61; Staff Proposed Findings ¶ 5.48.

<sup>64</sup> Exs. FPL-014A to FPL-014F, Comprehensive Pre-Uprate Monitoring Report (Oct. 31, 2012).

<sup>65</sup> Tr. at 347–48; Ex. FPL-026, Letter from Melissa L. Meeker, Executive Director, Water District, to Barbara Linkiewicz, Senior Director, Environmental Licensing & Permitting, FPL & NextEra Energy Resources, Consultation Pursuant to the October 14, 2009 Fifth Supplemental Agreement between the [Water District] and [FPL] at 1 (Apr. 16, 2013) [hereinafter Ex. FPL-026, April 16, 2013 Letter]; see FPL Proposed Findings ¶ 63; Staff Proposed Findings ¶ 6.23; CASE Proposed Findings ¶ 119.

Administrative Order in December 2014.<sup>66</sup> The FDEP Administrative Order found that the interceptor ditch, though effective at restricting the inland movement of saline water in the upper portion of the Biscayne Aquifer, had failed to restrict the movement of the hypersaline water in the deeper portions of that aquifer.<sup>67</sup> To minimize any further migration of hypersaline water, FDEP required FPL to submit a salinity management plan to reduce salinity in the cooling canals to no more than 34 psu within four years.<sup>68</sup>

FPL did not challenge the FDEP Administrative Order and agreed to comply with it by pumping up to 14 million gallons per day (MGD) of water from the Upper Floridan Aquifer into the cooling canals.<sup>69</sup> A third party challenged the FDEP Administrative Order, alleging that it did not provide adequate protection for other aquifer users near the plant.<sup>70</sup> In April 2016, FDEP effectively dismissed the challenge<sup>71</sup> and the FDEP Administrative Order is currently in effect.

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<sup>66</sup> Ex. INT-004, FDEP Administrative Order ¶¶ 26–33; see FPL Proposed Findings ¶ 63; Staff Proposed Findings ¶ 6.23; CASE Proposed Findings ¶ 119.

<sup>67</sup> Ex. INT-004, FDEP Administrative Order ¶ 24.

<sup>68</sup> Id. ¶ 37(b).

<sup>69</sup> Id. FPL's authorization to withdraw 14 MGD from the Upper Floridan Aquifer was upheld after challenge. [FPL] Turkey Point Power Plant Units 3–5 Modification to Conditions of Certification, Case No. 15-1559EPP, Recommended Order (Fla. Div. of Admin. Hearings Jan. 25, 2016) at 24–25 (ADAMS Accession No. ML16026A619) [hereinafter Upper Floridan Aquifer Order].

<sup>70</sup> Licensing Board Order (Taking Official Notice and Ordering Briefing) (Feb. 26, 2016) (unpublished), attach. A, Atlantic Civil, Inc. v. Fla. Power & Light Co. & Dep't of Env'tl. Prot., Fla. Admin. Orders, Nos. 15-1746 & 15-1747 (Fla. Div. of Admin. Hearings Feb. 15, 2016) at 18–19 [hereinafter Feb. 15, 2016 State Administrative Decision]; see also Licensing Board Order (Clarifying Scope of Official Notice) (Mar. 10, 2016) (unpublished).

<sup>71</sup> After an evidentiary hearing on that challenge, an Administrative Law Judge of the Florida Division of Administrative Hearings issued a Recommended Order on February 15, 2016 that found certain procedural infirmities in the FDEP Administrative Order. Feb. 15, 2016 State Administrative Decision at 3–5; see also FPL Proposed Findings ¶¶ 64–65; Staff Proposed Findings ¶ 6.27; CASE Proposed Findings ¶¶ 121–26. Because FPL had not been charged with a violation of state water quality standards and was not required to come into compliance with those standards, the Administrative Law Judge ruled that the FDEP Administrative Order was an unreasonable exercise of enforcement discretion, and so recommended that FDEP either rescind or amend the Administrative Order. Feb. 15, 2016 State Administrative Decision at 28–31. However, in its Final Order, FDEP rejected the Administrative Law Judge's reasoning

In addition to the FDEP Administrative Order, Miami-Dade County issued a Notice of Violation to FPL on October 2, 2015 that charged FPL with exceeding the County's groundwater standards for chlorides.<sup>72</sup> To resolve this Notice of Violation, FPL entered into a Consent Agreement with Miami-Dade County<sup>73</sup> in which FPL acknowledged its plan to freshen the cooling canal system through additions of Upper Floridan Aquifer water.<sup>74</sup> The Consent Agreement with Miami-Dade County also requires FPL to install monitoring wells and to implement a remediation program to ensure saltwater levels are reduced without adverse impacts.<sup>75</sup>

## **B. Legal Arguments**

CASE primarily argues that the 2014 EA is inadequate under NEPA because it erroneously assumed that the cooling canals were a closed system with no impact on groundwater.<sup>76</sup> In support of this claim, CASE relies on an analysis from Miami-Dade County that purportedly shows the spread of tritium from the canals to nearby groundwater.<sup>77</sup> CASE

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and approved the FDEP Administrative Order. See FPL's Third Notice to the Board Regarding State Administrative Proceeding, attach. 1, FDEP, Final Order, OGC Case No. 14-0741, at 26–27 (Apr. 21, 2016); see also Fla. Stat. § 120.57(1)(l) (2015) (“The agency may adopt the recommended order as the final order of the agency. The agency in its final order may reject or modify the conclusions of law over which it has substantive jurisdiction and interpretation of administrative rules over which it has substantive jurisdiction.”).

<sup>72</sup> Ex. INT-005, Miami-Dade County, Notice of Violation and Orders for Corrective Action at 1 (Oct. 2, 2015); see FPL Proposed Findings ¶¶ 67; Staff Proposed Findings ¶ 6.22; CASE Proposed Findings ¶ 79. The chlorine ion is a major component of dissolved salt in seawater and is an indicator of salinity. Ex. FPL-001, FPL Written Testimony at 14.

<sup>73</sup> Ex. INT-006, Consent Agreement at 1.

<sup>74</sup> Ex. INT-006, Consent Agreement at 4; see FPL Proposed Findings ¶¶ 67; Staff Proposed Findings ¶ 6.22; CASE Proposed Findings ¶ 79.

<sup>75</sup> Ex. INT-006, Consent Agreement at 5–6, 8; see FPL Proposed Findings ¶¶ 67; Staff Proposed Findings ¶ 6.22; CASE Proposed Findings ¶ 79.

<sup>76</sup> CASE Statement of Position at 7, 9–10.

<sup>77</sup> Id. at 9–10, 44–45.

asserts that the reactors for Units 3 and 4 are the sole source of tritium, and so its presence in the groundwater necessarily shows that the cooling canal system not only interacts with the groundwater but has created a hypersaline plume that threatens to increase the rate of saltwater intrusion.<sup>78</sup> CASE further points to the findings from the FDEP Administrative Order, which indicates cooling canal water that has seeped into groundwater has traveled at least three miles west of the cooling canals and has exacerbated the rate of saltwater intrusion.<sup>79</sup> CASE argues the 2014 EA inadequately considered the environmental impact of mitigation measures mandated by the FDEP Administrative Order.<sup>80</sup> Noting the complex hydrogeology of the area and the proximity of the freshwater/saltwater interface, CASE also asserts that the NRC Staff had a duty under NEPA to consider whether the aquifer withdrawals would exacerbate saltwater intrusion in the area.<sup>81</sup>

The NRC Staff disputes CASE's allegations, maintaining that the 2014 EA adequately addressed both saltwater migration and the aquifer withdrawals.<sup>82</sup> In support of this assertion, the NRC Staff primarily relies on three documents it claims were incorporated by reference in the 2014 EA:<sup>83</sup> (1) the Atomic Energy Commission's 1972 Final Environmental Statement (1972 FES) associated with the grant of the initial operating licenses for the Turkey Point Units 3 and

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<sup>78</sup> Id. at 10, 45.

<sup>79</sup> Id. at 13–14, 31–32 (citing Ex. INT-004, FDEP Administrative Order ¶ 37a).

<sup>80</sup> Id. at 52, 56–58.

<sup>81</sup> Id. at 52–54, 72–75.

<sup>82</sup> Staff Statement of Position at 11–19.

<sup>83</sup> Tr. at 329–30, 350, 418–19, 427–30, 433, 435, 438–40, 517–520, 524, 545–46. The NRC Staff did not discuss incorporations by reference in either the Staff Statement of Position or the 2014 EA. The NRC Staff first raised this argument at the evidentiary hearing. Tr. at 517–19.

4;<sup>84</sup> (2) the 2002 Turkey Point License Renewal Supplemental Environmental Impact Statement (2002 SEIS);<sup>85</sup> and (3) the 2012 Environmental Assessment and Finding of No Significant Impact for the Turkey Point extended power uprate (2012 Uprate EA).<sup>86</sup> According to the NRC Staff, the 2014 EA—read in conjunction with these three documents—adequately addresses saltwater migration from the canals to the groundwater and makes clear that Units 3 and 4 have not affected the saltwater/freshwater interface.<sup>87</sup> The NRC Staff also asserts that increasing the temperature limit from 100 to 104 °F will have no significant environmental effect because of the short duration of high temperatures and certain mitigation measures imposed by FDEP.<sup>88</sup>

FPL likewise argues that the 2014 EA provides an adequate analysis of groundwater issues.<sup>89</sup> In addition to the arguments made by the NRC Staff, FPL asserts that the groundwater modeling it conducted as part of state administrative proceedings shows that its aquifer withdrawals are not contributing to saltwater intrusion.<sup>90</sup> FPL also asserts that its increased aquifer withdrawals are sufficiently similar to those considered in the 2014 EA and so there is no “new information” that would require supplementing the 2014 EA.<sup>91</sup>

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<sup>84</sup> Final Environmental Statement Related to Operation of Turkey Point Plant (July 1972) (Adams Accession No. ML092030310) [hereinafter 1972 FES]. The NRC Staff provided only the executive summary, table of contents, and Appendix C of the 1972 FES as Ex. NRC-047.

<sup>85</sup> Office of Nuclear Reactor Regulation, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 5, Regarding Turkey Point Units 3 and 4, NUREG-1437 (Jan. 2002) (ADAMS Accession No. ML020280236) [hereinafter 2002 SEIS]. A 33-page excerpt of this document was provided by the NRC Staff as Ex. NRC-024.

<sup>86</sup> License Amendment to Increase the Maximum Reactor Power Level, [FPL] Turkey Point, Units 3 and 4: Final Environmental Assessment and Finding of No Significant Impact, 77 Fed. Reg. 20,059, 20,059 (Apr. 3, 2012) [hereinafter 2012 Uprate EA].

<sup>87</sup> Staff Proposed Findings ¶¶ 2.12, 5.58.

<sup>88</sup> Staff Statement of Position at 14–15, 19–20.

<sup>89</sup> FPL Statement of Position at 13–23.

<sup>90</sup> Id. at 21–23.

<sup>91</sup> Id. at 24–27.



#### IV. DISCUSSION

In reviewing CASE's challenge, the Board must determine whether the NRC Staff took a "hard look" at the potential environmental impacts of the licensing actions and also whether the NRC Staff adequately justified its conclusions in this regard.<sup>92</sup> The NRC Staff bears the ultimate burden of proof for showing that it complied with NEPA.<sup>93</sup> Where there is an evidentiary dispute, we make any necessary factual findings based on a preponderance of the evidence.<sup>94</sup>

##### **A. Adequacy of the Staff's Environmental Review**

###### 1. Incorporation by Reference

We reject the NRC Staff's argument that the 2014 EA adequately addressed impacts on groundwater from the 2014 license amendments because (1) the 2014 EA referred to three previous environmental reviews that were conducted in 1972, 2002, and 2012 and (2) these earlier studies adequately addressed impacts on groundwater.<sup>95</sup> To be sure, the NRC Staff may in certain circumstances incorporate by reference previous work that addresses a particular environmental issue. Here, however, any purported incorporation by reference in the 2014 EA fails for three separate reasons: (1) it contains no specific references to the material it allegedly incorporated; (2) it does not consider environmental changes that occurred after 2012; and (3) it fails to consider the environmental effects of the specific license action at issue.

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<sup>92</sup> Sierra Club v. U.S. Army Corps of Eng'rs, 803 F.3d 31, 37 (D.C. Cir. 2015) (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350–51 (1989)); see Exelon Generation Co., LLC (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005); La. Energy Servs., LP (Claiborne Enrichment Ctr.), CLI-98-3, 47 NRC 77, 87–88 (1998).

<sup>93</sup> Duke Power Co. (Catawba Nuclear Station, Units 1 & 2), CLI-83-19, 17 NRC 1041, 1049 (1983).

<sup>94</sup> Pac. Gas & Electric Co. (Diablo Canyon Power Plant Indep. Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 521 (2008); see also Entergy Nuclear Operations, Inc. (Indian Point, Units 2 & 3), CLI-15-6, 81 NRC 340, 388 n.258 (2015).

<sup>95</sup> See Tr. at 329–30, 350, 418–19, 427–30, 433, 435, 438–40, 517–520, 524, 545–46.

First, incorporation by reference requires a clear description of the incorporated material and specific references thereto. The NRC has adopted the regulations of the Council on Environmental Quality (CEQ) pertaining to incorporation by reference.<sup>96</sup> CEQ's regulations state that the referenced material must "be cited in the statement and its content briefly described" and that "[n]o material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment."<sup>97</sup> The NRC Staff's guidance on environmental reviews for nuclear power plants clarifies these CEQ regulations by noting that incorporation by reference "may be used as appropriate to aid in the presentation of issues, eliminate repetition, or reduce the size of an EIS."<sup>98</sup> The 2014 EA, however, meets none of these criteria for incorporation by reference.

The NRC's own guidance instructs those drafting NEPA documents to "summarize the discussion in the referenced document and provide specific section references to ensure that the public has easy access to relevant information."<sup>99</sup> That was not done here.

Nevertheless, the NRC Staff has argued that the following two sentences from the 2014 EA are sufficient to allow incorporation by reference of these three previous documents:

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<sup>96</sup> 10 C.F.R. § 51, app. A.1(b) (adopting "[t]he techniques of tiering and incorporation by reference described respectively in 40 CFR 1502.20 and 1508.28 and 40 CFR 1502.21 of CEQ's NEPA regulations" (footnote omitted)).

<sup>97</sup> 40 C.F.R. § 1502.21.

<sup>98</sup> Office of Nuclear Reactor Regulation, Standard Review Plans for Environmental Reviews for Nuclear Power Plants, NUREG-1555 at A.1 (Oct. 1999) [hereinafter NUREG-1555]. Although the regulations and guidance refer only to an EIS, incorporation by reference appears to be just as appropriate for an EA. See Jones v. Nat'l Marine Fisheries Serv., 741 F.3d 989, 998 (9th Cir. 2013) ("[A]n agency may incorporate data underlying an EA by reference."); Theodore Roosevelt Conservation P'ship v. Salazar, 616 F.3d 497, 511 (D.C. Cir. 2010) (ruling that "an agency preparing an environmental assessment for a" permit may "incorporate by reference the general discussions of prior, broader environmental impact statements."). As a guidance document, NUREG-1555 is "entitled to special weight" in our proceedings. Indian Point, CLI-15-6, 81 NRC at 356.

<sup>99</sup> NUREG-1555, at A.1 (emphasis added).

The U.S. Atomic Energy Commission (AEC), the NRC's predecessor agency, and the NRC have previously conducted environmental reviews of Turkey Point in several documents, and the descriptions therein continue to accurately depict the Turkey Point site and environs. Those documents include the AEC's July 1972 Final Environmental Statement (FES); the NRC's January 2002 Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Turkey Point Units 3 and 4—Final Report (NUREG-1437, Supplement 5) (ADAMS Accession No. ML020280236); and the NRC's March 2012 environmental assessment and final [Finding of No Significant Impact] for the Turkey Point extended power uprate (EPU) (ADAMS Accession No. ML12074A251).<sup>100</sup>

During the hearing, NRC Staff witnesses Ms. Grange, Ms. Klett, and Mr. Ford testified that the 2014 EA relied on these "incorporated" documents to explain its silence on, among other things: (1) the location and nature of the saltwater/freshwater interface in the Biscayne Aquifer;<sup>101</sup> (2) the saltwater migration from the canals into the surrounding groundwater;<sup>102</sup> (3) the full extent of the State of Florida's monitoring effort on saltwater intrusion in the area surrounding Turkey Point;<sup>103</sup> (4) the basic hydrogeology of the relevant aquifers, including the nature of the confining layer between the Biscayne Aquifer and Upper Floridan Aquifer;<sup>104</sup> and (5) the 2014 EA's use of the term "closed cycle cooling system" as not meaning "closed in the colloquial sense, but instead" that the canals do "not interact directly with surface waters."<sup>105</sup>

In addition, NRC Staff witness Ms. Grange asserted that the 2014 EA relied on the discussion of groundwater degradation in a 1996 Staff guidance document, "Generic

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<sup>100</sup> 2014 EA, 79 Fed. Reg. at 44,465.

<sup>101</sup> Tr. at 449, 517–18.

<sup>102</sup> Tr. at 438–39, 518–19.

<sup>103</sup> Tr. at 350–51.

<sup>104</sup> Tr. at 428–31.

<sup>105</sup> Tr. at 329–30.

Environmental Impact Statement for License Renewal of Nuclear Plants” (1996 GEIS).<sup>106</sup>

Although the 2014 EA makes no mention of the 1996 GEIS, Ms. Grange noted that the 2002 SEIS, which is mentioned in the 2014 EA, in turn incorporates by reference the 1996 GEIS.<sup>107</sup> She added that the 1996 GEIS was updated in 2013 and that the 2013 update (also not mentioned in the 2014 EA) found the impact on groundwater quality degradation from saltwater migration into groundwater to be small for a site such as Turkey Point “with cooling ponds in salt marshes.”<sup>108</sup>

Such a Rube Goldberg attempt at incorporation by reference disregards the clearly prescribed methods for incorporation, and ultimately, vitiates the underlying purpose of NEPA. First, in contravention of CEQ regulations governing incorporation by reference, the NRC Staff did not adequately describe the contents of the documents allegedly incorporated.<sup>109</sup> Second, in contravention of the NRC Staff’s own guidance, the 2014 EA fails to cite a specific section or page number in any of the so-called “incorporated” documents.<sup>110</sup> The Commission addressed

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<sup>106</sup> Tr. at 519, 524; see Division of Regulatory Applications, Office of Nuclear Regulatory Research, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (Vol. 1 May 1996) [hereinafter 1996 GEIS].

<sup>107</sup> Tr. at 519.

<sup>108</sup> Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 78 Fed. Reg. 37,282, 37,300–01 (June 20, 2013) [hereinafter 2013 GEIS]; see Tr. at 527–28.

<sup>109</sup> 40 C.F.R. § 1502.21. Some federal district courts have disallowed agencies’ attempted incorporation by reference on this ground alone. See, e.g., Recent Past Pres. Network v. Latschar, 701 F. Supp. 2d 49, 58–59 (D. D.C. 2010); Nat’l Res. Def. Council v. Duvall, 777 F. Supp. 1533, 1538–39 (E.D. Cal. 1991); Ass’n Concerned About Tomorrow, Inc. v. Dole, 610 F. Supp. 1101, 1109 (N.D. Tex. 1985) (“Although the EIS may make reference to detailed studies done elsewhere, and generally available upon request, the cursory reference [to a Route Study Report] falls far short of the regulations governing incorporation by reference. No proper adoption or other incorporation by reference of the Route Study Report by the federal agency, charged with primary NEPA responsibility, appears in the record. No explanation or hint is given as to what one could find by reading the Route Study Report.” (citations omitted)).

<sup>110</sup> See NUREG-1555 at A.1.

the necessity of making specific page references in NextEra Energy Seabrook, LLC.<sup>111</sup> There, petitioners at the contention admissibility stage cited to a large document but failed to provide a specific page reference. The Commission rejected the proposed wholesale adoption of the document and made clear that specificity is needed to ensure that readers are not forced to sift through large volumes of material “in search of asserted factual support.”<sup>112</sup> This reasoning applies with at least equal force to the NRC Staff’s NEPA analysis here, where the three documents listed in the 2014 EA total over 1,000 pages.<sup>113</sup> Without any guidance on what to look for in these documents, or where, no reasonable person would be able to find the precise provisions in these documents that the NRC Staff claims the 2014 EA incorporated.<sup>114</sup> While an EA should not “amass[ ] needless detail,”<sup>115</sup> at the same time it must “permit members of the public to weigh in with their views and thus inform the agency decision-making process”<sup>116</sup> as

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<sup>111</sup> NextEra Energy Seabrook, LLC (Seabrook Station, Unit 1), CLI-12-5, 75 NRC 301 (2012); see also Consol. Edison Co. of N.Y. (Indian Point, Units 1 & 2), CLI-01-19, 54 NRC 109, 133 (2001) (“Nor will we permit wholesale incorporation by reference by a petitioner who, in a written submission, merely establishes standing and attempts, without more, to incorporate the issues of other petitioners.”); Pub. Serv. Co. of N.H. (Seabrook Station, Units 1 & 2), CLI-89-03, 29 NRC 234, 240–41 (1989) (noting lack of “any statement that would have pointed us clearly in the direction that the [Intervenor] would now have us follow.”).

<sup>112</sup> Seabrook, CLI-12-5, 75 NRC at 332.

<sup>113</sup> Using the accession numbers provided by the NRC Staff, the 2014 EA is 39 pages long, the 2002 SEIS is 669 pages, and the 1972 FES is 368 pages.

<sup>114</sup> See League of Wilderness Defs./Blue Mountains Biodiversity Project v. Connaughton, No. 3:12-CV-02271-HZ, 2014 WL 6977611, at \*16 (D. Or. Dec. 9, 2014) (“[A]n agency may not discharge its obligation to provide the public with analysis of the environmental impacts of a project simply by incorporating documents by reference.”); see also Balt. Gas & Elec. Co. v. Nat’l Res. Def. Council, Inc., 462 U.S. 87, 99 n.12 (1983) (“We do not deny the value of an EIS that can be understood without extensive cross-reference.”); Isle Royale Boaters Ass’n v. Norton, 154 F. Supp. 2d 1098, 1128 (W. D. Mich. 2001), aff’d, 330 F.3d 777 (6th Cir. 2003) (“[A]n EIS may rely upon external materials provided that the materials are reasonably available, that statements in the Final Statement are understandable without undue cross-reference, and that incorporation by reference meets a general standard of reasonableness” (internal quotation marks omitted)).

<sup>115</sup> 40 C.F.R. § 1500.1(b).

<sup>116</sup> Bering Strait Citizens for Responsible Res. Dev. v. U.S. Army Corps of Eng’rs, 524 F.3d 938, 953 (9th Cir. 2008); see Balt. Gas & Elec. Co., 462 U.S. at 97 (NEPA “ensures that the agency

well as “provide sufficient evidence and analysis to determine the reasonableness of the decision not to prepare an EIS.”<sup>117</sup>

Separate and apart from the 2014 EA’s failure to apprise the public of the referenced material, it is improper for the NRC Staff to rely solely on environmental documents that predate the temperature issue that precipitated the 2014 license amendments without any further explanation of the relevance of the referenced materials to the current circumstances.<sup>118</sup> As NRC Staff witness Ms. Grange acknowledged at the hearing,

[E]ach document is evaluating a different proposed action. And so each document is looking at each resource in the level of detail that the staff found at the time was appropriate to describe the environment and then evaluate the impacts that might occur from that specific proposed action.<sup>119</sup>

These critical differences between the prior documents and current circumstances are illustrated by the discussion of salinity levels in the cooling canals. The 2002 SEIS pegs the salinity of the cooling canals at a range of 36 to 46 ppt,<sup>120</sup> whereas the 2012 EA indicates that the range is 40 to 60 ppt.<sup>121</sup> Not only did the 2014 EA fail to account for this near doubling in the range of salinity levels in only 10 years, but, even worse, it failed to note that the salinity discussed in

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will inform the public that it has indeed considered environmental concerns in its decisionmaking process”).

<sup>117</sup> Friends of the Wild Swan v. Weber, 767 F.3d 936, 942 (9th Cir. 2014); see Sierra Club v. U.S. Forest Serv., 46 F.3d 835, 840 (8th Cir. 1995).

<sup>118</sup> See Balt. Gas & Elec. Co., 462 U.S. at 99 n.12 (“NEPA requires an agency to do more than to scatter its evaluation of environmental damage among various public documents . . . .” (internal quotation marks omitted)); Defs. of Wildlife v. N.C. Dep’t of Transp., 762 F.3d 374, 396 (4th Cir. 2014); ‘Ilio‘ulaokalani Coal v. Rumsfeld, 464 F.3d 1083, 1101 (9th Cir. 2006).

<sup>119</sup> Tr. at 535.

<sup>120</sup> 2002 SEIS, app. E, at E-25.

<sup>121</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062.

these previous documents is far below the high of 94.7 ppt that the cooling canals experienced in 2014.<sup>122</sup>

Similarly, the previous documents do not consistently specify whether they are discussing groundwater or surface water exchange. For example, the 2002 SEIS states that “[t]he canal system does not withdraw or discharge waters to or from other water bodies.”<sup>123</sup> Conversely, the 2012 Uprate EA states that “because the [Turkey Point] canals are unlined, there is an exchange of water between the [Turkey Point] canal system and local groundwater and Biscayne Bay.”<sup>124</sup> When asked about this apparent inconsistency at the hearing, Ms. Grange testified that “the [2002 SEIS] is talking about surface water connections, direct connections, which there are none. . . [and the 2012 Uprate EA] is talking about groundwater exchange.”<sup>125</sup> In essence, the NRC Staff is asserting that, after reviewing the 2014 EA, an interested reader should be able to: (1) understand that the NRC Staff incorporated by reference the entirety of the 2002 SEIS and 2012 Uprate EA from a one-sentence general citation; (2) sift through hundreds of pages in these documents to find the specific language that discusses the cooling canal system’s interaction with surrounding waters; and then (3) understand that, despite contradictory descriptors, “in context,” the 2002 SEIS was apparently discussing only “surface waters,” while the 2012 Uprate EA was discussing “groundwater.” This is not how incorporation by reference is to be done.

Certainly, we recognize that these previous documents are not at issue in this proceeding, and we are mindful that any “prior environmental analyses are not appropriately

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<sup>122</sup> Ex. FPL-001, FPL Written Testimony at 13.

<sup>123</sup> 2002 SEIS, app. E, at E-25.

<sup>124</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,062.

<sup>125</sup> Tr. at 532.

revisited in the context of this licensing action.”<sup>126</sup> Moreover, as Ms. Grange testified, many of the apparent inconsistencies can be attributed to the fact that each document was written at a different time, by a different author, and for a different purpose.<sup>127</sup>

At the same time, however, Ms. Grange’s acknowledgment that each of these previous environmental documents was drafted to address a different purpose simply underscores the problem of attempting to rely completely on previous documents to address the present and future environmental impacts of the current license amendments. The issue before us here is not the validity of previous environmental documents themselves, but rather the NRC Staff’s wholesale reliance on documents with conflicting information and dramatically lower salinity levels to justify a cursory, one-sentence conclusion “that the proposed action would result in no significant impact on . . . groundwater resources.”<sup>128</sup> Of particular importance here, the 2014 EA does not explain how the NRC Staff allegedly used these previous environmental analyses to conclude that an increase in the maximum water temperature (with a corresponding increase in salinity) would not impact the surrounding groundwater resources. This absence is especially notable given the NRC Staff’s acknowledgement that hypersaline water from the canals enters the Biscayne Aquifer.<sup>129</sup> Put simply, there is nothing in the 2014 EA to inform the public that the NRC Staff has adequately considered groundwater concerns associated with the specifics of the FPL license amendments in its decisionmaking process.<sup>130</sup>

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<sup>126</sup> CLI-15-25, 82 NRC at 404.

<sup>127</sup> Tr. at 533, 535.

<sup>128</sup> 2014 EA, 79 Fed. Reg. at 44,466.

<sup>129</sup> Ex. NRC-001, Staff Written Testimony at 26, 28.

<sup>130</sup> See Izaak Walton League of Am. v. Marsh, 655 F.2d 346, 368–69 (D.C. Cir. 1981) (“The impact statement must be ‘sufficient to enable those who did not have a part in its compilation to understand and consider meaningfully the factors involved.’” (quoting Envtl. Def. Fund, Inc. v. Corps of Eng’rs of U.S. Army, 492 F.2d 1123, 1136 (5th Cir. 1974))).



The NRC Staff's alleged reliance on previous environmental documents is particularly difficult to understand in light of the fact that the NRC Staff was aware in 2013 of important new information about groundwater impacts—never previously addressed—that were associated with saltwater migration out of the cooling canal system. This is reflected in an April 16, 2013 letter from the Water District notifying FPL of the Water District's concerns regarding increased saltwater migration out of the cooling canals:

Based on technical evaluation of all available information, the [Water District] has determined that saline water from FPL's Turkey Point Power Plant cooling canal system (CCS) has moved westward of the L-31E Levee in excess of those amounts that would have occurred without the existence of the CCS and has moved into the water resources outside the plant's property boundaries . . . . [T]he [Water District] is providing this written notice to FPL . . . to begin consultation with the [Water District] to identify measures to mitigate, abate, or remediate the movement of saline water.<sup>131</sup>

While Ms. Grange was unsure whether she had actually seen this April 16, 2013 letter, her testimony established that she was nevertheless well aware of the very issue that the letter addressed—namely, that saltwater from the cooling canals had migrated at least three miles west of the cooling canal system.<sup>132</sup>

Yet, despite the NRC Staff's awareness of this saltwater migration in 2013—well before the time that the 2014 EA was written—there is nothing in the 2014 EA to suggest that the NRC Staff compared the cooling canal and groundwater conditions in 2014 against those prevailing at the time of the previous environmental documents on which the NRC Staff now seeks to rely. In fact, it is undisputed that, after the most recent NRC Staff environmental review in 2012, the water quality of the cooling canals continued to worsen, with increased salinity and algae blooms.<sup>133</sup> And, as indicated above, this rise in salinity in the cooling canals pushed more

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<sup>131</sup> Ex. FPL-026, April 16, 2013 Letter at 1; see also Ex. INT-006, Consent Agreement at 2.

<sup>132</sup> Tr. at 348, 458–59.

<sup>133</sup> See Tr. at 410, 501; Ex. NRC-001, Staff Written Testimony at 39–40; Ex. FPL-001, FPL Written Testimony at 15, 55.

hypersaline water into the Biscayne Aquifer, exacerbating the westward migration of hypersaline water toward the saltwater/freshwater interface—as documented in the Water District’s April 16, 2013 letter.<sup>134</sup> Further evidence of deteriorating conditions continued to accumulate later that year with monitoring well cluster TPGW-7 (which is on the freshwater side of the saltwater/freshwater interface)<sup>135</sup> “experiencing an increasing trend in salinity . . . beginning in September 2013.”<sup>136</sup> Yet, none of these troubling changes are mentioned in the 2014 EA—or, obviously, in any of the previous environmental analyses on which the 2014 EA purportedly relied.

Nor does the 2014 EA acknowledge the impact of aquifer withdrawals on the aquifers themselves. Making the same hollow claim they asserted with regard to increased salinity in the canals, NRC Staff witnesses Ms. Grange and Mr. Ford testified that they had relied on the previous environmental documents to address the issue of groundwater quality degradation.<sup>137</sup> Yet, we found nothing in these previous documents that evaluated the possibility of aquifer withdrawals of the magnitude currently taking place at Turkey Point. Specifically, at the time of the 2002 SEIS, “groundwater use [was] less than 0.0068 m<sup>3</sup>/s (100 [gallons per minute (gpm)]),”<sup>138</sup> which was the same level evaluated in the 1996 GEIS.<sup>139</sup> As a result, the 2002 SEIS concluded that there would be “no groundwater use conflicts during the renewal term beyond those discussed in the GEIS.”<sup>140</sup> The 2012 Uprate EA reached the same conclusion

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<sup>134</sup> Ex. FPL-026, April 16, 2013 Letter at 1.

<sup>135</sup> Ex. FPL-014A, at 1-18 (showing that well cluster TPGW-7 is west of the estimated extent of saltwater intrusion).

<sup>136</sup> Ex. INT-004, FDEP Administrative Order ¶ 10.

<sup>137</sup> Tr. at 428–29, 438–39.

<sup>138</sup> 2002 SEIS at 4-31.

<sup>139</sup> Id.

<sup>140</sup> Id.

because “[t]he licensee is not requesting an increase in water supply under the proposed [Extended Power Uprate]. Therefore, no significant impacts to offsite users of the Miami-Dade public water supply are expected.”<sup>141</sup> Nor did the 2013 GEIS find any impact because “[p]lants that withdraw less than 100 gpm are not expected to cause any groundwater use conflicts.”<sup>142</sup>

Relying on these prior analyses, NRC Staff witness Ms. Grange maintained at the hearing that the 2014 EA need not include a detailed analysis of either groundwater quality degradation or saltwater intrusion because both the 1996 GEIS and the 2013 GEIS deem groundwater impacts a Category 1 issue.<sup>143</sup> Category 1 issues are “those issues that the Commission has categorized and assessed generically because the environmental effects of those issues are essentially similar for all plants.”<sup>144</sup> In contrast, Category 2 issues require “a plant-specific review of all environmental issues for which the Commission was not able to make environmental findings on a generic basis.”<sup>145</sup> However, such distinctions between Category 1 and Category 2 issues for license renewals have no bearing on the present license amendments. The distinction between “Category 1” and “Category 2” issues during a license renewal is “based on an extensive study of potential environmental consequences of operating a nuclear power plant for an additional 20 years,”<sup>146</sup> combined with the underlying assumption that the nuclear power plant will continue operating under its current license requirements,

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<sup>141</sup> 2012 Uprate EA, 77 Fed. Reg. at 20,063.

<sup>142</sup> 2013 GEIS, at 37,319, tbl. B-1.

<sup>143</sup> Tr. at 518–19, 524–29.

<sup>144</sup> Nuclear Mgmt. Co., LLC (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 734 n.29 (2006).

<sup>145</sup> Fla. Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 & 4), CLI-01-17, 54 NRC 3, 11 (2001); see also 10 C.F.R. § 51, subpt. A, app. B.

<sup>146</sup> Duke Energy Corp. (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-02-14, 55 NRC 278, 290 (2002).

including license conditions and technical specifications.<sup>147</sup> Neither reason applies here because a license amendment changes the license requirements and the NRC has not conducted an extensive study of the potential environmental consequences of the present licensing action.

Nonetheless, even were such distinctions implicated in the present license amendments, the NRC Staff's argument would still fail because the NRC Staff is obligated to address any new and significant information relating to Category 1 issues.<sup>148</sup> In this regard, the situation facing the NRC Staff at the time of the 2014 license amendments was dramatically different from that considered in the earlier environmental evaluations. Specifically, at the time the 2014 EA was published, the NRC Staff was aware that (1) FPL was authorized to withdraw approximately 5 MGD (3,472 gpm) from the Upper Floridan Aquifer;<sup>149</sup> (2) FPL had also received temporary approval to withdraw 30 MGD (20,833 gpm) from the Biscayne Aquifer;<sup>150</sup> and (3) FDEP was considering the issuance of an Administrative Order that would require FPL to install new wells to pump approximately 14 MGD (9,722 gpm) from the Upper Floridan Aquifer.<sup>151</sup>

Considered together, then, at the time the 2014 EA was published, the NRC Staff knew that FPL had been authorized to withdraw over 200 times the 100 gallon per minute rate that had been evaluated in each of the previous environmental studies—and there was a realistic possibility that FPL could be authorized to withdraw even more.<sup>152</sup> It is difficult to comprehend

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<sup>147</sup> Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station), CLI-10-14, 71 NRC 449, 453–54 (2010); Turkey Point, CLI-01-17, 54 NRC at 9.

<sup>148</sup> See 10 C.F.R. § 51.92(a)(2).

<sup>149</sup> 2014 EA, 79 Fed. Reg. at 44,468.

<sup>150</sup> Id.

<sup>151</sup> Id.; Tr. at 366.

<sup>152</sup> In its witnesses' written testimony, the NRC Staff maintained that the ultimate heat sink temperature increase would reduce "the plants' need to consume additional water." Ex. NRC-001, Staff Written Testimony at 45. When pressed on this point at the hearing, the NRC Staff witnesses conceded that FPL might need to consume additional water as a result of the

how the NRC Staff could deem this dramatic increase to have no practical environmental significance. Withdrawals of such magnitude were identified as a potential problem as far back as the 1996 GEIS (which cautioned that “[g]roundwater usage impact may be important at those sites where a power plant’s usage rate exceeds 0.0063 m<sup>3</sup>/s (100 gpm)”).<sup>153</sup> Similarly, the 2013 GEIS had warned that a withdrawal rate of “more than 100 gpm could cause groundwater use conflicts with nearby groundwater users.”<sup>154</sup> Moreover, the 2013 GEIS explicitly stated that insofar as such groundwater use conflicts were to arise, the NRC Staff should elevate groundwater withdrawals from a Category 1 issue to a Category 2 issue.<sup>155</sup>

In sum, the NRC Staff’s incorporation by reference argument is flawed on multiple levels. Not only did the 2014 EA fail to incorporate by reference in accordance with applicable regulatory requirements, but it was unreasonable for the NRC Staff to rely wholesale on outdated environmental documents in its evaluation of the site-specific groundwater impacts related to the present proposed action. Further, there is nothing in the 2014 EA (and, certainly, nothing in these previous documents purportedly incorporated by reference) that considers the important new information that saltwater from the cooling canals had migrated further inland and that FPL had substantially increased its aquifer withdrawals after the NRC Staff’s environmental review of the uprate for Turkey Point Units 3 and 4 in 2012.<sup>156</sup>

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increased temperature because of its obligation to reduce salinity under the FDEP Administrative Order. Tr. at 375. NRC Staff witness Mr. Hobbs further testified that the notion the increased temperature limit would reduce the plant’s need to consume additional water is premised on a scenario in which FPL does not need to pump water to reduce salinity. Tr. at 376. As Mr. Hobbs conceded at the hearing, however, this argument is purely “hypothetical.” Tr. at 377.

<sup>153</sup> 1996 GEIS § 4.8.1.

<sup>154</sup> 2013 GEIS at 37,300, 37,319, tbl. B-1.

<sup>155</sup> Id. In the license renewal context, Category 2 issues require “additional plant-specific review.” 10 C.F.R. § 51, subpt. A, app. B n.2.

<sup>156</sup> See Ark. Wildlife Fed’n v. U.S. Army Corps of Eng’rs, 431 F.3d 1096, 1104 (8th Cir. 2005) (“When new information is presented, the agency is obligated to consider and evaluate it and to

## 2. The 2014 EA

Not only does the 2014 EA fail to incorporate by reference any previous evaluation of groundwater impacts that bear on the present proposed action, but within the four corners of the 2014 EA there is no evaluation of groundwater impacts. The 2014 EA includes only two references to impacts on groundwater resources,<sup>157</sup> both stating that there would be “no significant impact” or “no effect.”<sup>158</sup> The 2014 EA provides no technical analysis that would justify either of these conclusions, nor does the 2014 EA even acknowledge the potential migration of hypersaline water from the unlined cooling canal system into the groundwater beneath the canals.<sup>159</sup> Consequently, the 2014 EA does not satisfy the “hard look” standard required under NEPA with respect to groundwater resources.<sup>160</sup>

Licensing boards are obligated to ensure that the NRC Staff’s NEPA documents come to grips with potentially significant environmental impacts and fully justify any conclusions in this regard.<sup>161</sup> Here, there is no analysis in the 2014 EA itself, nor is there any specific reference to another document that could justify the NRC Staff’s conclusions about the absence of impacts to groundwater resources. Nonetheless, the NRC Staff witnesses pointed to two claims

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make a reasoned decision as to whether it shows that any proposed action will affect the environment in a significant manner not already considered.”).

<sup>157</sup> See 2014 EA, 79 Fed. Reg. at 44,466 (“[T]he NRC concludes that the proposed action would result in no significant impact on . . . groundwater resources . . . .”); see also id. at 44,467 (“The proposed action would have no effect on the remaining resources (i.e., land use, visual resources, air quality, noise, the geologic environment, groundwater resources . . . .”).

<sup>158</sup> Id. at 44,466–67.

<sup>159</sup> The 2014 EA does, however, recognize that groundwater flows into the canals. Id.

<sup>160</sup> See Pa’ina Hawaii, LLC (Materials License Application), CLI-10-18, 72 NRC 56, 69, 85 (2010) (affirming licensing board’s conclusion that the NRC Staff had to consider alternative sites to satisfy the ‘hard look’ standard required by NEPA); Hydro Res., Inc. (P.O. Box 777, Crownpoint, NM 87313), CLI-06-29, 64 NRC 417, 426 (2006) (concluding that EIS had discussed mitigation measures in sufficient detail to satisfy ‘hard look’ standard).

<sup>161</sup> Clinton ESP Site, CLI-05-29, 62 NRC at 811; see also Nevada v. Dep’t of Energy, 457 F.3d 78, 93 (D.C. Cir. 2006).

advanced in the 2014 EA that, according to the NRC Staff, adequately justified the EA's finding of no significant impact on groundwater resources: (1) the cooling canals system was expected to exceed the previous temperature limit for only a short duration, and (2) FDEP had already directed FPL to address the issue of rising salinity in the canals.<sup>162</sup> We address the sufficiency of these NRC Staff claims below and conclude that they likewise are insufficient to establish that the 2014 EA satisfies NEPA's "hard look" requirement.

*i. Limited Temperature Duration*

The NRC Staff provided no technical support for concluding that temperature increases above 100 °F would be "short in duration," nor did it provide any analysis that establishes that short durations of high temperatures produce no significant impacts to groundwater resources. Under NEPA, agencies must consider every significant aspect of a proposed action's environmental impact and must provide a reasoned explanation for the agency's conclusions.<sup>163</sup> Although NRC Staff witness Mr. Ford testified that the short duration of high temperatures was the "dominant" factor in the NRC Staff's conclusion that there would be no significant impact on groundwater resources,<sup>164</sup> the 2014 EA's one-paragraph discussion of temperature durations certainly does not tie this analysis to any conclusion about groundwater impacts:

Under the proposed action, the [cooling canal system] could experience temperatures between 100 °F and 104 °F at the [intake] monitoring location near the north end of the system for short durations during periods of peak summer air temperatures and low rainfall. Such conditions may not be experienced at all depending on site and weather conditions. Temperature increases would also increase [cooling canal system] water evaporation rates and result in higher salinity levels. This effect would also be temporary and short in duration because salinity would again decrease upon natural freshwater recharge of the system (i.e., through rainfall, stormwater runoff, and groundwater exchange). No other

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<sup>162</sup> Ex. NRC-001, Staff Written Testimony at 45.

<sup>163</sup> Balt. Gas & Elec. Co., 462 U.S. at 97; Marble Mountain Audubon Soc'y v. Rice, 914 F.2d 179, 182 (9th Cir. 1990) ("An agency must set forth a reasoned explanation for its decision and cannot simply assert that its decision will have an insignificant effect on the environment.").

<sup>164</sup> Tr. at 395–96. Mr. Ford later clarified that the NRC Staff did not rank the factors, and considered multiple factors in reaching its conclusion. Tr. at 397.

onsite or offsite waters would be affected by the proposed [ultimate heat sink] temperature limit increase.<sup>165</sup>

Although this statement in the 2014 EA asserts that the temperature and salinity increases will be temporary in the cooling canal system itself, there is no evaluation of the impacts these changes might have on other onsite or offsite waters. As such, this paragraph falls far short of the “reasoned explanation” required by NEPA.

This statement is also deficient because the 2014 EA never defines the term “short in duration.” A reader cannot infer whether a “short” duration means hours, days, or even weeks. In his testimony, Mr. Ford clarified that this “short” duration in the 2014 EA means “a few weeks.”<sup>166</sup> He further testified that he did not mean to suggest there would be a few weeks of constant temperatures above 100 °F, but rather that he expected a few weeks of high temperatures that would last only for a portion of individual days, because of nightly cooling periods.<sup>167</sup> Mr. Ford’s testimony describes conditions that closely resemble the temperatures that actually occurred at Turkey Point in the summer of 2014—when the intake water temperature exceeded 100 °F on at least thirteen days between July 20 and August 23, 2014, but dropped below 100 °F at night.<sup>168</sup> However, the remaining NRC Staff testimony muddles this timeline, with various witnesses, including Mr. Ford, asserting that temperatures exceeded 100 °F for “a few days” during the summer of 2014.<sup>169</sup> The lack of consistency in the NRC Staff

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<sup>165</sup> 2014 EA, 79 Fed. Reg. at 44,466–67.

<sup>166</sup> Ex. NRC-001, Staff Written Testimony at 50.

<sup>167</sup> Tr. at 391–92 (“[High temperatures] would be of short duration because there’s a big temperature swing from day to night.”).

<sup>168</sup> Tr. at 400–01 (“Before we issued the amendment, I believe [the intake temperature] went above 100 degrees on five occasions and, on each of those occasions, it was less than eight hours in duration.”); Ex. NRC-025, Root Cause Evaluation at 5 (noting that temperatures first exceeded 100 °F on July 20, 2014); Ex. FPL-011, 60-day Peak Canal Temperature Trend 2014 & 2015 (showing that peak temperatures exceeded 100 °F on at least eight days between August 8, 2014, and August 24, 2014).

<sup>169</sup> Ex. NRC-001, Staff Written Testimony at 40 (“During Summer 2014, the temperature exceeded 100 °F for a few days, which was concurrent with an algae bloom.”); *id.* at 47 (“By



testimony, not to mention in the 2014 EA, does little to clarify the meaning of a “short duration” in the 2014 EA—any more than it establishes how this term corresponds to the actual temperatures experienced at Turkey Point.

The 2014 EA also fails to describe how the NRC Staff concluded that temperatures above 100 °F would not last more than a few weeks. At the hearing, NRC Staff witness Ms. Grange testified that the NRC Staff concluded that temperatures above 100 °F would not last more than a few weeks based on an examination of data collected during the summer of 2014 when, according to the NRC Staff witnesses, there was a “unique” combination of factors such as drought conditions and extensive algae blooms in the cooling canals.<sup>170</sup> To be sure, both the algae blooms and the drought are mentioned in the 2014 EA,<sup>171</sup> but nowhere is there any characterization of the summer 2014 temperatures as being unique, much less is there any explanation to justify such a characterization.

Each of these factors related to temperature durations is critical information needed to justify the 2014 EA’s finding of no significant impact. One of the primary purposes of NEPA is to ensure that the public understands why an agency made a particular decision;<sup>172</sup> the 2014 EA

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contrast, CCS inlet temperatures greater than 100 °F have not occurred outside of a few days in the summer of 2014.”); *id.* at 51 (“In 2014, the intake water temperature exceeded 100 °F for a few days, most of which were nonconsecutive (the temperature typically dropped below 100 °F at night).”).

<sup>170</sup> Tr. at 422.

<sup>171</sup> 2014 EA, 79 Fed. Reg. at 44,466, 44,468.

<sup>172</sup> See Cmtys. Against Runway Expansion, Inc. v. Fed. Aviation Admin., 355 F.3d 678, 687 (D.C. Cir. 2004) (“One of the principal purposes of NEPA is to ensure public disclosure of information relevant to federal decisions significantly affecting the environment.”); Dubois v. U.S. Dep’t of Agric., 102 F.3d 1273, 1291 (1st Cir. 1996) (explaining that one purpose of NEPA review is “to assure that the public who might be affected by the proposed project be fully informed of the proposal, its impacts and all major points of view”).

deprived the public of that opportunity by failing to disclose the NRC Staff's underlying rationale for its conclusions regarding temperature durations.<sup>173</sup>

Furthermore, in focusing so narrowly on the fact that the increased temperatures in the canals would be of a "short duration," the NRC Staff failed to consider the cumulative effect of increased temperatures on the much larger salinity issue that has been building for 40 years. Since its construction in the 1970s, the cooling canal system has also functioned like a salt collector.<sup>174</sup> FPL uses saltwater in the canals; the water cools through evaporation, leaving behind salt that either remains in the canals—making the canals more saline—or sinks into the groundwater, creating a hypersaline plume beneath the cooling canal system.<sup>175</sup> As the canals have experienced ever-increasing salinity levels, the hypersaline plume has pushed further inland into the Biscayne Aquifer, so that it eventually extended below and beyond the interceptor dish that was installed precisely to prevent this westward migration of saltwater.<sup>176</sup> The FDEP Administrative Order found that the plume had travelled three to four miles inland, moving westward at an average rate of one mile every nine years.<sup>177</sup>

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<sup>173</sup> Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 & 3), CLI-16-07, 83 NRC \_\_, \_\_ (slip op. at 47) (May 4, 2016) (noting that NEPA documents must "respond[] with appropriate scrutiny and reasoned explanations to 'opposing views,' which includes being able to explain and make available underlying assumptions in [the NRC's] environmental analyses." (footnote omitted)).

<sup>174</sup> See Tr. at 355 ("[I]f salt's going to move out of the [cooling canal system], it's going to move out into the Biscayne Aquifer."); Tr. at 462–63 (explaining that salinity in the cooling canals increased over time because "it essentially generates salt or leaves behind salt as a result of evaporation. And so there is that slow buildup that takes place.").

<sup>175</sup> See Tr. at 352–55, 462–63.

<sup>176</sup> Ex. INT-004, FDEP Administrative Order ¶¶ 24–25.

<sup>177</sup> Id. ¶ 23 ("FPL reported [cooling canal system] groundwater near the base of the aquifer at 20,000 feet [3.8 miles] west of the [cooling canal system] around G-21 and 25,000 feet [4.7 miles] from the [cooling canal system] west of G-28. Given that the [cooling canal system] has been in operation since 1974 (approximately 38 years), the average rate of migration to the west is estimated between 525 [0.1 miles/yr] (northern part) and 660 [0.125 miles/yr] (southern part) feet per year.").

Thus, the cumulative effects analysis section of the 2014 EA fails because, after noting the likelihood of higher salinity,<sup>178</sup> it offers no analysis of how this might impact the pre-existing saltwater plume. Although the increase in the temperature limit is, by itself, not a large change, the purpose of a cumulative effects analysis is to consider whether a small change will worsen an already bad situation, like the proverbial straw that broke the camel's back.<sup>179</sup> For this reason, CEQ regulations require agencies to consider environmental effects that "result[ ] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" with the goal of making sure that "individually minor but collectively significant" actions are properly analyzed.<sup>180</sup> This analysis includes "small and unrelated decisions."<sup>181</sup>

Here, the 2014 EA failed to consider the cumulative impact of the increase in the maximum water temperature on the hypersaline plume. While the 2014 EA notes that it is reasonably foreseeable that the higher temperatures permitted by the license amendments will lead to higher salinity in the cooling canals, likely during the hottest summer months,<sup>182</sup> it fails to consider whether it is also reasonably foreseeable that the temporary increase in salinity during

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<sup>178</sup> 2014 EA, 79 Fed. Reg. at 44,466–67.

<sup>179</sup> See Hanly v. Kleindienst, 471 F.2d 823, 831 (2d Cir. 1972) ("[E]ven a slight increase in adverse conditions that form an existing environmental milieu may sometimes threaten harm that is significant. One more factory polluting air and water in an area zoned for industrial use may represent the straw that breaks the back of the environmental camel.").

<sup>180</sup> 40 C.F.R. § 1508.7; 10 C.F.R. § 51.14(b) (adopting the definitions set forth in 40 C.F.R. § 1508.7); see also Hydro Resources, Inc. (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 60 (2001).

<sup>181</sup> Del. Riverkeeper Network v. Fed. Energy Regulatory Comm'n, 753 F.3d 1304, 1314 (D.C. Cir. 2014) (quoting Natural Res. Def. Council v. Callaway, 524 F.2d 79, 88 (2d Cir. 1975)); see Kern v. U.S. Bureau of Land Mgmt., 284 F.3d 1062, 1078 (9th Cir. 2002) (warning that "a restricted analysis would impermissibly subject the decisionmaking process contemplated by NEPA to the tyranny of small decisions" (internal quotation marks omitted)).

<sup>182</sup> 2014 EA, 79 Fed. Reg. at 44,466–67.

these periods will—in an individually minor, but cumulatively significant, manner—further exacerbate the westward migration of the saltwater plume. In this regard, the EA is deficient.

*ii. State Mitigation Measures*

Next, the NRC Staff argues that the 2014 EA correctly concluded there would be no significant adverse groundwater impacts because the state was already directing FPL to address salinity within the cooling canals.<sup>183</sup> Specifically, the 2014 EA references the FDEP Administrative Order that required FPL to reduce the salinity of the canals to 34 psu,<sup>184</sup> and notes that FPL planned to comply with this order both by pumping 14 MGD from the Upper Floridan Aquifer<sup>185</sup> and by withdrawing water from the Biscayne Aquifer.<sup>186</sup>

But that is all the 2014 EA says in this regard. It does not evaluate the potential for negative environmental impacts of the withdrawals on the aquifers themselves.<sup>187</sup> NRC Staff witness Ms. Grange asserted, however, that the 2014 EA did not need to consider the potential negative environmental impacts of FPL's aquifer withdrawals because the withdrawals "would have happened regardless of the proposed action."<sup>188</sup> This assertion misses the mark because it ignores FPL's potential need to consume additional water during high-temperature periods to reduce salinity as required by the FDEP Administrative Order.<sup>189</sup> To be sure, FPL witness

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<sup>183</sup> Ex. NRC-001, Staff Written Testimony at 45.

<sup>184</sup> 2014 EA, 79 Fed. Reg. at 44,468; Ex. INT-004, FDEP Administrative Order ¶ 37a.

<sup>185</sup> 2014 EA, 79 Fed. Reg. at 44,468.

<sup>186</sup> Id. FPL also withdrew water from the L-31E canal system, but these withdrawals were not mentioned in the 2014 EA. See infra notes 273–276 and accompanying text.

<sup>187</sup> See Tr. at 335–37.

<sup>188</sup> Tr. at 333 ("My understanding of the withdrawals were that they were part of a larger action to mitigate cooling canal system conditions, which included salinity as well as temperature and that they would have happened regardless of the proposed action.").

<sup>189</sup> See Tr. at 375 (acknowledging possible need for additional pumping). The Administrative Order also finds that lower temperatures would contribute to lower salinity. Ex. INT-004, FDEP Administrative Order ¶ 35.

Mr. Andersen asserted that, even though salinity increased in the Upper Floridan Aquifer once FPL initiated such withdrawals,<sup>190</sup> “any salinity increase in the [Upper Floridan Aquifer] will be minimal and localized to the FPL production wells.”<sup>191</sup> But the 2014 EA itself makes no mention of this explanation, nor does it evaluate in any way potential increases in salinity or the potential for saltwater intrusion.

To rely on beneficial environmental effects of mitigation measures, as the NRC Staff seeks to do here,<sup>192</sup> without also evaluating potential negative effects of those same measures, runs directly counter to the twin aims of NEPA—review and disclosure.<sup>193</sup> Under NEPA, an agency not only must evaluate all significant impacts, but also must “inform the public that the agency has considered environmental concerns in its decisionmaking process.”<sup>194</sup> By failing to review and discuss the full consequences of the state-mandated mitigation measures on which the NRC Staff relied, the NRC Staff abdicated this core NEPA responsibility.<sup>195</sup> Because of these glaring absences, the 2014 EA failed to take an adequate “hard look” and is deficient.

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<sup>190</sup> Ex. FPL-001, FPL Written Testimony at 50 (noting increase in salinity of withdrawals from Upper Floridan Aquifer, from 2.1 to 2.6 psu, as a result of 10 years of pumping).

<sup>191</sup> Id.

<sup>192</sup> 2014 EA, 79 Fed. Reg. at 44,468 (“Aquifer withdrawals would result in beneficial impacts to [cooling canal system] aquatic resources and the crocodiles inhabiting the Turkey Point site.”).

<sup>193</sup> Indian Point, CLI-16-07, 83 NRC at \_\_\_ (slip op. at 18) (concluding “that NEPA’s information-disclosure purpose was not satisfied” because “input values were not meaningfully addressed in the final supplemental environmental impact statement (FSEIS) or the Board’s decision”).

<sup>194</sup> Weinberger v. Catholic Action of Haw./Peace Educ. Project, 454 U.S. 139, 143 (1981); see Robertson, 490 U.S. at 349 (noting that agency’s environmental review document “provides a springboard for public comment”).

<sup>195</sup> See Marsh v. Or. Natural Res. Council, 490 U.S. 360, 378 (1989) (explaining that judicial review requires courts to “ensure that agency decisions are founded on a reasoned evaluation of the relevant factors”) (internal quotation marks omitted).

## **B. Significance of the Environmental Effects**

Despite deficiencies in the NRC Staff's NEPA documents, a licensing board may nonetheless uphold the NRC Staff's proposed action if sufficient evidence is developed in an adjudicatory proceeding concerning the environmental impacts of the proposed action.<sup>196</sup>

In such situations, the licensing board's findings and conclusions are deemed to amend the NRC Staff's NEPA documents and become the agency record of decision on those matters.<sup>197</sup>

In that instance, a licensing board decision satisfies the disclosure purpose of NEPA through the public vetting of environmental issues at an evidentiary hearing,<sup>198</sup> and, as a consequence, the NRC Staff is not required to supplement or amend its NEPA documents. As set forth below, we conclude there is sufficient record evidence in this proceeding to cure the NRC Staff's deficient 2014 EA.

### 1. Saltwater Migration and Intrusion

In the first part of Contention 1, CASE asserts that the 2014 EA "does not adequately address the impact of increased temperature and salinity in the CCS on saltwater intrusion arising from . . . migration out of the CCS."<sup>199</sup> While CASE is certainly correct that the discussion in the 2014 EA is inadequate,<sup>200</sup> the record evidence establishes that the occasions when the temperature in the canals will exceed 100 °F are limited to a few hours per day over

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<sup>196</sup> Indian Point, CLI-15-6, 81 NRC at 388 ("We therefore affirm the Board's ruling that the environmental record of decision may be supplemented by the hearing and relevant Board and Commission decisions.").

<sup>197</sup> Id. at 387–88; see Friends of the River v. Fed. Energy Regulatory Comm'n, 720 F.2d 93, 106 (D.C. Cir. 1983) (declining to remand NEPA case where the Federal Energy Regulatory Commission had issued a public order during the adjudicatory process that cured the deficiencies in the Environmental Impact Statement).

<sup>198</sup> See Phila. Electric Co. (Limerick Generating Station, Units 1 & 2), ALAB-262, 1 NRC 163, 197 n.54 (1975).

<sup>199</sup> LPB-15-13, 81 NRC at 476.

<sup>200</sup> Supra notes 157–160 and accompanying text.

the period of a few weeks. In addition, after examining the findings of state administrative tribunals, we find it more likely than not that the state ordered mitigation efforts entailing increased aquifer withdrawals will reduce salinity levels in the cooling canals far below any slight increase that would be attributable to increased temperatures, and that such efforts will not cause significant negative cumulative impacts on the aquifers themselves.<sup>201</sup>

We turn first to the 2014 EA's claim that temperature increases above 100 °F would be "short in duration." As noted above,<sup>202</sup> not only did the 2014 EA fail to provide any technical support for this assertion, but the NRC Staff's witnesses further muddied the 2014 EA's lack of analysis by using several different notions of what constitutes a "short duration."<sup>203</sup>

Nonetheless, as a result of testimony presented at the hearing, it is clear that future instances of temperatures in the cooling canals exceeding the previous limit of 100 °F are likely to be infrequent. The temperature of the cooling canals varies daily and seasonally based on a number of conditions, including air temperature and humidity, sun exposure, and rainfall.<sup>204</sup> Thus, peak temperatures in the cooling canals would most likely occur during the hottest

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<sup>201</sup> See Nat'l Parks Conservation Ass'n v. Jewell, 965 F. Supp. 2d 67, 75 (D. D.C. 2013) ("NEPA does not demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act or a detailed explanation of specific measures which *will* be employed to mitigate the adverse impacts of a proposed action . . . . Instead, an agency's discussion of potential mitigation measures in an EIS must include sufficient detail to ensure that environmental consequences have been fairly evaluated." (internal citation and quotation marks omitted)); Theodore Roosevelt Conservation P'ship v. Salazar, 744 F. Supp. 2d 151, 164 (D. D.C. 2010), aff'd, 661 F.3d 66 (D.C. Cir. 2011) ("[A]n agency's discussion of mitigation measures need only be 'reasonably complete.'" (quoting Robertson, 490 U.S. at 352)).

<sup>202</sup> Supra section IV.A.2.i.

<sup>203</sup> Compare Ex. NRC-001, Staff Written Testimony at 50 (Mr. Ford testifying that "short duration" in the 2014 EA means "a few weeks"), with id. at 40 ("During Summer 2014, the temperature exceeded 100 °F for a few days, which was concurrent with an algae bloom.").

<sup>204</sup> Tr. at 392; Ex. NRC-001, Staff Written Testimony at 51.

summer months of July and August,<sup>205</sup> particularly during periods of low rainfall.<sup>206</sup> FPL provided expert testimony that in the year after FPL received the August 2014 license amendments, the sampling station located closest to the plant intake experienced temperatures above 100 °F for a total of 61 hours.<sup>207</sup> Furthermore FPL's expert testified that in the summer of 2015, the maximum sampled temperature did not even reach the previous 100 °F limit.<sup>208</sup>

This, however, is not the end of our inquiry, for both FPL and the NRC Staff witnesses acknowledge that temperature increases could result in higher salinity within the cooling canals.<sup>209</sup> This higher salinity, in turn, could contribute to saltwater migration and intrusion by increasing hydraulic pressure.<sup>210</sup> As a result, NEPA obligates the NRC Staff to examine the environmental impacts of this increase in salinity, which, as discussed above, the 2014 EA does not consider. It is essential there be an examination of how increased temperatures would contribute to the cumulative effect of a much larger salinity issue that has been worsening for 40 years.<sup>211</sup> Although the expanding hypersaline plume beneath the canals failed to make it into the 2014 EA, state and county officials were sufficiently concerned with this matter that they

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<sup>205</sup> Ex. NRC-025, Root Cause Evaluation at 9–10.

<sup>206</sup> Tr. at 412–13; Ex. NRC-001, Staff Written Testimony at 51.

<sup>207</sup> Ex. FPL-001, FPL Written Testimony at 60–62; Ex. FPL-036, Temperature Analysis Using CCS-6 as a Surrogate for the [Technical Specifications] Monitoring Location, at 1–2, tbl. 1.

<sup>208</sup> See Ex. FPL-001, FPL Written Testimony at 19 (“FPL was able to maintain continuous operations during the summer of 2015 with a maximum intake temperature of 98.5°F, compared to a maximum intake temperature of 102.5°F in 2014.”).

<sup>209</sup> FPL Proposed Findings ¶ 75 (“But for short periods of time, temperature increases could result in higher salinity within the [cooling canal system]”); Ex. NRC-001, NRC Staff Written Testimony at 52 (“For short periods of time, temperature increases could result in higher temperature increases and higher salinity levels within the [cooling canal system].”).

<sup>210</sup> See Tr. at 357–58, 435–46, 501.

<sup>211</sup> See supra notes 174–181 and accompanying text.



took a number of steps to address the saltwater plume.<sup>212</sup> These state and county mitigation efforts, in turn, must be considered as part of the 2014 EA's cumulative impacts analysis associated with the license amendments.<sup>213</sup>

As noted earlier, the 2014 EA did not adequately address the state's mitigation measures because it improperly relied solely on the beneficial environmental effects of the mitigation measures without also evaluating the potential negative effects of those same measures.<sup>214</sup>

Although we address in detail the possible negative environmental impacts of FPL's aquifer withdrawals in section IV.B.2, we must note here that the state-ordered actions adequately mitigate the potential cumulative environmental impacts of the temperature limit increase and so cure the 2014 EA's deficient cumulative impacts analysis. Of particular significance in this regard are the Fifth Supplemental Agreement, which requires FPL to prevent the westward spread of hypersaline water,<sup>215</sup> and FPL's Consent Agreement with Miami-Dade County, which acknowledged FPL's planned withdrawals from the Upper Floridan Aquifer.<sup>216</sup> Because FPL has indicated that it will comply with the terms of both of these agreements,<sup>217</sup> we

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<sup>212</sup> See Ex. INT-004, FDEP Administrative Order ¶¶ 24, 26–29, 37; Ex. INT-006, Consent Agreement at 1, 3–4.

<sup>213</sup> See C.A.R.E. Now, Inc. v. Fed. Aviation Admin., 844 F.2d 1569, 1575 (11th Cir. 1988) (concluding that it was appropriate for agency to determine that voluntary programs at airport to reduce noise levels were sufficient to “reduce the potential environmental impact to an insignificant level”); see also Cabinet Mountains Wilderness v. Peterson, 685 F.2d 678, 683 (D.C. Cir. 1982) (“Although the [Fish and Wildlife Service] concluded that the drilling program was likely to jeopardize the bears, it set forth a number of measures which were designed to avoid this result.”).

<sup>214</sup> See supra notes 187–195 and accompanying text.

<sup>215</sup> Ex. NRC-033, Fifth Supplemental Agreement at 3.

<sup>216</sup> Ex. INT-006, Consent Agreement at 4.

<sup>217</sup> See Ex. FPL-001, FPL Written Testimony at 37–40; see also Progress Energy Fla., Inc. (Levy County Nuclear Power Plant, Units 1 & 2), LBP-13-4, 77 NRC 107, 217–18 (2013) (“[A]bsent information to the contrary, NRC may properly assume that an applicant or licensee

find that it is more likely than not that FPL will continue to freshen the cooling canals using withdrawals from the Upper Floridan Aquifer.

We reach this conclusion after evaluating FPL's computer modeling, which demonstrates that these relatively fresh withdrawals from the Upper Floridan Aquifer are likely to reduce the salinity of the cooling canals to about 34 psu—the equivalent of the salinity of Biscayne Bay.<sup>218</sup> This freshening of the cooling canals will make it less likely that temperatures in the cooling canals will approach the 104 °F temperature limit permitted under the NRC Staff-approved 2014 license amendments because the cooler, fresher water in the canals will increase the flow rate and provide additional surface area for cooling.<sup>219</sup> Moreover, by freshening the canals to a salinity in the range of 34 psu, the withdrawals from the Upper Floridan Aquifer are likely to reduce the spread of the hypersaline plume in the Biscayne Aquifer.<sup>220</sup>

Although the FDEP Administrative Order, which required FPL to freshen the cooling canals,<sup>221</sup> has recently been approved by FDEP after a challenge from a nearby aquifer user<sup>222</sup> that Administrative Order may still be the subject of continuing litigation.<sup>223</sup> Regardless,

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will comply with concrete and enforceable conditions and requirements imposed by statutes, regulations, licenses, or permits issued by competent federal, state, or local governmental entities.”).

<sup>218</sup> See Ex. FPL-027, Letter from Matthew J. Raffenberg, Director, Environmental Licensing and Permitting, FPL, to Justin Green, Program Administrator, FDEP, app. A, at 1, 3–4 (Sept. 5, 2014) [hereinafter Ex. FPL-027, FDEP Petition].

<sup>219</sup> Id.; Ex. FPL-001, FPL Written Testimony at 42, 60.

<sup>220</sup> See Ex. FPL-027, FDEP Petition, app. A, at 1, 3–4; see also Upper Floridan Aquifer Order at 17.

<sup>221</sup> Ex. INT-004, FDEP Administrative Order ¶ 37.

<sup>222</sup> See FPL's Third Notice to the Board Regarding State Administrative Proceeding, attach. 1, at 26–27 (Apr. 21, 2016).

<sup>223</sup> Id. at 27 (“Any party to this proceeding has the right to seek judicial review of the Final Order under section 120.68, Florida Statutes, by filing of a Notice of Appeal . . . with the appropriate District Court of Appeal.”). FPL did not challenge the Administrative Order. Therefore, even if the current challengers appeal FDEP's final order and are successful on appeal, the result would be that the Administrative Law Judge's decision would stand and FPL would likely be

however, FPL's other legally binding agreements with Miami-Dade County and with the Water District require FPL to achieve even further reductions in the salinity of the cooling canals.<sup>224</sup> Accordingly, at a minimum, FPL appears destined to maintain the salinity of the canals at or below 34 psu—which appears to be a level sufficient to reduce pressure on the existing hypersaline plume.<sup>225</sup> This freshening of the canals, in turn, will also ensure that the increase in the maximum allowable temperature will not exacerbate the legacy problem of hypersaline groundwater beneath the cooling canal system.

We previously determined that the 2014 EA failed to take a hard look at the environmental impacts, specifically saltwater migration or intrusion, associated with the license amendments for Units 3 and 4.<sup>226</sup> However, as a result of the record evidence developed in this proceeding, we also conclude that it is more likely than not that even though increases in the water temperature limit will increase salinity and thereby contribute to the westward migration of hypersaline water in the Biscayne Aquifer, the effects will be small because temperatures above 100 °F are reasonably likely to occur only during a few weeks per year and the effects of higher temperature will be counteracted by FPL's aquifer withdrawals. Therefore, we find that the license amendments will not have a significant effect on saltwater migration or intrusion and that

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required to implement even more restrictive measures than called for in the final FDEP Administrative Order.

<sup>224</sup> Ex. NRC-033, Fifth Supplemental Agreement at 3; Ex. INT-006, Consent Agreement at 2.

<sup>225</sup> See Ex. FPL-001, FPL Written Testimony at 44 (“The net effect is that the proposed addition [from the Upper Floridan Aquifer] will reduce the rate of saltwater migration.”); Ex. FPL-027, FDEP Petition, app. A, at 1, 3–4; see also Robertson, 490 U.S. at 352–53 (“Since it is those state and local governmental bodies that have jurisdiction over the area in which the adverse effects need be addressed and since they have the authority to mitigate them, it would be incongruous to conclude that the Forest Service has no power to act until the local agencies have reached a final conclusion on what mitigating measures they consider necessary. Even more significantly, it would be inconsistent with NEPA’s reliance on procedural mechanisms—as opposed to substantive, result-based standards—to demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act.” (footnote omitted)).

<sup>226</sup> Supra section IV.A.2.ii.

the agency record of decision, as supplemented by the Board, now provides the “hard look” required under NEPA.

## 2. Aquifer Withdrawals

The second part of Contention 1 states that the 2014 EA does not “adequately address the impact of increased temperature and salinity in the CCS on saltwater intrusion arising from . . . the withdrawal of freshwater from surrounding aquifers to mitigate conditions within the CCS.”<sup>227</sup> At issue are FPL’s authorizations to withdraw water from three separate sources: (1) the Upper Floridan Aquifer; (2) the Biscayne Aquifer; and (3) the L-31E canal system.<sup>228</sup> As explained above, the 2014 EA fails to address the environmental impacts of these withdrawals on the aquifers themselves.<sup>229</sup> We examine below whether the record evidence developed in this proceeding nonetheless provides sufficient information to show that FPL’s water withdrawals from the Upper Floridan Aquifer, Biscayne Aquifer, and L-31E canal will not have a significant impact on saltwater intrusion.

### *i. Upper Floridan Aquifer Withdrawals*

With respect to the potential impact of FPL’s planned withdrawals from the Upper Floridan Aquifer, FPL proposed to manage increasing temperature and salinity in the cooling canals in 2013 and 2014 through two separate measures: (1) constructing six new wells to

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<sup>227</sup> LPB-15-13, 81 NRC at 476.

<sup>228</sup> Although the L-31E canal system is not an aquifer, CASE’s contention includes a challenge to the 2014 EA’s lack of analysis regarding the environmental impacts of the L-31E canal withdrawals. See Petition at 16–17; see also CLI-15-25, 82 NRC at 404–05 (“We agree that CASE has asserted a genuine dispute that additional water withdrawals [from the L-31E canal system] are likely, and that these withdrawals might result in environmental impacts that were not considered in the Environmental Assessment.”); LBP-15-13, 81 NRC at 474 & n.110. Moreover, because the L-31E canal system withdrawals are part of FPL’s mitigation measures and were reasonably foreseeable at the time of the 2014 EA, the environmental impacts of these withdrawals need to be considered. See infra notes 273–276 and accompanying text.

<sup>229</sup> Supra notes 187–195 and accompanying text; see also Tr. at 335.

pump 14 MGD from the Upper Floridan Aquifer, and (2) reallocating up to 5 MGD<sup>230</sup> of Upper Floridan Aquifer water from existing production wells associated with Unit 5, which is a natural gas-fired unit at Turkey Point.<sup>231</sup> However, because CASE did not challenge the 5 MGD reallocation withdrawal,<sup>232</sup> the only issue properly before us is FPL's proposal to pump 14 MGD from the new production wells.<sup>233</sup>

The 14 MGD withdrawal issue stems from the April 16, 2013 letter from the Water District that informed FPL it was in violation of its agreement regarding the westward movement of saline water from the cooling canal system.<sup>234</sup> In its September 5, 2014 response, FPL formally petitioned FDEP to authorize FPL to withdraw 14 MGD from the Upper Floridan Aquifer.<sup>235</sup> After a challenge in a separate administrative proceeding,<sup>236</sup> on January 25, 2016,

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<sup>230</sup> The 2014 EA states that FPL was authorized to reallocate 5 MGD from the Unit 5 allowance. 2014 EA, 79 Fed. Reg. at 44,468. However, in its application to the FDEP, FPL requested permission to "re-allocate approximately 2.9 MGD (2,000 gpm) of Upper Floridan Aquifer water from Well No. 3 associated with Unit 5." Ex. FPL-027, FDEP Petition at 7. Explaining this apparent discrepancy, FPL witness Mr. Andersen testified that although FPL was authorized to reallocate up to 5 MGD from Unit 5, in practice it used only 3 to 4 MGD. Tr. at 488.

<sup>231</sup> See 2014 EA, 79 Fed. Reg. at 44,465; Ex. FPL-027, FDEP Petition at 4, 7. FPL ultimately received permission to reallocate the water from Unit 5 to the cooling canal system and to construct one well to comply with NRC Order EA-12-049 (the Fukushima well). Tr. at 490. CASE did not challenge either of these projects and so they are not before us here.

<sup>232</sup> Nowhere in CASE's pleadings or evidence is there any mention of the 5 MGD reallocation of water from wells associated with Unit 5.

<sup>233</sup> See Tr. at 490; see also Upper Floridan Aquifer Order at 6–7.

<sup>234</sup> See Ex. INT-004, FDEP Administrative Order ¶¶ 28–29 ("On June 18, 2013, FPL presented the [Water] District and [FDEP] with a proposal to manage the CCS groundwater located west of the L-31E Canal, and on July 15, 2013, FPL provided a technical memorandum and other documentation related to its proposal . . . . FPL estimated that the addition of 14 million gallons per day of upper Floridan aquifer water would be sufficient to reduce the CCS salinity levels at or below that of Biscayne Bay and that the rate of westward movement of CCS saline waters would be reduced over a 30 year operational period."); see also Ex. FPL-026, April 16, 2013 Letter at 1.

<sup>235</sup> Ex. FPL-027, FDEP Petition at 1.

<sup>236</sup> See Upper Floridan Aquifer Order at 2–3.

an Administrative Law Judge in the State of Florida's Division of Administrative Hearings issued a recommended order that FDEP grant FPL's application to withdraw 14 MGD from the Upper Floridan Aquifer.<sup>237</sup>

We received testimony about this planned withdrawal from several witnesses. FPL witness Mr. Andersen testified that FPL considers the 14 MGD from the Upper Floridan Aquifer to be "a long term solution" to address rising temperature and salinity in the cooling canal system.<sup>238</sup> He further testified that the Upper Floridan Aquifer withdrawals are a "desirable" source of water because the salinity of the withdrawals is relatively low at 2.5 psu.<sup>239</sup> Therefore, according to Mr. Anderson, "[t]he water in the [Upper Floridan Aquifer] is relatively fresh, compared to the water in the [cooling canal system], but is still salty enough that it must be treated prior to its use as drinking water."<sup>240</sup> FPL's groundwater modeling shows that the Upper Floridan Aquifer withdrawals will reduce the salinity of the cooling canals to about 34 psu, which is the equivalent of the salinity of Biscayne Bay.<sup>241</sup> FPL's modeling also shows that by freshening the cooling canals, the Upper Floridan Aquifer withdrawals will help reduce the hypersaline plume in the Biscayne Aquifer.<sup>242</sup> As part of the state's administrative review of FPL's proposal, the Water District conducted its own modeling of FPL's proposed withdrawals and ultimately concurred with FPL's modeling results.<sup>243</sup>

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<sup>237</sup> Id. at 24–25.

<sup>238</sup> Ex. FPL-001, FPL Written Testimony at 47.

<sup>239</sup> Tr. at 500.

<sup>240</sup> Ex. FPL-001, FPL Written Testimony at 48.

<sup>241</sup> Ex. FPL-027, FDEP Petition at 7, app. A., at 3–4.

<sup>242</sup> Id. at 1, 3–4; Upper Floridan Aquifer Order at 17.

<sup>243</sup> Upper Floridan Aquifer Order at 17–18.

Additionally, beyond the indirect benefit that freshening the cooling canals will have on the Biscayne Aquifer, FPL and the NRC Staff also provided convincing evidence that FPL's withdrawals from the Upper Floridan Aquifer will not have a significant negative impact on the Biscayne Aquifer saltwater/freshwater interface due to the confining layer between the two aquifers. NRC expert witness Mr. Ford testified that "the Floridan Aquifer is isolated from the Biscayne Aquifer by a thick confining unit . . . [that] acts as a barrier and isolates groundwater in the Floridan Aquifer from groundwater in the Biscayne Aquifer."<sup>244</sup> While Mr. Ford maintained that there is no interaction between the two aquifers,<sup>245</sup> FPL expert Mr. Andersen testified that "there is an upward hydraulic gradient from the [Upper] Floridan [Aquifer] to the Biscayne [Aquifer]."<sup>246</sup> Therefore, in Mr. Andersen's opinion, there is "flow from the [Upper] Floridan [Aquifer] into the Biscayne [Aquifer] and not vice-versa,"<sup>247</sup> but any interaction between the aquifers is "very limited."<sup>248</sup> As to the nature of the confining unit, Mr. Andersen opined that the Upper Floridan Aquifer "is overlain by a sequence of limestone, dolomite, siltstone, claystone, sand and clay that form a semi-confining layer known as the Hawthorn Group that separates, both geographically and hydraulically the [Upper Floridan Aquifer] from the Biscayne Aquifer."<sup>249</sup> CASE offered no evidence to dispute the opinions of these expert witnesses. Based on this testimony, the Board is satisfied that it is more likely than not that FPL's planned Upper Floridan Aquifer withdrawals will not negatively impact the saltwater/freshwater interface in the Biscayne Aquifer.

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<sup>244</sup> Ex. NRC-001, Staff Written Testimony at 26.

<sup>245</sup> Id. at 24, 26; see also Tr. at 433.

<sup>246</sup> Tr. at 434.

<sup>247</sup> Tr. at 434.

<sup>248</sup> Ex. FPL-001, FPL Written Testimony at 51.

<sup>249</sup> Id. at 20.

Finally, FPL offered compelling evidence that any drawdown in the Upper Floridan Aquifer caused by its planned withdrawals will not have a significant impact either on the aquifer itself or on other users of the aquifer. Specifically, FPL's technical memorandum quantified the expected drawdown and concluded that the withdrawals would not prevent nearby users from obtaining water.<sup>250</sup> The analysis documented in this technical memorandum used a groundwater model, East Coast Floridan Aquifer System Model-Phase 2, developed by the Water District.<sup>251</sup> However, because the Water District's groundwater model "covers a very large area and does not provide the resolution required to accurately assess site-specific features and impacts,"<sup>252</sup> FPL recalibrated the model with site-specific information, including information gathered from two aquifer performance tests.<sup>253</sup> Ultimately, FPL's groundwater modeling showed that only one of the nearby users would experience the maximum calculated drawdown of 2.26 feet.<sup>254</sup> Overall, according to FPL, "the impacts to off-site permitted wells are minor."<sup>255</sup> FPL also noted its drawdown calculations are conservative (i.e., they project results that are greater than would be expected) "since the drawdown in the wellbore at each nearby user due to localized pumping is undersimulated by the coarse-gridded regional model."<sup>256</sup> CASE offered no evidence that disputes the conclusions of FPL's technical memorandum.

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<sup>250</sup> Ex. FPL-027, FDEP Petition, app. B, Evaluation of Drawdown in the Upper Floridan Aquifer Due to Proposed Salinity Reduction-based Withdrawals at 10 (May 13, 2014); see also Ex. FPL-030, Peter F. Andersen and James L. Ross, Evaluation of Drawdown in the Upper Floridan Aquifer Due to Salinity Reduction-based Withdrawals at 10 (Nov. 13, 2014) [hereinafter Ex. FPL-030, Drawdown Memorandum].

<sup>251</sup> Ex. FPL-030, Drawdown Memorandum at 1.

<sup>252</sup> Id. at 3.

<sup>253</sup> Id. at 1–3, 10; see also Tr. at 495–96.

<sup>254</sup> Ex. FPL-030, Drawdown Memorandum at 10.

<sup>255</sup> Id.

<sup>256</sup> Id.



Accordingly, given the minor impact on a single user, we find it more likely than not that FPL's Upper Floridan Aquifer withdrawals will not have a significant impact on the Upper Floridan Aquifer itself.<sup>257</sup>

In sum, we find that the supplemented record of decision regarding the 2014 FPL license amendments now contains sufficient information to establish that the requisite NEPA "hard look" has been taken regarding FPL's Upper Floridan Aquifer withdrawals, and that the 2014 license amendments will not: (1) exacerbate the migration of saltwater from the cooling canals system into the surrounding groundwater because these withdrawals will help reduce the salinity of the cooling canals; (2) significantly impact the nearby saltwater/freshwater interface in the Biscayne Aquifer because there is very limited interaction between the two aquifers; or (3) significantly impact other legal users of the Upper Floridan Aquifer through the projected drawdown caused by the withdrawals.

*ii. Biscayne Aquifer Withdrawals*

The second water source at issue involves FPL's water withdrawals from the Biscayne Aquifer. On July 1, 2014, the Water District approved FPL's request to pump 10 MGD from existing well PW-1 in the Biscayne Aquifer.<sup>258</sup> Subsequently, according to the testimony of FPL witness Mr. Scroggs, FPL received permission in June 2015 from Miami-Dade County's Department of Health to construct two new wells to pump additional water from the Biscayne

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<sup>257</sup> See id.; see also Tr. at 495–99.

<sup>258</sup> Ex. FPL-018, Letter from Sharon M. Trost, Director, Water District Regulation Division, to Stacy M. Foster, Manager, FPL Environmental Services at 1 (July 1, 2014) [hereinafter Ex. FPL-018, July 1, 2014 Water District Approval]; Ex. FPL-001, FPL Written Testimony at 16.

Aquifer.<sup>259</sup> In total, FPL was authorized to withdraw approximately 45 MGD from these wells.<sup>260</sup>

Mr. Scroggs also testified that FPL ceased withdrawing water from the Biscayne Aquifer as of September 2015.<sup>261</sup>

After conceding that the Biscayne Aquifer is one of the primary sources of freshwater and drinking water in South Florida,<sup>262</sup> witnesses for both FPL and the NRC Staff offered convincing and unrefuted evidence that the actual withdrawals that FPL has made have a salinity equal to saltwater. Mr. Andersen explained that “[d]ue to the presence of Biscayne Bay and the Atlantic Ocean, the [Biscayne] aquifer is saline offshore and near the coast.”<sup>263</sup> Citing studies by the U.S. Geological Survey (USGS), Mr. Andersen also testified that the 1 psu saltwater/freshwater interface in the Biscayne Aquifer is approximately six to eight miles inland of the Turkey Point site.<sup>264</sup> Therefore, because FPL’s Biscayne Aquifer wells are located to the east of this interface, FPL is not withdrawing freshwater from the aquifer.<sup>265</sup> FPL has also confirmed through water sampling that its withdrawals from the Biscayne Aquifer had a salinity

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<sup>259</sup> Tr. at 480–81; see Ex. FPL-001, FPL Written Testimony at 16–17, 67. Mr. Scroggs testified that because FPL’s Biscayne Aquifer withdrawals had a salinity of about 34 psu, the water was classified as “marine water” and thus “is not a regulated water source.” For this reason, FPL “applied for well permits through the county Department of Health,” instead of through the Water District. Tr. at 481–82.

<sup>260</sup> Ex. FPL-001, FPL Written Testimony at 16–17.

<sup>261</sup> Id. at 17; see also Tr. at 480–81.

<sup>262</sup> Ex. NRC-001, Staff Written Testimony at 23; Ex. FPL-001, FPL Written Testimony at 19–20.

<sup>263</sup> Ex. FPL-001, FPL Written Testimony at 19–20.

<sup>264</sup> Id. at 20 (citing Ex. FPL-013, Excerpt from FPL Turkey Point Comprehensive Pre-Uprate Monitoring Report for Units 3 & 4 Uprate Project, Section 5, fig. 5.2-23, USGS Saltwater Intrusion Lines from 1951 through 2008 (Oct. 2012)).

<sup>265</sup> Id. at 22–23.

of about 34 psu, which is comparable to the salinity of Biscayne Bay.<sup>266</sup> Moreover, when it authorized FPL to withdraw 10 MGD in July 2014, the Water District noted that FPL's withdrawals met the District's definition of seawater because the water had a salinity above 19 psu.<sup>267</sup>

In fact, the relatively high salinity of FPL's Biscayne Aquifer withdrawals was the main reason that FPL discontinued its use of the Biscayne Aquifer to help control salinity in the cooling canals.<sup>268</sup> Mr. Andersen testified that FPL's withdrawals from the Biscayne Aquifer were only "intended to be used as a bridging strategy until the 14 MGD from the [Upper Floridan Aquifer] is available for a long term solution."<sup>269</sup>

Although CASE argues that FPL's withdrawals from the Biscayne Aquifer will cause significant adverse environmental impacts and that the water withdrawn from the Biscayne Aquifer is freshwater,<sup>270</sup> CASE submitted no evidence to support this claim. Consequently, we find that the supplemented record of decision regarding the 2014 FPL license amendments now contains sufficient information to establish that the requisite NEPA "hard look" has been taken regarding FPL's saltwater withdrawals from the Biscayne Aquifer and that those withdrawals will not have a significant impact on saltwater intrusion.

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<sup>266</sup> Id. at 22; see Ex. FPL-017A, Turkey Point Exploratory Drilling and Aquifer Performance Test Program, tbl. 3.2 (Aug. 19, 2009) (showing the results of a 2014 aquifer performance test, including the salinity of water withdrawn from well PW-1).

<sup>267</sup> Ex. FPL-018, July 1, 2014 Water District Approval at 1.

<sup>268</sup> See Tr. at 481; Ex. FPL-001, FPL Written Testimony at 17.

<sup>269</sup> Ex. FPL-001, FPL Written Testimony at 47.

<sup>270</sup> See, e.g., CASE Statement of Position at 14 (asserting that "the withdrawal of billions of gallons of freshwater from the Biscayne Aquifer for use in the canals . . . has exacerbated saltwater intrusion to the west of the CCS").

*iii. L31-E Canal System*

Lastly, as part of FPL's plan to manage the temperature and salinity of the Turkey Point cooling canals, FPL received authorization to access freshwater from the L-31E canal system.<sup>271</sup> This canal system runs parallel to the South Central Biscayne Bay and is operated by the Water District for "reducing flood and storm surge damage as well as limiting saline water intrusion."<sup>272</sup>

Notably, the 2014 EA makes no mention of the L-31E canal system withdrawals.<sup>273</sup> At the hearing, NRC Staff witness Ms. Grange testified that, even though the NRC Staff knew the proposed L-31E withdrawals "were a possibility," the 2014 EA did not mention these withdrawals because the NRC Staff considered it unlikely that FPL would submit a request for the proposed L-31E withdrawals.<sup>274</sup> It is difficult to reconcile this hearing testimony with Ms. Grange's written testimony, which states that "the Staff was aware that FPL was seeking authorization from the State to pump water from the L-31 canal system."<sup>275</sup> Regardless, given that the NRC Staff was aware that FPL's application to withdraw water from the L-31E canal system was imminent at the time the 2014 EA was being prepared, the NRC Staff erred in not discussing these reasonably foreseeable L-31E canal withdrawals in the 2014 EA.<sup>276</sup>

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<sup>271</sup> Ex. FPL-001, FPL Written Testimony at 51 ("The L-31E canal water is fresh, with chloride concentrations consistently below the drinking water criteria of 250 mg/L chloride, which is approximately equivalent to 0.5 psu.").

<sup>272</sup> Ex. FPL-034, Governing Board of the [Water District], Emergency Final Order at 4 (May 19, 2015) [hereinafter Ex. FPL-034, 2015 Emergency Order]; Ex. FPL-001, FPL Written Testimony at 51.

<sup>273</sup> See Tr. at 391.

<sup>274</sup> See Tr. at 391.

<sup>275</sup> Ex. NRC-001, Staff Written Testimony at 49.

<sup>276</sup> See CLI-15-25, 82 NRC at 396 n.46 ("NEPA imposes upon the NRC a disclosure obligation—that the NRC publicly discuss its evaluation of the reasonably foreseeable effects of a proposed action.").

FPL did in fact apply to the Water District for emergency authorization to pump up to 100 MGD from the L-31E canal system on August 27, 2014, less than one month after the publication of the 2014 EA.<sup>277</sup> One day later, on August 28, 2014, the Water District approved FPL's emergency request and authorized FPL to withdraw a maximum of 100 MGD from the canal system, subject to a number of restrictions (2014 Emergency Order).<sup>278</sup> One such restriction authorized FPL to withdraw water only when it exceeded the amount already reserved by state law for fish and wildlife in Biscayne Bay.<sup>279</sup> Consequently, the 2014 Emergency Order gave no assurance that "water will be available for FPL's withdrawal and use on any given day."<sup>280</sup> Despite these restrictions, FPL was able to withdraw approximately 44 MGD during a 21-day period in the fall of 2014.<sup>281</sup>

The 2014 Emergency Order terminated on October 15, 2014,<sup>282</sup> and on January 26, 2015, FPL applied for a consumptive use permit to withdraw excess water from the L-31E canal system.<sup>283</sup> The Water District granted FPL's request on April 10, 2015 (2015 Permit), allowing FPL to withdraw up to 100 MGD during two periods: June 1 through November 30, 2015, and

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<sup>277</sup> Ex. FPL-031, Governing Board of the [Water District], Emergency Final Order at 6 (Aug. 28, 2014) [hereinafter Ex. FPL-031, 2014 Emergency Order].

<sup>278</sup> Id. at 13–22; see Ex. FPL-001, FPL Written Testimony at 52.

<sup>279</sup> See Ex. FPL-031, 2014 Emergency Order at 14. Specifically, the 2014 Emergency Order states that "FPL is prohibited from withdrawing and using water from the L-31 E Canal system that is reserved for fish and wildlife by Rule 40E-10.061, [Florida Administrative Code], for the Nearshore Central Biscayne Bay." Id. Under the water reservation rule, "surface water flowing into the Nearshore Central Biscayne Bay, as derived from various and listed contributing canal reaches, is reserved from allocation." Id. at 6.

<sup>280</sup> Id. at 15.

<sup>281</sup> Ex. FPL-001, FPL Written Testimony at 17.

<sup>282</sup> Ex. FPL-031, 2014 Emergency Order at 21.

<sup>283</sup> Ex. FPL-033, Governing Board of the [Water District], Final Order at 9 (Apr. 9, 2015) [Water District L-31E Canal System Order].

June 1 through November 30, 2016.<sup>284</sup> Like the 2014 Emergency Order, the 2015 Permit prohibited FPL from withdrawing water reserved by state law for the protection of fish and wildlife.<sup>285</sup> However, FPL's authorization was stayed after an environmental group challenged the 2015 Permit.<sup>286</sup> In the interim, FPL sought and received another emergency authorization (2015 Emergency Order),<sup>287</sup> and was able to withdraw approximately 43 MGD in September and October 2015.<sup>288</sup> That authorization terminated on November 30, 2015.<sup>289</sup> On December 31, 2016, a state Administrative Law Judge rejected the environmental group's challenges to the 2015 Permit and held that the Water District should issue the permit.<sup>290</sup> But because FPL has since received approval for the Upper Floridan Aquifer withdrawals,<sup>291</sup> it is more likely than not that FPL will have no need to seek further authorizations to withdraw from the L-31E canal system beyond 2016.<sup>292</sup>

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<sup>284</sup> Id. at 12 ("FPL may potentially withdraw water from June 1 to November 30 ('Calendar Constraint'). No withdrawals are authorized from December 1<sup>st</sup> through May 31<sup>st</sup> by this Order."); Ex. FPL-037, State L-31E Canal System Order at 10 ("The [2015] permit would allow FPL to withdraw up to 100 million gallons per day ('mgd').").

<sup>285</sup> Ex. FPL-033, Water District L-31E Canal System Order at 12.

<sup>286</sup> Ex. FPL-037, State L-31E Canal System Order at 31 n.1; Ex. FPL-034, 2015 Emergency Order at 9–10.

<sup>287</sup> Ex. FPL-034, 2015 Emergency Order at 10, 18.

<sup>288</sup> Ex. FPL-001, FPL Written Testimony at 17, 54.

<sup>289</sup> Ex. FPL-034, 2015 Emergency Order at 27.

<sup>290</sup> Ex. FPL-037, State L-31E Canal System Order at 27–30.

<sup>291</sup> See Upper Floridan Aquifer Order at 24–25 (recommending that FPL be allowed to withdraw 14 MGD from the Upper Floridan Aquifer subject to certain monitoring requirements).

<sup>292</sup> See Ex. FPL-001, FPL Written Testimony at 47 (describing the L-31E canal system withdrawals as a "bridging strategy until the 14 MGD from the [Upper Floridan Aquifer] is available for a long term solution," and stating that the L-31E withdrawals "would not occur simultaneously with the 14 MGD [Upper Floridan Aquifer] freshening").

In this proceeding, both FPL and the NRC Staff presented expert testimony that the freshwater withdrawals from the L-31E canal will not have a significant impact on saltwater intrusion because such withdrawals are limited to periods of high rainfall when such water would otherwise flow into Biscayne Bay—as opposed to into the groundwater.<sup>293</sup> As Mr. Andersen testified, “[s]ince the amount of water that is pumped to the [cooling canal system] is equivalent to the amount diverted to L-31E from the north, there is no net gain or loss of water from the L-31E west of the [cooling canals].”<sup>294</sup>

FPL also offered a technical memorandum that summarizes FPL’s computer modeling regarding the projected impact of the L-31E canal withdrawals on salinity in the cooling canals.<sup>295</sup> This technical memorandum evaluates the addition of the L-31E canal system water in the cooling canal system in two scenarios.<sup>296</sup> Scenario A “assume[d] future conditions mimic those observed between November 1, 2010 and October 31, 2012,” before the cooling canal system experienced an increase in salinity in 2013.<sup>297</sup> Scenario B, on the other hand, assumed that future conditions of the cooling canals would mimic the dramatic increase in salinity experienced during 2013 and 2014.<sup>298</sup> This technical memorandum also evaluated the various impacts of adding 30 MGD, 60 MGD and 100 MGD from the L-31E canal system,<sup>299</sup> and concluded that, over a 25-month timeframe, the addition of even 30 MGD reduced the salinity in

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<sup>293</sup> Ex. NRC-001, Staff Written Testimony at 49–50; Ex. FPL-001, FPL Written Testimony at 54–55.

<sup>294</sup> Ex. FPL-001, FPL Written Testimony at 55.

<sup>295</sup> Ex. FPL-033, Water District L-31E Canal System Order, Ex. D, at 1.

<sup>296</sup> Id. at 3.

<sup>297</sup> Id.

<sup>298</sup> Id.

<sup>299</sup> Id. at 5–6.

Scenario A by about 10 psu, and in Scenario B by about 25 psu.<sup>300</sup> Further, the Water District performed its own modeling of the proposed L-31E withdrawals and found that “freshening of the groundwater would occur rapidly in the upper portion of the Biscayne aquifer near the CCS.”<sup>301</sup>

We find FPL’s analysis, modeling, and technical conclusions to be sound.<sup>302</sup> Furthermore, CASE has provided no evidence contradicting any of the information provided in FPL’s evidence in this regard. Consequently, we find that the supplemented record of decision regarding the 2014 FPL license amendments now contains sufficient information to establish that the requisite NEPA “hard look” has been taken regarding FPL’s withdrawals from the L-31E canal system and that such withdrawals will not have a significant impact on saltwater intrusion in the Biscayne Aquifer.

## V. CONCLUSION

The Board concludes that, although the 2014 EA is deficient with respect to its discussion of saltwater migration, saltwater intrusion, and aquifer withdrawals, those deficiencies have been adequately remedied by the record evidence developed during this proceeding. This Initial Decision supplements the 2014 EA and thereby satisfies the NEPA obligation to take the requisite “hard look” and also justifies the finding of no significant environmental impact.

Any party may petition the Commission for review of this Initial Decision pursuant to 10 C.F.R. § 2.341(b)(1). NRC regulations require that any petition for review must be filed within 25

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<sup>300</sup> Id., at 6, tbl. 2.

<sup>301</sup> Ex. FPL-037, State L-31E Canal System Order at 16.

<sup>302</sup> See Pac. Gas & Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 & 2), LBP-94-35, 40 NRC 180, 192 (1994) (noting that Boards “include[] technical experts who can evaluate the factual material in the record and reach their own judgment as to its significance”).



days from service of this Initial Decision.<sup>303</sup> Unless otherwise authorized by law, a party must file a petition for review to exhaust its administrative remedies before seeking judicial review.<sup>304</sup> If no petitions are filed and the Commission does not direct otherwise, this Initial Decision becomes the final decision of the Commission 120 days from the date of issuance.<sup>305</sup>

It is so ORDERED.

THE ATOMIC SAFETY  
AND LICENSING BOARD

*/RA/*

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Michael M. Gibson, Chairman  
ADMINISTRATIVE JUDGE

*/RA/*

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Dr. Michael F. Kennedy  
ADMINISTRATIVE JUDGE

*/RA/*

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Dr. William W. Sager  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
May 31, 2016

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<sup>303</sup> 10 C.F.R. § 2.341(b)(1). This Initial Decision has been served this date by the Office of the Secretary on those designated in the accompanying service list through the agency's E-Filing system and by e-mail.

<sup>304</sup> 10 C.F.R. § 2.341(b)(1).

<sup>305</sup> Id. § 2.341(a)(2).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )  
 )  
FLORIDA POWER & LIGHT COMPANY ) Docket Nos. 50-250 and 50-251-LA  
 )  
 )  
(Turkey Point Nuclear Generating )  
Units 3 & 4)

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **INITIAL DECISION (LBP-16-08)** have been served upon the following persons by Electronic Information Exchange and by electronic mail.

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[Original signed by Herald M. Speiser]  
Office of the Secretary of the Commission

Dated at Rockville, Maryland,  
this 31<sup>st</sup> day of May, 2016