UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	
FLORIDA POWER & LIGHT COMPANY	)	Docket No. 50-250
	)	Docket No. 50-251
(Turkey Point Nuclear Generating Station, Unit Nos. 3 and 4)	)	September 10, 2018
	)	
(Subsequent License Renewal Application)	)	

REPLY IN SUPPORT OF REQUEST FOR HEARING AND PETITION TO INTERVENE SUBMITTED BY FRIENDS OF THE EARTH, NATURAL RESOURCES DEFENSE COUNCIL, AND MIAMI WATERKEEPER

Pursuant to 10 C.F.R. § 2.309(i)(2), Friends of the Earth, Inc., Natural Resources Defense Council, Inc., and Miami Waterkeeper, Inc. (collectively, "Petitioners") hereby submit this reply to the responses of the Nuclear Regulatory Commission ("NRC Staff")[1] and Florida Power & Light Company ("Applicant" or "FPL")[2] to Petitioner's hearing request and petition to intervene[3] in the Nuclear Regulatory Commission ("NRC") subsequent relicensing proceeding that will determine whether Turkey Point Nuclear Generation Station, Unit Nos. 3 and 4 ("Turkey Point"), will be licensed to operate until 2052 and 2053, respectively.

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[1] NRC Staff's Corrected Response to Petitions to Intervene and Requests for Hearing Filed by (1) Friends of the Earth, Natural Resources Defense Council and Miami Waterkeeper, and (2) Southern Alliance for Clean Energy (Aug. 27, 2018) (ML18239A458) ("NRC Staff Response").

[2] Applicant's Answer Opposing Request for Hearing and Petition to Intervene Submitted by Friends of the Earth, Natural Resources Defense Council, and Miami Waterkeeper (Aug. 27, 2018) (ML18239A445) ("FPL Response").

[3] Request for Hearing and Petition to Intervene Submitted by Friends of the Earth, Natural Resources Defense Council, and Miami Waterkeeper (Aug. 1, 2018) (ML18213A417) ("Petition to Intervene").

NRC Staff and the Applicant do not oppose Petitioners' standing to assert these contentions.[4] NRC Staff concedes that parts of two contentions—1-E and 5-E—are admissible. Specifically, NRC Staff "does not oppose the admission of Contention 1-E, insofar as it asserts that the Applicant's Environmental Report omits consideration of mechanical draft cooling towers in connection with license renewal of Turkey Point Units 3 and 4, as a reasonable alternative to use of the plants' cooling canal system."[5] NRC Staff, however, "opposes the admission (as part of the contention) of issues concerning the environmental impacts of continued CCS operation."[6] NRC Staff also "does not oppose the admission of one portion of Contention 5-E, concerning the impact of ammonia releases from Turkey Point Units 3 and 4 on endangered and threatened species, but opposes the admission of other portions of the contention."[7] The Applicant asserts that none of Petitioners' contentions should be admitted. For the following reasons, the Board should admit all of Petitioners' contentions.

INTRODUCTION

Petitioners' proposed contentions meet the NRC's standards for admissibility. Both the Applicant and NRC Staff mischaracterize the admissibility standards applicable at this early stage of the proceedings and assert, without support, that NRC regulations applicable to environmental reviews in subsequent license renewals relieve the Applicant from considering "Category 1 issues." None of the arguments raised by the Applicant or NRC Staff have merit.

First, the Board should reject the Applicant's and NRC Staff's arguments that Petitioners'

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[4] NRC Staff Response at 9-10; FPL Response at 2.
[5] NRC Staff Response at 29-30.
[6] *Id*., at 30.
[7] *Id*., at 54.

contentions do not meet the "basis" requirements of 10 C.F.R. § 2.309(f). As the NRC Staff recognizes, the objectives of the "basis" requirements are (1) to assure that the contention raises a matter appropriate for adjudication in a particular proceeding; (2) to establish a sufficient foundation for the contention to warrant further inquiry into the assertion; and (3) to put other parties sufficiently on notice of the issues so that they will know generally what they will have to defend against.[8] The NRC Staff pays lip service to these principles, and then disregards them for the rest of its Response, relying instead on flyspecking-type arguments that bear no relation to the objectives served by the § 2.309(f) admissibility standards.[9] The NRC Staff, for example, faults Petitioners for failing to provide expert support for the assertion that increased air temperature will increase the rate of evaporation in the cooling canal system.[10] Due in part to this alleged inadequacy, NRC Staff dismisses Petitioners' Contention 2-E as based on "mere speculation" and "bare [and] conclusory assertions."[11] But § 2.309(f) does not require a petitioner to provide expert support for such an assertion or else face denial of intervention. Both NRC Staff's and the Applicant's Responses are replete with such flyspecking arguments regarding the alleged failure to provide support for Petitioners' contentions.

The § 2.309(f) standards are not the seemingly impossibly high barriers that NRC Staff would have this Board believe. None of the arguments raised by NRC Staff or the Applicant bear any relation to the issues this Board is tasked with determining: whether the matter raised is

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[8] *Id*., at 14 (citing *Philadelphia Elec. Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974)).
[9] NRC Staff Response at 14.
[10] NRC Staff Response at 35.
[11] NRC Staff Response at 36.

appropriate for adjudication, whether the Petitioners have established a sufficient foundation to warrant further inquiry into the matter, and whether the Applicant and NRC Staff are sufficiently on notice of the issues so that they can mount an effective defense. The answer to each of those questions—as to all five contentions—is clearly yes. Petitioners have supported each of their contentions with specific assertions, referencing specific portions of the Environmental Report and identifying specific information missing from that Report, relying on expert support where appropriate.

Second, NRC Staff makes the curious argument that Petitioners may not raise any challenge to "Category 1 issues" because the 2013 License Renewal Generic Environmental Impact Statement ("2013 GEIS") has already addressed those issues, leaving only "Category 2 issues" for analysis in the Environmental Report.[12] That argument is entirely unsupported and, in fact, contrary to an unambiguous regulation establishing precisely the opposite principle. NRC Staff cites 10 C.F.R. § 51.53(c)(3)(i) for the principle that the Environmental Report at issue need not analyze Category 1 issues.[13] By its clear terms, however, that provision applies only to a request for an "*initial* renewed license."[14] The prohibition in § 51.53(c)(3)(i) against challenging Category 1 issues does not apply to requests—such as the one at issue here—for *subsequent* license renewals.

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[12] NRC Staff Response at 26–27, nn.98, 99 (citing NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," Rev. 1 (June 2013), Vols. 1-3 (ML13106A241, ML13106A242, and ML13106A244) (hereinafter "2013 GEIS")).

[13] NRC Staff Response at 27.

[14] 10 C.F.R. § 51.53(c)(3) (emphasis added).

NRC Staff attempts to brush off this issue by citing Commission documents purporting to "make clear" that "the existing license renewal regulatory framework," including § 51.53(c)(3)(i), applies to subsequent license renewals.[15] But that interpretation is contrary to the clear language of § 51.53(c)(3) limiting its application to only "initial" license renewals. Neither the Commission nor the NRC Staff has authority to unilaterally overrule a duly promulgated legislative rule. Unless and until the Commission proceeds through the rulemaking process in accordance with the requirements of the Administrative Procedure Act, the provision relieving an Environmental Report from discussing Category 1 issues is limited to only "initial" license renewals. No reasonable interpretation of that regulation can expand the scope of that application to subsequent license renewals.

Because the provision in § 51.53(c)(3) relieving an Environmental Report from addressing Category 1 issues does not apply in this case, FPL is bound to address Category 1 issues. Its failure to do so violates NEPA. The Board should reject NRC Staff's invitation to adopt an interpretation of § 51.53(c)(3) that is unmoored from its clear and unambiguous regulatory language.

Regardless of the Board's determination regarding whether § 51.53(c)(3) applies to a *subsequent* relicensing proceeding such as this one, the Board is required under applicable law to grant the Petition to Intervene in full and admit each of Petitioners' proposed contentions. Although certain of Petitioners' contentions assert that the Environmental Report violates § 51.53(c)(3), those contentions also assert, as we note below, that the Environmental Report

[15] NRC Staff Response at 23.

fails to comply with other provisions of law, including statutory requirements, caselaw applying NEPA, and binding regulations of the Council on Environmental Quality (CEQ). The Board should grant the Petition in full.

DISCUSSION

I. LEGAL BACKGROUND AND STANDARD OF REVIEW

"Public participation," the NRC has said, "[i]s a vital ingredient to the open and full consideration of licensing issues and in establishing public confidence in the sound discharge of the important duties which have been entrusted to us.[16] A "cornerstone" of the NRC's regulatory process has been to assure its processes are "open, understandable, and accessible to all interested parties."[17]

The NRC Staff and the Applicant present an apparently opposing principle, citing several cases describing the Commission's standards for admitting contentions as "strict by design." But a review of the cases cited by the NRC Staff and the Applicant reveals that they are using the "strict by design" as a stalking horse for a far more restrictive reading of 10 C.F.R. § 2.309(f) than that of the Commission and its Licensing Boards. In fact, the cases decided under § 2.309(f) show that the limited purpose of the regulation is to relieve Licensing Boards of the duty to hold hearings on vague and unsubstantiated claims. The rule has not been and should not be used to foreclose hearings on contentions like those presented in this case, where the proposed intervenors have provided clear, well-supported statements of contentions that are within the

[16] *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-75-1, 1 NRC 1, 2 (1975) (quoted in NRC, "Changes to Adjudicatory Process," 69 Fed. Reg. 2182, 2182 (Jan. 14, 2004)).
[17] *Id.*

scope of the proceeding, and that present genuine issues of fact or law material to the findings the Commission must make.

The Commission's limited concept of 10 C.F.R. § 2.309(f) can be seen in the kinds of claims ruled inadmissible in *Duke Energy Co.* (Oconee Nuclear Station, Units 1, 2 & 3), CLI-99-11, 49 NRC 328 (1999). There, the Commission identified types of contentions for which Licensing Boards need not provide hearings. "Notice pleading," the Commission held, was not permissible under the recently revised rule.[18] Licensing boards need not hear "contentions that appeared to be based on little more than speculation," or contentions from petitioners who had "no direct case to present, but instead attempted to unearth a case through cross-examination."[19] Likewise, the Commission ruled impermissible the practice of admitting contentions that were merely "cop[ied] . . . from another proceeding involving another reactor,"[20] which it had once approved under earlier NRC regulations.[21]

But the Commission also made clear that while Licensing Boards were now authorized to decline to hear the kinds of contentions identified, the rule was not intended to alter the principle of "open, understandable, and accessible" processes that are a "cornerstone" of NRC policy.[22] Thus the Commission stated forcefully that "our contention rule should not be turned into a

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[18] *Duke Energy Co.* (Oconee Nuclear Station, Units 1, 2 & 3), CLI-99-11, 49 NRC 328, 338 (1999); *see also* NRC Staff Response at 14, n.51.
[19] *Oconee,* 49 NRC at 334.
[20] *Id.*
[21] *Id.*
[22] "Changes to Adjudicatory Process," 69 Fed. Reg. 2182, 2182 (Jan. 14, 2004).

'fortress to deny intervention.'"[23]

A similar narrow concept of the rule's objective is seen in the Commission's decision in *Millstone*, the case that is the source of the phrase "strict by design."[24] There the Commission explained that the its contention admissibility rules had been tightened in 1989 to allow Licensing Boards to refuse to admit contentions from proposed intervenors who "often had negligible knowledge of nuclear power issues and, in fact, no direct case to present," causing "serious delays" while licensing boards "sifted through poorly defined or supported contentions."[25]

Contentions ruled inadmissible under the rule have typically been limited to situations where a contention represented little more than an unsupported opinion.[26] In another case involving Turkey Point, the Board ruled that several untimely contentions were also inadmissible because (1) no documentary or expert opinion was submitted, and the petitioner failed to challenge the Environmental Report[27]; (2) petitioner provided nothing "beyond a conclusory assertion"[28]; and (3) petitioner's contention was "unsupported by fact or expert opinion."[29]

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[23] *Oconee*, 49 NRC at 335 (quoting *Peach Bottom*, 8 AEC at 21).
[24] *Dominion Nuclear Connecticut Inc.* (Millstone Nuclear Power Station Units 2 and 3), CLI-01-24, 55 NRC 1 (2001).
[25] *Id.*
[26] *See, e.g., Fla. Power & Light Co.* (Turkey Point Units 6 & 7), ASLBP No. 10-903-02-COL-BD01, 2107 WL 9478619, at 13 (July 31, 2017) (rejecting a proposed contention as "bare assertion and speculation" without "direct support—by factual affidavits, expert declarations, or documentary evidence").
[27] *Fla. Power & Light Co.* (Turkey Point Units 6 & 7), ASLBP No. 10-903-02-COL-BD01, 2017 WL 4310384, at *9 (Jan. 13, 2017).
[28] *Id.* at 11.
[29] *Id.* at 14.

In the *Oconee* case, the Commission articulated the distinction between admissible and inadmissible contentions in a way that plainly places the contentions urged by Petitioners here on the admissible side. This was not, the Commission said in rejecting the petitions in the *Oconee* case, a case "of petitioners who, after reviewing all relevant licensing documents, have isolated specific issues they dispute and wish to litigate," but more a case where petitioners "simply desire more time and more NRC staff information to determine whether they even have a genuine material dispute for litigation."[30]

Even where petitioners have provided more minimal factual and legal foundations for their contentions, Licensing Boards have found them admissible. In *Tennessee Valley Authority* (Clinch River Nuclear Site Early Site Permit Application), ASLBP No. 17-954-01-ESP-BD01, 2017 WL 9478622 (Oct. 10, 2017), the Licensing Board admitted certain contentions, quoting the Commission's point that the NRC's admissibility requirements were "not to put up a 'fortress to deny intervention,'"[31] but rather to require "at least some minimal factual and legal foundation" for contentions. While "mere 'notice pleading' was insufficient,"[32] the Board said, a "petitioner does not have to prove its contentions at the admissibility stage."[33] "At this juncture," the Board said, "we do not adjudicate disputed facts."[34]

In their responses to the Petition in this case, NRC Staff and the Applicant ask the Licensing Board here to extend the Commission's contention admissibility regulation far beyond

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[30] *Oconee*, 49 NRC at 4.
[31] *Clinch River*, 86 NRC at 150 (quoting *Peach Bottom*, 8 AEC at 21).
[32] *Id.* (citing *Millstone* at 358).
[33] *Id.*.
[34] *Id.* (citing *Amergen Energy Co*. (Oyster Creek Nuclear Generating Station), LBP-06-22, 64 NRC 229, 244 (2006)).

(1) its objective and (2) the line established by previous rulings of the Commission and its Licensing Boards. The purpose of the Commission's contention admissibility regulation is to relieve the Licensing Boards of providing hearings for petitions that are no more than unsupported fishing expeditions in search of something to complain about, or obviously unsupported or vague. It was intended, and has been applied by the Commission and its Licensing Boards, to require well-pleaded contentions like those filed by Petitioners in this case. Neither 10 C.F.R. § 2.309(f) nor the rulings of the Commission and its Licensing Boards require petitioners to prove their entire factual and/or legal case, or authorize Licensing Boards to adjudicate the factual or legal issues presented by a proposed intervenor at the admissibility stage. As the Commission said in proposing what became § 2.309(f), the presiding officer's job is to "determine whether the information presented is sufficient to prompt a reasonable mind to inquire further with regard to the validity of the contention,"[35] not to rule on the validity of the contention.[36]

By contrast to the contentions ruled inadmissible by the Commission and its Licensing Boards under § 2.309(f), the contentions presented by Petitioners here are clearly presented, focused, and well supported. The Petition itself is 65 well-reasoned pages long, supported with declarations from highly qualified experts. The presentation of each contention addresses one-by-one the elements required under § 2.309(f).

All five contentions focus on discrete, clearly-described and specific genuine issues of

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[35] "Rules of Practice for Domestic Licensing Proceedings—Procedural Changes in the Hearing Process," 1986 WL 328108 (June 30, 1986), at *3. The Commission pointed out that "[t]his is the standard articulated in *Costle v. Pacific Legal Foundation*, 445 U.S. 198 (1980) and other federal court decisions." *Id.*

[36] *Id.*

material fact with the assertions of the Applicant in its Environmental Report. All five cite to specific facts, supported by expert affidavits, and specific provisions of law. In short, all five were filed by Petitioners who, "after reviewing all relevant licensing documents, have isolated specific issues they dispute and wish to litigate," the standard for admissibility under the Commission's *Oconoee* decision.[37] The NRC Staff has already recognized the admissibility of parts of two of these contentions. Below we demonstrate why the remainder should also be admitted.

II. PETITIONERS' CONTENTIONS ON CATEGORY 1 ISSUES ARE WITHIN THE SCOPE OF SUBSEQUENT LICENSE RENEWAL PROCEEDINGS.

The NRC Staff and Applicant, relying on 10 C.F.R. § 51.53(c)(3)(i), argue that Petitioners improperly raise Category 1 issues in the Petition.[38] According to the NRC Staff and Applicant, § 51.53(c)(3)(i) exempts a license renewal applicant from addressing Category 1 issues in its Environmental Report, and permits the applicant to incorporate the findings of the 2013 GEIS. Aside from the incorrectness of that position, NRC Staff and Applicant ignore the fact that Contentions 1E–5E do not rely solely on § 51.53(c)(3). Petitioners also rely on § 51.53(c)(1) and (2).[39] These regulatory provisions apply to *all* license renewal requests, not just *initial* requests, and do not invoke the distinction between Category 1 and 2 issues.

While Applicant relies entirely on its erroneous interpretation of § 51.53(c)(3), ignoring

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[37] *Oconee*, 49 NRC at 337.
[38] FPL Response at 4; NRC Staff Response at 27.
[39] Petition to Intervene at 16 n.71.

altogether the issue of whether § 51.53(c)(1) and (2) apply,[40] the NRC Staff recognizes the serious peril in relying on § 51.53(c)(3) alone because, as Petitioners explained, the regulation's provision exempting license renewal applicants from addressing Category 1 issues applies only to "initial" license renewals.[41] Thus, NRC Staff spend more than five pages with 15 footnotes attempting to explain why the Board, and eventually the NRC, should read the word "initial" out of the regulation.[42] But its position is not supported by the law. Both the courts and the NRC apply the well-known principle of statutory construction, "equally applicable to regulatory construction, [] that a text should be construed so that effect is given to all of its provisions, so no part will be inoperative or superfluous, void or insignificant."[43] Under the NRC Staff's interpretation, the word "initial" would be read entirely out of the statute, drastically altering the scope of the regulations.

The plain language of § 51.53(c) makes clear that subsections (c)(1) and (c)(2) apply generally to "renewal of a license," while subsection (c)(3) applies to *only* "those applicants seeking an *initial* renewed license." Subsection (c)(3) is the only subsection in § 51.53 that employs the limiting term "initial" to modify the types of license renewal to which the subsection applies. NRC Staff's misguided reading of the regulation would read that important

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[40] When presented with the opportunity to rebut the applicability of § 51.53(c)(2) in response to Contention 4-E, Applicant argued only that, based on its incorrect interpretation, this section does not require a description of the affected environment that will exist when the subsequent license renewal would commence. FPL Response at 46–49.

[41] Petition to Intervene at 16 n.71.

[42] NRC Staff Response at 18–24.

[43] *In the Matter of U.S. Dep't of Energy* (High-Level Waste Repository), 72 NRC 661, 671 n.25 (2010) (citing *Silverman v. Eastrich Multiple Investor Fund, LP.*, 51 F.3d 28, 31 (3d Cir. 1995) (original alterations omitted)).

distinction out of the regulation.

NRC Staff's reference to various guidance documents and administrative history is unavailing.[44] "Although administrative history and other available guidance may be consulted for background information and the resolution of ambiguities in a regulation's language, its interpretation may not conflict with the plain meaning of the wording used in that regulation."[45] It is black letter law, moreover, that the Administrative Procedure Act requires an agency to "use the same procedures when they amend or repeal a rule as they used to issue the rule in the first instance."[46] Therefore, guidance documents, which did not undergo formal notice and comment rulemaking, cannot undo the plain meaning of the word "initial" set out in § 51.53(c)(3).

III. ANALYSIS OF PROPOSED CONTENTIONS

CONTENTION 1-E: THE ENVIRONMENTAL REPORT FAILS TO CONSIDER A REASONABLE RANGE OF ALTERNATIVES TO THE PROPOSED ACTION, AS REQUIRED BY NEPA AND NRC IMPLEMENTING REGULATIONS.

The NRC Staff does not oppose admission of Petitioners' Contention 1-E, "insofar as it asserts that the [ER] omits consideration of mechanical draft cooling towers in connection with license renewal of Turkey Point Units 3 and 4, as a reasonable alternative to use of the plants' cooling canal system."[47] FPL, however, asserts a host of arguments to urge the Board to reject

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[44] NRC Staff Response at 20-23.

[45] *In the Matter of Calvert Cliffs 3 Nuclear Project, LLC, & Unistar Nuclear Operating Servs., LLC (Calvert Cliffs Nuclear Power Plant, Unit 3)*, ASLBP No. 09-874-02-COL-BD01, 70 NRC 198, 214 (2009) (citing *Abourezk v. Reagan*, 785 F.2d 1043, 1053 (D.C. Cir. 1986), aff'd, 484 U.S. 1 (1987)); *GUARD v. NRC*, 753 F.2d 1144, 1146 (D.C. Cir. 1985).

[46] *See, e.g., Perez v. Mortg. Bankers Ass'n*, 135 S. Ct. 1199, 1206 (2015).

[47] NRC Staff Response at 29-30. The Staff, however, "opposes the admission (as part of the contention) of issues concerning the environmental impacts of continued CCS operation." NRC Staff Response at 30. Because consideration of these issues is necessary to fully adjudicate Contention 1-E, Petitioners assert that the Board should not exclude these issues. *See* Section II.C *infra*.

Contention 1-E. Each of these arguments is unsupported by law or irrelevant to the Board's determination of whether the contention should be admitted. The Board should reject these arguments and admit Contention 1-E in full.

A. NRC's Part 51 regulations require analysis of alternatives to reduce or avoid environmental impacts.

FPL repeatedly asserts that Petitioners have not identified any legal requirement to consider "hypothetical mitigation measures such as cooling towers."[48] But Petitioners have pointed to two legal authorities requiring *precisely* that: 10 C.F.R. §§ 51.45(c) (the ER "must include an analysis that considers and balances . . . alternatives available for reducing or avoiding adverse environmental effects") and 51.53(c)(3)(iii) (the ER "must contain a consideration of alternatives for reducing adverse impacts").[49] These provisions are clear. Despite the plain language of these regulations, FPL insists that the ER need not consider alternatives for reducing or avoiding environmental impacts. Rather than grappling with the requirements of §§ 51.45(c) and 51.53(c)(3)(iii), FPL ignores them.

FPL attempts to muddy the clear requirements of these provisions by pointing to a purported distinction between "mitigation measures" and "project alternatives."[50] According to FPL, Part 51's requirement to consider "alternatives for reducing adverse environmental impacts" relates to "mitigation measures," not "project alternatives." FPL asserts that the

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[48] FPL Response at 12; *see also id.* at 9, 10, 11.
[49] Petition to Intervene at 16, 18.
[50] FPL Response at 8-9.

distinction matters because "the contention is framed as a challenge to the ER's discussion of *mitigation measures,* but [Petitioners] reference *project alternatives* standards through their argument."[51]

This purported distinction has no basis in NEPA, CEQ regulations, NRC's Part 51 regulations, or the caselaw applying those authorities. NEPA requires consideration of a range of alternatives, which include a no-action alternative, "other reasonable courses of actions," and "mitigation measures (not in the proposed action)."[52] As the Supreme Court said in *Robertson v. Methow Valley Citizens Council*, "CEQ regulations require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c)."[53] NRC regulations provide further clarity regarding the requirement to consider alternatives: each ER must include "an analysis that considers and balances the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and *alternatives available for reducing or avoiding adverse environmental effects*."[54] There is nothing ambiguous about this requirement: FPL is required to analyze alternatives to reduce the cooling canal system's adverse environmental impacts, and FPL has failed to do so.

Even if it were supported by law, the purported distinction conjured by FPL is immaterial

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[51] FPL Response at 9.
[52] 40 C.F.R. § 1508.25(b); *see also id.* § 1502.14(f) (an EIS's discussion of alternatives "shall . . . include appropriate mitigation measures not already included in the proposed action or alternatives").
[53] 490 U.S. 332, 352 (1989).
[54] 10 C.F.R. § 51.45(c) (emphasis added).

to the issue at hand—whether FPL has complied with Part 51's requirement to analyze alternatives for reducing environmental effects. Despite FPL's efforts to obfuscate, Petitioners' argument is simple: Part 51 requires an ER to consider alternatives for reducing environmental impacts, and FPL, by failing to consider the reasonable alternative of replacing the CCS with cooling towers, has failed to comply with this requirement. Whether this alternative should be called a "mitigation measure" or a "project alternative" is not relevant; NRC regulations require the ER to contain this analysis, and FPL has failed to include it.

Indeed, FPL appears to be alone in taking this bifurcated view of NEPA's requirement to consider alternatives. The NRC Staff agrees with Petitioners' argument that NEPA and Part 51 require FPL to consider cooling towers as a reasonable alternative to use of the cooling canal system.[55] And past EISs prepared for nuclear power plant license renewals have analyzed replacement of the existing cooling system with cooling towers as an alternative for reducing adverse environmental impacts.[56]

B. FPL's Environmental Report violates NEPA by failing to analyze replacement of the cooling canal system with cooling towers as an alternative for reducing or avoiding environmental effects.

FPL makes a smattering of other arguments in an effort to escape the clear requirements

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[55] NRC Staff Response at 29-30.

[56] *See* "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38 Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3," NUREG-1437, supp. 38, vol. 1 at 8-5 to 8-19 (Dec. 2010) (ML103350405); "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 28 Regarding Oyster Creek Nuclear Generating Station," NUREG-1437, supp. 28, vol. 1 at 8-3 to 8-26 (Dec. 2010) (ML070100234).

of §§ 51.45(c) and 51.53(c)(3)(iii). None of these have merit. First, FPL makes the nonsensical argument that because "cooling towers do not produce power," they "cannot be considered an alternative to the proposed project."[57] FPL cites no legal authority for this argument—because there is none. Replacement of the existing cooling system with cooling towers is only one element of the alternative to the proposed action. The primary element of the alternative—issuance of the subsequent license renewal—would result in in power production. Petitioners, therefore, have established that a cooling towers alternative would satisfy the project's purpose and need—to produce power (and FPL has not challenged this assertion). In any event, as mentioned above, SEISs prepared for license renewals at Oyster Creek and Indian Point have considered replacement of the existing cooling system with cooling towers—even though "cooling towers do not produce power."[58]

Second, contrary to FPL's assertions, FPL cannot satisfy the obligation to consider alternatives for reducing environmental impacts by pointing to *existing* mitigation measures.[59] Part 51 requires FPL to consider alternatives to the *proposed action*—issuance of subsequent license renewal—that would reduce or avoid environmental impacts.[60] Therefore, reliance on existing measures cannot satisfy NEPA's requirement to consider alternatives to taking a *future* action. (FPL does not specify which mitigation measures it relies upon.) NEPA is a forward-

[57] FPL Response at 10.
[58] FPL Response at 10.
[59] FPL Response at 11.
[60] 10 C.F.R. § 51.45(c); *see also* 42 U.S.C. § 4332(2)(C)(iii).

looking statute: its objective is to ensure that the agency (or here, the applicant) "consider and report on the environmental effect of their proposed actions."[61] The requirement to consider a range of alternatives to the proposed action, and the environmental impacts of those alternatives, promotes that objective.[62] Past actions cannot satisfy NEPA's requirement that an agency consider alternatives to a future action.

Third, FPL asserts that it need not comply with Part 51's requirement to consider alternatives to reduce environmental impacts because "the GEIS makes clear that a license renewal applicant's reliance on mitigation actions required and enforced by state and local agencies is reasonable and appropriate."[63] The 2013 GEIS, however, is not an independent legal authority, and cannot operate to override or nullify the NRC's clear regulations requiring analysis of alternatives for reducing environmental effects. In any event, nothing in the 2013 GEIS discharges FPL's duty to analyze alternatives for reducing environmental effects. And FPL's suggestion that it need not analyze a cooling towers alternative because NRC purportedly lacks authority to require a plant to modify its cooling system, is contrary to established law.[64] NEPA requires agencies to analyze all "reasonable alternatives," even if an otherwise reasonable alternative is "not within the jurisdiction of the lead agency."[65]

Fourth, FPL argues at length that Petitioners "have identified no duty to evaluate cooling

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[61] *WildEarth Guardians v. Jewell*, 738 F.3d 298, 302 (D.C. Cir. 2013).
[62] *Id.*
[63] FPL Response at 20.
[64] FPL Response at 20.
[65] 40 C.F.R. § 1502.14(c).

towers as a mitigation measure" for (1) threatened, endangered, and protected species and essential fish habitat, (2) groundwater use conflicts, and (3) radionuclides released to groundwater.[66] But CEQ regulations, and 10 C.F.R. § 51.53(c)(3)(iii) require precisely that: "The [ER] must contain a consideration of alternatives for reducing adverse impacts . . . for *all Category 2 license renewal issues*[.]"[67] Each of the three issues above are Category 2 license renewal issues.[68]

FPL asserts that the ER's discussion of the three issues above is adequate, and that Petitioners have failed to "explain how it purportedly is deficient."[69] But this argument misses the point. Nothing in §§ 51.45(c) or 51.53(c)(3)(iii) requires Petitioners to prove that the ER's discussion of Category 2 issues is deficient. Instead, as explained above, those provisions categorically require FPL to include an analysis of alternatives for reducing adverse impacts for all Category 2 issues. This requirement is unconditional; a showing that the discussion of Category 2 issues is deficient is not necessary in order to trigger it.

Petitioners offered a discussion of the three Category 2 issues merely to establish that replacing the cooling canal system with cooling towers, in fact, would reduce adverse impacts related to Category 2 issues.[70] It is clear that the existing cooling canal system has resulted, continues to result, and will result in adverse environmental impacts:

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[66] FPL Response at 13-26.
[67] *Robertson*, 490 U.S. at 352 (citing 40 C.F.R. §§ 1508.25(b), 1502.14(f), 1502.16(h), and 1505.2(c)).
[68] 10 C.F.R. Pt. 51, Subpt. A, App. B.
[69] FPL Response at 13.
[70] Petition to Intervene at 23-29.

- Operation of the cooling canal system has caused migration of the hypersaline plume toward within a few miles of the drinking water supply intake for the Florida Keys and the city of Homestead, posing an imminent danger to those drinking water supplies and causing the Monroe County Commission to pass a resolution calling for Turkey Point to discontinue use of the cooling canal system and replacing it with cooling towers;[71]

- In 2016, the Florida Department of Environmental Protection issued a Notice of Violation of Turkey Point's National Pollutant Discharge Elimination System/Industrial Wastewater Permit finding that (1) "the CCS is the major contributing cause to the continuing westward movement of the saline water interface, and that the discharge of hypersaline water contributes to saltwater intrusion" and (2) saltwater intrusion into the area west of the CCS is impairing the reasonable and beneficial use of adjacent G-II groundwater in that area";[72]

- The Miami-Dade County Department of Regulatory and Economic Resources (DERM) found that ammonia concentrations near the CCS exceeded Miami-Dade County surface water standards, and that "the data supports that the CCS is a contributing source to the ammonia concentrations observed in areas which exceed the applicable standard";[73] and

- Reduction in the American crocodile population near Turkey Point.[74]

These impacts have been well-documented (including in the ER itself),[75] and no amount of legal argument can conceal those impacts. It is equally clear that replacement of the cooling canal

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[71] Board of County Commissioners of Monroe County, Fla., Res. No. 043-2017 (Feb. 15, 2017), https://www.monroecounty-fl.gov/DocumentCenter/View/11861/Resolution-043-2017---Turkey-Point-Cooling-Canals?bidId=; Direct Testimony and Exhibits of Sorab Panday, Docket No. 20170007-EI (Aug. 23, 2017), at 10-11 (Attachment L to Petition to Intervene).

[72] Consent Order, State of Fla. Dep't of Envtl. Prot. v. Fla. Power & Light Co., No. 16-0241 (June 20, 2016) (ML16216A216); *see also* ER at 2-8, 9-11.

[73] Letter from Wilbur Mayorga (Miami-Dade County, Division of Environmental Resources Management) to Matthew J. Raffenberg (FPL) at 1-2 (July 10, 2018) (Attachment P to Petitioners' Petition to Intervene (Aug. 1, 2018)).

[74] Biological Opinion for Combined License for Turkey Point Nuclear Plant, Units 6 and 7 (June 23, 2017) at 20 (hereinafter "2017 BiOp").

[75] Turkey Point Nuclear Power Plant, Units 3 and 4, Applicant's Environmental Report: Subsequent Operating License Renewal Stage, ADAMS Accession No. ML18037A836 (Jan. 2018), at 9-11 to 9-13 (discussing hypersaline plume and ammonia) (hereinafter "ER").

system with cooling towers would "reduc[e] or avoid[]" at least some of those "adverse environmental effects."[76] Therefore, FPL is required to consider a cooling towers alternative. The Board should reject FPL's efforts to obfuscate the clear language of §§ 51.45(c) and 51.53(c)(3)(iii).

C. The Board should admit issues raised concerning environmental effects of the cooling canal system.

As previously noted, the Staff "does not oppose the admission of Contention 1-E, insofar as it asserts that the [ER] omits consideration of mechanical draft cooling towers in connection with license renewal of Turkey Point Units 3 and 4, as a reasonable alternative to use of the plants' cooling canal system."[77] The Staff, however, "opposes the admission (as part of the contention) of issues concerning the environmental impacts of continued CCS operation."[78] For the reasons that follow, the Board should admit Contention 1-E in full.

In order for the ER (and the NRC's supplemental EIS) to adequately consider cooling towers as an alternative "for reducing or avoiding adverse environmental effects," it is necessary to consider the environmental effects of the cooling canal system. Indeed, consideration of the environmental effects of the existing cooling system is necessary to provide a baseline for comparison with the environmental effects of other alternatives. Thus, the Board should admit issues concerning the environmental impacts of continued CCS operation to the extent that it permits an adequate comparison of alternatives.

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[76] 10 C.F.R. § 51.45(c).
[77] NRC Staff Response at 29-30.
[78] NRC Staff Response at 30.

CONTENTION 2-E: THE ENVIRONMENTAL REPORT FAILS TO CONSIDER ADEQUATELY THE CUMULATIVE IMPACTS OF CONTINUED OPERATION OF UNITS 3 AND 4.

In Contention 2-E, Petitioners argue that Applicants' Environmental Report fails to address the cumulative environmental impacts of continued operation of Turkey Point Units 3 & 4 at a time when sea levels and air temperatures will be significantly higher than present conditions.[79] According to Applicant's *own studies and experience* at Turkey Point, these conditions cause a greater risk of flooding, higher rates of evaporation in the cooling canal system, and higher intake water temperatures.[80] Rather than accept that there is a genuine dispute over the Environmental Report's failure to address these obvious and significant issues, Applicant and NRC Staff try to shift the burden to Petitioners to prove the merits of their case. This, of course, is not required under the NRC rules at this preliminary stage.[81] NRC regulations provide that "if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the [petitioner must include an] identification of each failure and the supporting reasons for the petitioner's belief."[82] All that Petitioners are required to show is that the Environmental Report lacks significant information and analysis "indicating that a further inquiry is appropriate."[83] Petitioners have identified sufficient information to

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[79] *See* Petition to Intervene at 30.
[80] *See* Petition to Intervene at 36-37 (referencing Applicant's request for a license amendment for the ultimate heat sink and Applicant's letter describing beyond design basis flood protection modifications necessary to protect against flood hazards).
[81] *In the Matter of Nuclear Mgmt. Co., LLC* (Palisades Nuclear Plant), ASLBP 05-842-03-LR, 63 NRC 314, 342 (2006).
[82] 10 C.F.R. § 2.309(f)(1)(vi).
[83] *Palisades*, 63 NRC at 342.

demonstrate a genuine dispute exists on a material issue. No more is required at this stage.

It is black letter law that *all* environmental issues related to license renewal must be addressed in either the 2013 GEIS or the plant-specific SEIS, including impacts related to climate change.[84] This includes cumulative environmental impacts of operating the plant during the relevant time period. Here, Petitioners identified relevant sections of the Environmental Report that fail to address all the environmental issues, specifically cumulative environmental impacts from operating Turkey Point Units 3 and 4 during the extended license period when sea levels and air temperatures will be significantly higher than present levels.[85]

A. The Environmental Report fails to address cumulative environmental impacts on surface water from the continued operation of Units 3 & 4.

Despite NRC Staff's assertions, Petitioners supported this contention with ample evidence to indicate "that further inquiry is appropriate."[86] Petitioners provided the expert declaration of Dr. Robert Kopp, a renowned expert on sea level rise and climate change.[87] Dr. Kopp's declaration provides the basis for Petitioners' Contention 2-E that, should the NRC grant FPL's application, Turkey Point will be operating during a time when sea levels and temperatures will be significantly higher. Neither the NRC Staff nor Applicant debate this point. Petitioners also provide support in the form of Applicant's *own studies and experiences* that cumulative environmental impacts associated with operating Units 3 and 4 under these conditions requires further analysis under NEPA. This analysis is entirely lacking in the

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[84] *Massachusetts v. United States*, 522 F.3d 115, 120 (1st Cir. 2008); 2013 GEIS at S-2 (recognizing the need to evaluate environmental impacts and additional issues that change over time).
[85] *See e.g.*, Petition to Intervene at 37–38.
[86] *Palisades*, 63 NRC at 342.
[87] Declaration of Dr. Robert Kopp ("Kopp Decl.") (Attachment N to Petition to Intervene).

Environmental Report.

Applicant's own flood risk study demonstrates why further analysis is needed. The study found Turkey Point's design basis for Units 3 and 4 was insufficient to protect against reasonably foreseeable flood hazards. The study demonstrated that certain existing flood barriers were not high enough to protect safety-related systems at the plant.[88] These barriers could not be reached without flood waters first overtopping the cooling canal system. This point is obvious; neither NEPA nor NRC's Part 51 regulations require a listing of "relevant elevations of the Turkey Point site, its sea barriers, [and] the CCS" to support this Contention, as NRC Staff contends.[89]

NRC Staff ignores, other than to call it "conclusory," the expert declaration of Dr. Kopp, one of this nation's foremost experts in the science of sea level rise. Dr. Kopp's declaration states that if the world continues on its current emissions path "it is very likely that south Florida sea level rise near Turkey Point will exceed 1 foot by 2060, and [there is] a 1-in-3 chance (with a pessimistic model of Antarctic instability) that it will exceed 2 feet by 2060."[90] Storms add further to such an increase.[91] The National Oceanic and Atmospheric Administration estimates a one-in-ten probability of a storm surge of 1.4 feet, and a one-in-one hundred probability of a storm surge of 2.0 feet.[92] Thus Dr. Kopp's declaration identifies a significant risk of a combined

[88] *See* Petition to Intervene at 37–38 (citing FP&L, Letter, "NEI 12-06, Revision 2, Appendix G, G.4.2, Mitigating Strategies Assessment (MSA) for FLEX Strategies report for the New Flood Hazard Information," ADAMS Accession No. ML17012A065 (Dec. 20, 2016)).
[89] NRC Staff Response at 35.
[90] Kopp Decl. ¶ 39.
[91] *Id*. ¶¶ 14, 31.
[92] *Id*. ¶ 32.

sea level rise and storm surge of as much as 4.0 feet over current levels by 2060. Since Applicant's own projections of sea level rise during the current licensing period demonstrate overtopping of the cooling canal system barriers, and Dr. Kopp predicts even higher sea levels and flood risks through the subsequent license renewal period, there can be no serious dispute that Petitioners have established a genuine issue of material fact.

B. NRC regulations do not require Petitioners to critique studies and guidance that are not relevant to Contention 2-E.

Applicant and NRC Staff fault Petitioners for not addressing several studies and guidance documents that are not relevant to Contention 2-E. NRC Staff complain that Petitioners did not address Applicant's plans to manage the cooling canal system consistent with the GALL-SLR Report.[93] But this Report does not does not address overtopping concerns directly or indirectly. Rather, the GALL-SLR Report is meant to "manage the *loss of material or form* of the CCS," "natural phenomena that may affect water-control structures," and "erosion or degradation that may impose constraints on the function of the cooling system and present a potential hazard to the safety of the plant."[94] The GALL-SLR Report at XI.S7 demonstrates this point. It states: "The program recognizes the importance of periodic *monitoring and maintenance* of water-control structures so that the consequences of age-related deterioration and degradation can be prevented or mitigated in a timely manner."[95] Even a brand new cooling canal system without any material loss or form will be overtopped if it not built high enough. Petitioners did not need

[93] NRC Staff Response at 37.
[94] *Id.*
[95] *Id.* (citing NUREG-2191, Vol. 2, Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report, ADAMS Accession No. ML17187A204 (Jul. 2017), at XI.S7-1) (emphasis added).

to address this report because it is not relevant to Contention 2-E.

NRC Staff also fault Petitioners for not discussing:

> the requirements of the consent order that FPL is to "prevent releases of groundwater from the CCS to surface waters connected to Biscayne Bay that result in exceedances of surface water quality standards in Biscayne Bay," and that FPL must perform a "thorough inspection of the CCS periphery" and "address any material breaches or structural defects."[96]

Neither this language, nor anything else in the Consent Order, addresses the risk of flood water overtopping the cooling canal system, resulting in the discharge of contaminated water into Biscayne Bay. While hydrologic connections exist between groundwater under and around the cooling canal system, a flood would release *surface water*, not *groundwater*. Similarly, the Consent Order's requirement to inspect the periphery and address material breaches or structural defects would not prevent flood water from overtopping barriers, mixing with contaminated canal water, and then discharging it back into Biscayne Bay and other surface waters. Like the GALL-SLR Report, the Consent Order is simply not relevant to overtopping.

NRC Staff next argue that Petitioners do not explain how releasing cooling canal water into Biscayne Bay would significantly impact the environment. Again, Petitioners have provided sufficient information at this stage for an admissible contention. NRC rules do not require Petitioners to *prove* a significant impact to the environment at the contention stage particularly where, as here, Petitioners have included ample evidence that overtopping is reasonably foreseeable, the cooling canal system is contaminated with various pollutants, and the Environmental Report assumes—without any analysis—that there will be no impact whatsoever.

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[96] *Id*. at 37–38.

The Environmental Report states that the cooling canal system is a closed-loop system, with *no discharges* to surface waters. This is evident from the discussion of cumulative impacts to surface water, which identifies the scope of impacts that *might* affect the resource: "Surface water resource impacts would stem from alterations in hydrology, withdrawals, discharges, and stormwater."[97] The term "discharges" could conceivably include flood-related discharges to Biscayne Bay or other surface waters from the cooling canal system, but this interpretation is not possible given Applicant's statement that "discharges, including stormwater, are *to the closed-cycle cooling canals*."[98] The only other possible "discharge" referenced in the Environmental Report is the "cooling canals' effect on surface water through the groundwater interface."[99] Again, this does not address *surface water* discharges that result from overtopping the cooling canal system. Since the Environmental Report fails to consider direct surface water discharges from the cooling canal system or explain why not in light of Applicant's own flood risk study, the information supplied in Contention 2-E creates a genuine issue of material fact.

The NRC Staff also faults Petitioners for not addressing the 2016 Consent Order between Applicant and the Florida Department of Environmental Protection. This is an odd criticism since the Environmental Report does not address flood-related surface water discharges from the cooling canal system, or offer the Consent Order as a basis for explaining why Applicant did not address them. Regardless, the Consent Order does not address pollutants in the cooling canal system beyond salinity and nutrients. Yet, the cooling canal system also serves as an industrial

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[97] ER at 4-68.
[98] *Id.* (emphasis added).
[99] *Id.*

wastewater system for operations at Turkey Point. Other pollutants present in cooling canal water include tritium, ammonia, and sediment. The Consent Order does not address these pollutants and, therefore, does not offer a reasoned basis for rejecting Contention 4-E.

NRC's EIS for Units 6 and 7 does not address the overtopping issue either, and therefore does not support Staff's argument.[100] While there is some *mention* of sea level rise in Appendix I of the Units 6 and 7 EIS, it neither describes or analyzes the impacts of overtopping the Unit 3 and 4 cooling canal system during the subsequent license renewal period. Instead, the entire discussion is limited to three sentences on the "release of nutrients and sediment" caused by "storm surge damage [to] features at the site, including the IWF [Industrial Wastewater Facility] for the existing units, piles of spoil from the muck removal for the construction of the proposed units [6 and 7], and non-safety related structures built for the proposed units [6 and 7]."[101] Applicant would have Petitioners critique this "analysis" without any indication, clear or otherwise, that it even evaluated the environmental impacts from overtopping the cooling canal system during the subsequent license renewal period for Units 3 and 4. There is no mention of any pollutants other than nutrients and sediment; not tritium, ammonia, hypersaline water, heat, or other industrial chemicals present in the canal water. Neither did it explain why these

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[100] While NRC regulations provide that an applicant's environmental report "may incorporate by reference" information from certain materials, Applicant's passing reference to the Units 6 & 7 EIS, without identifying a page number or section, fails to indicate what information it intended to incorporate. *See infra* discussion at Contention 3-E.

[101] NRC, Final Report, Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7, ADAMS Accession No. ML16301A018 (Oct. 2016), at I-5 to I-6 (hereinafter "Units 6 & 7 FEIS").

pollutants were not mentioned. This of course presumes that these three sentences on storm surges even constitutes meaningful analysis of environmental impacts, which they do not.

Applicant makes similar complaints as those made by NRC Staff noted above, but adds that Petitioners needed to discuss NRC's safety oversight process.[102] It references *Fla. Power & Light Co*. (Turkey Point Nuclear Generating Plant, Units 6 & 7), LBP-11-6, 73 NRC 149 (2011) for this proposition. This decision, however, supports Petitioners, not Applicant. First, the decision involved a contention alleging the Unit 6 and 7 Environmental Report's failure to address cumulative impacts of sea level rise "on the construction and operation of Units 6 and 7 and the ancillary facilities."[103] Here, Contention 2-E focuses on cumulative environmental impacts on groundwater and surface water from the continued operation of Units 3 and 4 during the subsequent license renewal period. These are two separate issues.

Second, the Licensing Board found the petitioner's contention in the Unit 6 and 7 matter inadmissible because it "neither acknowledge[d] nor challenge[d] FPL's sea level rise analysis."[104] Here, however, Applicant has not performed *any* analysis of cumulative environmental impacts of operating Units 3 and 4 when sea levels will be higher even though its own analysis, which is curiously missing from the Environmental Report, demonstrates the reasonably foreseeable overtopping of the cooling canal system. Applicant's *own* flood risk analysis demonstrates that this scenario is reasonably foreseeable. Petitioners have met their initial burden.

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[102] FPL Response at 32.
[103] *Fla. Power & Light Co*. (Turkey Point Nuclear Generating Plant, Units 6 & 7), LBP-11-6, 73 NRC 149, 215 (2011).
[104] *Id*. at 217.

C. Contention 2-E creates a genuine issue of material fact on the cumulative environmental impacts on groundwater from operating Units 3 and 4.

NRC Staff asserts that there is no need to evaluate the cumulative environmental impacts on groundwater from operating Units 3 and 4 based on Applicant's current compliance with negotiated settlement agreements with state and local authorities.[105] This presumption that cumulative impacts will be managed is based on language in NRC Regulatory Guide 4.2, which suggests that applicants may assume that cumulative impacts would be managed "as long as facility operators are in compliance with their respective permits."[106] However, NRC Staff offers no legal authority or compelling reason why this guidance language extends to situations, such as this one, where there is a permit violation, an enforcement action, and a negotiated settlement, and the permit holder is at the beginning of a decade-long attempt to remedy the violation.

Applicant's support of the permit compliance assumption also fails. Applicant quotes language from the Consent Order and its Consent Agreement with the Miami-Dade County Department of Environmental Resource Management indicating that Applicant may avoid further enforcement actions by complying with relevant requirements.[107] The Department's decision to forego further enforcement actions does not justify the much more significant permit compliance assumption that Applicant and NRC Staff seek here.

When viewed in an analogous situation, it is clear why the compliance assumption does

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[105] NRC Staff Response at 40.
[106] NRC Regulatory Guide 4.2, Supp. 1, Rev. 1, Preparation of Environmental Reports for Nuclear Power Plant License Renewal Applications, at 49 (2013) (ML13067A354) ("Reg. Guide 4.2"); ER at 4-69.
[107] NRC Staff Response at 39–40.

not apply here. An oncologist may reasonably assume that a patient who has never had cancer will not have cancer in the future; just as the NRC may reasonably presume a plant without significant past violations will not have significant violations in the future. However, an oncologist cannot reasonably assume a patient who has cancer now will be cancer free in 10 years just because they began treatment and the cancer *may* go into remission. Similarly, the NRC cannot presume environmental impacts at Turkey Point will be managed simply because Applicant is subject to a consent order and there is some hope it *may* manage its environmental impacts within 10 years.

Like the analogy above, the Consent Order only indicates that in *10 years* Units 3 and 4 *may* attain compliance with their permits and thus environmental impacts from Turkey Point *may* be managed. But that hope is very much conditional. At the end of the fifth year, Applicant is required to report whether its efforts are successful or state that "the remediation project will not retract the hypersaline plume . . . within 10 years due to adverse environmental impacts of remedial measures or other technical issues."[108] If the plan is not working, Applicant must develop a new one. Here, the NRC Staff essentially argues that the cancer patient may assume the treatment is working and that there is "no reason to believe" the cancer will not be cured.[109]

This analogy also applies here because the Environmental Report assumes the treatment (freshening of the cooling canals) will not have any side effects (adverse environmental impacts). Yet again, Applicant and NRC Staff presume more than the Consent Order provides. As the

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[108] *Florida Dep't of Envtl Prot. v. FPL*, OGC File No. 16-0241 (ML16216A216) (Jun. 20, 2016), ¶ 20(v) (hereinafter "Consent Order").
[109] *See* NRC Staff Response at 40.

quoted language above indicates, the Florida Department of Environmental Protection recognizes that the remedial measures may cause "adverse environmental impacts." The NRC Staff's Response helps demonstrate why. It recognizes that Applicant is required to maintain salinity levels by using millions of gallons of water to "freshen" the canals.[110] Therefore, as temperatures rise, cooling canal water will become more saline and Applicant will be *required* to use more water to manage salinity.[111] This scenario is not mere speculation. As noted in the Petition, it reflects recent experience at Turkey Point and is based on fundamental scientific principles.[112] At this early stage in the proceedings, NRC regulations do not require more from Petitioners.

D. The Environmental Report fails to discuss cumulative environmental impacts of operating Units 3 and 4 during the subsequent license renewal period when sea levels and temperatures will be higher.

Applicant suggests a section in its Environmental Report considered cumulative environmental impacts on water resources from operating Units 3 and 4 during the subsequent license renewal period.[113] However, as Petitioners stated in Contention 2-E, the Applicant's Environmental Report fails to include any such discussion. Instead, the proffered section provides a confusing array of claims that fail to address Contention 2-E.

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[110] *Id.*

[111] Applicant states that Petitioners offer "no explanation for a purported connection between air temperature and [cooling canal system] salinity." FPL Response at 31. Petitioners explained that higher temperatures will increase the rate of evaporation, which leads to higher salinity. Petition to Intervene at 36–37. Contention 2-E is not inadmissible because Applicant demands an explanation of general scientific principles.

[112] *See e.g.* Petition to Intervene at 36 (citing Applicant's requests for enforcement discretion and a license amendment for ultimate heat sink temperatures).

[113] FPL Response at 31.

The section begins by recognizing "climate change indicators are trends in increasing air temperature, precipitation, and water temperature."[114] Yet the next sentence provides that Applicant's reliance on "closed-cycle cooling using the cooling canals limits the opportunities for operation of the units to *contribute to these factors* due to the reuse of water and no discharge."[115] This of course does not address concerns about cumulative impacts *on* groundwater or surface water during the subsequent license renewal period. Next, the Environmental Report states that Applicant conducted studies to determine the effects of the cooling canal system on "surface water via the groundwater pathway."[116] Notably, the Environmental Report does not identify these studies,[117] which render Applicant's argument here baseless. Had the Environmental Report actually identified the studies, they would still not support Applicant's argument. In Applicant's own words, the studies concluded that "the groundwater pathway is having no discernable influence on Biscayne Bay."[118] Thus, they do not address impacts from overtopping the cooling canal system, nor do these unidentified studies address impacts from the cooling canal system during the subsequent license renewal period on *groundwater*, which is the subject of the Consent Order.

The Environmental Report next states that "water temperature in Biscayne Bay is influenced by seasonal and meteorological conditions" but seems to imply this relationship does

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[114] ER at 4-69.
[115] *Id*. (emphasis added).
[116] *Id*.
[117] *Id*.
[118] *Id*.

not hold true for water temperatures in the cooling canal system.[119] Despite this implication, this "analysis" does not address impacts from reasonably foreseeable higher temperatures during the subsequent license renewal period; it merely assumes that future conditions will be the same as today.

The final paragraph of this section concludes that "while national and global trends may show warming trends, the available data indicate that the no-discharge, closed-loop cooling . . . would also be a small contributor to local and regional *warming trends*."[120] While Applicant's Response suggests this section of the Environmental Report addresses impacts on water resources, its conclusion is focused on Unit 3 and 4's possible contribution on *warming* at an unspecified regional level. There is simply no discussion whatsoever of the issues presented in Contention 2-E.

Applicant further faults Petitioners for not addressing the NRC's safety oversight process to explain how overtopping is possible.[121] But neither citation it offers actually supports its assertion that this oversight process will prevent overtopping. The first citation is to the NRC's response to comments on safety concerns over the increase in spent nuclear fuel that would be stored on site for Units 6 and 7.[122] The second citation, like the NRC Staff's citation to the

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[119] ER at 4-69 ("The increase in cooling canals water temperatures during the post-uprate period do not correspond with commensurately higher air temperatures.").
[120] *Id*. (emphasis added).
[121] FPL Response at 32.
[122] *See id.* (citing Units 6 & 7 FEIS, Vol. 4 at E-374 (ML16300A312)).

GALL-SLR Report, focuses on safety issues, not environmental issues.[123] If anything, the cited language indicates that sea level rise is reasonably foreseeable and therefore *supports* admission of Contention 2-E.[124]

Applicant's citation to the Commission's 2011 decision in *Florida Power and Light* also *supports* admission of Contention 2-E.[125] This decision is consistent with Contention 2-E, including Petitioners' reference to Applicant's flood risk analysis. The 2011 decision explains how Applicant designed Units 6 and 7 to elevate "floor entrances and openings for all safety-related structures" well above the cooling canal system to protect Units 6 and 7 against predicted flooding.[126] Thus, it implicates the same risks that Petitioners already identified.

It is abundantly clear that the Environmental Report failed to address cumulative impacts on water resources from climate change during the subsequent license renewal period. There simply is no analysis. NRC regulations do not require Petitioners to critique nonexistent analysis to present an admissible contention.

E. The Environmental Report's oblique and vague reference to the EIS for Units 6 and 7 does not provide the missing analyses.

Applicant claims that the EIS for Units 6 and 7 analyzes the cumulative environmental

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[123] *See id*. (citing *Turkey Point*, CLI-18-1, 87 NRC at -- (slip op. at 26)). Notably, the language Applicant cites is found in the Commission's discussion of safety-related issues, not environmental issues.

[124] Even if some effort were made to increase the height of flood barriers around the cooling canal system, those would be predictable and would involve significant construction activities along many miles of berms. These impacts have not been addressed in the Environmental Report. Moreover, Applicant has not identified any current plans to address overtopping concerns for the cooling canal system.

[125] *See* FPL Response at 32 n.134.

[126] *Fla. Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 6 & 7), LBP-11-6, 73 NRC 149, 217 (2011).

impacts on groundwater and surface water during the operational period of Units 3 and 4 when sea level and temperatures will be higher.[127] But this EIS suffers from the same defect as the main body of the Environmental Report.

With respect to climate change effects, such as sea level rise and higher temperatures, the Units 6 and 7 EIS only addresses cumulative impacts associated with operating those units.[128] It does not address cumulative environmental impacts associated with operating Units 3 and 4.[129] For example, the EIS addresses the location of the freshwater-seawater interface in the Biscayne aquifer with anticipated sea level rise and how that will stress freshwater demand further inland.[130] But it addresses the impacts associated with operating only Units 6 and 7; it fails to address the continued operation of Units 3 and 4.[131] Similarly, the EIS recognizes that an increase in temperature will lead to more evapotranspiration, reducing overall recharge to Biscayne aquifer.[132] But the EIS only considers these impacts with regards to Units 6 and 7's impacts on water resources, noting that *Units 6 and 7* would have little impact because it uses reclaimed water for most of its water needs.[133] Again, absent is any discussion of cumulative environmental impacts on Units 3 and 4 when sea level rise and temperatures will be higher. If anything, the Applicant's reference to the Units 6 and 7 EIS *supports* admissibility of Contention

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[127] FPL Response at 30.

[128] As noted in the Units 6 & 7 FEIS, Appendix I "documents the review team's qualitative determination of the likely changes in the impacts described in Chapter 5." Units 6 & 7 FEIS at I-1.

[129] *Id*. at I-5 to I-6.

[130] *Id*. at I-5.

[131] The assigned impacts of operating Units 6 and 7 are the operation of the Radial Collection Well system and its pumping duration, dewatering of excavations, deep well injection into the Boulder Zone, and the Boulder Zone's properties. *See* Units 6 & 7 FEIS at 5-34 to 5-41 (ML16300A104).

[132] Units 6 & 7 FEIS at I-6.

[133] *Id*. at I-6.

2-E. There is no reason why a cumulative impacts analysis like the one there should *not* be performed for the continued operation of Units 3 and 4 when sea levels and temperatures are higher. Accordingly, Petitioners have submitted an admissible contention.

F. The 2013 GEIS's discussion of sea level rise does not render Contention 2-E inadmissible.

While the 2013 GEIS includes some general discussion about climate change impacts, these do not obviate the need for a plant-specific analysis. The 2013 GEIS itself provides that each SEIS will include a plant-specific analysis of "any cumulative impacts caused by potential climate change upon the affected resources during the license renewal term."[134] The 2013 GEIS's general discussion of climate change only *supports* Petitioners' Contention 2-E because it acknowledges there will be higher sea levels and temperatures at Turkey Point during the subsequent license renewal period.[135] Missing from both the 2013 GEIS and the Environmental Report is any evaluation of the cumulative environmental impacts of operating Turkey Point Units 3 and 4 under these conditions.

G. Contention 2-E's citations to information contained in safety-related reports does not transform Petitioners' environmental contention into a safety contention.

The NRC Staff asserts incorrectly that Petitioners' citations to information in safety-related reports converts the environmental contention into a safety contention.[136] Not only is this

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[134] 2013 GEIS at 1-30.

[135] *See, e.g.*, 2013 GEIS at 4-239 (noting that there is a "high likelihood that water shortages will limit power plant electricity production in some regions" and that "[w]armer water and higher air temperatures reduce the efficiency of power plant cooling technologies").

[136] NRC Staff Response at 41–42.

inconsistent with the NRC Staff's earlier claim that there is no basis to Petitioners' contention; it is also nonsensical. First, NRC Staff's assertion that Contention 2-E raises a safety issue is misleading.[137] Petitioners point out that higher ambient air temperatures will lead to higher temperatures in the cooling canal water. Contention 2-E does not claim, as the NRC Staff asserts, that Applicant will not be able to operate Turkey Plant safely under its current licenses. Applicant's licenses for Units 3 and 4 make clear that when cooling water becomes too hot, it must scale back production to compensate for the loss of heat sink capacity.[138] But frequent and long-term scaling back of production impacts the overall generating capacity of these units. Since Units 3 and 4 will not be able to generate the same amount of electricity as under its current licenses (the same licenses Applicant proposes to renew), the Environmental Report's selection of alternatives must be adjusted accordingly to reflect the loss and intermittency of generating capacity at Turkey Point.

Second, Petitioners' mere reliance on information contained within a safety-related report does not transform an environmental contention into a safety contention. If Applicant believes that it cannot operate Units 3 and 4 under its current licensing conditions when temperatures are higher, then it has the responsibility to inform the NRC and seek a license

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[137] *See id*. at 41.

[138] *See e.g.* FP&L, Letter, "License Amendment Request No. 231, Application to Revise Technical Specification to Revise Ultimate Heat Sink Temperature Limit" (ML14196A006) (July 10, 2014), encl. at 4 ("If [ultimate heat sink] temperatures were to exceed the [Technical Specification] limit . . . a plant shutdown would have to be initiated in accordance with the action requirements of [Technical Specification] 3/4.7.4 . . .").

amendment like it has done in the past.[139] Petitioners raise only NEPA-related environmental issues in Contention 2-E; not safety concerns.

H. The NRC's decision requiring no discussion of extreme sea level rise predictions does not absolve it of the need to address cumulative impacts from any amount of sea level rise.

Applicant correctly notes that "NEPA requires consideration of likely future scenarios."[140] Even assuming NEPA does not require consideration of "extreme" future scenarios, however, that does not mean Applicant and the NRC can avoid consideration of *any* future scenario relating to climate change (as it has done here).

I. NEPA requires an evaluation of the cumulative environmental impacts of operating Units 3 and 4 when sea levels and temperatures are significantly higher.

Applicant argues that NEPA does not require an evaluation of reasonably foreseeable cumulative impacts during the subsequent license renewal period.[141] Notably, the NRC Staff does not share this position, stating unequivocally that an EIS should contain a discussion of "the incremental potential environmental impacts of license renewal, including the impacts of climate change during the license renewal period."[142]

The NRC Staff also does not share Applicant's position that the Environmental Report can omit analysis of aspects of climate change from its discussion of cumulative environmental

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[139] *See* Petition to Intervene at 36–37 (referencing Applicant's request for enforcement discretion and license amendment request in connection with ultimate heat sink temperature limits).
[140] FPL Response at 32.
[141] FPL Response at 29.
[142] NRC Staff Response at 47 (citing 2013 GEIS at 3-1).

impacts.[143] Without waiving any aspect of Contention 2-E, and as indicated in the Petition, Petitioners raise these NEPA issues now to preserve any objections that may appear in the Commission's eventual Draft EIS.[144]

CONTENTION 3-E: THE ENVIRONMENTAL REPORT FAILS TO CONSIDER NEW AND SIGNIFICANT INFORMATION REGARDING THE EFFECT OF SEA LEVEL RISE ON CERTAIN CATEGORY 1 AND 2 ISSUES, IN VIOLATION OF 10 C.F.R. § 51.53(c)(3)(iv).

Part 51 requires the ER to "contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware."[145] FPL has failed to analyze new and significant information regarding the effect of sea level rise on both plant operations and affected resources.[146] The NRC Staff and FPL assert that Part 51 does not require such an analysis, but this argument is belied by NEPA, NRC's Part 51 regulations, and the NRC's own statements in the 2013 GEIS.[147] Additionally, NRC Staff and FPL advance a number of procedural arguments, none of which have any bearing on the issues in this contention.

Despite NRC Staff's and FPL's attempts to distract the Board from the real issues, Petitioners' arguments in this contention are simple: (1) NEPA and NRC regulations require FPL to analyze new and significant information that "would provide a seriously different picture of

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[143] *See* NRC Staff Response at 34–42 (responding to Contention 2-E).
[144] Petition to Intervene at 13–14.
[145] 10 C.F.R. § 51.53(c)(3)(iv).
[146] *See* Petition to Intervene at 39-47.
[147] FPL Response at 42; NRC Response at 43-46.

the environmental consequences of the proposed action than previously considered in the GEIS;"[148] (2) there is a meaningful probability of sea level rise of at least two feet, and by more than three feet if emission trends continue on their current path, during the license renewal term;[149] (3) storm surges may add one foot to "well above the highest observed historically" to the trend of sea level rise at any given time;[150] and (4) neither the 2013 GEIS nor the ER addresses how sea level rise will affect those issues.[151]

A. NEPA requires the Environmental Report to analyze the effect of sea level rise on affected resources and plant operations.

NEPA and Part 51 regulations require FPL to consider the climate change-related environmental impacts on plant operations and affected resources. This information "provide[s] a seriously different picture of the environmental consequences of the proposed action than previously considered in the GEIS" and, therefore, must be analyzed in the ER.[152]

Both FPL and the NRC Staff contend that the requirement to consider new and significant information does not extend to the impacts "caused by" climate change upon affected resources (including cumulative impacts, water resources, and decommissioning).[153] Instead,

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[148] 10 C.F.R. § 51.53(c)(3)(iv); *see also* Reg. Guide 4.2 at 49; 40 C.F.R. § 1502.9(c)(1)(ii) (agencies must supplement a prior EIS "if . . . [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts").

[149] Kopp Decl. ¶ 39.

[150] Kopp Decl. ¶ 33.

[151] Petition to Intervene at 41-45.

[152] Reg. Guide 4.2 at 49. FPL appears to assert that 10 C.F.R. § 51.53(c)(3)(iv) does not require the Environmental Report to consider new and significant information related to environmental impacts for *category 2 issues*. FPL Response at 41. Section 51.53(c)(3)(iv), however, contains no language limiting its application to only category 1 issues. In any event, even assuming that the provision does not apply to category 2 issues, FPL is nonetheless required to consider *all* relevant information for category 2 issues, including new and significant information. *See generally* 10 C.F.R. § 51.53(c); *id.* § 51.45(c) (requiring ER to "include an analysis that considers and balances the environmental effects of the proposed action").

[153] FPL Response at 42; NRC Staff Response at 44-45.

according to the NRC Staff and FPL, that requirement extends only to environmental impacts that are directly caused by the proposed action: license renewal. But that mistaken understanding of NEPA would leave a significant gap of unanalyzed information—the effect of sea level rise on affected resources near the plant—in violation of Part 51 and NEPA's clear objectives.

NEPA requires the ER to consider the effect of sea level rise on affected resources and the power plant itself. The NRC itself *unequivocally* took that position—that individual plant-specific environmental reviews must consider the effect of climate change-related environmental impacts—in the 2013 GEIS. In that document, the NRC stated: "Changes in climate have the potential to affect air and water resources, ecological resources, and human health, and should be taken into account when evaluating cumulative impacts over the license renewal term."[154] The NRC went on to state that, given the unique and localized nature of the effects of climate change, an analysis of the "cumulative impacts *caused by potential climate change upon the affected resources* during the license renewal term" was inappropriate for generic consideration.[155] Therefore, the NRC committed to addressing the issue in each plant-specific environmental review: "The NRC will . . . include within each SEIS a plant-specific analysis of any impacts caused by GHG emissions over the course of the license renewal term *as well as any cumulative impacts caused by potential climate change upon the affected resources during the license renewal term*."[156] The NRC Staff and FPL now seek to wriggle out of that commitment. The

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[154] 2013 GEIS at 1-29.
[155] 2013 GEIS at 1-29 to 1-30 (emphasis added).
[156] *Id.* (emphasis added); *see* Petition to Intervene at 41.

Board should reject that effort.

B. Neither the 2013 GEIS nor the Environmental Report analyzes the effect of sea level rise on plant operations or affected resources.

Despite the NRC's clear statement that the 2013 GEIS would *not* consider climate change-related effects on a generic basis, FPL contends that the 2013 GEIS *does* in fact include such an analysis.[157] This assertion is based in part on the fact that the word "sea level" appears 14 times in the 2013 GEIS.[158] But mentioning the term, without any reasoned analysis, does not discharge NEPA's requirement that the Environmental Report consider the effects of sea level rise upon (1) Turkey Point's continued operations or (2) affected resources near the plant. The sections of the 2013 GEIS cited by FPL are no more than a brief discussion of the fact that climate change is widely understood to cause sea level rise, which may result in other environmental impacts.[159] None of the sections that mention sea level rise provide more than a cursory description of the generic environmental impacts that sea level rise might cause on a global or national scale, with no mention of effects of sea level rise *at Turkey Point during the subsequent license renewal period*. This does not discharge NEPA's requirement that the Environmental Report take a "hard look" at this issue.[160]

FPL contends that the ER "incorporates by reference the Turkey Point 6 & 7 EIS, which

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[157] FPL Response at 37-38.
[158] FPL Response at 37-38.
[159] FPL Response at 38 n.151; *see* 2013 GEIS at 3-35, 4-237, 4-238, 4-239, 4-241, 4-242, 4-249.
[160] *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976); *see also supra* at Contention 2-E.

contains the NRC's evaluation of impacts to resource areas *caused by* climate change."[161] But a review of the portions of the ER cited by FPL that purportedly "incorporate by reference" the Units 6 and 7 EIS reveals that the ER did no such thing. FPL implies that the ER incorporates the Units 6 and 7 EIS's discussion of climate-change impacts, but FPL's Response cites a page of the ER (4-68) briefly discussing impacts to an entirely different issue—surface water and groundwater. Nowhere does that discussion reference climate change or sea level rise.[162] The ER's brief mention of the Units 6 and 7 EIS is not sufficient to incorporate by reference even that limited section regarding water resources; it is certainly not sufficient to incorporate an *entirely different* section of the document (its discussion of climate change- or sea level rise-related impacts), let alone to incorporate the *entire* document.[163]

Nor can FPL rely upon operational requirements to discharge its obligation to analyze the effects of sea level rise on affected resources. NRC Staff asserts that the ER need not analyze

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[161] FPL Response at 42 (emphasis in original).

[162] FPL failed to provide a citation to support its assertion that "the ER incorporates by reference the Turkey Point 6 & 7 EIS." *See* FPL Response at 42. FPL notes in its Response, however, that this argument is "explained in [its] response to Contention 2-E." *Id.* FPL's response to Contention 2-E asserts that the ER incorporates by reference the Units 6 and 7 EIS, but only to the extent it discusses cumulative impacts to groundwater and surface water. FPL Response at 30 n.124 (citing ER at 4-68). Thus, FPL does not cite any language in the ER that could be read to incorporate its discussion of climate change effects.

[163] *WildEarth Guardians v. Mont. Snowmobile Ass'n*, 790 F.3d 920, 925-26 (9th Cir. 2015) (referencing one section of a document is not sufficient to incorporate a different section of the same document into an EIS); *Pub. Employees for Envtl. Responsibility v. U.S. Fish & Wildlife Serv.*, 177 F. Supp. 3d 146, 155-56 (D.D.C. 2016) (a brief mention of a document was not sufficient to incorporate it by reference into a NEPA document); *Natural Res. Defense Council v. Duvall*, 777 F. Supp. 1533, 1539 (E.D. Cal. 1991) (rejecting agency's argument that a document was incorporated by reference into a NEPA document where the referenced document was described "in only the briefest and most cursory manner"). In any event, as FPL concedes, the Units 6 and 7 FEIS considers "impacts to resource areas *caused by* climate change." FPL does not explain why NRC included this analysis in the EIS if, as FPL maintains, neither NEPA nor Part 51 requires such an analysis.

this issue because Turkey Point is obligated to operate in compliance with (1) its current licensing basis, including its aging management program, and (2) a consent order in which FPL agreed to take certain measures to resolve a notice of violation issued by FDEP.[164] But to the extent FPL plans to take certain actions to mitigate the environmental effects of sea level rise, those actions do not excuse FPL from describing the environmental effects. FPL may not evade NEPA's requirement to consider climate change-related effects simply because it is under an obligation to mitigate those environmental impacts. FPL is also under an analogous obligation imposed by the Endangered Species Act to avoid "takes" of threatened and endangered species, but FPL does not contend that that obligation relieves it of the requirement to consider impacts to those species by climate change; in fact, the ER contains such an analysis.[165]

Moreover, the notion that FPL can rely on the consent order—a legal settlement entered into to resolve a prior *violation of the law*—to establish that it will comply with the law in the future, is beyond the pale. FPL has failed to comply with the requirement to consider new and significant information regarding the effect of sea level rise on plant operations and affected resources.

CONTENTION 4-E: THE ENVIRONMENTAL REPORT FAILS TO DESCRIBE THE FORESEEABLE AFFECTED ENVIRONMENT DURING THE SUBSEQUENT LICENSE RENEWAL PERIOD.

The only plausible interpretation of NEPA's and Part 51's requirement to describe the "affected environment" in this proceeding is that the term encompasses the *reasonably*

[164] NRC Staff Response at 45.
[165] *See* Petition to Intervene at 41-42.

foreseeable "affected environment" for Turkey Point. The obvious flaw in limiting the description of the "affected environment" to conditions that exist today is that, as the NRC itself proclaims, "climate change will provide a *new environment* that the operation of [Units 3 and 4] will affect."[166] The description of the affected environment serves as the baseline for the environmental analysis and comparison of alternatives to the proposed project. Without an accurate description of the actual environment to be affected, *i.e.*, the *reasonably foreseeable* affected environment, these analyses break down and the NRC will be unable to make a reasoned decision on FPL's application.

A. Applicant's illogical interpretation of "affected environment" does not comport with NEPA.

Applicant argues that Part 51 does not require a description of the environment that will actually be affected. Rather than explain why its position makes any sense, it attacks Petitioners' use of the phrase "reasonably foreseeable."[167] But Applicant's array of arguments focused on this phrase fail to address the fundamental flaw in the Environmental Report, *i.e.*, that it describes the environment that will actually be "affected" by the proposed license renewal.

The *AquAlliance* case cited in the Petition illustrates why it is necessary to describe the environment that will actually be affected.[168] There, the Bureau of Reclamation ("Bureau") prepared an EIS for a major water transfer project in California.[169] The Bureau recognized its

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[166] Units 6 & 7 FEIS at I-1 (emphasis added).
[167] *See* FPL Response at 47–49.
[168] Petition to Intervene at 48.
[169] *AquAlliance v. U.S. Bureau of Reclamation*, 287 F. Supp. 3d 969 (E.D. Cal. 2018).

duty under NEPA to evaluate the impact of climate change on the project, including the need to set a baseline against which to measure the project's impacts.[170] When the Bureau established the environmental baseline, however, it relied on modeled historical data that was "no longer a reasonable guide to the future for water management" instead of a climate model that predicted a significant decline in water availability.[171] The court held the Bureau did not justify its decision to rely on the historical data and therefore it "ignored a critical aspect of the impact in question."[172]

Applicant frames *AquAlliance* as merely holding that the Bureau's "conclusions were deficient because they did not square with the underlying data in the EIS."[173] But this overgeneralization misses the critical point. The Bureau violated NEPA because it measured the project's impacts against an improper environmental baseline. Here, the Environmental Report has the same deficiency.

CEQ's withdrawal of its NEPA guidance on evaluating climate in no way undermines the need to describe the actual "affected environment." As the government stated in the *AquAlliance* litigation, CEQ's withdrawal of the guidance document "does not affect the obligations NEPA imposes on federal agencies."[174] NEPA "imposes upon [federal agencies] the same

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[170] *Id*. at 1028.
[171] *Id*.
[172] *Id*. at 1029.
[173] FPL Response at 49 n.200.
[174] *AquAlliance, et al. v. U.S. Bureau of Reclamation, et al.*, No. 1:15-CV-754-LJO-BAM, Federal Defendants' Supplemental Brief in Response to Court's Request (E.D. Cal. Sep. 14, 2017) at 5–6.

responsibilities now as it did prior to CEQ's issuance and withdrawal of its guidance."[175] NEPA required, and continues to require, an accurate description of the affected environment to establish the proper baseline for the EIS.

B. Contention 4-E establishes a genuine dispute over the Environmental Report's failure to describe the reasonably foreseeable affected environment.

In Contention 4-E, Petitioners cite relevant sections of the Environmental Report that fail to describe the reasonably foreseeable affected environment.[176] Applicant attempts to deflect this contention by arguing that Petitioners "disregard rather than dispute the relevant discussion in the ER."[177] But NRC regulations do not require Petitioners to *dispute* information that is missing from the Environmental Report in the first place.[178] Contention 4-E cites several sections in the Environmental Report that fail to include a description of the reasonably foreseeable affected environment. Petitioners, moreover, explain the "supporting reasons for [their] belief."[179] Nothing more is required.

Applicant's response to Contention 4-E proves that the required information is indeed missing. Contention 4-E identifies several sections of the Environmental Report that fail to describe the reasonably foreseeable affected environment. Yet not once does Applicant point to any discussion or information in these sections that addresses, or purports to address, the fact that

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[175] *Id*.
[176] Petition to Intervene at 55–58 (citing ER §§ 3.3, 3.6.1.3, and 3.6.2).
[177] FPL Response at 49.
[178] 10 C.F.R. § 2.309(f)(1)(vi) ("[I]f the petitioner believes that the application fails to contain information on a relevant matter as required by law, the [contention must include an] identification of each failure and the supporting reasons for the petitioner's belief.").
[179] *Id*.

"climate change will provide a *new environment* that the operation of [Units 3 and 4] will affect."[180] Like the Bureau in *AquAlliance*, Applicant's descriptions of the affected environment rely exclusively on historical information. By ignoring relevant predictions for the environment that will actually be affected, including *its own modeling* that incorporates projected sea level rise into a flood risk analysis, the Environmental Report fails to establish an accurate baseline against which impacts and alternatives can be measured.[181]

Petitioners, moreover, provided ample evidence to support their contention that the affected environment will, as the NRC has recognized, be significantly different than today. Contention 4-E cites Dr. Kopp's declaration to establish that the future environment at Turkey Point will face greater flood risks due to rising sea levels.[182] Petitioners cited the Climate Science Special Report as evidence that air temperatures will be significantly higher during the subsequent license renewal period.[183] Thus, Petitioners have provided an ample basis from which the Board should find a genuine dispute over a material issue warranting acceptance of Contention 4-E.

Applicant also contends that NRC rules on intervention require Petitioners to offer proof of basic scientific principles that apply to nuclear power plants. Thus, according to Applicant,

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[180] *See* Units 6 & 7 FEIS at I-1 (emphasis added).
[181] FPL Response at 51 (noting section 3.6.1.3 of the Environmental Report on potential for flooding "discusses information such as FEMA floodplain data, various flood control projects, and the highest historical tide measured near the site").
[182] Petition to Intervene at 50–52.
[183] *Id*. at 52–53.

Petitioners merely speculated that higher air temperatures at Turkey Point will lead to higher cooling water temperatures in the cooling canal system, which reduces the system's heat exchange capacity.[184] Applicant's position is meritless. The same "correlation" appears in the 2013 GEIS without attribution to any study or explanation because none is required.[185] Similarly, Applicant claims it is pure speculation that a nuclear power plant will not be able to operate as efficiently when its heat sink loses heat exchange capacity.[186] Again, this is a fundamental scientific principle for nuclear power plants and does not require further proof at this early stage.

Contention 4-E identifies Applicant's failure to incorporate any predictions of sea level rise in its description of flood risks in Section 3.6.1.3 of the Environmental Report.[187] Applicant responds using the same tact as above, claiming that Petitioners "disregard rather than dispute" the content of this section.[188] But again, NRC rules do not require Petitioners to "dispute" information that is missing. And again, Applicant does not identify any information in this section that purports to evaluate sea level rise in any meaningful way.

Applicant's attempt to transform this environmental contention into a safety contention is similarly meritless. Petitioners' reference to information in Applicant's own studies on flood

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[184] FPL Response at 50 (arguing that Petitioners must offer proof of "a correlation between ambient air temperature and [cooling canal system] heat exchange capacity") (internal quotations omitted).
[185] 2013 GEIS at 4-239 ("Warmer water and higher air temperatures reduce the efficiency of thermal power plant cooling technologies.").
[186] FPL Response at 50.
[187] Petition to Intervene at 56.
[188] FPL Response at 51.

risks, information which it omitted from the Environmental Report, does not alter the character of the contention. Contention 4-E addresses Applicant's failure to establish a proper baseline on which to measure Unit 3 and 4's environmental impacts and the analysis of alternatives.

Finally, Applicant criticizes Contention 4-E as it relates to groundwater resources. Applicant rehashes the same flawed argument that Petitioners need to dispute information that was missing in the first instance.[189] Applicant's disagreement with Petitioners' concerns over water availability when ambient temperatures will be higher, placing further strain on an already constrained resource, does not relieve it of the duty to address the issue in the first instance. Consequently, Contention 4-E demonstrates a genuine dispute because the Applicant fails to include any discussion of the baseline groundwater conditions, as Petitioners have shown.[190]

C. The Environmental Report's cumulative impacts analysis does not cure the flawed description of the affected environment.

NRC Staff argues that future environmental conditions are traditionally examined in Section 4 of an Environmental Report, namely in the evaluation of cumulative impacts. Even assuming this is correct, Applicant's discussion of cumulative impacts is flawed for the reasons discussed in the reply to Contention 2-E above. Consequently, NRC's Staff's position does not cure Applicant's failure to establish a proper baseline against which to measure the environmental impacts of operating Units 3 and 4 during the subsequent license renewal period. For these reasons, Contention 4-E is admissible under NRC's Part 51 regulations.

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[189] FPL Response at 53.
[190] Petition to Intervene at 47–58 (Contention 4-E).

CONTENTION 5-E: THE ENVIRONMENTAL REPORT FAILS TO ADDRESS THE ADVERSE EFFECT OF OPERATING THE COOLING CANAL SYSTEM FOR AN ADDITIONAL 20 YEARS ON SURFACE WATERS, FRESHWATER WETLANDS, AND ENDANGERED SPECIES PRESENT IN THOSE WETLANDS.

NRC Staff does not oppose admission of Petitioners' Contention 5-E, as "Staff recognizes that the impacts of continued operation of the cooling canal system on threatened and endangered species and critical habitat is a Category 2 issue that the Staff must analyze on a site-specific basis in its SEIS."[191] FPL, however, asserts a host of arguments[192] to urge the Board to reject Contention 5-E in its entirety, and NRC Staff joins industry on several of those arguments.[193] The arguments to exclude the contention from a hearing are unsupported by law. The Board should reject these arguments and admit Contention 5-E in full.

A. Petitioners have identified and presented sufficient information to demonstrate that a genuine dispute exists on a material issue regarding ammonia releases.

NRC regulations require the Environmental Report to consider the effects of Turkey Point's continued operation on surface waters, freshwater wetlands, and endangered species present in those wetlands.[194] The NRC Staff concedes that Petitioners have raised "a genuine

[191] NRC Staff Response at 54.
[192] FPL Response at 54-60.
[193] NRC Staff Response at 54-57.
[194] 10 C.F.R. § 51.53(c)(3)(ii)(E) (ER must consider the "impact of refurbishment, continued operations, and other license renewal-related construction activities on important plant and animal habitats" and "on threatened or endangered species"); *see also id.* § 51.53(c)(3)(ii)(B) (ER must consider impacts on fish and shellfish resources resulting from thermal changes and impingement and entrainment).

dispute with specific portions of the Environmental Report, in asserting that, contrary to the conclusions in the Environmental Report, Turkey Point is a source of ammonia in freshwater wetlands surrounding the site, and that the potential impacts of such ammonia releases during the period of continued operation on threatened and endangered species should be analyzed."[195]

B. Under the plain language of 10 C.F.R. §§ 51.45 and 51.53(c)(2) & (3), FPL must fully address the environmental impacts of operating Turkey Point Units 3 and 4 for another license renewal term, including all environmental impacts designated by Table B-1 as Category 1.

Turning from that point of agreement, NRC Staff joins the Applicant and relies chiefly on the assertion that all other portions of Contention 5-E, concerning the impacts of continued operation of the cooling canal system on surface water and groundwater quality constitute an impermissible challenge to the Commission's regulations. Specifically, NRC Staff and FPL allege that these portions of the contention challenge the Commission's determination in 10 C.F.R. Part 51, Appendix B, Table B-1, that the impacts of license renewal to altered salinity gradients in surface waters, groundwater quality degradation at plants with cooling ponds in salt marshes, and other cooling system impacts, are Category 1 issues that need not be addressed in an applicant's environmental report (and thus, Petitioners may not file challenges on those specific matters unless they file a petition for waiver).[196] Petitioners addressed this issue at length (*supra* at 11-13) and do not repeat argument here.

Next, the NRC Staff argues that Petitioners' request for meaningful analysis of the effects

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[195] NRC Staff Response at 54.
[196] NRC Staff Response at 54-55, FPL Response at 56-58.

of the hypersaline plume on fresher wetlands and threatened species has no merit because FPL may assume the 2016 Consent Order does not establish adequate mitigation measures and that the applicant will not comply and FDEP will fail to enforce.[197] To this also Petitioners have responded.[198]

Last, the agency argues that Petitioners failed to identify specific pollutants other than ammonia or provide any specific facts or expert opinion to support the claim that the cooling canal system causes other pollutants to migrate into nearby surface waters and have therefore failed to plead specific grievances.[199] As noted above,[200] NRC and Applicant overreach with their approach. Petitioners are on sound footing for the proposition that over the last four decades, the portion of the Biscayne Aquifer below the cooling canal system has become saturated with hypersaline water moving down into the aquifer and radially in all directions, including westward (*i.e.*, towards the Model Lands Basin, the wider Everglades, and drinking water wells screened in the Biscayne Aquifer), and eastward towards Biscayne Bay where the plume discharges to the surface water.[201]

As discussed at length in the Petition to Intervene (at 58-62), salt migrating out of the

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[197] NRC Staff Response at 56.
[198] *See supra* at 26-32.
[199] NRC Staff Response at 57.
[200] *See supra* at 3-4.
[201] *See* NRC, License Amendment To Increase the Maximum Reactor Power Level, Florida Power & Light Company, Turkey Point, Units 3 and 4, Final Environmental Assessment and Finding of No Significant Impact, 77 Fed. Reg. 20059, 20062 (Apr. 3, 2012) ("Because the PTN canals are unlined, there is an exchange of water between the PTN canal system and local groundwater and Biscayne Bay" including a seasonal "flow of hypersaline water from the CCS toward the Everglades").

cooling canal system has formed a hypersaline plume and has moved the saltwater/freshwater interface westwards at all elevations in the Biscayne Aquifer.[202] Operation of the cooling canal system has driven the saltwater/freshwater interface at the base of the aquifer several miles westward into what was previously a potable portion of the aquifer.[203] It is clearly established that the discharge of saline groundwater from the cooling canal system is now degrading those wetlands and that the "area is experiencing significant westward migration of the salt intrusion front at the base of the Biscayne aquifer, and where historically fresh surface water canals have recently been documented with higher conductivity and chloride levels uncharacteristic of fresh water bodies."[204] Bluntly, the County has required Applicant to provide a significant water quality monitoring plan and would not have done so unless it had significant concern of existing and ongoing contamination. And to NRC Staff's assertion that Petitioners failed to identify specific pollutants other than ammonia or provide any specific facts or expert opinion to support the claim the cooling canal system causes other pollutants to migrate into nearby surface waters, the agency looks past measurements recorded in County-owned wetlands west of the canal in April 2018 finding that shallow groundwater in the area now exhibits conductivity of more than 5000 microSiemens (µmhos/cm).[205] These conductivity levels are dangerously high for a

[202] Chin, David A, Ph.D., *The Cooling System at the FPL Turkey Point Power Station* at 12 (2015) (Attachment O to Petition to Intervene).
[203] *Id*. at 12-13.
[204] DERM-FDEP July 2018 Letter (Attachment P to Petition to Intervene), at 2.
[205] *Id.* at 27, 59.

naturally freshwater environment.[206]

Applicant takes a similar course and primarily alleges that the Category 1 distinction disposes of the contention.[207] As discussed *supra* at 11-13, this is not correct. Next, Applicant asserts that Petitioners fail to provide support for the proposition that the hypersaline plume is degrading wetlands or otherwise impacting threatened, endangered or protected species.[208] Applicants point to the ER at section 4.6.6, which provides a species-by-species analysis, but ignores the NRC Staff's plain acknowledgment: "Staff recognizes that the impacts of continued operation of the CCS on threatened and endangered species and critical habitat is a Category 2 issue that the Staff must analyze on a site-specific basis in its SEIS."[209]

Finally, Applicant asserts Petitioners' misread a cited letter from Miami-Dade County, suggesting that as the letter does not use the words "existing" or phrases including the words "further," or "degradation" of wetlands, or even forecasts on the ability or likelihood of saline canal water to "enter" any wetlands, the document is insufficient support for an admissible contention.[210] Applicant misreads the import of the document. The County has found that the CCS is, at the least, a "contributing source to the ammonia concentrations that exceed the applicable standards." And that County has required that Applicant provide a plan (that is not yet due as of this date) to address cooling canal system nutrient impacts to groundwater and surface water resources beyond the boundaries of the cooling canal system.[211]

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[206] *See* Petition to Intervene at 61, n. 271.
[207] FPL Response at 55-58.
[208] *Id.*, at 58.
[209] *Id.*, at 59; *see also* NRC Staff Response at 54.
[210] FPL Response at 59, 60 (referring to Pet. Att. P).
[211] *See* Attachment P to Petition to Intervene, at 2, 3.

CONCLUSION

For the reasons stated above, the Board should admit in full each Contention described above.

Respectfully submitted,

Executed in Accord with 10 C.F.R. § 2.304(d):

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	
FLORIDA POWER & LIGHT COMPANY	)	Docket No. 50-250
	)	Docket No. 50-251
(Turkey Point Nuclear Generating Station, Unit Nos. 3 and 4)	)	September 10, 2018
	)	
(Subsequent License Renewal Application)	)	

CERTIFICATE OF SERVICE

Pursuant to 10 C.F.R. § 2.305, I certify that, on this date, a copy of the foregoing "*Reply in Support of Request for Hearing and Petition to Intervene Submitted by Friends of the Earth, Natural Resources Defense Council, and Miami Waterkeeper*" was served upon the Electronic Information Exchange ("EIE," the NRC's E-Filing System), in the above-captioned docket, which to the best of my knowledge resulted in transmittal of same to those on the EIE Service List for the captioned proceeding.

/Signed (electronically) by/
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September 10, 2018