


UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
FLORIDA POWER & LIGHT COMPANY)
)
(Turkey Point Nuclear Generating)
Unit Nos. 3 and 4))

Docket No. 50-250-LA
50-251-LA

NRC STAFF'S INITIAL AND REBUTTAL STATEMENT OF
POSITION REGARDING CONTENTION 1

	
United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of: FLORIDA POWER & LIGHT COMPANY (Turkey Point Nuclear Generating, Units 3 and 4)	
ASLBP #: 15-935-02-LA-BD01	Identified: 1/4/2016
Docket #: 05000250 & 05000251	Withdrawn:
Exhibit #: NRC-049-00-BD01	Stricken:
Admitted: 1/4/2016	
Rejected:	
Other:	

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November 10, 2015

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INTRODUCTION

Pursuant to 10 C.F.R. § 2.1207(a)(1) and 2.337(g)(2), the Atomic Safety and Licensing Board's ("Board") Initial Scheduling Order,¹ and the Board's Order Granting NRC Staff's Motion for an Extension of Time,² the staff of the Nuclear Regulatory Commission ("Staff") submits its initial and rebuttal written statement of position, written testimony ("NRC Staff Testimony of Audrey L. Klett, Briana A. Grange, William Ford, And Nicholas P. Hobbs Concerning Contention 1," ("Staff's Testimony"), Exhibit ("Ex.") NRC-001) and supporting exhibits (Exs. NRC-002 – NRC-049) regarding Citizens Allied for Safe Energy, Inc.'s ("CASE") Contention 1.

Contention 1, as admitted by the Board, challenges two limited aspects of the Staff's Environmental Assessment ("EA") related to license amendments issued to the Florida Power & Light Company ("FPL") that allow an increase in the ultimate heat sink water temperature limit for the cooling canals that serve Turkey Point Nuclear Generating Units 3 and 4 ("Turkey Point"). Specifically, Contention 1 challenges the adequacy of the EA's analysis on the impact

¹ Initial Scheduling Order (May 8, 2015) (unpublished) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15128A369) ("Initial Scheduling Order").

² Order (Granting Request for Extension of Time) (Oct. 19, 2015) (unpublished) at 1 (ADAMS Accession No. ML15292A408) (granting the NRC an eleven day extension of time to file its written testimony, exhibits, and statement of position).

to the saltwater intrusion from the conditions within the cooling canal system (“CCS”) and from water withdrawals used to mitigate conditions within the CCS.³

For the reasons set forth below and in the supporting testimony, the Staff respectfully submits that CASE’s Contention 1 is unsupported and lacks merit. Accordingly, the Staff’s EA and the corresponding license amendments should be upheld.

BACKGROUND

This proceeding arose from the issuance of license amendments that raised the temperature limit in the Turkey Point Technical Specifications.⁴ The temperature limit is measured at the inlet to component cooling water heat exchangers from the ultimate heat sink (“UHS”).⁵ The amendments raised the temperature limit from 100 °F to 104 °F before the plants would have to initiate shutdown actions. The amendments also increased the surveillance frequency for the component cooling water heat exchangers’ performance tests,⁶ and made minor editorial changes for clarity.⁷ In response to the LAR, the Staff prepared an EA, a

³ *Florida Power and Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-15-13, 81 NRC 456, 476 (2015).

⁴ FPL initially submitted the LAR on July 10, 2014. See Letter from Michael Kiley, FPL, to NRC, License Amendment Request No. 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit (July 10, 2014) (ADAMS Accession No. ML14196A006). The request was supplemented by eight (8) letters from July 17, 2014, through August 4, 2014. See ADAMS Accession Nos. ML14202A392, ML14204A367, ML14204A368, ML14206A853, ML14210A374, ML14211A507, ML14211A508, and ML14217A341. On July 29, 2014, the licensee supplemented its amendment request expanding the scope of the amendment previously noticed in the Federal Register. See ADAMS Accession No. ML14202A392.

⁵ Florida Power & Light Company; Turkey Point Nuclear Generating Units 3 and 4, 79 Fed. Reg. 47,689, 47,689 (Aug. 14, 2014). The UHS is often referred to as the cooling canal system (“CCS”) and as an industrial waste water facility (“IWF”) in the testimony and exhibits.

⁶ The CCS serves as the UHS for the Intake Cooling Water (ICW) system and provides the coolant for the Circulating Water (CW) system. The CW system provides cooling water to the main plant condensers, and the ICW system removes heat loads from the Component Cooling Water (CCW) system during normal and accident conditions to support both reactor and containment heat removal requirements as well as spent fuel cooling requirements.

⁷ 79 Fed. Reg. at 47,689 (License amendment; issuance, opportunity to request a hearing, and petition for leave to intervene).

biological assessment, a safety evaluation and a FONSI.⁸ The Staff also consulted with the State of Florida (“State” or “Florida”) and the U.S. Fish and Wildlife Service (“FWS”) before issuing the license amendments.⁹ The Staff published several notices regarding the license amendment, the EA, and the biological assessment in various locations including the *Federal Register* and local newspapers.¹⁰

On July 30, 2014, the Staff published its findings that (1) exigent circumstances existed such that the Commission could not allow 30 days for public comment prior to acting on FPL’s LAR; and (2) the amendment involved no significant hazards considerations.¹¹ On August, 8, 2014, the Staff granted the LAR.¹² On August, 14, 2014, notice was published in the *Federal Register* that the license amendments were approved and that the opportunity to request a hearing had been extended.¹³

Separate and independent from the NRC’s approval, FPL sought and obtained permission from Florida to treat the CCS for blue-green algae using a combination of copper sulfate, hydrogen peroxide, and a bio-stimulant.¹⁴ The State also approved Turkey Point’s request to extract additional water from the Floridan aquifer and was reviewing a request to

⁸ Staff’s Testimony at 30-32. The Staff’s 2014 EA relied on the environmental analyses previously conducted for FPL’s initial licenses, license renewals, and 2012 Extended Power Uprate (EPU) license amendments, among other things, in concluding that the UHS license amendments had no significant impact on the groundwater resources.

⁹ Staff’s Testimony at 30-32.

¹⁰ Staff’s Testimony at 30-32.

¹¹ Amendment Notice, 79 Fed. Reg. at 44,214. See July 17, 2014 letter from FPL, requesting that the amendments be processed on an emergency basis.

¹² 79 Fed. Reg. at 47,689.

¹³ 79 Fed. Reg. at 47,689.

¹⁴ Letter from Mark P. Thomasson, Florida Department of Environmental Protection, to Michael Kiley, FPL (June 27, 2014) (Embedded within Biological Assessment on the American Crocodile (*Crocodylus acutus*), Turkey Point Nuclear Generating Unit Nos. 3 and 4, Proposed License Amendment to Increase the Ultimate Heat Sink Temperature Limit (“Biological Assessment”) (July 25, 2014) (ADAMS Accession No. ML14206A806 at A-26 – A-27)) (hereinafter “June 27, 2014 Letter”) Ex. NRC-010.

extract water from other sources for use in the CCS. Those requests to extract additional water are currently being litigated in administrative proceedings conducted by State agencies.¹⁵

On October 14, 2014, CASE filed a timely petition to intervene in this matter, submitting four contentions for consideration by the Board.¹⁶ After hearing oral argument,¹⁷ the Board granted CASE's Petition, admitting a narrowed and reformulated version of CASE's Contention

1. As admitted by the Board, Contention 1 stated that:

The NRC's environmental assessment, in support of its findings of no significant impact related to the 2014 Turkey Point Units 3 and 4 license amendments, does not adequately address the impact of increased temperature and salinity in the CCS on saltwater intrusion arising from (1) migration out of the CCS; and (2) withdrawal of fresh water from surrounding aquifers to mitigate conditions within the CCS.¹⁸

In narrowing the contention, the Board eliminated those areas where CASE alleged the omission of information that was, in fact, discussed in the EA.¹⁹ In particular, the Board did not admit CASE's claims regarding the environmental impacts associated with the use of copper sulfate, and other chemicals, in the CCS.²⁰ Likewise, the Board did not admit CASE's

¹⁵ Letter from Steven C. Hamrick, FPL, to Administrative Judges, Atomic Safety and Licensing Board (Oct. 9, 2015) at 1-2.

¹⁶ CASE filed portions of their petition on October 14, 2014, by email. On October 17, 2014, CASE filed its petition through the EIE system (ADAMS Accession No. ML14290A510). Prior to filing, Mr. White, CASE's representative, contacted Staff's counsel in the Turkey Point Units 6 and 7 COL proceeding about whether he needed to file through the EIE system, in light of rulings in the Unit 6 and 7 proceeding that authorized CASE to file by email. Staff's Counsel, in that proceeding indicated by email that Mr. White could file by email. It is unclear, however, whether those responses were directed at the potential new proceeding or simply reaffirming the authorization in the Unit 6 and 7 proceeding. As such, the Staff believes that Mr. White reasonably relied on the representations of Staff's counsel in the Unit 6 and 7 proceeding prior to filing. See 79 Fed. Reg. at 47,689 (extending the time to file a petition to intervene until October 14, 2014).

¹⁷ The Board held oral argument on CASE's Petition on January 14, 2015, in Homestead, Florida. The hearing transcript is available at ADAMS Accession No. ML15020A685.

¹⁸ LBP-15-13, 81 NRC at 476.

¹⁹ *Id.* at 476 n. 120.

²⁰ *Id.* at 477-78.

radiological claims, finding them to be direct challenges to the 2012 EPU license amendments.²¹

The Board also struck several arguments raised for the first time in CASE's reply.²²

The Board issued an initial scheduling order ("ISO"), directing the parties to file an initial statement of position, testimony, and affidavits.²³ On October 9, 2015, CASE filed "Citizens Allied for Safe Energy Initial Statement of Position, Testimony, Affidavits, and Exhibits."

("CASE's SOP"). However, CASE's filing did not include any testimony or affidavits and only included 3 of the 6 identified exhibits.²⁴ Two more exhibits were provided on October 14, 2015.

On October 19, 2015, FPL moved to strike certain portions of CASE's Statement of Position and certain exhibits.²⁵ The Staff supported FPL's motion to strike to the extent that FPL identified portions of CASE's filings that were not supported by an expert or were outside the scope of the admitted contention.²⁶ CASE filed its answer opposing FPL's Motion to Strike on October 29, 2015.²⁷

²¹ LBP-15-13, 81 NRC at 478.

²² *Id.* at 461-62 (granting the motion to strike with the exception of issues related to freshwater).

²³ Initial Scheduling Order ("ISO").

²⁴ Citizens Allied For Safe Energy Initial Statement of Position, Testimony, Affidavits and Exhibits (For January, 2015 Evidentiary Hearing) ("CASE's SOP") at 5.

²⁵ [FPL's] Motion to Strike Portions of CASE's "Initial Statement of Position, Testimony, Affidavits and Exhibits" or, in the Alternative, Motion *In Limine* to Exclude It and Its Cited Documents from Evidence (Oct. 19, 2015) (ADAMS Accession No. ML15292A564). That motion is pending before the Board. Therefore, the Staff's testimony and exhibits address the issues that FPL identified as out of scope or improperly proffered. The Staff's testimony on those issues is in discrete portions of the testimony, in the event that FPL's motion is granted.

²⁶ NRC Staff's Answer to [FPL's] Motion to Strike Portions of CASE's "Initial Statement of Position, Testimony, Affidavits and Exhibits" or, in the Alternative, Motion *In Limine* to Exclude It and Its Cited Documents from Evidence (Oct. 26, 2015) (ADAMS Accession No. ML15299A026).

²⁷ CASE Answer to FPL Motion to Strike Portions of CASE October 9, 2015 Filing (Oct. 29, 2015) (ADAMS Accession No. ML15302A190). Pursuant to the Board's ISO, CASE's answer was three days late.

On October 21, 2015, the Board ordered CASE to re-submit the exhibits it filed with its SOP so that they were numbered in accordance with the ISO.²⁸ The Board also directed CASE to submit an exhibit list providing a brief description of each numbered exhibit.²⁹ The Board specified that CASE should not file new exhibits.³⁰ CASE then refiled some but not all of its exhibits and added additional exhibits.³¹ On November 3, 2015, CASE moved the Board to subpoena five witnesses from various federal and county agencies.³² During consultation on the motion, FPL and the Staff opposed the motion.³³

DISCUSSION

I. Legal and Regulatory Requirements

The National Environmental Policy Act of 1969 (“NEPA”), 42 U.S.C. § 4321 et seq., requires the NRC to consider the environmental impacts of its licensing actions prior to issuing licenses.³⁴ NEPA does not mandate a specific outcome or the course of action.³⁵ Instead,

²⁸ Order (Requiring Proper Numbering of CASE’s Exhibits) (unpublished) (ADAMS Accession no. at ML15294A316).

²⁹ Order (Requiring Proper Numbering of CASE’s Exhibits) at 2 (unpublished) (ADAMS Accession no. at ML15294A316).

³⁰ Order (Requiring Proper Numbering of CASE’s Exhibits) at 2 (unpublished) (ADAMS Accession no. at ML15294A316) (“CASE may not submit any new exhibits.”).

³¹ In CASE’s initial exhibit list, only seven exhibits were identified. See CASE Hearing Schedule, dated October 9, 2015 (ADAMS No. ML1529A306) Ex. INT-007. On October 26, 2015, CASE submitted a revised exhibit list with 75 identified exhibits. See Ex. INT-007-R, dated October 26, 2015. However, CASE has only submitted 13 exhibits that were identified on its revised exhibit list contrary to the Board’s order. While it appears from CASE’s description of some exhibits listed in the revised exhibit list would not need to be identified as exhibits, the vast majority of the exhibits have not been provided in contravention of the ISO and subsequent Board orders.

³² CASE Motion Requesting Subpoenas for Expert Witnesses for January 2016 Evidentiary Hearing (Nov. 3, 2015) (ADAMS Accession No. ML15307A470). FPL and the Staff both indicated during consultation on the motion that they would oppose the request for subpoenas.

³³ The Staff intends to file its answer opposing CASE’s Motion no later than November 13, 2015, in accordance with the Board’s ISO.

³⁴ See, e.g., *Baltimore Gas and Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 97 (1983) (quoting *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n. 21 (1976))(stating that NEPA requires “only that the agency take a ‘hard look’ at the environmental consequences before taking a major action); *Sierra Club v. Army Corp of Engineers*, 446 F.3d 808, 815 (8th Cir. 2006)(same); *Louisiana Energy Services, L.P.*

NEPA imposes procedural requirements, including that an environmental impact statement (“EIS”) be prepared for any action determined to be a major federal action significantly affecting the quality of the human environment.³⁶ For other actions, NEPA provides for less detailed analysis, including preparation of an EA or the use of a categorical exclusion. NEPA’s procedural requirements are intended to foster informed decision-making and provide public disclosure of the relevant impacts.³⁷

The NRC’s regulations implementing NEPA are in 10 C.F.R. Part 51.³⁸ The NRC has previously determined that certain categories of actions do not individually or cumulatively have a significant effect on the human environment.³⁹ For these actions, the NRC has established categorical exclusions. If a proposed action meets the categorical exclusion requirements, no EIS or EA is prepared.⁴⁰ The NRC has also determined that certain actions require preparation of an EIS.⁴¹ Thus, when considering a license application for these actions, the NRC will prepare an EIS which contains a detailed analysis of both the environmental impacts of the proposed action and alternatives to the proposed action, among other things. While the EIS must be detailed, it is not required to be perfect or complete.⁴²

(Clairborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998)(same); *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-06-19, 64 NRC 53, 63-64 (2006)(same).

³⁵ See, e.g., *Winter v. Nat. Res. Def. Council*, 555 U.S. 7, 23 (2008)(stating that “NEPA imposes only procedural requirements” and does not mandate any particular result).

³⁶ Section 102(2)(C); 10 C.F.R. § 51.20(a).

³⁷ See 40 C.F.R. § 1502.1. See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349-51 (1989).

³⁸ 10 C.F.R. Part 51, Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions.

³⁹ 10 C.F.R. § 51.22.

⁴⁰ 10 C.F.R. § 51.22(c). As explained in the Staff’s testimony, similar actions to raise the allowable temperature of the UHS are normally processed as categorical exclusions.

⁴¹ 10 C.F.R. § 51.20.

⁴² See 49 Fed. Reg. 9352, 9355 (discussing NEPA case law).

Finally, if an action is not listed as requiring an EIS or as covered by a categorical exclusion, the NRC prepares an EA.⁴³ An EA documents the NRC's determination of whether the action is a major federal action warranting preparation of an EIS. If the NRC determines the action will not have a significant impact on the environment, the Staff prepares a finding of no significant impact ("FONSI").⁴⁴ If the Staff determines that the proposed action will, or has the potential to, significantly affect the environment, the Staff either prepares an EIS or a mitigated FONSI. Thus, an EA is a short concise document that briefly provides sufficient evidence and analysis for determining whether to prepare an EIS; aids an agency's compliance with NEPA when no EIS is necessary; and facilitates preparation of an EIS when one is necessary.⁴⁵ Importantly, an EA is not as detailed as an EIS.⁴⁶ Pursuant to 10 C.F.R. § 51.30(a), an EA must identify the proposed action and include:

- (1) A brief discussion of:
 - (i) The need for the proposed action;
 - (ii) Alternatives as required by section 102(2)(E) of NEPA;
 - (iii) The environmental impacts of proposed action and alternatives as appropriate;and
- (2) A list of agencies and persons consulted, and identification of sources used.

A FONSI is:

a concise public document for which the Commission is responsible that briefly states the reasons why an action, not otherwise excluded, will not have a significant effect on

⁴³ 10 C.F.R. § 51.31.

⁴⁴ See 10 C.F.R. § 51.23. The FONSI must be prepared and published in accordance with the requirements in 10 C.F.R. §§ 51.32, 51.34, 51.35, and 51.119.

⁴⁵ See <http://energy.gov/sites/prod/files/G-CEQ-40Questions.pdf> (citing 40 C.F.R. 1508.9(a)).

⁴⁶ See 40 C.F.R. § 1501.3 (stating that an EA is expected to be brief and concise). See *Hammond v. Norton*, 370 F.Supp.2d 226 (2005), motion to amend denied 448 F.Supp.2d 114 (describing an EA as less-detailed than an EIS). See also *Pacific Gas & Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 514 (2008) (emphasizing the brief and concise nature of an EA).

the human environment and for which therefore an environmental impact statement will not be prepared.⁴⁷

The Commission has explained that the requisite “hard look” at the environmental consequences mandated by NEPA⁴⁸ is subject to a “rule of reason,” meaning that the assessment need not include every environmental effect that could potentially result from the action, but rather “may be limited to effects which are shown to have some likelihood of occurring.”⁴⁹ Thus, the proper inquiry under this standard is not whether an effect is “theoretically possible,” but rather whether it is “reasonably probable that situation will obtain.”⁵⁰

Thus, in considering the sufficiency of an EA, the court’s review is limited to determining whether NEPA’s procedural requirements have been met and whether the agency took a hard look at the environmental impacts of the proposed action.⁵¹ In doing this review, courts should apply a rule of reason and should not engage in reviewing how the Staff’s analysis would have been altered by information available after the decision.⁵²

II. Staff’s Witnesses

The attached testimony presents the opinion of a panel of four highly qualified witnesses as follows: (1) Audrey Klett, an electrical engineer and project manager; (2) Briana Grange, a biologist; (3) William Ford, a professional geologist; and (4) Nicholas P. Hobbs, a nuclear engineer. Staff Testimony at 1-6.

⁴⁷ 10 C.F.R. § 51.14(a).

⁴⁸ See *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87 (1998).

⁴⁹ *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-455, 7 NRC 41, 48 (1978).

⁵⁰ *Id.* at 49.

⁵¹ See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989).

⁵² See *NRDC v. Callaway*, 524 F.2d 79 (2d Cir.1975); *NRDC v. Morton*, 458 F.2d 827 (D.C.Cir.1972).

Ms. Klett, an electrical engineer, is the project manager for Turkey Point Units 3 and 4 within the Division of Operating Reactor Licensing (“DORL”), Office of Nuclear Reactor Regulation (“NRR”). Staff Testimony at 1-6. She has the primary responsibility for interfacing with FPL regarding plant operations, license amendments, and certain inspections among other things. Staff Testimony at 1-6. Ms. Klett has been a project manager with DORL for over two years and reviewed numerous license amendments. Staff Testimony at 1-6. She has been employed in various capacities by the NRC with responsibilities to review licensee actions and requests for over 12 years. Staff Testimony at 1-6. Ms. Klett’s testimony will primarily address the challenged license amendments and the Staff’s process for evaluating the LAR and preparing the environmental analysis. Staff Testimony at 1-6.

Ms. Grange, a biologist, is an Environmental Scientist with Environmental Review and Guidance Branch, Division of License Renewal, NRR. Staff Testimony at 1-6. She has extensive experience conducting environmental reviews including providing major contributions to over half of the EISs for license renewal and over two dozen EAs, including previous EAs for Turkey Point Units 3 and 4. Staff Testimony at 1-6. Ms. Grange has been conducting environmental analysis for the NRC for over 9 years. Staff Testimony at 1-6. Ms. Grange’s testimony will generally address the challenged EA, the Staff’s conclusions, and the information supporting those conclusions. Staff Testimony at 1-6. She will discuss the Staff’s consultation with FWS and communications with various State officials. Staff Testimony at 1-6.

Mr. Ford, a professional geologist, is a Senior Physical Scientist with Environmental Review and Guidance Branch, Division of License Renewal, NRR. Staff Testimony at 1-6. He has extensive experience examining hydrology as part of initial licensing, license renewal, and license amendments for a range of applications including reactors and uranium recovery facilities. Staff Testimony at 1-6. Mr. Ford has been conducting environmental analysis for the NRC for 31 years, and has over 44 years of experience with environmental and hydrology analysis overall. Staff Testimony at 1-6. Mr. Ford’s testimony will generally address CASE’s

assertions regarding the supposed impact of saltwater intrusion from the proposed 4° F change to the UHS inlet temperature. Staff Testimony at 1-6. He will also address CASE's speculation regarding the hydrology underlying Turkey Point Units 3 and 4. Staff Testimony at 1-6.

Mr. Hobbs is a nuclear engineer with a Master of Science in Nuclear Engineering. Staff Testimony at 1-6. He is currently a Reactor Systems Engineer with the Balance-of-Plant Branch, Division of Safety Systems, NRR. Staff Testimony at 1-6. He has extensive experience with thermal hydraulic modeling and part of advanced reactor design. Staff Testimony at 1-6. Mr. Hobbs testimony will generally address the expected performance and characteristics of the CCS and various actual and hypothetical operating conditions. Staff Testimony at 1-6.

III. The Staff's Environmental Assessment Should Be Upheld Because It Satisfies NEPA

CASE claims that the Staff's EA did not satisfy NEPA because it "inadequately addressed the impact of the actions approved on the various aspects of the environment in question."⁵³ In particular, the contention as admitted by the Board identifies two issues regarding the Staff's analysis in its EA.⁵⁴ First, the contention questions the Staff's analysis of impacts on saltwater intrusion resulting from potential increases in temperature and salinity in the CCS.⁵⁵ Second, the contention presumes that the license amendment would directly result in increased water consumption to mitigate conditions in the CCS and, thereby, impact saltwater intrusion.⁵⁶

As discussed in more detail below, the Staff's EA and FONSI related to the challenged license amendments satisfied NEPA and should be upheld. First, salinities in the CCS are not

⁵³ CASE's SOP at 7.

⁵⁴ LBP-15-13, 81 NRC at 476.

⁵⁵ *Id.*

⁵⁶ *Id.*

expected to change appreciably as a result of the license amendments.⁵⁷ Second, temperatures exceeding the previous 100 °F limitation are expected to be of short duration and have limited impact on the relatively slow-moving groundwater.⁵⁸ Third, any increased temperatures in the CCS actually mitigate impacts from salinity in the CCS.⁵⁹ Fourth, increasing the temperature limit for the limiting condition of operation reduces the need to consume additional water from other sources to mitigate conditions in the CCS.⁶⁰ Fifth, the aquifers located beneath the confining unit separating the Biscayne Aquifer from the Floridan Aquifer are not impacted by conditions within the CCS.⁶¹ Finally, Florida already requires FPL to monitor and mitigate conditions within the CCS to protect the Biscayne Aquifer. Thus, the Staff's EA and FONSI were reasonable under NEPA and should be upheld.

A. Salinities in the CCS Are Not Expected to Be Appreciably Changed by the Increased Temperature Allowed by the License Amendments

CASE states that the crux of its argument is: “[t]emperature increases would also increase CCS water evaporation rates and result in higher salinity levels.”⁶² However, CASE's unsupported assertions do not indicate that the Staff's EA or FONSI is flawed. As explained in the Staff's testimony, the temperatures and salinities in the CCS are not expected to be noticeably changed by the license amendments. Staff's Testimony at 44-50. Studies have previously been performed on the CCS looking at condition changes based on temperature variations. Staff's Testimony at 27, 44-45. Those studies show that salinity does not change appreciably with a 4 °F temperature change. Staff's Testimony at 44-50. Instead, such a

⁵⁷ Ex. NRC-001, Staff's Testimony at 44-50.

⁵⁸ Staff's Testimony at 50-51.

⁵⁹ Staff's Testimony at 44-46.

⁶⁰ Staff's Testimony at 51-54.

⁶¹ Staff's Testimony at 23-24, 49, 55.

⁶² CASE's SOP at 20.

temperature increase is only associated with a small change in salinity. Staff's Testimony at 44-50. This small change in salinity would not be expected to impact saltwater intrusion into the Biscayne Aquifer. Staff's Testimony at 44-50.

This finding is consistent with the Staff's analysis in other licensing actions. In particular, the Staff has examined similar changes at other plants and determined that those license amendments could be processed under the regulations allowing for categorical exclusions. Staff's Testimony at 35-36.⁶³ In this case, the Staff determined that an EA was needed to evaluate the potential impacts to the American Crocodile, an endangered species, and its critical habitat. Staff's Testimony at 34-36.⁶⁴ The Staff's analysis with respect to the American crocodile is discussed in more detail below, to rebut CASE's claims regarding the issue, but is outside the scope of the admitted contention.⁶⁵

The staff reviewed the environment surrounding Turkey Point, looked at the potential changes that could result from this minor temperature change, looked at whether any information would suggest that the impacts would be different than previously analyzed, and reasonably determined the license amendments were not likely to have any impact on groundwater resources or saltwater intrusion. Staff's Testimony at 13, 44. As a result, the Staff on the basis of the EA and its analysis of potential impacts made a FONSI determination and subsequently issued the license amendment. Staff's Testimony at 31. Since the Staff's analysis was reasonable and considered the potential changes to the environment, and dispositioned them using an acceptable methods, the Staff's EA and FONSI should be upheld.

⁶³ Most recently, similar license amendments raising the UHS temperature limit for plant operation were issued to Hope Creek, Millstone, and Nine Mile Point under the rules for categorical exclusions. Ex. NRC-001, Staff's Testimony at 35-36.

⁶⁴ In an application still under review, the Staff prepared an EA due to potential fish kills that could result from the elevated temperature. Staff's Testimony at 36.

⁶⁵ LBP-15-13, 81 NRC at 477-78.

B. The Temperature Increase Allowed by the License Amendments Is Not Expected to Occur Frequently or Be of Long Duration

Even assuming that the temperature increase could materially change the saltwater intrusion behavior, the Staff's analysis determined that the temperatures exceeding the previous limit would not occur frequently or last for extended durations. Staff's Testimony at 38-39, 44, 49-51. The temperature excursion that occurred during the late summer 2014 that prompted the license amendment request was short-lived. Staff's Testimony at 39. Moreover, the excursion only occurred when Turkey Point was experiencing a confluence of events that aggravated temperatures in the CCS. Staff's Testimony at 38-39. In particular, Turkey Point was experiencing a drought concurrent with summer time temperatures, and had developed a substantial algae bloom. Staff's Testimony at 38-39. It is unlikely that these events would likely combine to produce similar results in the future, when considering the steps being taken by FPL to control salinity and algae growth. Staff's Testimony at 38-39, 60-61. The large algae bloom has been attributed to a combination of unique events related to the reduced flow conditions in the CCS from decreased fossil plant operation and the extended shutdowns required to perform the modifications supporting the EPU. Staff's Testimony at 38-39. The algae bloom increased the solar absorption of the CCS and most likely resulted in the short term temperature excursion. Staff's Testimony at 38-39. This is consistent with the historical information that shows that the CCS seldom approached the previous temperature limit. Staff's Testimony at 44, 49-51. While the proposed change from 100 °F to 104 °F could conceivably occur 24 hours a day, seven days a week, the Staff did not anticipate the plant approaching its 104 °F limit very frequently or for extended periods of time. Staff's Testimony at 44, 49-51. To examine the impacts from sustained operation at 104 °F, when operational history indicates that these temperatures are unlikely and would be of a short duration, would not be a reasonable analysis under NEPA.

The short duration of the temperature excursion is an important consideration. Staff's Testimony at 39-40. Temperatures in the CCS system experience rapid changes on a daily basis that are driven mainly by solar absorption. Staff's Testimony at 39-40, 50-51. The temperature in the CCS system is changing often on an hourly basis. Staff's Testimony at 39-40, 50-51. Groundwater movement including saltwater intrusion is a much slower process that often requires days or years to reach equilibrium. Staff's Testimony at 26. Due to the vast differences between the comparably slow rate of groundwater movement and the rapidly changing temperatures, the potential for a few short temperature excursions above the previous limit of 100 °F is unlikely to result in appreciable change to the saltwater intrusion. Staff's Testimony at 26, 50-51. Thus, the Staff's finding that there would not be significant impacts as a result of the amendments was reasonable.

CASE has argued that the temperature excursion was the result of the EPU for Units 3 and 4.⁶⁶ However, CASE's argument is unfounded. Prior to the uprate, the CCS received the waste heat from four power plants rated at about 7120 megawatt thermal ("MW_t). Staff's Testimony at 38. The extended power uprate added an additional 688 MW_t to Unit 3 and Unit 4 combined output. Staff's Testimony at 38. In December 2010, Unit 2 was placed in synchronous condenser mode. Staff's Testimony at 38. Placing Unit 2 in synchronous condenser mode removed approximately 1260 MW_t total thermal output. As such the total thermal load prior to the uprate when Units 1 through 4 were operating exceeded the thermal load after the uprate was completed.⁶⁷ Staff's Testimony at 38. Since the total heat being rejected to the CCS by the plants has decreased, the trends of rising temperature and salinity

⁶⁶ CASE's SOP at 71-72.

⁶⁷ The Staff witnesses recognize the total thermal output of the plants are not being rejected as waste but approximately 66% of the plant's thermal output is rejected as waste heat. Staff's Testimony at 13-14, 38. Since the ratio for waste is similar for all steam driven power plants, the total thermal output can be used a proxy for the total heat load rejected from the power plants. Staff's Testimony at 13-14, 38.

presented in CASE's SOP cannot be the result of increased power output from the two nuclear plants. Staff's Testimony at 38. Thus, CASE's arguments do not undermine the analysis in the Staff's EA or the Staff's FONSI.

C. Higher Temperatures in the CCS Mitigate the Migration of Hypersaline Water from the CCS

The premise of CASE's contention is that higher temperatures are uniformly bad for controlling the saltwater intrusion from the CCS. CASE's SOP at 20. As explained above, the increase in temperature is unlikely to have any real lasting impact on the CCS. Staff's Testimony at 44-50. Moreover, contrary to CASE's unsupported assertions, increases in temperature are likely to mitigate saltwater intrusion in the area surrounding Turkey Point. Staff's Testimony at 45. In particular, increasing temperatures in the CCS mitigate the rate of hypersaline water migrating from the CCS into the Biscayne Aquifer. Staff's Testimony at 45. This conclusion is supported by research specifically directed to modeling the CCS. Staff's Testimony at 45.

In particular, members of the U.S. Geological Survey modeled the impacts of the CCS on the hypersaline plume in the Biscayne Bay. Staff's Testimony at 45. As part of that modeling, the impacts from temperature changes in the CCS were examined. Staff's Testimony at 45. The modeling showed that on the whole, increasing temperatures in the CCS reduce the intrusion of hypersaline water out of the CCS. Staff's Testimony at 45. The decrease in intrusion reduces the rate of increase in the salinity and size of the hypersaline plume located beneath the Turkey Point site. Staff's Testimony at 44-50. Reducing both the rate of salinity increase and the size of the hypersaline plume reduces the saltwater intrusion in the Biscayne Aquifer. Staff's Testimony at 44-50. Therefore, the increased temperature limit should, on the whole, slow the rate of saltwater intrusion attributable to the CCS. Thus, the Staff's EA and FONSI are reasonable and should be upheld.

D. Increasing the Temperature Limit Reduces the Need to Consume Water to Mitigate Conditions Within the CCS

CASE asserts that increasing the allowable temperature for the UHS would correspond to an increased need to consume additional water from several different sources.⁶⁸ CASE argues that this additional water consumption will result in increased environmental impacts from saltwater intrusion.⁶⁹ However, CASE's unsupported assertions lack merit. While perhaps counterintuitive, increasing the allowed temperature over short durations results in decreased demand to consume additional water because (1) the heat carrying capacity of the CCS increases and (2) increased cooling resulting from elevated evaporation rates. Staff's Testimony at 51-54. This decreased water consumption demand would on the whole reduce or eliminate any environmental impact from the allowed license amendments. Staff's Testimony at 51-54. Therefore, the Staff reasonably concluded that the proposed license amendments would have no significant impact on the environment.

As discussed in Staff's testimony, increasing the allowable temperature results in increasing the CCS' capacity to store heat from all sources, including waste heat from Units 3 and 4, waste heat from Unit 1, solar radiation, and convective heating. Staff's Testimony at 51-54. This additional capacity to store heat prior to reaching the limiting condition of operation reduces FPL's need to find and receive authorization to inject additional water to actively cool the canals. Staff's Testimony at 51-54. Increasing the temperature would also result in a slight improvement to the CCS' overall cooling performance. Staff's Testimony at 53. For these reasons, the increase in allowable temperature prior to reaching the limiting condition of operation results in decreased demand to consume water to cool the CCS. Staff's Testimony at 51-54. Therefore, the Staff's EA and FONSI is reasonable and should be upheld.

⁶⁸ CASE's SOP at 26, 52.

⁶⁹ *Id.*

E. Deep Aquifers Located Below the Confining Unit and Underlying the Biscayne Aquifer Are Not Impacted by the CCS

CASE asserts that potential water withdrawals could aggravate saltwater intrusion in the area of Turkey Point.⁷⁰ However, CASE's unsupported assertion is unfounded. The deeper aquifers underlying the Biscayne Aquifer are not likely to be impacted by conditions in the CCS or withdrawal of water to mitigate conditions in the CCS. Staff's Testimony at 23-25, 54-56.

These deeper aquifers, beginning with the Floridan Aquifer, are hydraulically separated from the Biscayne Aquifer and the CCS by a thick confining unit⁷¹ that physically separates the Biscayne Aquifer from the aquifers below it. Staff's Testimony at 23-25. The confining unit is made up of a series of layers of rock and sediment that exhibit low permeability, and thus, retard and preclude the exchange of water between the Biscayne Aquifer and the Floridan Aquifer. Staff's Testimony at 23-25. Since water is not exchanged between the Biscayne Aquifer and the Floridan Aquifer, conditions in the CCS will not impact the water quality of the Floridan Aquifer. Staff's Testimony at 23-25. For similar reasons, water withdrawals from the Biscayne Aquifer, regardless of the location of the withdrawal, would not impact the Floridan Aquifer. Staff's Testimony at 23-25.

In fact, withdrawal of water from the Floridan Aquifer would, contrary to CASE's assertion, indirectly mitigate saltwater intrusion. Staff's Testimony at 49-50, 54-56. The Floridan Aquifer consists of an upper layer of brackish water that quickly becomes salty as depth increases. Staff's Testimony at 24. Withdrawals of water from the Floridan Aquifer, if used to mitigate conditions in the CCS, would on the whole reduce saltwater intrusion. Staff's Testimony at 49, 54-56. As discussed above, reducing the salinity in the CCS would reduce the development of a hypersaline plume below the Turkey Point site. Staff's Testimony at 49, 54-

⁷⁰ CASE's SOP at 52.

⁷¹ The Staff's EA referred to this confining unit as a confining layer. Staff's Testimony at 23.

56. By taking steps to reduce the scope and make-up of the saltwater plume below the Turkey Point site, the impact of saltwater intrusion would be lessened. Staff's Testimony at 49, 54-56. Thus, the Staff's EA and FONSI should be upheld because the aquifers located below the confining unit cannot be impacted by conditions in the CCS or the Biscayne Aquifer and water withdrawals from the deeper aquifers cannot directly impact the Biscayne Aquifer and would serve to mitigate saltwater intrusion.

F. Florida Already Requires FPL to Monitor and Mitigate Conditions Within the CCS to Protect the Biscayne Aquifer

The Staff's EA and FONSI accounted for the fact that Florida already required FPL to monitor groundwater in the vicinity of the CCS and was preparing to require FPL to mitigate conditions within the CCS to protect the Biscayne Aquifer at the time of the issuance of the license amendments. In particular, the Staff was aware that the State was seeking to require FPL to proactively mitigate salinity within the CCS as part of a consent agreement. Staff's Testimony at 17-20, 27-28, 42-43. The consent agreement requires FPL to monitor the groundwater in the vicinity of Turkey Point. Staff's Testimony at 17-20. As part of the monitoring program, FPL has installed several wells in and around the site. Staff's Testimony at 17-20, 27-28, 42-43. As a result of the monitoring, the State was proposing that FPL develop a plan to mitigate the salinities in the CCS and eventually reduce the hypersaline CCS to the saline concentrations found in the Biscayne Bay. Staff's Testimony at 17-20, 54-56. In order to reduce the saline concentrations to comply with the Florida Order, FPL needed to seek additional water withdrawals to help mitigate the saline concentrations in the CCS. Staff's Testimony at 17-20, 54-56.

The Staff's EA indicated that reducing salinities in the CCS through mitigation would on the whole be beneficial. Staff's Testimony at 48, 54-56. The reduction in salinity would indirectly decrease the saltwater intrusion by reducing the source of salinity for the hypersaline plume and decreasing the rate of salinity migration out of the CCS into the Biscayne Aquifer.

Staff's Testimony at 54-56. The mitigation program required as part of the consent agreement for siting the CCS reduces any potential impact that may be unanticipated and eventually plans to return the salinity of the CCS system to the same levels as the Biscayne Bay. Staff's Testimony at 54-55. As the salinity in the CCS is mitigated, saltwater intrusion from the CCS would slow or stop depending on the final maintained condition in the CCS system. Staff's Testimony at 54-56.

IV. Most of CASE's Challenges Are Outside the Scope of Contention 1

CASE's SOP and exhibits raise issues outside the scope of Contention 1 and rejected by the Board.⁷² In particular, the following claims are outside the scope of Contention 1 as admitted: CASE's challenges to the pace of the Staff's completion of the EA; the adequacy of the Staff's consideration of alternatives; the Staff's analysis on the impact to crocodile population and other wildlife; and the Staff's consultation with FWS. In admitting Contention 1, the Board explicitly limited the scope of the contention to "impact[s] ... on saltwater intrusion" from intrusion from the CCS and withdrawals of fresh water from surrounding aquifers.⁷³ Therefore, only claims limited to those issues are before the Board. The reminder of the claims are not at issue in this proceeding.

⁷² FPL's Motion to Strike and the Staff's Answer explain that most of CASE's SOP and exhibits are directed at issues beyond the scope of the contention. Florida Power and Light Company's Motion to Strike Portions of CASE's "Initial Statement of Position, Testimony, Affidavits, Exhibits" or in the alternative, Motion *in Limine* to exclude it and its cited documents from evidence; NRC Staff's Answer to Florida Power and Light Company's Motion to Strike Portions of CASE's "Initial Statement of Position, Testimony, Affidavits, Exhibits" or in the alternative, Motion *in Limine* to exclude it and its cited documents from evidence. In fact, CASE asserts that Contention 1 essentially allows it challenge any aspect of the Staff's EA without limitation. See Citizens Allied For Safe Energy's Answer To Florida Power & Light Company's Florida Power & Light Company's (FPL) Motion (Motion) To Strike Portions Of Case's "Initial Statement Of Position, Testimony, Affidavits And Exhibits" Or, In The Alternative, Motion In Limine To Exclude It And Its Cited Documents From Evidence.

⁷³ LBP-15-13, 81 NRC at 476.

A. The Pace of the Staff's Preparation of an EA Is Beyond the Scope of the Contention

CASE asserts that the analysis and EA was developed too quickly. CASE's SOP at 81-82. As an initial matter, this challenge is beyond the scope of this proceeding because Contention 1 as admitted by the Board does not concern the timing of the EA.⁷⁴ The only place where CASE raised any issue regarding the timing of the amendment was with respect to Contention 2, challenging whether the amendment should have been treated as exigent. Contention 2 was rejected by the Board in its entirety.⁷⁵ Thus, CASE's assertion regarding the timing of the EA is beyond the scope of the admitted contention.

Even assuming this challenge was within the scope of this proceeding, CASE's challenge does not identify a flaw in the Staff's EA. While CASE questions why it took only 18 days to prepare the EA, CASE's SOP at 82, CASE points to no statutory or regulatory requirement that prescribes a minimum amount of time required or mandated to produce an EA. *See id.* CASE does not offer any support for its assertion that preparing an EA in 18 days⁷⁶ would result in a NEPA violation. Moreover, CASE's timing challenge does not indicate why the analysis in the Staff's EA was inadequate. For these reasons, these claims should be rejected.

B. The Range of Alternatives Discussed in the EA Was Appropriate

CASE argues that the Staff should have considered more alternatives to the proposed license amendment discussed in the EA.⁷⁷ In particular, CASE suggests that the Staff should have considered ordering FPL "to alter the operation of one or both units in some way to reduce

⁷⁴ LBP-15-13, 81 NRC at 476.

⁷⁵ *Id.* at 477.

⁷⁶ CASE is mistaken in that the EA took more than 18 days to prepare. Staff's Testimony at 29-31.

⁷⁷ CASE's SOP at 65-66.

temperature from the effluent ... entering the CCS⁷⁸ CASE also argues that FPL should have contemplated importing power from other sources.⁷⁹ However, these matters are beyond the scope of this proceeding.

Further, even if these claims were within the scope of the proceeding, they do not identify a flaw in the Staff's analysis. The Staff's EA fully addressed the range of possible alternatives to the proposed license amendment. Staff's Testimony at 68. For example, the Staff's EA discussed the impacts from granting the amendment and the no-action alternative (denying the amendment). Staff's Testimony at 68. The no-action alternative fully encompasses CASE's suggested alternatives, because if the Staff denied the amendments, FPL would have to adjust the plant operation in an attempt to manage the CCS temperature and, in the event of a de-powering or shut-down (single or dual unit), would have had to import power from other sources in order to preserve grid stability and reliability.⁸⁰ Staff's Testimony at 68-70. Thus, these claims should be rejected.

C. The Board Explicitly Excluded CASE's Challenge Regarding Crocodiles and CASE's Claims About Other Wildlife Are New and Unfounded

In its SOP, CASE reasserts its challenge that the Staff did not analyze the impacts of the chemical treatments and temperature increase on the American crocodile within the CCS.⁸¹ However, the Board explicitly rejected these challenges in CASE's petition and did not admit them for hearing.⁸² As the Board noted in LBP-15-13, the Staff's EA discussed the potential impacts on the American crocodiles from the increase to the allowed inlet temperature, the use

⁷⁸ CASE's SOP at 67.

⁷⁹ *Id.*

⁸⁰ As Staff witnesses explain, importing power during the hot summer months would have been difficult and could have resulted in grid instabilities. Staff's Testimony at 68-70.

⁸¹ CASE's SOP at 46.

⁸² LBP-15-13, 81 NRC at 477-78

of chemical treatments for the algae blooms, and potential salinity impacts.⁸³ Staff Testimony at 68-70. Therefore, the Board held that CASE's Petition did not identify a material dispute and denied that portion of CASE's contention.⁸⁴ Thus, these challenges are outside the scope of this proceeding.

CASE's SOP also raises challenges based on information that occurred after the Staff issued the amendments. However, CASE's claims do not show that the Staff acted unreasonably under NEPA. NEPA does not require that the Staff accurately forecast the future; it only requires the Staff to examine the information available prior to its decision and make reasonable projections of the potential impacts including, as appropriate in this case, a conclusion that there is no significant environmental impact. Thus, CASE's reliance on the number of crocodile nests documented during 2015 is not material to the reasonableness of the Staff's conclusions made based on information prior to August 8, 2014, in consultation with FWS. Notably, had the Staff been required to predict the future, its EA findings would be supported by actual events. Namely, the conditions in the CCS since the license amendments were issued have not approached the newly authorized temperature limit. Staff's Testimony at 39, 50-51. Thus, even if CASE had presented any actual evidence supported by witness testimony, the assertion of temperature increase resulting in decreased nesting is speculative since the temperature has remained below the previous limit of 100° F since those few days in August of 2014. Staff's Testimony at 39, 63-66.

CASE's SOP also makes passing reference to other wildlife.⁸⁵ As an initial matter, these challenges are outside the scope of the admitted contention.⁸⁶ Moreover, even assuming that

⁸³ LBP-15-13, 81 NRC at 478.

⁸⁴ *Id.* at 478.

⁸⁵ See CASE's SOP at 23 and 33-35 (referencing an unsponsored email that flora and fauna are impacted by environmental changes).

⁸⁶ LBP-15-13, 81 NRC at 476-79

these challenges were in scope, they do not identify an insufficiency in the EA. In particular, CASE provides no indication of how the license amendments are tied to any of the potential changes to wildlife discussed in its SOP. For these reasons, these claims should be rejected.

D. The Staff Consulted with the Appropriate Agencies

CASE's SOP asserts that the Staff did not consult with the appropriate agencies at the federal level.⁸⁷ In particular, CASE argues that the Staff should have consulted with other agencies including the Biscayne Bay National Park Service, U.S. Geological Survey, National Oceanic and Atmospheric Administration, and the Bureau of Land Management.⁸⁸

CASE's consultation claims are outside the limited scope of Contention 1 as admitted. In any event, the Staff did complete all consultations prior to issuing the license amendments. Staff's Testimony at 63-64. Specifically, the FWS concurred with the Staff's assessment regarding the impact of changes on the American crocodile. Staff's Testimony at 63-64. The formal letter was received on July 29, 2014, and the Staff did not act on the LAR until August 8, 2014. Staff's Testimony at 63-64. CASE has pointed to no requirement to support its assertion that the Staff was required to consult with the National Park Service, the U.S. Geological Survey, National Oceanic and Atmospheric Administration, and the Bureau of Land Management when no impacts from the small change in temperature were expected on groundwater.

The Staff observed and was informed of FPL's request to various Florida agencies regarding its request to use chemical treatments and inject water from multiple sources including existing withdrawal authorizations as well as potential new withdrawal authorizations. Staff's Testimony at 4-5. With respect to authorizing the license amendments, the Staff consulted with the State's designated official. Staff's Testimony at 4-5. While Contention 1

⁸⁷ CASE's SOP at 62-64.

⁸⁸ CASE's SOP at 63-64.

questions whether this was the appropriate office, see LBP-15-13, 81 NRC at 475, the NRC cannot demand that Florida change the designated official to conduct consultations. Other Florida agencies were actively involved in granting FPL permission, often under emergency and temporary authority, to take the actions discussed in the Staff's EA including applying algacide to the CCS and diverting water from other sources and uses to the CCS. Staff's Testimony at 54-56. Thus, the Board should reject these arguments.

CONCLUSION

CASE has failed to establish evidence and testimony in support of Contention 1's claims that the Staff's EA and corresponding FONSI were inadequate. Therefore, Contention 1 should be resolved in favor of the Staff and the Staff's EA and the license amendments should be upheld.

Further, the Staff's SOP and testimony show that the Staff's EA and underlying analysis were reasonable and examined information related to CASE's concerns regarding temperature and salinity within the CCS system and potential impacts to groundwater in the area. Based on its independent analysis, the Staff determined that the 4 °F technical specification limit change contemplated by the license amendments would not significantly impact the groundwater in the area or change the saltwater intrusion appreciably. Thus, Contention 1 should be resolved in favor of the Staff and the Staff's EA and the license amendments should be upheld.

Respectfully submitted,

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