UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
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PROGRESS ENERGY FLORIDA, INC.	)	Docket Nos. 52-029 and 52-030
	)	
	)	
(Combined License Application for Levy County Nuclear Power Plant, Units 1 and 2)	)	

NRC STAFF INITIAL STATEMENT OF POSITION

Jody C. Martin
Kevin C. Roach
Laura R. Goldin
Counsel for NRC Staff

June 26, 2012

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INTRODUCTION

Pursuant to 10 C.F.R. §§ 2.337(g)(2) and 2.1207(a)(1), and the Atomic Safety and Licensing Board's (Board) Initial Scheduling Order,[1] as modified by the Board's May 23, 2012, Memorandum and Order,[2] the NRC Staff (Staff) hereby presents its Initial Statement of Position, together with its pre-filed initial testimony, exhibits and affidavits regarding the Intervenors'[3] Contention 4A. For the reasons discussed below and in the attached testimony, Contention 4A is without merit, and the Board should rule in favor of the Staff.

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[1] Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-22, 70 NRC 640, 647 (2009).

[2] Licensing Board Memorandum and Order (Ruling on Motions for Extension of Time and Motion to Change the Trigger Date for the Evidentiary Hearing) at 12 (May 23, 2012) (unpublished).

[3] The Intervenors were, at the time they filed their intervention petition, the Ecology Party of Florida, the Green Party of Florida, and the Nuclear Information and Resource Service. On May 17, 2012 the Intervenors filed a notice that the Green Party of Florida was withdrawing from the proceeding.

BACKGROUND

On July 28, 2008, Progress Energy Florida, Inc. (Applicant or PEF) filed an application for a combined construction permit and operating license (COL) for two new reactors in Levy County, Florida ("LNP"). The Federal Register notice of docketing was published on October 14, 2008 (73 Fed. Reg. 60,726), and the Federal Register notice of hearing and opportunity to petition for leave to intervene (Hearing Notice) was published on December 8, 2008 (73 Fed. Reg. 74,532). On February 6, 2009, the Intervenors collectively filed a petition to intervene containing several contentions.[4] On July 8, 2009, the Board issued a Memorandum and Order granting the hearing request and admitting parts of Contentions 4, 7, and 8. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-10, 70 NRC 51, 109 (2009).

Contention 4 is the remaining contention in this proceeding. As originally admitted, Contention 4 challenged the analysis in the Applicant's Environmental Report (ER) of impacts associated with dewatering and salt drift during construction and operation. Id. The Commission affirmed the admission of Contention 4 in ruling on PEF's appeal of the Board's decision. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), CLI-10-02, 71 NRC 27, 28-29 (2010).

The NRC Staff issued the draft Environmental Impact Statement (DEIS) for the Levy project on August 5, 2010, and the Federal Register notice of availability for the DEIS was published on August 13, 2010. 75 Fed. Reg. 49,539. PEF then filed motions for summary

[4] Petition to Intervene and Request for Hearing by the Green Party of Florida, the Ecology Party of Florida, and Nuclear Information and Resource Service (Feb. 6, 2009).

disposition—one asserting that portions of Contention 4 related to active dewatering were moot[5] and another regarding parts of Contention 4 relating to salt drift and passive dewatering[6]—on September 30, 2010 and October 4, 2010. The Intervenors filed an amended Contention 4 relating to hydroecology on November 15, 2010.[7] The Staff opposed the admission of certain bases not present in the initial Petition and PEF opposed admission of the amended contention entirely.[8] The Board admitted this contention as Contention 4A, with the exception of certain bases, on February 2, 2011. Order (Admitting Contention 4A), at 22 (Feb. 2, 2011) (unpublished) (ADAMS Accession No. ML110330394). On the same day, the Board issued Orders denying the motion to dismiss Contention 4 as moot and the motion for summary disposition. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-01, 73 NRC __ (Feb. 2, 2011) (slip op.); Order (Denying Motion for Summary Disposition of Aspects of Contention 4) (Feb. 2, 2011) (unpublished) (ADAMS Accession No. ML110330417). Amended Contention 4, as reframed by the Board, reads as follows:

CONTENTION 4A: The Draft Environmental Impact Statement (DEIS) fails to comply with 10 C.F.R. Part 51 and the National Environmental Policy Act because it fails to specifically and adequately address, and inappropriately characterizes as SMALL, certain direct, indirect, and cumulative impacts, onsite and offsite, of constructing and operating the proposed LNP facility:

> A. Impacts to wetlands, floodplains, special aquatic sites, and other waters, associated with dewatering, specifically:

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[5] Motion to Dismiss as Moot the Aspects of Contention 4 Related to Active Dewatering During Levy Nuclear Plant Operations (Sept. 30, 2010).

[6] Progress Energy's Motion for Summary Disposition of Contention 4 (Environmental Impacts of Dewatering and Salt Drift) with Regard to Salt Drift and Passive Dewatering (Oct. 4, 2010).

[7] Ecology Party of Florida, Green Party of Florida, and Nuclear Information and Resource Service Motion for Leave to Amend Contention 4 (Nov. 15, 2010).

[8] NRC Staff Answer to Joint Intervenors' Motion to Amend Contention 4 (Dec. 12, 2010); Progress Answer Opposing Joint Intervenors' Amended Contention 4 (Dec. 12, 2010).

1. Impacts resulting from active and passive dewatering;
2. Impacts resulting from the connection of the site to the underlying Floridan aquifer system;
3. Impacts on Outstanding Florida Waters such as the Withlacoochee and Waccasassa Rivers;
4. Impacts on water quality and the aquatic environment due to alterations and increases in nutrient concentrations caused by the removal of water; and
5. Impacts on water quality and the aquatic environment due to increased nutrients resulting from destructive wildfires resulting from dewatering.

B. Impacts to wetlands, floodplains, special aquatic sites, and other waters associated with salt drift and salt deposition resulting from cooling towers (that use salt water) being situated in an inland, freshwater wetland area of the LNP site.

C. As a result of the omissions and inadequacies described above, the Draft Environmental Impact Statement also failed to adequately identify, and inappropriately characterizes as SMALL, the proposed project's zone of:
1. Environmental impacts;
2. Impact on Federally listed species;
3. Irreversible and irretrievable environmental impacts; and
4. Appropriate mitigation measures.

Order (Admitting Contention 4A), at 1, Attachment A (Feb. 2, 2011) (unpublished) (ADAMS Accession No. ML110330394).[9]

Contention 7, as admitted by the Board, challenged the failure to include an analysis of environmental impacts associated with the management of LLRW. Levy County, LBP-09-10, 70 NRC at 72-78 (2009). The Commission affirmed the admission of Contention 7, with the exception of the portion relating to the disposal of greater than class C waste. Levy County, CLI-10-02, 71 NRC 46-48 (2010). Following the issuance of the DEIS, PEF filed a motion for summary disposition on August 12, 2010.[10] In their Answer, the Intervenors agreed that the

[9] In this statement of position, the elements of the contention will be referred to either by part (Part A, B, and C) or subpart (Subpart A1, A2, etc.).

[10] Motion for Summary Disposition of Contention 7 as Moot (Aug. 12, 2010).

DEIS cured the omissions raised by Contention 7;[11] accordingly, the Board granted the motion and dismissed Contention 7. Order (Granting Motion for Summary Disposition of Contention 7 as Moot) (Sept. 8, 2011) (unpublished) (ADAMS Accession No. ML102510257). Subsequently, the Intervenors filed an amended Contention 7[12] to challenge the adequacy of the DEIS, which the Board denied on March 16, 2011. Order (Denying Contention 7A) (Mar. 16, 2011) (unpublished) (ADAMS Accession No. ML110750407).

Contention 8, as admitted by the Board, challenged PEF's omission in its application of plans for long term management of low level radioactive waste (LLRW). Levy County, LBP-09-10, 70 NRC at 72-78 (2009). The Commission affirmed the admission of Contention 8, with the exception of the portion relating to the disposal of greater than class C waste. Levy County, CLI-10-02, 71 NRC 46-48 (2010). Following PEF's amendment to its LLRW management plan to further address long term storage, the parties filed a joint motion requesting the dismissal of Contention 8 on April 14, 2010.[13] The Intervenors then filed an amended Contention 8 challenging the adequacy of PEF's long-term LLRW management plan, which the Board admitted as Contention 8A on August 9, 2010. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2). PEF subsequently filed a motion for summary disposition[14] that the Board denied, finding instead for the Intervenors. Progress Energy Florida,

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[11] Response of Interveners to Progress Energy August 12, 2010 Motion for Summary Disposition on Contention Seven as Moot (Aug. 31, 2010).

[12] Motion for Leave to File a New, Timely Contention and Contention 7A: Inadequacy of the Levy DEIS with Respect to the Environmental Impacts of Low-Level Radioactive Waste (Oct. 4, 2010).

[13] Joint Motion for Approval of Settlement and Dismissal of Contention 8 (April 14, 2010).

[14] Motion for Summary Disposition of Contention 8A (Aug. 27, 2010). The Staff filed its "Answer in Support of Progress Energy Florida's Motion for Summary Disposition of Contention

(continued. . .)

Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-10-20, 72 NRC 571, 575 (2010). The Commission denied the Staff's appeal of the Board's Order, ruling that it was not ripe for review. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), CLI-11-10, 74 NRC __, __ (Sept. 27, 2011) (slip op. at 1). Following its submittal of supplemental RAI responses regarding its LLRW management plan,[15] PEF filed a motion for summary disposition of Contention 8A.[16] On November 4, 2011, the Board granted summary disposition of Contention 8A. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-31, 74 NRC __ (Nov. 4, 2011) (slip op.).

DISCUSSION

I. Legal and Regulatory Requirements

The contention at issue in this case arises under the National Environmental Policy Act ("NEPA"), and the NRC's regulations in Part 51 that implement that statute. 42 USC §§ 4321 *et seq*; 10 C.F.R. Part 51. NEPA requires that an agency prepare an Environmental Impact Statement (EIS) before approving any major Federal action that will significantly affect the quality of the human environment. 42 USC § 4332(2)(C).

Under NEPA, the NRC is required to take a "hard look" at the environmental impacts of a proposed action, as well as reasonable alternatives to that action. See Louisiana Energy Servs., L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998). This "hard

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(. . .continued)

8A," on September 16, 2010.

[15] Voluntary Supplemental Response to NRC Request for Additional Information Letter No. 073 Related to Solid Waste Management System (Apr. 14, 2011) (ADAMS Accession No. ML11112A807) (Attachment A).

[16] Progress Energy Florida, Inc's Motion for Summary Disposition of Contention 8A in Light of Revised Extended LLRW Plan (Aug. 27, 2011).

look," however, is tempered by a "rule of reason" that requires agencies to address only impacts that are reasonably foreseeable – not remote and speculative. See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973). Along the same line, NEPA requires that an agency consider only "reasonably foreseeable" indirect effects of a proposed licensing action and "does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts." See Louisiana Energy Services, L.P. (National Enrichment Facility), CLI-06-15, 63 NRC, 687, 698 (2006); Louisiana Energy Servs. L.P. (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005) (emphasis in original). Moreover, "NEPA gives agencies broad discretion to keep their inquiries within appropriate and manageable boundaries." Louisiana Energy Servs., L.P., CLI-98-3, 47 NRC at 103. Similarly, environmental impacts should be discussed in proportion to their significance. 10 C.F.R. § 51.45(b)(1).

An applicant generally has the burden of proof in a licensing proceeding. 10 C.F.R. § 2.325. However, in cases involving NEPA contentions, the burden shifts to the NRC because the NRC, not the applicant, has the burden of complying with NEPA. See, e.g., Duke Power Co. (Catawba Nuclear Station, Units 1 & 2), CLI-83-19, 17 NRC 1041, 1049 (1983). Nevertheless, because "the Staff, as a practical matter, relies heavily upon the Applicant's ER in preparing the EIS, should the Applicant become a proponent of a particular challenged position set forth in the EIS, the Applicant, as such a proponent, also has the burden on that matter." Louisiana Energy Servs., L.P. (Claiborne Enrichment Center), LBP-96-25, 44 NRC 331, 338-39 (1996), rev'd on other grounds by Louisiana Energy Servs., L.P. (Claiborne Enrichment Center) CLI-97-15, 46 NRC 294 (1997), citing Pub. Serv. Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-471, 7 NRC 477, 489 n.8 (1978). During its environmental review, the Staff "has discretion to rely on data, analyses, or reports prepared by persons or entities other than agency staff, including competent and responsible state authorities." See, e.g., Public

Service Co. of Oklahoma, (Black Fox Station, Units 1 and 2), LBP-78-28, 8 NRC 281, 282 (1978). Ultimately, though, the NRC Staff is responsible for all information used in the EIS and thus must conduct an independent evaluation of this information. See Exelon Generation Co. (Early Site Permit for Clinton ESP Site), LBP-05-19, 62 NRC 134, 155 (2005). Therefore, "although the Staff need not replicate the work done by another entity, it must independently review and find relevant and scientifically reasonable any outside reports or analyses on which it intends to rely." See Louisiana Energy Services, L.P. (National Enrichment Facility), LBP-06-8, 63 NRC 241, 259 (2006).

NEPA does not require the use of the best scientific methodology. See Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315-316 (Mar. 26, 2010). As NEPA does not require certainty or precision or the use of the best methodology, the Staff need not prove, and the Board need not find, that its results are the most accurate or were performed with the best methodology. See LES, CLI-05-20, 62 NRC at 536 (stating that NEPA does not require certainty or precision); Pilgrim, CLI-10-11, 71 NRC at 315 (stating that NEPA does not require use of the best methodology). Under NEPA, an agency is free to select its own methodologies so long as they are reasonable. See Pilgrim, CLI-10-11, 71 NRC at 316. In addition, NEPA must be construed "in the light of reason if it is not to demand virtually infinite study and resources." Id. (quoting Natural Res. Def. Council v. Hodel, 865 F.2d 288, 294 (D.C. Cir. 1988)). An EIS is not intended to be a research document reflecting the latest technology, data, and methods. Id. at 37. Because there "will always be more data that could be gathered," agencies "must have some discretion to draw the line and move forward with decisionmaking." Id. (quoting Town of Winthrop v. FAA, 535 F.3d 1, 11-13 (1st Cir. 2008).

"NRC hearings on NEPA issues focus entirely on the adequacy of the NRC Staff's work." Southern Nuclear Operating Co. (Early Site Permit for Vogtle ESP Site), CLI-7-17, 65 NRC 392,

395 (2007). Therefore, in challenging the EIS, intervenors must identify, with some specificity, the alleged deficiencies in the NRC's NEPA analysis. See Hydro Res., Inc. (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 13 (1999). While there may be mistakes in the EIS, "in an NRC adjudication it is the Intervenors' burden to show their significance and materiality." Exelon Generation Co. (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005). In order to advance a claim under NEPA, the intervenor must allege with adequate support that the NRC Staff has failed to take a "hard look" at one or more significant environmental questions, meaning that the Staff has unduly ignored or minimized pertinent environmental effects of the proposed action. Duke Energy Corp. (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-03-17, 58 NRC 419, 431 (2003) (discussing what an intervenor must allege, with adequate support, to litigate a NEPA claim). As the Commission has stated, "[o]ur Boards do not sit to 'flyspeck' environmental documents or to add details or nuances. There may be mistakes in the EIS, but it is the intervenor's burden to show their materiality and significance. If the ER (or EIS) on its face 'comes to grips with all important considerations' nothing more need be done." Clinton ESP, CLI-05-29, 62 NRC at 811 (quoting Systems Energy Resources, Inc. (Early Site Permit for Grand Gulf Site), CLI-05-4, 61 NRC 10, 13 (2005)). Finally, "in an adjudicatory hearing, to the extent that any environmental findings by the Presiding Officer (or the Commission) differ from those in the FEIS, the FEIS is deemed modified by the decision." Hydro Resources, Inc. (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-04, 53 NRC 31, 53 (2001).

II. Witnesses

The "Prefiled Direct Testimony of Mallecia A. Sutton Sponsoring NUREG-1941 Into the Hearing Record" sponsors the introduction of the Staff's FEIS into the record of this proceeding as required by 10 C.F.R. § 2.337(g). The remaining testimony, the "Prefiled Direct Testimony of Mallecia A Sutton, Ann L. Miracle, Michael T. Masnik, J. Peyton Doub, Lara M. Aston, Daniel O.

Barnhurst, Lance W. Vail, Rajiv Prasad, Vince R. Vermeul, Kevin R. Quinlan and Larry K. Berg Concerning Contention 4A" ("Staff Testimony"), presents the Staff's position regarding Contention 4A. While the Staff witnesses can be broken into panels of different specialties, they provided combined testimony because the issues in Contention 4A intertwined all of the review areas, making it difficult to separate individual sections. The hydrology portions of the Staff's testimony are sponsored by Mr. Daniel O. Barnhurst, Mr. Lance W. Vail, Dr. Rajiv Prasad, and Mr. Vince R. Vermeul. The terrestrial ecology portions of the Staff's testimony are sponsored by Mr. Joseph Peyton Doub and Ms. Lara M. Aston. Dr. Michael T. Masnik and Dr. Ann L. Miracle sponsor the aquatic ecology portions of the Staff's testimony. Finally, Mr. Kevin R. Quinlan and Dr. Larry K. Berg sponsor the atmospheric portions of the Staff's testimony. The combined testimony of these expert witnesses, along with the Staff's exhibits, demonstrates that Contention 4A lacks merit. The witnesses' professional qualifications necessary to demonstrate that they are experts are included as exhibits NRC002 through NRC013 and are summarized below.

A. Professional Qualifications for Staff Witnesses

Ms. Mallecia A. Sutton is employed as a Project Manager in the Environmental Projects Branch 1, in the Division of New Reactor Licensing in the Office of New Reactors (NRO) at the NRC. Ms. Sutton became the Project Manager for the environmental review associated with this COLA in April 2012. Ms. Sutton has a Bachelor of Science degree in Biology, and she has worked as an environmental project manager at the NRC for five years. Staff Testimony at A1(a); Ex. NRC002. At the NRC, Ms. Sutton was the environmental project manager for the Vogtle COL application, which was the first COL issued by the NRC. Ex. NRC002. Ms. Sutton also worked for the U.S. Army Corps of Engineers for six years as an environmental project manager and biologist. Ex. NRC002.

Dr. Ann L. Miracle is a scientist in the Environmental Assessment Group, Earth Systems Science Division, Energy and Environment Directorate at the Pacific Northwest National Laboratory (PNNL). Staff Testimony at A1(b). Dr. Miracle is a technical reviewer on aquatic resources for this COLA. Id. Dr. Miracle wrote the descriptive information provided in Sections 2.4 (Ecology), 4.3 (Impacts from Construction), 5.3 (Ecological Impacts from Operation), 7.3 (Aquatic Ecosystems- Cumulative Impacts), and 9.3 (Alternative Sites) of the FEIS. Id. at A2(b). Dr. Miracle has a Bachelor of Arts in Biology from the University of Virginia, a Master of Science in Molecular Genetics from the University of Florida, and a Doctor of Philosophy in Molecular Immunology from the University of South Florida, where she was involved in research to examine population dynamics and development of cartilaginous fish, including sharks and skates in Gulf coastal waters. Id. at A3(a); Ex. NRC003. Dr. Miracle has worked as an aquatic ecologist on two NRC EISs. Id. She also has extensive knowledge of this portion of Florida from almost 6 years of graduate study, and 4 years of employment with the Florida Marine Research Institute (now part of the Florida Department of Environmental Protection (FDEP)) and the University of South Florida. Staff Testimony at A3(a). Dr. Miracle has worked on this project from the pre-application stage.

Dr. Michael T. Masnik is the Ecology Team Leader, in the Division of Site Safety and Environmental Analysis, NRO, NRC. Id. at A1(c). He is also an aquatic ecology technical reviewer for this COLA. Id. Dr. Masnik oversaw the work of Dr. Miracle in preparing the FEIS. Dr. Masnik has over 35 years of experience assessing impacts of nuclear power on aquatic biota, including numerous assessments at all three of Florida's operating nuclear sites. Id. at A3(b). This includes working as a lead technical reviewer for several endangered species assessments related to operation of the Crystal River Energy Complex (CREC) and serving as the NRC Project Manager for the license renewals of both the St. Lucie Plant and the Turkey Point Plant. Id. Dr. Masnik has been involved with the assessment of impacts to aquatic

ecology related to the building and operation of the LNP for over 5 years beginning with the August 2007 pre-application audit of the LNP site and visiting the proposed alternative sites. Id. Dr. Masnik holds a Bachelor of Science in Conservation from Cornell University, a Master of Science in Zoology from Virginia Polytechnic Institute and State University, and a Doctor of Philosophy in Zoology also from Virginia Polytechnic Institute and State University. Ex. NRC004.

Mr. Doub is an Environmental Scientist in the Division of Site Safety and Environmental Analysis, NRO, NRC, and has been employed by the NRC for four years. Staff Testimony at A1(d). He received a B.S. in Botany from Cornell University in 1982 and an M.S. in Botany from the University of California at Davis in 1984. Ex. NRC005 at 1. He maintains active certifications as a Professional Wetland Scientist (PWS) and Certified Environmental Professional (CEP). Id. Since joining the NRC, Mr. Doub has reviewed or is presently reviewing terrestrial ecology matters on eight COL and ESP applications. Id. at 2. He was also the lead author of revision 2 to Regulatory Guide 4.11, "Terrestrial Environmental Studies for Nuclear Power Stations." Id. As the lead terrestrial ecology reviewer for the LNP application, he participated in the acceptance review of the application, site audits, development of requests for additional information (RAIs) and review of RAI responses, preparation of FEIS sections, oversight of contractors working on the FEIS, and participation in public meetings and response to public comments. Staff Testimony at A63. Before working at the NRC, Mr. Doub was a Senior Environmental Scientist for Tetra Tech NUS, Inc., where he performed numerous terrestrial ecology and wetlands reviews in support of major federal permit applications, including two COL applications. Ex. NRC005 at 3-4. Mr. Doub has over 25 years of professional experience in mapping, characterizing, and evaluating possible impacts to terrestrial habitats, especially wetlands. Staff Testimony at A3(c). He has performed wetland delineations in over 15 states, including several in Florida. See Id. and Ex. NRC005 at 1. For

example, in 1995 and 1996, he served as the lead wetland scientist on a project to map land use and cover in the Suwannee River Water Management District, which is situated north of the LNP site. Staff Testimony at A3(c).

Ms. Lara M. Aston has been employed by PNNL as a Scientist since 1999, and she currently works in the Coastal Ecosystem Research Group, Marine Sciences Laboratory, Energy and Environment Directorate of PNNL. Staff Testimony at A1(e) and Ex. NRC006 at 1. She received her Bachelor of Science in Environmental Science from Western Washington University in 1999 and Masters of Science in Environmental Science from the University of Washington in 2004. Ex. NRC006 at 1. Ms. Aston has over 12 years of professional experience in ecological assessment, characterization, and restoration of wetland systems. Staff Testimony at A3(d). For the past five years, Ms. Aston has been a Terrestrial Ecology subject matter expert (SME) and a Non-radiological Human Health SME and Resource Coordinator for NEPA Compliance in performing work for the Nuclear Regulatory Commission. Ex. NRC006 at 1. During this time she has contributed to multiple terrestrial and wetlands ecology analyses for COL, ESP, and license renewal applications for reactors in Florida, South Carolina, and North Carolina. Id. at 1-2. As a terrestrial ecology reviewer for the LNP application, she contributed to the development and writing of terrestrial and wetlands ecology sections of the FEIS. Staff Testimony at A2(e).

Mr. Daniel O. Barnhurst is a hydrologist in the Division of Site Safety and Environmental Analysis, NRO, NRC. Staff Testimony at A1(f). He is a technical reviewer for hydrological alterations, water use, and water quality issues associated with the LNP COLA. Id. Mr. Barnhurst is a licensed professional geologist with around 12 years of experience in hydrogeological areas including hydrogeochemistry, aquifer characterization, numerical modeling, and design of sampling plans monitoring well networks and remediation systems. Id. at A3(e). Prior to coming to the NRC, Mr. Barnhurst did substantial work analyzing the long-

term impact of multiple reactors on groundwater quality and quantity at the Department of Energy's Savannah River Site. Id. Since coming to the NRC in 2008, Mr. Barnhurst has provided technical oversight to impact analyses of reactor building and operation on both ground and surface water quantity and quality for EISs at sites in the southeast and Florida. Id. Mr. Barnhurst has a Bachelor of Science in Environmental Geology and a Masters of Science in Geology from Brigham Young University. Ex. NRC007.

Mr. Lance W. Vail is a Senior Research Engineer in the Hydrology Group, Environmental Technology Division, Energy and Environment Directorate of PNNL. Staff Testimony at A1(g). He is a technical reviewer for PNNL's contract with the NRC on hydrological alterations, water use, and water quality issues associated with the LNP COLA. Id. Mr. Vail has 30 years of experience at PNNL, where he has focused on the nexus of water resources and energy resources. Id. at A3(f). Often this research has provided a characterization of hydrological alterations required by ecologists to support their assessment of ecological impacts. Id. For the NRC, he has been involved in a variety of research and regulatory reviews, including updates to hydrology-related guidance documents, including working on numerous EISs for applications for Early Site Permits, License Renewals, and COLs. Id. Mr. Vail holds a Bachelor of Science degree in environmental resources engineering from Humboldt State University and a Masters of Science degree in civil engineering from Montana State University. Ex. NRC008.

Dr. Rajiv Prasad is a Scientist in the Hydrology Group, Environmental Technology Division, Energy and Environment Directorate of PNNL. Staff Testimony at A1(h). He is a technical reviewer for PNNL's contract with the NRC on surface water alterations, water use, and water quality issues associated with the LNP COLA. Id. Dr. Prasad has worked at PNNL for the last 10 years where his research has focused on understanding the workings of the hydrologic systems, variability of snow processes, characterization of hydrologic conditions for aquatic habitat restoration, effects of climate change, and application of hydrologic principles to

further NRC Staff guidance. Id. at A3(g). Starting in 2003, Dr. Prasad worked on the first four early site permit reviews (North Anna, Clinton, Grand Gulf, and Vogtle) both on the safety as well as the environmental aspects of the review. Id. Dr. Prasad was also the lead hydrologist for the South Texas Project COL environmental review. Id. He has often worked closely with terrestrial and aquatic ecologists to provide them hydrologic characterization needs for their ecological impact assessments. Id. Dr. Prasad has a Bachelor of Engineering in civil engineering from the Regional Engineering College in Durgapur, India, a Master of Technology in civil engineering from the Indian Institute of Technology, and a Doctor of Philosophy in Civil and Environmental Engineering from Utah State University. Ex. NRC009.

Mr. Vince R. Vermeul is a Senior Research Engineer in the Environmental Systems Group, Earth Systems Science Division, Energy and Environment Directorate of PNNL. Staff Testimony at A1(i). He is a technical reviewer for PNNL's contract with the NRC on groundwater alterations, use, and quality issues associated with the LNP COLA. Id. Mr. Vermeul has over 22 years of experience as a research engineer with a focus on hydrologic and geochemical characterization, environmental monitoring, interpretation of hydrologic testing datasets, and developing/demonstrating groundwater remediation technologies. Id. at A3(h). Mr. Vermeul has been involved in numerous remedial investigations and the development/deployment of groundwater remediation technologies at Department of Energy, Department of Defense, and Environmental Protection Agency sites located across the country. Id. Projects specifically related to energy resources have included environmental monitoring of oil shale development, tracer methods for engineered geothermal systems, and environmental monitoring of carbon capture and sequestration in deep geologic formations. Id. Mr. Vermeul has a Bachelor of Science in agricultural engineering and a Masters of Science in civil engineering (environmental) both from Oregon State University. Ex. NRC008.

Mr. Kevin R. Quinlan is a Physical Scientist specializing in meteorology in the Division of Site Safety and Environmental Analysis, NRO, NRC. Mr. Quinlan, who holds a Master of Science in Atmospheric Science and a Bachelor of Science in Meteorology, has five years of experience in meteorology and atmospheric science. While earning his Master of Science, he conducted research on rainfall patterns for Hurricane Emily (2005) and is well-versed in multiple computer data and modeling systems. Staff Testimony at A3(i). He has been employed at the NRC since 2008. His work focuses on conducting confirmatory analyses using the NRC's guidance document, NUREG-1555, Environmental Standard Review Plan-Standard Review Plans for Environmental Reviews for Nuclear Power Plants (ESRP), Section 2.3, which focusing on information related to regional and local climatology, onsite meteorological monitoring programs, and atmospheric dispersion estimates for COL and ESP applications. Ex. NRC013. Mr. Quinlan also provides technical support and analysis for the Staff's drafting of environmental impact statements. For the Levy COL review, Mr. Quinlan has been involved in the development of the DEIS and FEIS. Staff Testimony at A3(i). In conjunction with PNNL staff, he assisted in editing sections of the FEIS related to meteorology and air quality. Id.

Dr. Larry K. Berg is a Research Scientist in the Atmospheric Chemistry and Meteorology Technical Group, Atmospheric Sciences and Global Change Division, Energy Directorate at PNNL. Staff Testimony at A3(j). He has been a research scientist at PNNL for ten years. In this role, Dr. Berg primarily researches cloud parameterizations, boundary-layer meteorology, turbulence, mesoscale modeling, and atmospheric dispersion. Id. Dr. Berg holds a Doctor of Philosophy in Atmospheric Sciences and a Master of Science in Atmospheric Science. Id. He assists the NRC Staff with environmental reviews. He also assisted the Department of Energy by planning an Atmospheric Radiation Measurement field campaign to investigate the relationship of boundary-layer cumulous clouds to the land surface. Id. Specifically, for the Levy COL review, Dr. Berg was the technical reviewer for PNNL's contract with the NRC on

meteorology and air quality resource issues as well as the primary drafter of sections of the Levy DEIS and FEIS pertaining to salt drift, climatology, atmospheric dispersion, meteorology and air quality impacts from building, operation, and cumulative impacts, as well as air quality impacts at alternative sites. Id.

III. Contention 4A Lacks Merit and the Board Should Find in the Staff's Favor

The Staff's Testimony demonstrate that the inadequacies in the Staff's FEIS alleged by the Intervenors lack merit. As explained in the Staff Testimony and as supported by the Staff exhibits, the Staff has conducted its environmental review appropriately, in compliance with the NRC's regulations that implement NEPA and in accordance with applicable Staff review guidance. In reviewing the application, conducting its independent environmental analysis, and reaching conclusions as to the associated impacts, the Staff has adequately addressed the impacts to the environment from both dewatering at the LNP site and from salt-drift and deposition from the LNP cooling towers.

Throughout this testimony the Staff refers to the FDEP Conditions of Certification as adding support to its impact determinations. The FDEP Conditions of Certification provide a number of legally binding requirements with which PEF must comply in order to obtain and maintain permits to, among other things, withdraw groundwater for building and operating the LNP project. PEF must, for instance, conduct an environmental monitoring program, and, if such monitoring detects or predicts adverse impacts to wetlands, PEF must acceptably mitigate the impacts or use an alternative source of water. See PEF005 at 43-44.

The FDEP Conditions of Certification do not substitute for the Staff's independent review of environmental impacts. Rather, they provide the Staff with a realistic picture of potential future environmental impacts because they set an upper bound to permissible impacts. In this way, the FDEP Conditions of Certification provide added confidence for the Staff's conclusions, but do not stand in for its independent review.

The NRC is not the proper forum for adjudicating disputes related to matters contained in the Conditions of Certification. See PPL Susquehanna LLC (Susquehanna Steam Electric Station, Units 1 & 2), CLI-07-25, 66 NRC 101, 107 (2007) (Where petitioner "claims that NRC ought to concern itself with water use matters within the jurisdiction of other state and Federal agencies," the "complaints simply do not articulate any issue material to this proceeding…."); Hydro Resources, Inc. (292 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-98-16, 48 NRC 119, 121 (1998) ("Congress granted us authority merely to regulate radiological and related environmental concerns. It gave our agency no roving mandate to determine other agencies' permit authority."). Thus, while the NRC has no authority to regulate the content of the Conditions of Certification, it is reasonable to assume that the State of Florida will enforce its own laws and regulations.

The Staff Testimony and FEIS use the terms, "SMALL", "MODERATE" and "LARGE" to make determinations regarding impacts to certain resources. The terms are discussed in Chapter 1 of the FEIS and are codified in Table B-1 of 10 C.F.R. Part 51, Subpart A, Appendix B. They are defined there as follows:

> SMALL – Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.
>
> MODERATE – Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
>
> LARGE – Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

Staff Testimony at A13.

Also important to understanding the Staff's review, is the definition of the word "construction." As discussed in the introduction to Chapter 4 of the FEIS, and in the Staff's testimony, the NRC's authority related to building new nuclear units is limited to "construction activities that have a reasonable nexus to radiological health and safety and/or common

defense and security." Id. at A10 (citing Ex. NRC001A at 4-2). Most of the activities required to build a nuclear power plant do not fall within the NRC's regulatory authority and, therefore, are not construction as defined by the NRC. Id. Such activities are referred to as "preconstruction" activities in 10 C.F.R. § 51.45(c). Id. The NRC Staff evaluates the direct, indirect, and cumulative impacts of the construction activities that would be authorized with the issuance of a COL. Id. The environmental effects of preconstruction activities (e.g., clearing and grading, excavation, and erection of support buildings) are generally included as part of this FEIS in the evaluation of cumulative impacts. Id. For most environmental resource areas, the impacts are attributable to a combination of preconstruction and construction activities. Id. As explained in the Staff Testimony, the combined impacts of construction and preconstruction activities are presented together in the FEIS in Chapter 4 and are described together in the Staff Testimony. Id. When discussing activities that include both construction and preconstruction activities, the FEIS uses the term "building." Id. For each resource area, the NRC in the FEIS also provides an impact characterization solely for construction activities that meet the NRC's definition of construction. Id. Thereafter, both the assessment of construction impacts and building impacts are used in the description and assessment of cumulative impacts in Chapter 7. Id.

However, because of the collaborative effort between the NRC and the United States army Corps of Engineers in the LNP environmental review, the combined impacts of construction activities that would be authorized by the NRC with its issuance of a COL and the preconstruction activities are presented together in the FEIS in Chapter 4. Id. When discussing activities that include both construction and preconstruction activities, the FEIS uses the term "building." Id. For each resource area, the NRC in the FEIS also provides an impact characterization solely for construction activities that meet the NRC's definition of construction. Id. Thereafter, both the assessment of the impacts of 10 C.F.R. § 50.10(a) construction activities and the assessment of the combined impacts of construction and preconstruction are

used in the description and assessment of cumulative impacts in Chapter 7. Id. For most environmental resource areas (e.g., terrestrial ecology), the impacts are not the result of either solely preconstruction or construction activities. Rather, the impacts are attributable to a combination of preconstruction and construction activities. Id. Consequently, construction and preconstruction activities are described together in the Staff's Testimony. Id.

Part I of the Staff's Testimony provides the background of the Staff experts and lists the exhibits upon which they relied in creating their testimony. Part II of the Staff's Testimony provides a detailed explanation on how the Staff analyzed dewatering impacts and provides definitions of terms that are used in Contention 4A. Part III of the Staff's Testimony specifically addresses Parts A and B of Contention 4A and states why the Staff's review was adequate. In this Statement of Position, we combine Parts II and III of the testimony to address each part of the contention. Part IV of the Staff's Testimony addresses Part C of Contention 4A.

A. The Staff's Analysis of Impacts to Wetlands, Floodplains, Special Aquatic Sites, and Other Waters from Dewatering is Adequate

Part A of Contention 4A challenges the Staff's analysis in the FEIS of impacts to wetlands, floodplains, special aquatic sites, and other waters from dewatering. Under NEPA, the NRC is required to take a "hard look" at the environmental impacts of a proposed action, as well as reasonable alternatives to that action. See Louisiana Energy Servs., L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998). This "hard look" however, is tempered by a "rule of reason" that requires agencies to address only impacts that are reasonably foreseeable – not remote and speculative. See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973). The Staff's Testimony and exhibits demonstrate that the Staff's analysis in the FEIS took the required hard look at each of the resources challenged in Part A of Contention 4A; thus, the FEIS is adequate and Part A of Contention 4A lacks merit.

1. The Staff's Hydrologists and Ecologists Carefully and Methodically Analyzed Impacts From Dewatering

i. The Hydrology Analysis of Part A of Contention 4A

As explained in the Staff's Testimony, the analysis and level of detail provided in the FEIS for the hydrology assessment comports with Staff guidance in applicable portions of the ESRP. Staff Testimony at A15. The hydrology review focuses on hydrologic alterations from the project. Id. at A16. In accordance with Sections 4.2.1 and 5.2.1 of the ESRP, the Staff does not make impact determinations associated with hydrological alterations. Id. The Staff makes impact determinations regarding resources. Id. For instance, hydrological alterations may impact abiotic resources (e.g. water supply and water quality for potable water needs) and biotic resources (e.g. aquatic and terrestrial biota) and the impact determinations are made with respect to these abiotic and biotic resources, not for the hydrology review. Id.

Key sources of information used by the Staff's hydrologists -- Mr. Lance W Vail, Dr. Rajiv Prasad, Mr. Vince Vermeul, and Mr. Daniel Barnhurst -- include the Applicant's Environmental Report (ER), public comments at the NRC's scoping meeting and on the DEIS, interactions with other Federal and state agencies, and site visits. Id. at A17. In determining the spatial extent of their review, the Staff hydrologists used section 5.11 of the ESRP, which encourages the use of natural boundaries of the resources being evaluated. Id. at A28. Consequently, the Staff analyzed impacts to the entire onsite area of the LNP, and offsite areas including the Cross Florida Barge Canal (CFBC), the Lower Withlacoochee River, the Old Withlacooche River and the Gulf of Mexico. Id. For cumulative impacts, the Staff used a 20-mile radius because that is the area that the Staff found could be expected to be impacted by LNP building and operation and other past, present, and reasonably foreseeable future actions. Id.

In Part II of its testimony the Staff provides definitions of several terms used in Contention 4A. The Staff does not use the terms "active dewatering" or "passive dewatering" in the FEIS, because these terms have a specific meaning in the NRC's safety review. Staff Testimony at A39. As the terms are used in the safety review, there is neither active nor passive dewatering at the LNP site. Id. For purposes of this testimony, the Staff understands the Intervenors to use the term active dewatering to mean activities, other than those defined below as passive dewatering, that result in a lower water table elevation. Id. Active dewatering as used by the Intervenors is caused by the operation of the four production wells, dewatering of the excavations where LNP facilities will be built, dewatering of the CFBC associated with the installation of the intake structure, the barge unloading facility, and laying of the portion of the blowdown discharge pipeline where it crosses the CFBC. Id. The Staff understands that the Intervenors define passive dewatering as changes in surface water and shallow groundwater from changes in land cover, site drainage design, and changes in subsurface flow properties in the excavated zone. Id.

The Staff understands that the Intervenors define "floodplains" in the same manner as the FEIS. The FEIS uses the definition from Executive Order 11988, "Floodplain Management." Id. at A40. "The term 'floodplain,' shall mean the lowland and relatively flat areas adjoining inland and coastal waters including floodprone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year." Id. (citing 42 Fed. Reg. 26,951 (May 24, 1977)). This is also called the "100-year floodplain." Id.

For the groundwater analysis, in accordance with Sections 2.3, 4.2, and 5.2 of the ESRP, the Staff evaluated the Applicant's conceptual groundwater model. Staff Testimony at A30. A conceptual model is a description of the groundwater system. Id. at A31. All conceptual groundwater models include some uncertainty; therefore, there are usually several plausible conceptual groundwater models. Id. at A32. One of the goals of the Staff's review is to determine if the conceptual model is sufficiently conservative for the impact assessment for which it is being used. Id. In this case, the conceptual model in the FEIS relied on site-specific characterization and monitoring data, in conjunction with regional information from the South West Florida Water Management District (SWFWMD) and the United States Geological Survey (USGS). Id. at A41. The Staff found that the site-specific characterization data was generally consistent with the regional descriptions provided by SWFWMD and the USGS. Id.

In addition to site-characterization data, and information from SWFWMD and the USGS, the Staff also used information from the Applicant's modeling efforts for some aspects of its review. The Applicant provided the results of a groundwater model in its COL application. This model was based on a SWFWMD-developed model called the District Wide Regulation Model (DWRM2). Id. at A38. The DWRM2 model incorporated geohydrologic characterization data and interpretations collected by the USGS and other agencies. Id. The Applicant created a

local-scale sub-model of DWRM2 as part of its Site Certification Application for the State of Florida. Id.

Because it was based on regional data, the Applicant's initial model showed a poor fit to the local potentiometric surface, meaning that the measured water levels at the site did not match the results of the model. Id. at A45. Therefore, the Staff asked the Applicant to provide a recalibrated model. Id. The Applicant's recalibrated version of the model used local data to obtain a better fit between the observed and model predicted water-levels in the vicinity of the site. Id. The Applicant provided the Staff with a detailed description of this model and the recalibration process. Id. The Staff did not make any determination as to the relative merits between the two models, recognizing that both models are subject to uncertainty, but the Staff found that comparing the models provided useful information. Id. at A46. In those areas where the Staff used model data to assist in making an impact determination, the Staff used the recalibrated model because it provided a better fit to local conditions, and because it was the most conservative model. Id.

The Staff did not independently run either the original or recalibrated local-scale models for several reasons. Id. at A47. First, the DWRM2 model, upon which the local-scale models are based, is a SWFWMD-developed model and the Applicant performed it in accordance with a state-sanctioned process in coordination with SWFWMD staff, which resulted in SWFWMD approval prior to issuance of the Florida Site Certification. Id. Given the graphical outputs provided by the Applicant, and the model's pedigree, the Staff did not find it necessary to run the model itself. Id. Although the Staff did not rerun the models, it did evaluate PEF's modeling approach, review all reported model inputs for consistency with the site conceptual model, and verify that all reported model outputs were plausible. Id.

Second, the Staff did not use the model as the sole basis for any impact determinations; the models were only one aspect of the Staff's review. Id. at A47. Instead of

using just the model, the Staff also relied on the Applicant's compliance with conditions of certification issued by the Florida Department of Environmental Protection (FDEP) regarding groundwater usage. Id. Specific groundwater usage requirements included in FDEP's conditions of certification include 1) reporting and data submittal (Section B.A.1, Ex. PEF005 at 41), 2) environmental impacts, monitoring and mitigation (Section B.A.2, Id. at 42), 3) alternative water supply implementation (Section B.A.3, Id. at 43), 4) aquifer testing and groundwater impact analysis (Section B.A.4, Id. at 45), 5) compliance reporting (Section B.A.5, Id. at 46), 6) pumpage reporting (Section B.A.6, Id. at 47), 7) distribution flexibility (Section B.A.7, Id. at 48), 8) water quality sampling (Section B.A.8, Id. at 49), and 9) well construction, operations, and testing (Section B.A.4, Id. at 52). Staff Testimony at A47.

Because these are mandatory conditions of a state-issued permit, under NEPA it is reasonable for the Staff to assume that the Applicant will comply with them because the Staff is entitled to presume that an applicant will comply with applicable laws and regulations. See GPU Nuclear, Inc. Oyster Creek Nuclear Generating Station), CLI-00-6, 51 NRC 193, 207 (2000) (stating that, without documentary support, "this agency has declined to assume that licensees will contravene our regulations") (citations omitted); Curators of the University of Missouri, CLI-95-8, 41 NRC 386, 400 (1995) (declining intervenor's suggestion to assume licensee will violate a license condition). The Staff's analysis considered both the model runs provided by the Applicant, and the FDEP conditions of certification in estimating the impacts to groundwater due to operations of the LNP. Staff Testimony at A47. Further, given the complex site hydrologic conditions, including natural annual variability in the groundwater level, model parameter uncertainties, and the relatively small water-level changes that have been shown in the literature to result in wetlands impacts, the staff determined that the groundwater model alone was not sufficient for supporting a definitive assessment of the impacts on wetlands. Id. at A51. This determination is consistent with the State of Florida's groundwater-use permitting process that

uses the model as a scoping-level assessment tool but relies on a State-mandated environmental monitoring program and mitigation plan to ensure no adverse impacts on wetlands. Id.

Part A of Contention 4A also contests the Staff's analysis of passive dewatering impacts in the FEIS. In Part II of its testimony regarding the passive dewatering portion of the contention, the Staff explains the LNP stormwater system. There will be three retention and infiltration ponds (also referred to as stormwater ponds) at the LNP site. Id. at A52. The site will be graded so that water runs away from the plant through drainage ditches that convey the water to these three ponds. Id. The Staff's analysis concluded that during normal years, the bottom of these ponds would be above the groundwater table for most of the year, and equal to the groundwater table during the wettest part of the year. Id. at A55. During the wettest season, there would be some seepage from groundwater into the ponds, but it would be minimal. Id. Therefore, the Staff found that there would not be passive dewatering from the stormwater ponds as alleged in Contention 4A. Id. at A56.

For the Staff's analysis of hydrology impacts to floodplains, it reviewed two analyses by the Applicant to determine whether the Applicant must provide compensation of floodplain storage loss and historical basin storage (HBS). Id. at A58. The State of Florida requires applicants to compensate for any encroachment on the 100-year floodplain that may result in loss of flood storage, either storage loss or HBS loss. Id. at A57. The Applicant provided two analyses showing impacts to floodplains, a conservative bounding analysis, then a more detailed analysis. Id. at A58. The Staff analyzed the Applicant's first analysis, the bounding analysis, and found it conservative. Id. at A58 to A59. Using the results of this analysis, the Staff found that the volume of floodplains filled would be 252.4 acre feet (ac-ft) and there would be 73.9 ac-ft of HBS loss. Id. at A59. The Staff found that the Applicant could compensate for this loss, as required by the State of Florida, because there was up to 320.9 ac-ft of available

compensating volume on site for floodplain storage loss, which is enough to compensate for the conservatively estimated 252.4 ac-ft of storage loss. Id. For HBS loss, the Staff found that the 73.9 ac-ft of loss could easily be compensated by the Applicant by excavating as little as 0.5ft on 148 of the available 322 ac. Id.

The Staff also reviewed the Applicant's second floodplain loss analysis. This was a more specific analysis done by the Applicant to comply with FDEP conditions of certification. Id. at A60. For this analysis, the Applicant used the Environmental Protection Agency's Storm Water Management Model (SWMM) and SWFWMD--directed inputs. Id. This analysis found that the maximum increase in flood elevation down-gradient of the LNP site is less than 0.08 ft, or approximately 1 in. Id. The Staff found that this analysis used many conservative features such as ignoring infiltration and evaporation losses and using a conservative roughness coefficient. Id. Based on this conservative analysis, the Staff agreed with the Applicant that based on the compensation for HBS and floodplain storage loss, the impact on downstream areas because of building LNP would be minor. Id. at A61. The Staff hydrologists used the baseline floodplains analysis discussed in this section when evaluating impacts to floodplains from each of the items listed in the subparts of Contention 4A.

ii. *Ecology*

a. Terrestrial Ecology

The terrestrial ecology review for the proposed LNP project examined potential impacts to terrestrial resources on the LNP site, proposed rights-of-way for offsite LNP facilities, and the surrounding landscape as described in Section 2.4.1 of the FEIS. Id. at A66. Section 2.4.1 of the FEIS characterizes the terrestrial landscape that the Staff analyzed, Section 4.3.1 describes impacts to terrestrial resources from building the LNP facilities, Section 5.3.1 describes the impacts to these resources from operating the LNP facilities, and Section 7.3.1 describes the cumulative impacts to terrestrial resources resulting from activities associated with the proposed

LNP project in combination with other past, present, and reasonably foreseeable future activities within the geographic area of interest for these resources. Id. at A65. This review considered any onsite or offsite areas of terrestrial habitat, including wetlands, potentially affected by building or operating the proposed onsite or offsite LNP facilities. Id. at A70. For the cumulative impacts analysis, the geographic area of interest for terrestrial ecology encompasses the 20-mi radius around the LNP site, plus the certified corridors for the proposed transmission lines and other offsite linear features. Ex. NRC001B at 7-21. The scope of this area was selected to encompass projects that could potentially influence terrestrial ecological resources on and near the LNP site. Id.

Impacts to wetland habitats were a particular focus of the terrestrial ecology review, and, accordingly, the Staff applied a conservative analytical approach. Staff Testimony at A67 and A71. The terrestrial ecologists broadly interpreted the term "wetlands" to include all areas meeting either of the overlapping Federal (33 C.F.R. § 328.3b) or State of Florida (Fla. Admin. Code Ann r. 62-340.200(19) (2011)) regulatory definitions. Id. at A67. The Staff's consideration of impacts to wetlands in the FEIS was also not limited by the USACE determination that certain wetlands were not within its regulatory jurisdiction. Id. at A70.

The Staff's review, as described in greater detail below, satisfied NEPA's requirement to take a hard look at impacts from the proposed action. In carrying out their analyses, the terrestrial ecologists followed applicable guidance, incorporated analytical conservatism, and sought confirmatory grounds for their conclusions when possible. See e.g., Id. at A49, A68, and A99. In particular, the Staff found that the monitoring requirement and protective conditions in the FDEP Conditions of Certification will limit the potential scope and degree of impacts.

b. Aquatic Ecology

As demonstrated by the Staff's testimony and exhibits, the Staff's aquatic ecology review was adequate because the aquatic ecologists followed guidance from Sections 2.4.2, 4.3.2,

5.3.1.2, 4.7, and 5.11 of the ESRP in addressing impacts to aquatic ecology in the FEIS. Staff Testimony at A77. Additionally, the aquatic ecologists – Dr. Michael Masnik and Dr. Ann Miracle – participated in site visits, reviewed the Applicant's ER and responses to RAIs, reviewed public scoping comments and comments on the DEIS, performed a literature review, and interacted with other state and Federal agencies. Id. at A73. In determining what resources to analyze, the Staff considered resources that could potentially be affected by direct, indirect or cumulative impacts from building activities and operation of the cooling water intake and discharge, and transmission corridor maintenance. Id. at A78.

Two definitions in Part A of Contention 4A are important to the aquatic ecology review. First, Contention 4A uses the term "special aquatic sites." The Environmental Protection Agency defines "special aquatic sites" to mean "either large or small areas possessing special ecological characteristics of productivity, habitat, wildlife protection or other important and easily disrupted ecological values." Id. at A75 citing 40 C.F.R. § 230.3. Special aquatic sites include fish and wildlife sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. Id. The Staff did not use the term "special aquatic sites" in the FEIS; instead, it used the more specific term for each individual resource. Id. For purposes of the Staff's testimony, terrestrial ecologists evaluate wetlands impacts, and LNP will not affect wildlife sanctuaries or refuges. Therefore, the aquatic ecology analysis of special aquatic sites focuses on mud flats and vegetated shallows. Id. The second important definition is for the term "other waters." The Staff is unaware of any formal definition of "other waters" so it interprets the term to mean freshwater springs, and other waterbodies that are not afforded specific State or Federal protections or classifications. Id. at A76. Under this definition, other waters discussed in the testimony include the Big King Spring, Little King Spring, and the CFBC. Id.

2. The Staff's Analysis of the Impacts From Active and Passive Dewatering Was Adequate

Subpart A1 of Contention 4A challenges the Staff's analysis of impacts to wetlands, floodplains, special aquatic sites, and other waters associated with dewatering, specifically focusing on those impacts resulting from active and passive dewatering. The hydrologists provided their definitions of active and passive dewatering above. For the reasons discussed below and in the Staff's Testimony, the Staff's review as presented in the FEIS was adequate, and this portion of Contention 4A lacks merit.

In the first subpart of Contention 4A, the Intervenors challenge, with respect to terrestrial ecology, the adequacy of the analysis in the FEIS relating to "[i]mpacts to wetlands [and] floodplains . . . associated with dewatering." The Staff followed applicable guidance in ESRP 4.3.1 in considering dewatering impacts during the building phase. Staff Testimony at A94. For analyzing operational impacts, the Staff drew upon analyses from the hydrology review and applied an analytical methodology individually tailored to the ecological conditions of the Levy site because there is no ESRP section specifically addressing operational impacts on wetlands. Id. The Staff also applied the guidance in ESRP 4.7 for cumulative impacts. Id.

Contrary to the assertion in Contention 4A that the Staff characterized these terrestrial impacts as SMALL, the Staff concluded that such impacts would be MODERATE for all building activities, SMALL for NRC-authorized construction, SMALL to MODERATE for operations, and MODERATE for cumulative impacts. Ex. NRC001A at 4-71 to 4-72 and 5-47 and NRC001B at 7-29. The particular terrestrial impacts to wetlands during building "would include filling, erosion, sedimentation, alterations to hydrology, and clearing of vegetation." Ex. NRC001A at 4-31. Below is a description of the Staff's accounting for dewatering impacts in its terrestrial ecology review, specifically relating to active and passive dewatering, connection of the site to the underlying Floridan aquifer, Outstanding Florida Waters, alterations and increases in nutrients caused by the removal of water, and increases in nutrients resulting from dewatering associated wildfires.

Dewatering during the building phase would be the active dewatering associated with deep excavation to support the building of the powerblock foundations and shallow excavation for trenches needed to install buried makeup water intake and blowdown water discharge pipelines. Staff Testimony at A96. Active dewatering during building would have minimal impacts on wetlands. Id. Active dewatering for the two powerblock excavations may reach 100 feet in depth, but PEF plans to limit its scope to the footprint of the excavations by grouting the bases of and installing impermeable diaphragm walls within the excavations to avoid groundwater infiltration. Id. at A98. Because the surrounding portions of the aquifer would be isolated from pumping, impacts would be temporary and localized. Id. at A96. Impacts that do occur would be mitigated by PEF pumping seepage water into infiltration trenches that would allow water to gradually recharge the underlying aquifer. Id. The limited 2-4 year site development period and the Staff's expectation, based on groundwater monitoring data independently reviewed by the Staff, that groundwater levels would remain within the range of natural variability also support the Staff's analysis. Id. at A98. Because the potentially affected wetlands are adapted to seasonal groundwater fluctuations of as much as 8 feet, their functional properties and vegetative composition are not expected to be permanently altered or otherwise destabilized. Id. Finally, the Staff accounted for the effect of the legally binding FDEP Conditions of Certification. A construction dewatering plan for approval by FDEP and SWFWMD would be required, and if monitoring showed unacceptable adverse impacts to wetlands, the FDEP Conditions of Certification would require PEF to mitigate or cease withdrawing groundwater. Id. at A99.

The active dewatering associated with other Levy facilities would be temporary, limited, and localized. Staff Testimony at A97. Dewatering of trenches to install buried pipelines would be performed in segments and for a short duration. Id. Moreover, water removed for pipeline installation would be pumped into infiltration trenches to permit recharge of the underlying

aquifer, similar to the water pumped from the excavations. Id. For these reasons, and because of the requirements of the FDEP Conditions of Certification, the Staff expects no long-term impacts on wetlands or wetland functions due to active dewatering during building. Id. at A97-A99.

Active dewatering associated with the operation of the proposed LNP facilities would be limited to groundwater withdrawals from the four water production wells proposed on the south end of the site. Id. at A100. To determine the scope and degree of wetland impacts due to drawdown associated with pumping from these wells, the Staff conducted a quantitative analysis based on the results of the recalibrated groundwater modeling. Id. at 104. The recalibrated groundwater model, as described in A49 of the Staff Testimony, provided the most conservative estimate of groundwater usage impacts. The results of the Staff's quantitative analysis are depicted graphically in Figure 5-5 of the FEIS and numerically in Table 5-2 of the FEIS. Ex. NRC001A at 5-28; 5-29. Drawing from a literature review of water table drawdown effects on wetlands, the Staff assumed a threshold of 0.5 feet as the drawdown level beyond which adverse wetlands effects would be expected to occur. Staff Testimony at A101. The Staff tailored this information to the specific terrain of the Levy site and vicinity by overlaying the quantitative drawdown information on a map depicting wetland cover areas. Id. at A102. Using the 0.5 feet threshold, the Staff estimated possible adverse effects for approximately 2093 acres of wetlands. Id. at A104. Wetland impacts would not extend more than about 3 miles from the location of the production wells, and drawdowns of over 1 foot would be almost entirely confined to the LNP site. Id. at A104 and A106.

The Staff also considered the elements of the FDEP Conditions of Certification in evaluating the potential impacts to wetlands from active dewatering during operation. Id. at A105. As discussed above, the FDEP Conditions of Certification require implementation of an alternative water supply or approved mitigation "if adverse impacts are detected or predicted

through . . . Environmental Monitoring." Ex. PEF005 at 42-44. The Staff concluded that terrestrial impacts during operations would be SMALL to MODERATE. Staff Testimony at A106. The range reflects the acknowledged levels of uncertainty with respect to the predictive power of the groundwater model and uncertainty regarding whether PEF's monitoring program under the FDEP Conditions of Certification can predict or detect the occurrence of wetland impacts with sufficient margin to preclude noticeable impacts. Id. But, because the FDEP Conditions of Certification require corrective action as soon as adverse wetland impacts are detected or predicted, the Staff did not find that a LARGE conclusion was warranted. Id.

The Staff's evaluation of wetlands impacts due to passive dewatering focused on stormwater flow changes caused by the LNP project. Id. at A108. PEF proposed a series of drainage ditches that would direct runoff to three retention and infiltration ponds sufficient to hold a 25-year, 24-hour rain event.[17] Id. Rainfall beyond this amount would be pumped to the cooling tower blowdown water basin and discharged into the Gulf of Mexico or released into adjoining wetlands through a series of emergency spillways. Id. The Staff performed an independent review of PEF's stormwater management plan and proposed best management practices for controlling runoff and sedimentation. Id. The Staff concluded that the proposed stormwater management plan would encourage a natural pattern of recharge and that substantial erosion or alteration of the hydroperiod of connected wetlands would be unlikely given the infrequency of extreme events. Id. at A109. Thus, the impacts from passive dewatering would be minimal and not change the Staff conclusion that operational impacts would be SMALL to MODERATE. See id. at A106 and A109.

[17] A 25-year, 24-hour rainfall event is the maximum 24-hour precipitation event with a probable recurrence interval of once in 25 years. Staff Testimony at A108.

For the cumulative impacts review, the Staff reviewed past, present, and reasonably foreseeable future actions combined with the impacts from building and operating the LNP project. Id. at 110. This review included consideration of the proposed Tarmac King Road Mine. Id. The Staff's MODERATE cumulative impacts conclusion was driven primarily by the ongoing loss and fragmentation of terrestrial habitat, including wetlands, in the region. Id. But, the incremental impacts attributable to the LNP project would be SMALL to MODERATE due, principally, to the reasons discussed above regarding impacts to wetlands due to active dewatering during operations. Id. The FDEP Conditions of Certification, as discussed above, would prevent these impacts from becoming LARGE because the required monitoring would detect adverse wetland impacts whether attributable to the LNP wells or another source, such as the Tarmac mine. Id.

For analyzing hydrological impacts to floodplains from active and passive dewatering the Staff hydrologists used, as discussed above, the definition of floodplains from Executive Order 11988. Id. at A40. The Staff interpreted this portion of the contention to challenge whether the FEIS accurately described whether the lowering of the groundwater level due to active dewatering could increase the potential for recharge to the aquifer during rainfall events, thus reducing the magnitude of runoff and leading to a reduction in the area of the floodplains. Id. at A113. The Staff's Testimony describes how the Staff found that the average recharge of the aquifer during LNP operations would only have a minor effect on the runoff during a 100-year, 24-hour rainfall event. Id. A 100-year, 24-hour rainfall event is a 24-hour rainfall event that occurs on average once every 100 years, and is the commonly used approach for floodplains analyses. Id. During a 100-year, 24-hour rainfall event, without active dewatering at the LNP plant, 99.8 to 99.9 percent of the rainfall would run off to the floodplains. Id. Once active dewatering begins, the Staff calculated that the increased recharge to the aquifer would only reduce runoff to 99.4 percent of the 100-year, 24-hour rainfall. Id. Because this reduction is

minor, the Staff found that active dewatering associated with the LNP production wells would not noticeably affect the floodplain area. Id.

The Staff's testimony also describes its analysis of the effect of active dewatering during building on floodplains. The Staff found that active dewatering during building at the LNP site would not affect the floodplains. Id. at A114. The analysis done above for operations was for a groundwater withdrawal of 1.58 million gallons per day (Mgd), whereas during building, the Applicant will withdraw a maximum of 275,000 gallons per day. Id. Because the groundwater use during building would be smaller than during operations, the Staff concluded that active dewatering during building would also not noticeably affect the floodplain. Id. Additionally, the Staff analyzed possible active dewatering effects for building the intake structure, the barge unloading facility, and laying of the portion of the blowdown pipeline where it crosses the CFBC. Id. Because the aquifer is in contact with the CFBC berm along the entire length of the CFBC, construction along the CFBC berm could result in dewatering of the aquifer. Id. However, the Staff found that the building of these structures would only affect a very small percentage of the CFBC berm, and would only be temporary; therefore, any impacts to the floodplains from active dewatering in the CFBC would not be noticeable. Id.

The Staff's testimony also describes its analysis of floodplain impacts due to passive dewatering. Id. at A115-A116. Passive dewatering could occur due to land cover changes at the LNP site and because of the LNP stormwater management system. Id. at A115. Changes in land cover will create more paved and impervious surfaces, which will prevent water from recharging the aquifer; however, the stormwater ponds will collect this runoff. Id. Because the stromwater ponds have sufficient capacity to retain increased runoff from the paved and impervious surfaces, and the water will recharge into the aquifer from the stromwater ponds within 5 days, the Staff found that the effect on the floodplain from passive dewatering will not be noticeable. Id.

The Staff's testimony next describes its analysis of impacts to special aquatic sites from active and passive dewatering. Special aquatic sites include fish and wildlife sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. Id. at A118. There are no aquatic sanctuaries and refuges, or coral reefs close enough to the LNP site for the LNP to directly or indirectly impact them. Id. at A120 – A122. The only special aquatic sites that the LNP could potentially affect are mud flats and vegetated shallows, specifically submerged aquatic vegetation (SAV). Id. at A123 – A124. To evaluate impacts to these special aquatic sites in the FEIS, the Staff used guidance from Sections 2.4.2, 4.3.2 and 5.11 of the ESRP. Id. at A125.

The Staff analyzed possible direct, indirect and cumulative impacts to the mud flats and SAV. Id. at A128. Because neither the mud flats nor SAV are near any areas affected by building, and because the groundwater hydrologists found only localized impacts from dewatering for both building and operations, the Staff found that there would be no direct or indirect impacts from the building or operation of the LNP to SAV or mudflats. Id. at A126 – A127. In order to determine possible cumulative impacts to SAV and mudflats, the Staff looked at other past, present and reasonably foreseeable future projects that could affect these resources. Id. at A128. Specific projects considered included the Crystal River Energy Complex, and its uprate, operations of the Inglis Quarry, widening of the US-19 bridge across the CFBC, a proposed hydropower project on the Inglis Lock bypass channel spillway, the proposed Tarmac King Road Limestone Mine, decommissioning of CREC Units 1 and 2, development of a Port District along the CFBC, and natural environmental stressors such as weather and climate flux. Id. Some of these have already had an effect on the SAV and mudflats; therefore, the Staff found that impacts would be noticeable, but that that the incremental impacts from active dewatering at LNP would be inconsequential. Id. at A128

For passive dewatering impacts to SAV, the Staff looked at any possible changes in salinity at SAVs due to a decrease in freshwater runoff from the LNP site because of passive dewatering. Id. at A130. The Staff's testimony describes the specific biota in these areas and found that any change in salinity caused by passive dewatering at the LNP site would not negatively affect SAV because the biota in SAV are not sensitive to minor changes in salinity. Id. For mudflats, the Staff found that because of the distance of the mudflats from the LNP site, and because mud flats occur in tidal zones, minor fluctuations in salinity levels from the LNP site would not negatively affect mud flat habitats. Id. at A131.

For its conclusions regarding impacts to SAVs from active and passive dewatering, the Staff's review found that impacts from LNP would be SMALL except for cumulative impacts. Id. at A132. The cumulative impacts would be SMALL to MODERATE because of past stressors on the aquatic environment, but LNP would have a minor contribution to these cumulative impacts. As shown in the Staff's testimony, the analysis presented in the FEIS is properly supported and complies with NRC guidance.

For the final portion of Subpart A1 of Contention 4A the Staff Testimony describes the Staff's analysis in the FEIS of impacts to "other waters" from active and passive dewatering. From a hydrological perspective, the Staff analyzed possible impacts to discharges to springs in the area from active and passive dewatering. Id. at A133. Active and passive dewatering would decrease the discharges to the two largest springs in the vicinity of the LNP site, the Big King and Little King Springs by approximately 0.05 Mgd. Id. at A134. This is about 1 percent of their total simulated flux. Id. Because this reduction is such a small percentage of their flow, the Staff determined that the impact from LNP dewatering during operations would be insignificant. Id. The Staff also considered possible impacts to springs located in Lake Rousseau and downstream of Inglis lock. The discharge from Lake Rousseau to these springs is nearly three orders of magnitude greater than the entire withdrawal at LNP. Id. Therefore, the Staff found

that active dewatering at LNP would not noticeably alter springs in Lake Rousseau or downstream of Inglis Lock. Id. As described earlier, the Staff does not expect there to be any noticeable impacts to groundwater due to passive dewatering; therefore, the Staff found that passive dewatering at the LNP site would not noticeably affect "other waters." Id.

From an aquatic ecology perspective, the Staff used ESRP Sections 2.4.2, 4.3.2, and 5.11 to determine the impacts to aquatic ecology in "other waters" from dewatering. Id. at A136. As described in the Staff's testimony, because the hydrologists found that there would be little change to the flows at Little King and Big King Springs, the Staff aquatic ecologists found that it is unlikely that LNP dewatering would impact any aquatic biota at these springs. Id. at A135.

The Staff also considers the CFBC an "other water" and it analyzed impacts to the CFBC and its freshwater springs from building activities in Section 4.3.2 of the FEIS, and from operations in Section 5.3.2 of the FEIS. Id. at A137. The Staff analyzed possible direct impacts to aquatic biota in the CFBC due to building the barge facility, intake and pumphouse installation, and placement of the blowdown pipeline. Id. As part of this review, the Staff analyzed sampling and characterization data, and salinity data collected over several years. Id. at A137. Sampling in the areas of the CFBC where building activities will occur indicated low biodiversity. Id. The Staff found that fish and motile invertebrates would likely be able to avoid the installation activities in the CFBC, and the FDEP requires a biologist to be present to visually monitor for threatened and endangered species during installation activities. Id. Therefore, the Staff found that impacts to aquatic biota in other waters from building activities would be unnoticeable. Id. Operational dewatering activities, as discussed in the hydrology analysis, will be localized to the LNP site, so the ecologists found that operational dewatering would not affect "other waters." Id. Because of the unnoticeable impact to other waters from LNP dewatering, the Staff found that incremental impacts from the LNP to any cumulative impacts to aquatic biota in other waters would also be minor. Id. at A138. For all of these

reasons, the Staff's thorough review found that the aquatic ecology impacts from LNP would be SMALL except for cumulative impacts. Id. at A141. For cumulative impacts to aquatic ecology, the Staff found that the impacts would be SMALL to MODERATE, with the MODERATE portion primarily being due to past operation of the CREC. The LNP contribution to these impacts will only be SMALL. Id. The Staff's testimony and exhibits demonstrates that the FEIS conclusions are well supported and adequate. Therefore, Subpart A1 of Contention 4A lacks merit.

3. The Staff's Analysis of Impacts of Dewatering due to the Connection of the Site to the Underlying Floridan Aquifer was Adequate.

Subpart A2 of Contention 4A claims that the Staff's analysis in the FEIS of impacts to wetlands, floodplains, special aquatic sites, and other waters, associated with dewatering is inadequate, specifically with respect to impacts resulting from the connection of the site to the underlying Floridan aquifer. As explained below, this claim lacks merit and the Staff's analysis in the FEIS was adequate.

The Floridan aquifer system underlies the LNP site, and is broken into the Upper and Lower Floridan Aquifer. Id. at A144. Building activities will take place in the top of the Upper Floridan Aquifer, and during operations water will be pumped from the Upper Floridan. Id. In order to take a hard look at the site and to understand the aquifers, the Staff hydrologists reviewed and confirmed data from site characterization activities performed by the Applicant, and compared the findings to descriptions provided in local and regional studies. Id. at A146. The Applicant's field data included cores from borings, slug and pumping test data, and water level data. Id. This data provided a hydrologic understanding of the site that assisted the Staff's assessment of dewatering impacts to wetlands, floodplains, special aquatic sites and other waters due to the connection of the site to the Upper Floridan aquifer. Id.

The Staff's floodplains analysis described in response to Subpart A1 of the contention included considering impacts because of the connection of the LNP site to the Floridan aquifer. Id. at A150. At the LNP site, the Upper Floridan aquifer is hydraulically connected to the

surficial aquifer. Id. at A148. Given this connection, if the Floridan aquifer water level lowers, the surficial aquifer water level will also lower. If the water table lowers, the aquifer would be capable of storing a larger amount of infiltration from rainwater, which could reduce runoff and result in smaller floodplains. Id. at A149. However, the Staff found that this will not result in a noticeable impact because dewatering during operations would not result in an appreciable change in the fraction of runoff from a 100-year, 24-hour rainfall event. Id. at A150. Further, because withdrawals during building activities will be much less than those during operations, the Staff found that there would not be noticeable impacts during building activities. Id.

With respect to the terrestrial ecology review, in Subpart A2 of Contention 4A, the Intervenors claim that the FEIS fails to adequately address dewatering impacts to wetlands resulting from the connection of the site to the underlying Floridan aquifer system. The terrestrial ecologists accounted for the LNP site's connection to the Floridan aquifer throughout their analysis; accordingly, the discussion above of Subpart A1 regarding active and passive dewatering also incorporates this assumption. See Staff Testimony at A151 and A152. The Staff considered that area wetlands could have an increased susceptibility to impacts based on the potential occurrence of fracture networks or dissolution channels associated with karst systems. Staff Testimony at A151. However, estimated transmissivity for the Upper Floridan aquifer in this area falls below values indicative of a well-developed karst system, so it is reasonable to expect that area wetlands would be less responsive to groundwater withdrawal than if large-scale fracture networks or dissolution channels were present. Id. Further, as discussed above, the FDEP Conditions of Certification would preclude detected or predicted adverse wetland impacts. Id. at A152.

In performing their review, the Staff's aquatic ecologists relied on data from the Staff hydrologists. Because the Staff's hydrology review described in response to Subpart A1 of Contention 4A considered the connection of the LNP site to the Floridan aquifer, the aquatic

ecology review of impacts from the effects of the LNP site being connected to the Floridan aquifer are the same as the effects described in response to Subpart A1 of Contention 4A. Id. at A154. As shown in the analysis of Subpart A1, the Staff took a hard look at the possible environmental impacts to the aquatic ecology of special aquatic sites and other waters, and found SMALL impacts for building and operations and found that the cumulative impacts will be SMALL to MODERATE, with LNP only having a small contribution to the cumulative impacts. This analysis satisfies the requirements of NEPA, and nothing presented in Contention 4A regarding the connection to the Floridan aquifer shows that the Staff's conclusions are in error.

4. The Staff's Analysis of Impacts from Dewatering to Outstanding Florida Waters was Adequate.

Subpart A3 of Contention 4A challenges the Staff's analysis of impacts on Outstanding Florida Waters, such as the Withlacoochee and Waccasassa Rivers, due to dewatering. Section 403.061(27) of the Florida Statutes, directs the FDEP to specify as Outstanding Florida Waters (OFWs) those water bodies that shall be worthy of special protection because of their natural attributes. Id. at A157 (citing Fl. Stat. Ann. § 403.061(a)(27) (2010)). The Withlacoochee River and the Withlacoochee Riverine and Lake System, which includes all portions of the Withlacoochee River, are OFWs. Id. Although the Waccasassa Bay is an OFW, the Waccasassa River is not an OFW. Id. As described below, the Staff took a hard look at impacts to OFWs, and this portion of Contention 4A lacks merit.

The Staff hydrologists' evaluation of possible impacts due to dewatering described in response to Subpart A1 of Contention 4A also took into account any possible impacts to OFWs, and is relevant to this subpart of the contention. Id. at A158. The Staff found that during LNP operations, groundwater withdrawal would be an average of 1.58 Mgd, which is 0.8 percent of the total predicted water flux through the recalibrated local-scale groundwater model (208 Mgd). Id. This groundwater withdrawal would decrease discharges to surface water bodies by

approximately 0.4 Mgd. Id. The Withlacoochee River has an annual mean discharge of 627 Mgd above Lake Rousseau. Id. The discharge through Lake Rousseau to the lower Withlacoochee River via the Inglis Lock bypass channel and spillway varies from 597 Mgd in May and June to 717 Mgd in September. Id. Even if the reduction in groundwater discharge of 0.4 Mgd were to affect only the OFWs, it would only be a small fraction of their flows. Id. Therefore, the Staff found that active dewatering from LNP groundwater withdrawal during operations would have a minor effect on OFWs. Id. As described more fully in response to Subpart A1 of Contention 4A, the Staff also found that any hydrology impacts due to active dewatering during building activities, or due to passive dewatering, would be minor and localized; therefore, the Staff does not expect these activities to affect OFWs. Id.

With respect to the terrestrial ecology review, in Subpart A3 of Contention 4A, the Intervenors claim that the FEIS fails to adequately address dewatering impacts to wetlands resulting in impacts to connected OFWs. The Staff recognized that disturbances to wetlands can result in runoff effects to surface waters because wetlands can help reduce scour in, modulate depths in, and reduce entry of nutrients, sediments, and toxins into surface waters. Id. at A162. The wetland impacts evaluation for building, operational, and cumulative impacts was a regional-scale analysis that encompassed potentially affected wetlands that may be connected to OFWs. Id. at A160. The proximity of OFWs to potentially affected wetlands is one factor that led the Staff to conclude that overall building impacts would be MODERATE and that operational impacts could range from SMALL to MODERATE. Id. at A163. As discussed above, however, the monitoring requirements and protective conditions in the FDEP Conditions of Certification would prevent these impacts from reaching the LARGE impact threshold. Id.

In analyzing aquatic ecology impacts to OFWs due to dewatering at the LNP site, the Staff used Sections 2.4.2, 4.3.2, and 5.11 of the ESRP. Id. at A166. The Staff did not find any direct impacts on OFWs from LNP dewatering, because building will be either on the site or in

the CFBC, which is not an OFW. Id. at A167. The Staff also analyzed possible indirect and cumulative impacts to OFWs. Id. at A168 – A169. For indirect impacts, the Staff found that because building and operational impacts from dewatering are minor and will occur mainly on the LNP site, there will be no indirect impact to OFWs from dewatering. Id. at A171. For the same reasons, the Staff found that the LNP site would have only a minor contribution to any cumulative impacts to OFWs. Id. at A170.

To put the Levy operational groundwater withdrawals in perspective with respect to the Withlacoochee Riverine and Lake System OFW, the Staff compared the LNP operational groundwater withdrawal flow to the flow of the Withlacoochee River below Lake Rousseau. Id. at A171. The Staff conservatively assumed that the entire LNP operational groundwater withdrawal (1.58 Mgd annual daily average total withdrawal and 5.8 Mgd potential maximum daily withdrawal) was withdrawn from the Withlacoochee River near the production wellfield. Id. USGS streamflow records over the last 37 years reported an average daily discharge of 687 Mgd through the bypass channel to the lower Withlacoochee River. Id. Even if the entire annual average daily withdrawal of 1.58Mgd and the potential maximum daily withdrawal of 5.8Mgd at the LNP site were non-mechanistically withdrawn from the Withlacoochee River basin in the vicinity of the LNP wellfield, it would only represent 0.2 percent of the annual mean flow and 0.8 percent of the flow from the maximum groundwater withdrawal. Id. This reduction in flow would have no detectable impact on the distribution and abundance of aquatic biota inhabiting the Withlacoochee Riverine and Lake System OFW. Id.

The Staff found that impacts to aquatic ecology, including impacts to the aquatic biota in OFWs from dewatering, were SMALL for building and operation. Id. at A172. Cumulative impacts to aquatic ecology were SMALL to MODERATE, with only a SMALL contribution from LNP to these impacts, as described in relation to Subpart A1 of this contention. Id. Because

the Staff review as presented in the FEIS was adequate, Subpart A3 of Contention 4A lacks merit.

5. The Staff's Analysis of Impacts on Water Quality and the Aquatic Environment Due to Alterations and Increases in Nutrient Concentrations Caused by the Removal of Water was Adequate.

Subpart A4 of Contention 4A challenges the Staff's analysis of impacts on water quality and the aquatic environment due to alterations and increases in nutrient concentrations caused by the removal of water. As described below, the Staff took a hard look at these impacts and appropriately characterized them in the FEIS. Thus, this portion of Contention 4A lacks merit.

From a hydrological perspective, the analysis addressing Subpart A1 of Contention 4A, regarding impacts to floodplains is applicable here. Id. at A177. The Staff reviewed the Applicant's conservative analysis that maximized runoff volume and water surface elevation. Id. The Staff found that the stormwater ponds would provide the retaining and filtration function for nutrients carried with surface runoff during a 25-year, 24-hour rainfall event. Id. Because the stormwater ponds would provide the retaining and filtration function for nutrients carried with surface runoff during one of these events, the Staff found that the LNP site would adequately detain and capture nutrients caused by runoff. Id.

With respect to the terrestrial ecology review, in Subpart 4A of Contention 4A, the Intervenors claim that the FEIS fails to adequately address dewatering impacts to wetlands that could release nutrients into regional waterways. Id. at A174. Although the FEIS does not specifically discuss the possibility of nutrient releases occurring due to the dewatering of wetlands, it does support a conclusion that the impact of any nutrient releases would be minimal. Id. at A175. Given the Applicant's plan to isolate the excavations, the proposed best management practices to arrest runoff and sedimentation, and the binding effect of the FDEP Conditions of Certification, dewatering for the building and operating of the LNP project is expected to cause minimal impacts to wetlands. Id. Even if the monitoring required by the

FDEP Conditions of Certification cannot detect adverse wetland impacts soon enough to prevent their occurrence, any adverse impacts would be temporary. Id. at A176. Accordingly, there should be minimal potential for increased nutrient releases caused by wetland drying. On a regional level, moreover, the applicant's proposed wetland mitigation plan is expected to result in a net gain in wetland functions, in part because many of the area's wetlands are already degraded. Id.

From an aquatic ecology standpoint, because dewatering associated with building and operating the LNP would not noticeably affect surface or groundwater quality, the Staff found that it would have no detectable direct or indirect impacts on aquatic biota and will not measurably contribute to the cumulative impacts to the resource. Id. at A179. Therefore, the Staff's impact conclusions remain valid and Subpart A4 of Contention 4A lacks merit.

6. The Staff's Analysis of Impacts on Water Quality and the Aquatic Environment due to Increased Nutrients Resulting from Destructive Wildfires Resulting from Dewatering was Adequate

Subpart A5 of Contention 4A challenges the Staff's analysis of impacts on water quality and the aquatic environment due to increased nutrients from destructive wildfires resulting from dewatering. As described below, the Staff took a hard look at these impacts and appropriately characterized them in the FEIS. Thus, this portion of Contention 4A lacks merit.

With respect to the terrestrial ecology review, in Subpart A5 of Contention 4A, the Staff interprets the claim in Contention 4A to be that the FEIS failed to adequately address dewatering impacts to wetlands that could result in destructive wildfires and, consequentially, nutrient impacts to wetlands. Staff Testimony at A181. The Staff determined that the risk of wildfires is low because groundwater drawdown that could adversely affect wetlands will be localized. NRC001A at 5-31. In the areas where wetland drawdown would be greatest—PEF's property on the LNP site—PEF can reasonably be expected to rapidly suppress fires. Staff Testimony at A184. The Applicant's wetland mitigation program, prepared to comply with the

FDEP Conditions of Certification, would also reduce the risk of a catastrophic wildfire by restoring a more natural fire regime to much of the undeveloped land that would remain on the LNP site after the new facilities are built. Id. Because serious fires would be unlikely, for the reasons discussed above, nutrient impacts associated with fires would be minimal. Id.

As explained in the Staff Testimony, based on the low probability of wildfires directly related to dewatering activities, and the fact that the presence of the LNP will significantly improve fire detection and suppression in the vicinity of the site, the likelihood for an increase in fire-related nutrients to surface water runoff and groundwater flow was not considered in the FEIS. Staff Testimony at A186. Furthermore, the Staff found that because the area has historically experienced periodic naturally initiated wildfires without resulting in significant long-term impacts to aquatic resources, the resulting change, if any, in surface and groundwater quality should a wildfire occur would be minor and temporary and not result in a noticeable change to the aquatic resource. Id. Because there were no impacts expected to special aquatic sites or other waters due to wildfires, it was reasonable for the Staff not to include a discussion of these possible impacts in the FEIS.

B. The Staff's Analysis of Impacts to Wetlands, Floodplains, Special Aquatic Sites, and other Waters Associated with Salt Drift and Deposition Resulting From Cooling Towers was Adequate.

Part B of Contention 4A challenges the Staff's analysis of impacts to wetlands, floodplains, special aquatic sites, and other waters associated with salt drift and salt deposition from operation of the LNP cooling towers. Under NEPA, the NRC is required to take a "hard look" at the environmental impacts of a proposed action, as well as reasonable alternatives to that action. See Louisiana Energy Servs., L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998). This "hard look" however, is tempered by a "rule of reason" that requires agencies to address only impacts that are reasonably foreseeable – not remote and speculative. See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1),

ALAB-156, 6 AEC 831, 836 (1973). As shown in the Staff's testimony and described below, the Staff complied with NEPA by taking a hard look at the impacts on wetlands, floodplains, special aquatic sites, and other waters from operation at the LNP site associated with salt deposition and salt drift, as well as the indirect and cumulative impacts from salt drift and salt deposition. Accordingly, this portion of Contention 4A lacks merit.

To support its analysis, the Staff relied on guidance in NUREG-1555, as well NUREG-1437, the Generic Environmental Impact Statement for License Renewal of Nuclear Plants. Staff Testimony at A85. In addition, the Staff relied on methodologies in the Applicant's environmental report, RAI responses pertaining to salt drift and deposition at the LNP site, as well as scientific literature on cooling tower drift. Id. at A86. The Staff's review is described below.

1. Air Quality

For its air quality review, the Staff used Section 2.7 of NUREG-1555, for the documentation of air quality and meteorology for the site and NUREG-1555, Section 5.3.3.1 to aid the analysis of the cooling tower drift associated with the operation of the cooling towers. Staff Testimony at A85; Ex. NRC013 at 2.7 and Ex. NRC014 at 5.3.3.1. Relying on this guidance, the Staff considered the salt drift rate at full load, the expected size of the salt drift droplets, the distribution of the salt drift droplets, and the concentration of dissolved and suspended solids in order to predict the annual and monthly amounts of salt deposition. Staff Testimony at A86-87, 190-192; Ex. NRC001A at 5-86.

As part of their analysis, the meteorologists reviewed onsite meteorological and climatological data from Tampa, Florida and Gainesville, Florida. Staff Testimony at A87-88. They used data from the meteorological tower at the LNP site to document the climatology of the site and atmospheric stability. Id. at A84. For assessing impacts to air quality, the meteorologists studied atmospheric stability in order to determine the mixing of pollutants in the

air from turbulence. Id. To determine how much turbulence occurs at the LNP site, the Staff used wind data collected from the tower to ascertain wind direction and wind speed, which could impact dispersion patterns around the LNP site. Staff Testimony at A87; NRC001A at 2-181. The meteorologists found that a sea breeze circulation is very common at the LNP site. Staff Testimony at A84. To inform their initial salt deposition calculations, the Staff looked to wind direction calculations from Gainesville. Id. at A87; NRC001A at 2-181; see also NRC038. The Staff then analyzed the impacts from salt drift and deposition due to operation of the LNP cooling towers. Staff Testimony at A198-202, 206-208, 212-222. Salt drift will occur at the LNP site when salt water droplets escape from the operating mechanical draft cooling towers. When these salt droplets or drift deposit on the surface, this is called salt deposition. Staff Testimony at A86; NRC001A at 5-19 and 5-20. As input for their independent analysis of air quality and meteorological impacts including salt drift, the meteorologists reviewed the Applicant's Environmental Report and requests for additional information responses. Staff Testimony at A86; NRC021-023. To confirm the Applicant's salt deposition calculations, the Staff ran the US EPA recommended AERMOD modeling system using one year of meteorological data that was collected by the meteorological tower at the LNP site. Staff Testimony at A86; NRC001A at 5-86. The Staff subsequently found that its results were not substantially different from the Applicant's AERMOD simulations in the environmental report. Staff Testimony at A86; NRC001A at 5-86; see also NRC021 at 5-40.

Next, in order to understand the atmospheric conditions for the salt deposition analysis, the meteorologists relied on National Weather Service (NWS) data to determine the climatology of the LNP site and atmospheric stability. Staff Testimony at A87; NRC038. The Staff then conducted a comparison of wind speed and wind direction between the onsite observations at the LNP site and the NWS observation station in Gainesville, Florida. Staff Testimony at A87-88; NRC038. From this comparison, the meteorologists found that when comparing wind

speeds greater than 1.5 meters/second, the two stations showed little variation from each other. Id. Gainesville and the LNP site also had similar salt dispersion characteristics. Staff Testimony at A87. Running AERMOD with the NWS data, the Staff confirmed that it reached results similar to the Applicant's in Section 5.3.3.2.1 of the ER. Staff Testimony at A87; NRC001A at 5-86; NRC021 at 5-40. These similarities aided the Staff in determining the onsite deposition rates at the LNP site. The Staff found that the highest onsite deposition rate using the LNP meteorological data was 9.95 kg/ha/mo, which is similar to the value of 10.75 kg/ha/mo in the FEIS. Staff Testimony at A87; NRC001A at 5-85. Using data from Gainesville, the Staff determined that the largest onsite deposition rates at the LNP site in any given year ranged from 8.21 kg/ha/mo to 10.76 kg/ha/mo. Staff Testimony at A87; NRC001A at 5-85.

To calculate salt drift and deposition, the Staff computed the amount of salt drift emanating from the cooling towers, the dispersion through the atmosphere, and eventual deposition. Staff Testimony at A86; NRC001A at 3-28. To ensure its analysis would be conservative, the Staff's analysis employed conservative assumptions, such as scaling up the salt deposition results to account for the system's maximum flow rate of 600,000 gallons per minute (gpm). Staff Testimony at A86; NRC001A at 5-86. From this, the Staff found the total amount of salt drift in the form of dissolved solids escaping from the cooling towers to be 115.7 lb/hr during normal operation and 154.26 lb/hr during short durations. Staff Testimony at A86. Further, the Staff concluded that the maximum offsite salt deposition would be 6.81 kg/ha/mo along the LNP site boundary and 10.75 kg/ha/mo within the LNP site. Staff Testimony at A86; NRC001 at 5-85. For the largest value of offsite salt deposition, the Staff determined the maximum rate to be 6.81 kg/ha/mo. Staff Testimony at A191,222; NRC001 at 5-21.

2 Impacts from Salt Drift and Salt Deposition on Wetlands, Floodplains, Special Aquatic Sites, and Other Waters

Based on the preceding results, the Staff analyzed the effects of the cooling towers' salt drift and subsequent salt deposition on surface water salinities. Waters from the Gulf of Mexico

and spring flow into the CFBC would be used to supply makeup water for normal plant operations. Staff Testimony at A198. Thus, since freshwater flows into the CFBC from the springs, the makeup water from the CFBC will have a lower salinity than waters from the Gulf of Mexico. Id. Because the Staff's analysis is based on the likely salinity from the runoff from the LNP site and the estimated runoff salinity is much smaller than that of brackish water, the Staff was able to conclude that runoff from the LNP site would not adversely affect nearby waterbodies and aquatic features. Id. at A198; NRC001A at 5-7. The Staff's analysis for determining salinity was also conservative because the Staff used the maximum onsite deposition both for onsite as well as offsite areas even though salt deposition decreases rapidly with distance from the plant. Staff Testimony at A200. The Staff evaluated the maximum estimated salt deposit using a one-month dry period that was postulated to dissolve in the lowest mean monthly precipitation amount following the dry period while ignoring evaporation and transpiration losses. Id. The Staff's assumption that the maximum monthly areal density of salt will dissolve in the lowest regional mean monthly precipitation also maximizes salinity. Id. The Staff also provide further context to the estimated runoff salinity using a rare scenario. Id. Because the estimated runoff salinity remains below the threshold for brackish water even for the rare scenario, the Staff concluded that the LNP salt drift and deposition would not result in noticeable impact to nearby aquatic features. Additionally, due to more frequent and more abundant precipitation, the salinity of runoff would be less than the estimated maximum salt deposit. Staff Testimony at A199-200; NRC001 at 5-20.

In determining impacts to wetlands, the Staff looked at terrestrial habitats on the LNP site and in the surrounding landscape, including wetlands and other terrestrial habitats situated in the 100-year floodplain. Staff Testimony at A106; NRC001A at 5-19 to 5-26. To analyze these potential impacts, the Staff followed guidance in NUREG 1555, ESRP 5.3.3.2, which addresses possible impacts to terrestrial ecosystems from operation of heat-discharge systems

from nuclear power plants. NRC013 at 5.3.3.2. Among the issues addressed by ESRP 5.3.3.2 are potential effects of cooling tower drift on vegetation and possible soil salinization. Id. The Staff relied, in part, on NUREG-1437, Section 4.3.5.1, which addresses the effects of cooling tower drift on terrestrial ecology. Staff Testimony at A204; NRC057 at 4-45. The Staff also studied the Crystal River Energy Complex (CREC) report which presents the results of a 14 year salt-drift monitoring study completed during operation of cooling towers at CREC. NRC058; Staff Testimony at A204, 212.

Further, the Staff analyzed the Applicant's use of drift abatement measures, which include installing drift eliminators at the LNP cooling towers that limit the salt drift to be 0.0005% of the total flow through the system. Staff Testimony at A194; NRC001A at 5-86; see also PEF0504 at 4. These drift eliminators will employ the Best Available Control Technologies (BACT). Staff Testimony at A194; NRC021 at 5-29; see also PEF504 at 4. During operation, water leaves the cooling towers as pure vapor. The cooling towers will evaporate up to 1,682,400 gph. NRC001 at 5-86. The total amount of dissolved solids leaving the cooling towers is estimated to be 115.7 lb/hr during normal operations and 154.26 lb/hr during short-duration excursions. Staff Testimony at A86; NRC001 at 5-86. However, in keeping with the Applicant's commitment to use BACT, utilizing the drift eliminator reduces the total drift to 5.32 gpm or 115.7 lb/hr of salt for normal operating conditions. Staff Testimony at A86; NRC001A at 5-20, 5-86; NRC021 at 5-29.

However, the Staff did not factor into their analysis the deposition of naturally occurring salt particles. Due to low wind speeds at the LNP site, the Staff determined that it is unlikely the deposition of large sea salt particles from the Gulf of Mexico would be a significant source of salt deposition. Staff Testimony at A86, A197;NRC001 at 5-85 and 5-86. Since small salt particles have a small deposition rate and a long residence time in the atmosphere, the Staff determined that the deposition of small particles at LNP would not be significantly different than

the rest of inland Florida. Staff Testimony at A197; NRC001A at 5-086; NRC055 at 1367-1368; NRC054 at 76. In addition, the Staff found that salt deposition from cooling tower drift would not measurably affect the closest major freshwater bodies, such as Lake Rousseau and the Withlacoochee River. Staff Testimony at A224; NRC001A at 5-55. The Staff likewise did not predict any impact to aquatic resources inhabiting these water bodies. Staff Testimony at A222; NRC001A at 5-20 to 5-25. Also, the Staff concluded that there would be no direct or indirect, or a noticeable LNP contribution to cumulative impacts to aquatic resources associated with salt deposition of LNP cooling tower drift. Staff Testimony at A223-A225; NRC001B at 7-23, 7-24.

In determining potential salt drift and salt deposition impacts from operation of the LNP on terrestrial ecology, the Staff followed NUREG 1555, ESRP 5.3.3.2, which addresses possible impacts to terrestrial ecosystems from operation and potential effects of cooling tower drift on vegetation. Staff Testimony at A203, 223; NRC013 at 5.3.3.2-4. NUREG-1437, from which ESRP 5.3.3.2 is drawn, provides the technical basis for determining the effects of cooling tower drift on terrestrial ecosystems. NRC057 at 4-42. Following a comprehensive review of scientific literature addressing salt drift impacts on terrestrial habitats, NUREG-1437 states:

> Monitoring results from the sample of nuclear plants and from the Chalk Point plant, in conjunction with the literature review and information provided by the natural resource agency and agricultural agencies in all states with nuclear power plants, have revealed no instances where cooling tower operation has resulted in measurable degradation of the health of natural plant communities.

Id. at 4-45. Further, the Staff studied the results of a 14 year salt drift monitoring study completed during operation of cooling towers at CREC, which is 10 miles southwest of the LNP site. Staff Testimony at A204; NRC058. The CREC study concludes that salt drift from operations of the cooling towers is not high and that occurrences of salt drift injury appear to be isolated events where injury is limited to a narrow band of vegetation close to the cooling towers. Staff testimony at A204. However, since CREC is located on the coast , which is a different setting than the LNP site, the Staff used the CREC study only as supplemental

evidence. Id. Further, to assess potential salt drift impacts on wetlands and other terrestrial habitats caused by salinization of surface runoff, the Staff calculated the estimated salinity of 0.026 ppt for runoff, which is 35 times less than the upper limit for fresh water. Staff Testimony at A199, 214, 223; NRC001A at 5-24. From this, the Staff concluded that runoff generated from areas of maximum salt deposition from operation of the LNP cooling towers would be fresh water and would therefore not increase the salinity of the surface water and wetlands. Id; Staff Testimony at A206.

The Staff also considered the effects of salt drift on terrestrial wildlife and concluded that salt toxicity in animals living in the habitat affected by the LNP site would be unlikely. Staff Testimony at A215; NRC001A at 5-25. Ultimately, the Staff was able to conclude that the overall potential salt drift impacts from operation of the LNP on terrestrial ecology would be SMALL to MODERATE. Staff Testimony at A216; NRC001A at 5-47. However, the range in the conclusion was extended to MODERATE because of possible terrestrial ecology impacts related to groundwater drawdown. NRC001A at 5-47. However, the possible effects of salt drift from operation of the LNP cooling towers was not a factor contributing to the possible MODERATE impacts. Staff Testimony at A216. For cumulative impacts due to salt drift, the Staff evaluated the operation of the cooling towers at CREC. Staff Testimony at A217; NRC001B at 7-23 and 7-24; see also NRC058. The Staff found that since the LNP cooling towers will be located 9 miles northeast of CREC, salt deposition from both sources would not overlap due to distance. Staff Testimony at A217; NRC001B at 7-23 and 7-24. As such, the Staff found that cumulative impacts from salt drift would be minimal and are not expected to noticeably affect terrestrial resources at the LNP site. Id.; NRC001 at 7-24.

The Staff also concluded that salt drift and deposition impacts on special aquatic sites and other waters, as well as on aquatic biota would be SMALL. Staff Testimony at A225; NRC001A at 5-26 and 5-47. To arrive at this conclusion, the Staff relied on guidance in

NUREG-1555, ESRP Sections 2.4.2 and 5.3.1. Staff Testimony at A219; NRC013 at 2.4.2 and 5.3.1. The Staff used hydrology and meteorology assessments as described in Sections 5.3.1.1 and 5.7.2 of the FEIS. Staff Testimony at A220; NRC001A at 5-19 to 5-34, 5-85 to 5-86. In Section 5.3.2.1 of the FEIS, the Staff described the potential effects of salt deposition on Lake Rousseau and the Withlacoochee River, which are the closest major freshwater water bodies to the LNP site. NRC001A at 5-47 to 5-57. Staff Testimony at A221. From the AERMOD model, the Staff found that salt deposition from cooling tower drift is not expected to reach freshwater bodies such as the Withlacoochee River and Lake Rousseau, nor would it affect aquatic biota in other water bodies on the site. Staff Testimony at A225; NRC001A 5-19 to 5-24 at and 5-86. The Staff predicted the maximum offsite salt deposition rate using the AERMOD modeling and meteorological conditions for any of the five years considered (2001 through 2005). This rate was 6.81 kg/ha/mo., at a location on private property just outside of the LNP boundary near the cooling towers. Staff Testimony at A222; NRC001A at 5-21,5-86. The modeled maximum offsite salt deposition rate decreases rapidly with increasing distance from the site boundary. Staff Testimony at A222. From these results the Staff was able to conclude that deposition of salt from cooling-tower drift is not expected to reach freshwater waterbodies such as the Withlacoochee River and Lake Rousseau, which are approximately 3 miles to the south of the LNP site. Id. Other major waterbodies within the LNP site vicinity are estuarine or marine, and any salt drift or salt deposition at the rates predicted by the model would not affect aquatic biota residing within these waters. Id. Thus, since cooling tower drift is predicted to be a maximum of 10.75 kg/ha/mo onsite and salt deposition decreases rapidly with increasing distance from cooling towers, any subsequent runoff away from site boundaries is essentially freshwater. Staff Testimony at A224; NRC053 at 2753; see also NRC056 at 1039-1042. Therefore, salt drift is not expected to measurably affect the closest major freshwater bodies. Staff Testimony at A224; NRC001A at 5-86. The Staff also evaluated runoff impacts to aquatic biota from salt

deposition and found that deposited salt on vegetation on the LNP site may run off following precipitation events. Staff Testimony at A223. However, the Staff used conservative maximum salt deposition values and minimum monthly rainfall values and from this estimated the runoff salinity to be 0.026 ppt. Id. Because this value is significantly lower than 1.0 ppt, which is still classified as freshwater, the Staff concluded that there would be no indirect effects from salt deposition on aquatic biota inhabiting waterbodies near the LNP. Id. Therefore, the Staff appropriately characterized as SMALL indirect and cumulative impacts on aquatic biota. Staff Testimony at A224, A225; NRC001B at 7-23, 7-24.

Based on the explanations above, the Staff appropriately found the impacts from salt drift and deposition at the LNP site to be SMALL. Staff Testimony at A224; NRC001A at 5-20 and 5-23. The Staff has found no evidence that these impacts would be MODERATE or LARGE, because there is no evidence that impacts to wetlands, floodplains, special aquatic sites, and other waters from salt drift and deposition would be noticeable or destabilizing. Staff Testimony at A223-225. The Staff took a hard look at the impacts from salt drift and deposition as they followed guidance, reviewed material from the Applicant, and verified this material with other known information. The Staff's review was a thorough, interdisciplinary effort, and Part B of Contention 4A lacks merit.

C. The Staff's FEIS Adequately Addresses Environmental Impacts, Impacts on Federally Listed Species, Irreversible and Irretrievable Environmental Impacts, and Mitigation Measures.

Subpart C of Contention 4A is the "consequential" section of the contention, and it claims that because of the impacts described in Parts A and B of the contention, the "DEIS also failed to adequately identify, and inappropriately characterized as SMALL, the proposed projects zone of. . ." environmental impacts, impacts on Federally listed species, irreversible and irretrievable environmental impacts, and mitigation measures. Licensing Board Order (Admitting Contention 4A) at 1, Attachment A (Feb. 2, 2011) (unpublished) (ADAMS Accession

No. ML110330394). To be adequate under NEPA, the NRC is required to take a "hard look" at the environmental impacts of a proposed action, as well as reasonable alternatives to that action. See Louisiana Energy Servs., L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998). This "hard look" however, is tempered by a "rule of reason" that requires agencies to address only impacts that are reasonably foreseeable – not remote and speculative. See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973). The Staff's Testimony and exhibits demonstrate that the Staff's analysis in the FEIS took the required hard look at each of the resources challenged in Parts A and B of Contention 4A. Thus, the FEIS is adequate and Part C of Contention 4A lacks merit.

1. The Staff's Analysis of the Project's Zone of Environmental Impacts was Adequate

Subpart C1 of Contention 4A challenges the staff's analysis of environmental impacts based on alleged omissions and inaccuracies in Parts A and B of Contention 4A. As described throughout the Staff's Testimony, the Staff used a systematic, interdisciplinary approach to evaluate environmental impacts in the FEIS. By following Staff guidance, the Staff ensured that it created an FEIS that complied with NRC regulations.

The terrestrial ecology reviewers followed the guidance in ESRP Sections 2.4.1, 4.3.1, 4.3.7, 5.3.3.2, and 5.11 for their consideration of terrestrial ecology impacts. Staff Testimony at A228. The Staff's impact conclusions for terrestrial ecology were not, in several cases, SMALL as alleged in this portion of Contention 4A. Id. at A230. Impacts from NRC-authorized activities were SMALL for construction and SMALL to MODERATE for operations. Ex. NRC001A at 4-72 and 5-47. Cumulative impacts and impacts from building and site development would be MODERATE. Id. at 4-71 and 7-29. As described above in addressing Parts A and B of Contention 4A, the Staff's analysis supports a conclusion that no impacts would destabilize terrestrial resources. In particular, for wetlands, the FDEP Conditions of Certification provide

support for concluding that any noticeable impact to wetlands would be temporary and localized. Staff Testimony at A230.

For impacts related to aquatic ecology, the Staff followed Sections 2.4.2, 4.3.2, 5.3.1.2, and 5.11 of the ESRP to evaluate impacts. Id. at A232 Even though the Staff used information from the Applicant in its review, the Staff independently verified technical information before drawing conclusions in the FEIS. Id. As shown in the Staff Testimony and exhibits, the Staff properly found that impacts to aquatic resources from building and operations would be SMALL, and SMALL to MODERATE for cumulative impacts to aquatic resources based on past actions associated with operation of the Crystal River Energy Complex. Id. at A233 – A234. The Staff did not find the impacts from building and operations to be MODERATE because the Staff did not find that impacts would be noticeable. For cumulative impacts the Staff did not find that any impacts would be destabilizing to any resource, so the cumulative impacts would not be LARGE. Id. at A235. Additionally, because the LNP contribution to cumulative impacts would not be noticeable, the Staff properly found that the LNP contribution would be SMALL. Id. Therefore, this portion of contention 4A lacks merit, and the Staff's analysis was adequate.

2. The Staff's Analysis of Impacts to Federally Listed Species was Adequate

Subpart C2 of Contention 4A challenges the Staff's analysis of impacts to Federally-listed species. As shown in the testimony and exhibits, the Staff followed its guidance in the ESRP and coordinated its review closely with the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS). Additionally, the NMFS and FWS supported the Staff's conclusions regarding Federally-listed species. Consequently, the Staff's analysis was adequate and this portion of Contention 4A lacks merit.

For the terrestrial ecology review, the Staff considered impacts to Federally-listed species in sections 4.3.1.3, 5.3.1.3, 7.3.1, and Appendix F "Biological Assessment – U.S. Fish and Wildlife Service" of the FEIS. Id. at A237. This review adopted an interdisciplinary

approach, encompassing any terrestrial habitat that the dewatering or salt drift modeling showed could potentially be affected by LNP activities. Id. at A238. Also, the Staff consulted with the FWS and used guidance in the Endangered Species Consultation Handbook published by FWS and NMFS to ensure consideration of a complete list of species. Id. at A240 and A241. Federally listed terrestrial species included in the analysis are two mammals, four birds, three reptiles, and six plants; no critical habitat for Federally listed terrestrial species occurs in areas potentially affected by the project. Id. at A239.

In order to assess the effects of building and development on terrestrial species and their habitats, the Staff overlaid the project footprint over a habitat map developed by the Staff from information contained in the ER. Id. at A242. The Staff also evaluated PEF's ER and RAI responses, life history and habitat preferences data for each species from the ER, and other scientific literature in light of potential habitat impacts. Id. Finally, the Staff considered PEF's proposed BMPs for controlling runoff and stormwater during building, the requirements of the FDEP Conditions of Certification, the wetland mitigation plan required by the FDEP Conditions of Certification, and the Biological Opinion received from the FWS. Id.

For the review of impacts to terrestrial species attributable to operations, the Staff also considered PEF's ER and RAI responses, data regarding dewatering and salt drift from the hydrology and meteorology reviews, and life history data and habitat preferences for terrestrial species. Id. at A243. The Staff also reviewed PEF's proposed BMPs for controlling runoff and stormwater, the requirements of the FDEP Conditions of Certification, and the Biological Opinion received from the FWS. Id.

The Staff's conclusions with respect to the impacts of building and operation of the LNP project are those confirmed by the FWS in the Biological Opinion. Id. at A245, A246. The Biological Opinion expresses no concerns over impacts to species from groundwater or salt drift, although FWS anticipated the potential for an incidental take of the Florida scrub jay due to

building certain transmission lines. Id. at A244 – A246. Contention 4A provides no basis to contradict the finding of the Staff and the FWS.

Potential impacts to aquatic Federally-listed species are found in sections 4.3.2.3, 5.3.2.3, 7.3.3 and Appendix F of the FEIS. Id. at A250. For the aquatic ecology review, the Staff consulted with the NMFS and USFWS to determine what federally-protected species could potentially be impacted by LNP. Id. at A249. After considering these lists, and determining which species had the possibility of being affected by the project, the Staff considered impacts to the loggerhead sea turtle, green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, smalltooth sawfish, gulf sturgeon, and the Florida manatee. Id. To determine potential impacts to Federally protected aquatic species, the Staff examined the distribution, abundance, habitat requirements, and life history for each of the protected species that may be affected by the building and operation of LNP. Id. at A253. The Staff then evaluated the potential effects on the aquatic environments inhabited by the protected species from a variety of impacts associated with the building and operating of LNP, including dewatering. Id. Finally, the Staff assessed the direct, indirect and cumulative impacts to each protected aquatic species. Id.

For the Gulf sturgeon, smalltooth sawfish, and sea turtles, the Staff found that they would not be affected by building or operating the LNP site because these species inhabit marine and estuarine habitat, and LNP dewatering activities are not expected to have a noticeable impact to these habitats. Id. at A254. Manatees inhabit the CFBC, and they may use freshwater springs along the canal. Id. However, the Staff found that seeps and springs are unlikely to be affected by LNP dewatering, and even if they are, the OWR provides a convenient alternate source of freshwater. Id. Further, aerial surveillance by the FWS found that the CFBC itself is not heavily used by manatees. Id. Therefore, any impact on the manatee would be minor and insignificant. Id. Further, the Staff found that Federally-listed species would not be affected by salt drift because all of the aquatic species considered have

wide salt tolerances, so the minor changes in salinity expected from the LNP site would have an undetectable impact. Id. at A256. Further, the Federal agencies that administer the ESA, the FWS and the NMFS, agreed with the NRC's assessments. Id. at A257. The FWS concurred with the Staff that the LNP may affect, but is not likely to adversely affect, the Florida manatee. Id. The NMFS agreed that there would be no effect from the LNP on the leatherback turtle, and with the determination of may affect, not likely to adversely affect loggerhead, green, hawksbill, and Kemp's ridley sea turtles, the smalltooth sawfish, and the Gulf sturgeon. Id.

The NRC's analysis of impacts to Federally listed species was systematic and thorough and it followed guidance in the ESRP. Additionally, the Federally agencies tasked with upholding the ESA agreed with the conclusions reached by the Staff. Therefore, the Staff's analysis was adequate and this portion of Contention 4A lacks merit.

3. The Staff's Analysis of Irreversible and Irretrievable Environmental Impacts was Adequate.

For Subpart C3 of Contention 4A, the Staff interprets Contention 4A's use of the term "irreversible and irretrievable environmental impacts" to be equivalent to the term "irreversible and irretrievable commitments of resources" as used in Section 102(2)(C)(v) of NEPA. 42 USC 4332(2)(c). The Staff addresses this topic in Section 10.4 of the FEIS. Id. at A259. For this analysis, the Staff does not use impact determinations, but instead, summarizes the irretrievable and irreversible commitment of resources. Id. at A260. The Staff's analysis for this portion of the FEIS took a hard look at the impacts because it was systematic, thorough, and relied on the analyses described in response to Parts A and B of the contention.

The terrestrial ecologists followed ESRP Section 10.2 in conducting an interdisciplinary review of irreversible and irretrievable environmental impacts for terrestrial ecology. Id. at A260 and A262. This discussion incorporates many of the results from evaluations in earlier sections. Id. at A261. Although wetlands would be permanently altered by the LNP project, PEF's

wetland mitigation plan, required by the FDEP Conditions of Certification, would compensate for the loss or impairment of functions of all affected wetlands. Id. at A263. In addition, effects on species would not occur at the population level. Id. Accordingly, no irreversible or irretrievable impacts to terrestrial habitats or species are expected, and this analysis in the FEIS is adequate. Id.

As described in the Staff's Testimony, the aquatic ecologists also used section 10.2 of the ESRP to describe the irretrievable and irreversible commitment of resources expected from this project. Id. at A264. This analysis relies heavily on analyses done in earlier chapters of the FEIS and was the result of an interdisciplinary evaluation that included constant communication with Staff hydrologists. Id. at A265. The Staff's analysis found that irreversible and irretrievable impacts on aquatic ecological resources within the vicinity of the LNP project would be minor, temporary and largely mitigable based on the use of best management practices for building activities within and near aquatic resources. Id. at A267. The Staff found that the activities associated with building and operating the LNP would not noticeably affect aquatic habitats, surface water or groundwater quality. Id. Therefore, LNP building and operation will have no detectable direct or indirect impacts on aquatic biota and will not measurably contribute to the cumulative impacts to aquatic resources. Id. Because the Staff took a hard-look at these impacts by following a thorough interdisciplinary effort, the FEIS is adequate and this portion of Contention 4A lacks merit.

4. The Staff's Analysis of Appropriate Mitigation Measures was Adequate

Subpart C4 of Contention 4A challenges the Staff's analysis of appropriate mitigation measures. The Staff described the mitigation measures relied on for the review throughout Parts II and III of the Staff's testimony. In many areas, mitigation measures were unnecessary because of the minor environmental impacts.

To support its terrestrial ecology findings with respect to wetlands impacts, the Staff relied in part on PEF's wetland mitigation plan, which is required by the FDEP Conditions of Certification. Id. at A269. The wetland mitigation plan, through performing restoration and other mitigative activities at various locations, is projected to result in no net loss of wetland functional capacity as measured by the FDEP's Universal Mitigation Assessment Methodology. Id.

Because the Staff concluded that dewatering impacts during building would have minimal effects on wetlands, no mitigation specifically targeting dewatering impacts to wetlands is warranted. Id. at A270. For operations, because adverse wetland impacts will be limited by, and subject to mitigation by, the FDEP Conditions of Certification, no additional mitigation is needed. Id. The wetland mitigation plan does not address wetland impacts due to salt drift, but because such impacts would be minor, infrequent, and limited to the LNP site, the Staff concluded that mitigation targeting salt drift is not necessary. Id.

For aquatic ecology, the Staff's analysis relied very little on mitigation measures because LNP is expected to have temporary and minor impacts on aquatic resources. Id. at A272. The only mitigation relied on was LNP compliance with its permits, certifications and the SWPP, which requires best management practices. Id. Because impacts to aquatic ecology from LNP dewatering activities and salt-drift are expected to be minor, no additional mitigation was necessary. Id. Because the Staff used a thorough approach to analyzing mitigation measures, and nothing in Contention 4A has shown that this analysis is deficient, the FEIS is adequate and Contention 4A lacks merit.

CONCLUSION

For the reasons discussed above, the NRC staff performed a thorough review to develop an FEIS that complies with all agency requirements and NEPA. Nothing in Contention 4A shows that this analysis was inadequate. Thus, Contention 4A lacks merit, and the Board should find in favor of the Staff.

Respectfully submitted,

/Signed (electronically) by/
Kevin C. Roach
Counsel for NRC Staff
U.S. Nuclear Regulatory Commission
Mail Stop O-15 D21
Washington, DC 20555-0001
(301) 415-2779
Kevin.Roach@nrc.gov

/Executed in Accord with 2.304(d)/
Jody C. Martin
Counsel for NRC Staff
U.S. Nuclear Regulatory Commission
Mail Stop O-15 D21
Washington, DC 20555-0001
(202)570-0660
Jody.Martin@nrc.gov

/Executed in Accord with 2.304(d)/
Laura R. Goldin
Counsel for NRC Staff
U.S. Nuclear Regulatory Commission
Mail Stop O-15 D21
Washington, DC 20555-0001
(301)415-3082
Laura.Goldin@nrc.gov

Dated at Rockville, Maryland
the 26TH Day of June 2012

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
	)	
PROGRESS ENERGY FLORIDA, INC.	)	Docket Nos. 52-029 and 52-030
	)	
	)	
(Levy County Nuclear Site, Units 1 and 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the NRC Staff letter dated June 26, 2012, have been served upon the following persons by Electronic Information Exchange this 26th day of June, 2012:

Administrative Judge
Alex S. Karlin, Chair
Atomic Safety and Licensing Board Panel
Mail Stop: T-3F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: Alex.Karlin@nrc.gov

Administrative Judge
Anthony J. Baratta
Atomic Safety and Licensing Board Panel
Mail Stop: T-3F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: Anthony.Baratta@nrc.gov

Administrative Judge
Randall J. Charbeneau
Atomic Safety and Licensing Board Panel
Mail Stop: T-3F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: Randall.Charbeneau@nrc.gov

Michael Mariotte
Executive Director, NIRS
6930 Carroll Ave. Suite 340
Takoma Park, MD 20912
E-mail: nirsnet@nirs.org

Office of Commission Appellate Adjudication
Mail Stop O-16C1
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail:OCAAmail@nrc.gov

Office of the Secretary
ATTN: Docketing and Service
Mail Stop: O-16C1
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: HEARINGDOCKET@nrc.gov

Matthew Flyntz
Law Clerk
Atomic Safety and Licensing Board
Mail Stop: T-3F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: matthew.flyntz@nrc.gov

Dianne Curran, Esq,
Harmon, Curran, Speilberg &
Eisenberg, LLP
1726 M Street NW., Suite 600
Washington, DC 20036
E-mail: dcurran@harmoncurran.com

John H. O'Neill, Esq.
Michael G. Lepre, Esq.
Blake J. Nelson, Esq.
Timothy J.V. Walsh, Esq.
Jason P. Parker, Esq.
Robert B. Ross, Esq.
Counsel for Progress Energy Florida, Inc.
Pillsbury, Winthrop, Shaw, Pittman, LLP
2300 N. Street, NW
Washington, DC 20037-1122
E-mail: john.O'Neill@pillsburylaw.com
michael.lepre@pillsburylaw.com
blake.nelson@pillsburylaw.com
timothy.walsh@pillsburylaw.com
jason.parker@pillsburylaw.com
robert.ross@pillsburylaw.com

/signed (electronically) by/

Kevin C. Roach
Counsel for NRC Staff
U.S. Nuclear Regulatory Commission
Mail Stop O-15 D21
Washington, DC 20555-0001
(301) 415-2779
Kevin.Roach@nrc.gov

Dated at Rockville, Maryland
this 26th day of June, 2012

ATTACHMENT 1

Submitted: June/26/2012

Progress Energy Florida, Inc.
(Levy County Nuclear Power Plant, Units 1 and 2)
Docket Nos. 52-029-COL and 52-030-COL
October 2012 Evidentiary Hearing
NRC Staff Exhibit List

NRC Exhibit #	Witness/Panel	Description
NRC001A	Sutton	NUREG-1941 Environmental Impact Statement for Combined Licenses (COLs) for Levy Nuclear Plant Units 1 and 2, Final Report (April, 2012) Volume 1 (Chapters 1-5).
NRC001B	Sutton	NUREG-1941 Environmental Impact Statement for Combined Licenses (COLs) for Levy Nuclear Plant Units 1 and 2, Final Report (April, 2012) Volume 2 (Chapters 6-10).
NRC001C	Sutton	NUREG-1941 Environmental Impact Statement for Combined Licenses (COLs) for Levy Nuclear Plant Units 1 and 2, Final Report (April, 2012) Volume 3 (Appendixes).
NRC002	Sutton	Professional Qualifications of Mallecia A. Sutton
NRC003	Miracle	Professional Qualifications of Ann L. Miracle
NRC004	Masnik	Professional Qualifications of Michael T. Masnik
NRC005	Doub	Professional Qualifications of Joseph Peyton Doub
NRC006	Aston	Professional Qualifications of Lara M. Aston
NRC007	Barnhurst	Professional Qualifications of Dan O. Barnhurst
NRC008	Vail	Professional Qualifications of Lance W. Vail
NRC009	Prasad	Professional Qualifications of Rajiv Prasad
NRC010	Vermeul	Professional Qualifications of Vince R. Vermeul
NRC011	Quinlan	Professional Qualifications of Kevin R. Quinlan
NRC012	Berg	Professional Qualifications of Larry K. Berg

NRC013	All	NUREG-1555 Standard Review Plans for Environmental Reviews for Nuclear Power Plants ("ESRP") (2000) Sections: 2.3, 2.4, 2.6, 2.7, 2.8, 3.3, 3.4, 4.2, 4.3, 5.2, 5.10, 6.3, 6.5, 10.1, and 10.2.
NRC014	All	NUREG-1555 Standard Review Plans for Environmental Reviews for Nuclear Power Plants ("ESRP") Draft Rev. 1 (2007) Sections: 4.7, 5.3, 5.11, and 9.4.
NRC015	Prasad, Vail, Vermeul, Barnhurst	NUREG-0800 Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition, ("SRP") Rev. 3 (2007) Sections: 2.4.1, and 2.4.13.
NRC016	Prasad, Vail, Vermeul, Barnhurst	Application for Combined License for Levy Nuclear Plant, Units 1 and 2, Part 2, Final Safety Analysis Report, Revision 3, portions of section 2.5 (2012).
NRC017	Prasad, Vail, Vermeul, Barnhurst	Exhibit created by Staff showing four maps and figures of the region around the LNP site and focusing on specific features discussed in the testimony.
NRC018	Prasad, Vail, Vermeul, Barnhurst	Excerpts from U.S. Geological Survey (USGS): Ground Water Atlas of the United States: Alabama, Florida, Georgia, and South Carolina HA 730-G. Ed. J.A. Miller, Reston, Virginia (1990).
NRC019	Prasad, Vail, Vermeul, Barnhurst	Excerpts from Randazzo, A.F. and D. Jones, editors: The Geology of Florida. University Press of Florida, Gainesville, Florida (1997).
NRC020	Prasad, Vail, Vermeul, Barnhurst	Excerpts from Miller, James A., Hydrogeologic Framework of the Floridan Aquifer System in Florida, and in Parts of Georgia, Alabama and South Carolina. USGS Professional Paper 1403-B, Washington, D.C (1986).
NRC021	Prasad, Vail, Vermeul, Barnhurst, Berg	Levy Nuclear Plant Units 1 and 2 COL Application, Part 3, Environmental Report – Combined License Stage, Revision 1 (2009) Excerpts from Section 2.4 and Sections 4.1 and 5.3.

NRC022	Prasad, Vail, Vermeul, Barnhurst	Excerpts from letter from Garry Miller, Progress Energy Florida, Inc. (PEF), to NRC, dated July 29, 2009, regarding Supplement 3 to Response to Request for Additional Information Regarding the Environmental Review.
NRC023	Prasad, Vail, Vermeul, Barnhurst	Letter from John Elnitsky, PEF, to NRC, dated December 14, 2009, regarding Response to Supplemental Request for Additional Information Regarding the Environmental Review. The technical memorandum from CH2M Hill attached to this letter is exhibit PEF210.
NRC024	Prasad, Vail, Vermeul, Barnhurst	Southwest Florida Water Management District (SWFWMD), Environmental Resource Permitting Information Manual, Part D: Project Design Aids. West Palm Beach, Florida (1996).
NRC025	Prasad, Vail, Vermeul, Barnhurst	SWFWMD, Environmental Resource Permitting Information Manual, Part B: Basis of Review (December 29, 2011).
PEF005		Florida Department of Environmental Protection (FDEP), Levy Nuclear Power Plant Units 1 and 2, Progress Energy Florida, Proposed Conditions of Certification, Plant and Associated Facilities and Transmission Lines. PA08-51, Tallahassee, Florida (as amended on January 25, 2011).
NRC027	Miracle	Florida Department of Natural Resources (FDNR), St. Martins Marsh Aquatic Preserve Management Plan. Tallahassee, Florida (1987).
NRC028	Miracle	Estevez, E.D. and M.A. Marshall. 1993 Summary Report for: Crystal River 3 Year NPDES Monitoring Project. Mote Marine Laboratory, Sarasota, Florida (1993) (NRC028).
NRC029	Miracle	Estevez, E.D. and M.A. Marshall. 1994 Summary Report for: Crystal River 3 Year NPDES Monitoring Project. Mote Marine Laboratory, Sarasota, Florida (1994).
NRC030	Miracle	Estevez, E.D. and M.A. Marshall. 1995 Summary Report for: Crystal River 3 Year NPDES Monitoring Project. Mote Marine Laboratory, Sarasota, Florida (1995).
NRC031	Miracle	Letter from B.L. Mozafari, National Marine Fisheries Service (“NMFS”) to D. Young, “Crystal River Unit 3 – Section 7 Consultation under the Endangered Species Act Regarding Sea Turtles at the Crystal River Energy Complex (Sept. 19, 2002).
NRC032	Miracle	Excerpts from NMFS, Sea Turtle Strandings and Salvage Network (STSSN) Reports (2009).

NRC033	Miracle	Eaton, C., E. McMichael, B. Witherington, A. Foley, R. Hardy, and A. Meylan, In-water Sea Turtle Monitoring and Research in Florida: Review and Recommendations. National Oceanic and Atmospheric Association (NOAA) Technical Memorandum NMFS-OPR-38, Silver Spring, Maryland (2008).
NRC034	Miracle	FWS, West Indian Manatee (Trichechus manatus): 5-yr review: Summary and Evaluation. Jacksonville Ecological Services Office, Boqueron, Puerto Rico (2007).
NRC035	Miracle	FFWCC (Florida Fish and Wildlife Conservation Commission), Basic Recreational Saltwater Fishing Regulations. Tallahassee, Florida. (2009).
NRC036	Miracle	FFWCC, 2008 Annual Landings Summary Edited Landings Data Through Batch 1015 (Closed 12/22/2008). Marine Fisheries Information System, Tallahassee, Florida 2009.
NRC037	Berg	Excerpts from Reisman, J., and G. Frisbie: Calculating realistic PM10 emissions from cooling towers. *Environmental Progress*, 21, (2002).
NRC038	Berg, Quinlan	Staff created exhibit showing a comparison of atmospheric conditions at Gainesville, FL and the LNP site. This graph was created by using atmospheric conditions from the National Oceanographic and Atmospheric Administration, 2008 National Climatic Data Center, Climate Data website and comparing them to data from the LNP site.
NRC039	Berg	Letter from J. Scarola, Progress Energy Carolinas, Inc. (PEC) to NRC, "Supplemental Meteorological Data in Support of Combined License Application for Levy Nuclear Power Plants Units 1 and 2 NRC Project Number 756." (July 28, 2008).
NRC040	Berg	Letter from G.D. Miller, PEC, to NRC "Supplemental Meteorological Data in Support of Combined License Application – Second Year Data." (Mar. 17, 2009).
NRC041	Doub, Aston	Mortellaro, S., S. Krupa, L. Fink and J. VanArman, Literature Review on the Effects of Groundwater Drawdowns on Isolated Wetlands, South Florida Water Management District, West Palm, Florida (1995).
NRC042	Miracle, Masnik	CH2M HILL, Aquatic Ecology Sampling Report Levy Nuclear Plant. 338884-TMEM-087, Revision 1, Denver, Colorado (2009).
NRC043	Miracle, Masnik	Stone and Webster Engineering Corporation, Crystal River 316 Studies, Final Report, Stoughton, Mass. (1985).

NRC044	Miracle, Masnik	Gosselink, J., Tidal Marshes: The Boundary Between Land and Ocean. U.S. Fish and Wildlife Service, Biological Services Program, Washington, D.C. (1980).
NRC045	Miracle, Masnik	Zieman, J.C. and R.T. Zieman, The Ecology of the Seagrass Meadows of the West Coast of Florida: A Community Profile. Biological Report 85, U.S. Fish and Wildlife Service, Slidell, Louisiana (1989).
NRC046	Miracle, Masnik	Mattson, R.A., T.K. Frazer, J. Hale, S. Blitch, and L. Ahijevych. "Florida Big Bend." In Seagrass Status and Trends in the Northern Gulf of Mexico: 1940-2002. L. Handley, D. Altsman, and R. DeMay, editors, Scientific Investigations Report 2006-5287 and U.S. Environmental Protection Agency 855-R-04-003, U.S. Geological Survey, Reston, Virginia (2007).
NRC047	Doub, Aston	Environmental Protection Agency ("EPA")/United States Army Corps of Engineers ("USACE"), Draft Guidance on Identifying Waters Protected by the Clean Water Act, Washington, D.C. (2011).
NRC048	Doub, Aston	Environmental Services, Inc. and Taylor Engineering, Inc., Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan Comprehensive Design Document. Jacksonville, Florida (2011).
PEF504		FDEP, Division of Air Resource Management, Air Permit No. PSD-FL-403 , "Levy Nuclear Plant Units 1 and 2 Cooling Towers" (NRC049).
NRC050	Berg	Excerpts from Monahan, E.C., D.E. Spiel and K.L. Davidson, "A Model of Marine Aerosol Generation Via Whitecaps and Wave Disruption" in "Oceanic Whitecaps and Their Role in Air-Sea Exchange Processes; Proceedings of the 1983 Galway Whitecap Workshop", Hingham, MA (1986) (NRC050).
NRC051	Berf	Excerpts from Gong, S.L., L.A. Barrie, J.P. Blanchet, "Modeling sea-salt aerosols in the atmosphere-Model development (Abstract)." *Journal of Geophysical Research* 102(D3):3805, Washington, D.C. (1997).
NRC052	Berg	Excerpts from Marks, R., "Preliminary investigations on the influence of rain on the production, concentration, and vertical distribution of sea salt aerosol (Abstract)." *Journal of Geophysical Research* 95(C12):22299-22304, Washington, D.C. (1990).

NRC053	Berg	Excerpts from Noble, C.A. and K.A. Prather, "Real-time single particle monitoring of a relative increase in marine aerosol concentration during winter rainstorms." *Geophysical Research Letters* 24(22):2753-2756, Washington, D.C. (1997).
NRC054	Berg	Excerpts from Lewis, E.R. and S.E. Schwartz, "Sea salt aerosol production: mechanisms, methods, measurements and models: a critical review", American Geophysical Union, Washington D.C. (2004).
NRC055	Berg	Excerpts from Clarke, A., V. Kapustin, S. Howell, K. Moore, B. Lienert, S. Masonis, T. Anderson, and D. Covert, "Sea-Salt Size Distributions from Breaking Waves: Implications for Marine Aerosol Production and Optical Extinction Measurements during SEAS", *Journal of Atmospheric and Oceanic Technology* 20(10):1362, Boston, Mass. (2003).
NRC056	Berg	Excerpts from Wigington, P.J. Jr., M.R. Church, T.C. Strickland, K.N. Eshleman, and J. Van Sickle, "Autumn Chemistry of Oregon Coast Range Streams [Abstract]." *Journal of the American Water Resources Association* 34(5):1035 (1998).
NRC057	Doub, Aston	NUREG-1437 Generic Environmental Impact Statement for License Renewal of Nuclear Plants, (1996) Section 4.3.
NRC058	Doub, Aston	Letter from Garry Miller, PEF, to NRC, regarding Supplement Information Related to Environmental Review – Future Native Files and CREC 1993/1994 Annual Salt Drift Report, (Aug. 31, 2009).
NRC059	Miracle, Masnik	Letter from R. Hoffman, NMFS to NRC regarding "List of federally-protected species under the jurisdiction of NMFS for the State of Florida." (Dec. 11, 2008).
NRC060	Miracle, Masnik	FWS, *Aerial Manatee Counts – 2006-2011.* Crystal River, Florida (2011).
NRC061	Miracle, Masnik	Letter from Roy Crabtree, NMFS, to Robert Schaaf and Gordon Hambrick, NRC, regarding Levy Nuclear Plant Units 1 and 2. (November 26, 2010).
NRC062	Doub, Aston	Staff created figure depicting the salt deposition model output overlaid onto a habitat map of the proposed LNP site and vicinity.
NRC63	Prasad, Vail, Vermeul, Barnhurst	USGS Water Resources Data, USGS Surface-Water Annual Statistics from "USGS 02313100 RAINBOW RIVER AT DUNNELLON, FL" (retrieved June 20, 2012).

NRC64	Prasad	Excerpts from FDEP, Levy Nuclear Power Plant Units 1 and 2, Progress Energy Florida, Proposed Conditions of Certification, Plant and Associated Facilities and Transmission Lines. PA08-51, 4th Amended Conditions of Certification, Tallahassee, Florida (March 12, 2009).
NRC065	Prasad, Vail, Vermeul, Barnhurst	Excerpts from Memorandum to Brent Clayton, NRC, from Jack Cushing, NRC, Providing Supplemental Staff Guidance for Cumulative Effects Analysis (April 8, 2010).
NRC066	Doub, Aston	FWS and NMFS, Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act (March 1998).
PEF014		CH2M Hill, Effects of Temporary Dewatering of Wetlands for the Construction of the Levy Nuclear Plant Levy County, Florida. 338884-TMEM-131, Rev 1 (2011).
NRC068	Doub, Aston	State of Florida Department of Transportation, Florida Land Use, Cover and Forms Classification System Handbook (1999).
NRC069	Doub, Aston	USACE, Corps of Engineers Wetlands Delineation Manual (1987).