

February 3, 2016

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
FLORIDA POWER & LIGHT COMPANY) Docket Nos. 52-040 & 52-041
)
(Turkey Point Units 6 and 7))

NRC STAFF ANSWER TO “FLORIDA POWER & LIGHT COMPANY’S MOTION FOR SUMMARY DISPOSITION OF JOINT INTERVENORS’ AMENDED CONTENTION 2.1”

Pursuant to 10 C.F.R. §§ 2.1205(b) and 2.710, and the Atomic Safety and Licensing Board (Board) Order dated December 23, 2015,¹ the staff of the U.S. Nuclear Regulatory Commission (Staff) hereby answers the “Florida Power & Light Company’s Motion For Summary Disposition of Joint Intervenors’ Amended Contention 2.1” dated December 15, 2015 (FPL Motion). For the reasons set forth below, the Florida Power and Light Company (Applicant or FPL) has demonstrated that there is no genuine issue as to any fact material to Amended Contention NEPA 2.1 and that it is entitled to judgment as a matter of law. The attached affidavit of Daniel O. Barnhurst supports the Staff position. See Affidavit of Daniel O. Barnhurst Concerning Amended Contention 2.1 (Barnhurst Aff.) (Staff Attachment 1).² Accordingly, the Staff submits that the Board should grant the FPL Motion and dismiss Contention NEPA 2.1.

BACKGROUND

On June 30, 2009, FPL, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission’s regulations, submitted an application for combined licenses (COL) for two

¹ *Florida Power and Light Co. (Turkey Point Units 6 and 7), Order (Granting Joint Intervenors’ Motion for Extension of Time) (unpublished) (Dec. 23, 2015) (ML15357A225).*

² Mr. Barnhurst’s *curriculum vitae* is attached as Staff Attachment 2.

AP1000 Pressurized Water Reactors to be located adjacent to the existing Turkey Point Units 1 through 5, at the Turkey Point site near Homestead, Florida (Application). See Letter from M. K. Nazar to M. Johnson, NRC, dated June 30, 2009 (ADAMS Accession No. ML091830589). The proposed units would be known as Turkey Point, Units 6 & 7.

On June 18, 2010, the NRC published a Notice of Hearing and Opportunity to Petition for Leave to Intervene regarding the Application. See "Florida Power & Light Company, Combined License Application for the Turkey Point Units 6 & 7, Notice of Hearing, Opportunity for Leave to Petition to Intervene and Associated Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation," 75 Fed. Reg. 34,777 (June 18, 2010). In response to the Notice of Hearing, Mark Oncavage, Dan Kipnis, Southern Alliance for Clean Energy, and the National Parks Conservation Association (Joint Intervenors) submitted a petition dated August 17, 2010, through which they sought to intervene in this proceeding. See Petition for Intervention (Aug. 17, 2010) (Petition). In a decision dated February 28, 2011, the Atomic Safety and Licensing Board presiding over this proceeding admitted Joint Intervenors' Contention NEPA 2.1, which was a contention of omission, and granted the Petition. See *Florida Power & Light Co. (Turkey Point Units 6 and 7)*, LBP-11-06, 73 NRC 149, 188-194, 226 (2011).

Based on a subsequent revision to the Application, the Applicant moved to dismiss Contention NEPA 2.1 as moot, which the Board granted. See *Florida Power & Light Co. (Turkey Point Units 6 and 7)*, Memorandum and Order (Granting FPL's Motions to Dismiss Joint Intervenors' Contention 2.1 and CASE's Contention 6 as Moot) at 3, 6 (unpublished) (Jan. 26, 2012) (ML12026A438). The Joint Intervenors contemporaneously submitted an amended Contention NEPA 2.1, which the Board modified and admitted on May 2, 2012. See *Florida Power & Light Co. (Turkey Point Units 6 and 7)*, LBP-12-09, 75 NRC 615, 629 (2012). In response to a subsequent FPL motion for summary disposition, the Board dismissed a portion of amended Contention NEPA 2.1 as moot and reformulated the contention. See *Florida Power*

& *Light Co.* (Turkey Point Units 6 and 7), Memorandum and Order ((Granting in Part and Denying in Part Motion for Summary Disposition of Amended Contention 2.1) at 10 (unpublished) (Aug. 30, 2012) (ML12243A323). As currently pending before the Board, Amended Contention NEPA 2.1 states as follows:

The [Environmental Report (ER)]³ is deficient in concluding that the environmental impacts from FPL's proposed deep injection wells will be "small" because the chemical concentrations in ER Rev. 3 Table 3.6-2 for ethylbenzene, heptachlor, tetrachloroethylene, and toluene may be inaccurate and unreliable. Accurate and reliable calculations of the concentrations of those chemicals in the wastewater are necessary so it might reasonably be concluded that those chemicals will not adversely impact the groundwater should they migrate from the Boulder Zone to the Upper Floridan Aquifer.

*Id.*⁴

On March 5, 2015, the NRC published a notice of availability of the draft Environmental Impact Statement (EIS) on the Application, NUREG-2167, "[EIS] for [COLs] for Turkey Point Nuclear Plant Units 6 and 7—Draft Report for Comment" (ML15055A103 (Vol. 1) and ML15055A109 (Vol. 2)) (DEIS). The DEIS includes detailed information regarding the environmental effects of deep well injection of cooling tower blowdown, including the potential effects of the chemical constituents that are the subject of Amended Contention NEPA 2.1. See DEIS §§ 2.3.1.2, 3.2.2.2, 3.4.2.2, 3.4.2.3, 3.4.4.2, 5.2.1.3, 5.2.3.2, 5.2.4.2, 5.8.1, and 5.10.2; DEIS Appendix G, § G.3.3 (at G-46 through G-50). In particular, the Staff evaluated the thickness of the Middle Confining Unit (MCU) between the Boulder Zone, into which FPL proposes to inject the blowdown, and the Upper Floridan aquifer, which the Environmental Protection Agency has designated as an underground source of drinking water (USDW) (DEIS

³ Application, Rev. 3, Part 3 (ER) (ML11362A163 and ML11362A165). Although the latest revision to the ER is Rev. 7 (ML14311A253), the relevant sections of the ER have not changed since ER Rev. 4 (ML13008A516), which include updates to the information in ER Rev. 3 regarding the effects of deep well injection that are reflected in the DEIS.

⁴ The Applicant statement of Amended Contention NEPA 2.1 omits words from the last sentence of the contention as shown in bold as follows: ". . .so it might reasonably be concluded that those chemicals will not adversely **impact the groundwater should they** migrate from the Boulder Zone to the Upper Floridan Aquifer. See FPL Motion at 4.

at 5-17); the reasons for upward migration at other locations (*id.* at 5-18); and whether a feature similar to those through which upward migration occurred into the MCU at other locations might be a pathway for upward migration of the blowdown injectate at the Turkey Point COL site (*id.*). The DEIS concludes that “[b]ecause of the evidence of adequate isolation of the Boulder Zone from the overlying USDW by layers of low permeability rock and the [Florida Department of Environmental Protection (FDEP)] [Underground Injection Control (UIC)] monitoring requirements, the review team determined that the Upper Floridan aquifer USDW would be protected from degradation.” *Id.* at 5-29.

On December 15, 2015, the Applicant filed its Motion, based in large measure on the DEIS and the data the Applicant collected regarding the concentration of the chemical constituents in the wastewater used for cooling, which would ultimately be injected into the Boulder Zone. The FPL Motion includes Attachment 2, “Statement of Material Facts as to which No Genuine Issue Exists, in Support of [FPL’s] Motion for Summary Disposition of Joint Intervenors’ Amended Contention 2.1” (FPL Statement).

DISCUSSION

I. Legal Standards

A. Standards for summary disposition

Pursuant to 10 C.F.R. § 2.1205(a), motions for summary disposition must be in writing and must include a written explanation of the basis for the motion. 10 C.F.R. § 2.1205(a). The moving party must attach a short and concise statement of material facts for which the moving party contends there is no genuine issue to be heard. *Id.* In addition to demonstrating that no genuine issue of material fact exists, the movant must also demonstrate that it is entitled to the decision as a matter of law. 10 C.F.R. § 2.710(d)(2); *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986).

In ruling on a motion for summary disposition filed under § 2.1205, a Licensing Board must apply the standards of 10 C.F.R. § 2.710(d)(2). 10 C.F.R. § 2.1205(c).⁵ A party is entitled to summary disposition as to all or any part of the matters involved in the proceeding “if the filings in the proceeding, depositions, answers to interrogatories, and admissions on file, together with the statements of the parties and the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law.” 10 C.F.R. § 2.710(d)(2). The standards are “based upon those the federal courts apply to motions for summary judgment under Rule 56 of the Federal Rules of Civil Procedure.” *Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 297 (2010) (*Pilgrim I*) (citing *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102 (1993) (*AMS*)), reconsideration denied, CLI-10-15, 71 NRC 479 (2010) (*Pilgrim II*).

The movant bears the initial burden of showing that there is no genuine issue as to any material fact. See *AMS*, CLI-93-22, 38 NRC at 102. If the opposing party fails to counter each adequately supported material fact with its own statement of material facts in dispute and supporting materials, the movant’s facts will be deemed admitted. *Id.* at 102-03. “[T]he mere existence of *some* alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment; the requirement is that there be no *genuine* issue of *material* fact.” *Anderson v. Liberty Lobby*, 477 U.S. 242, 247-48 (1986) (emphasis in original); see also 10 C.F.R. § 2.710(b) (“[A] party opposing the motion may not rest upon the mere allegations or denials of his answer,” but rather, “must set forth specific facts showing that there is a genuine issue of fact.”). The Board, however, must view the record in the light most favorable to the party opposing such a motion. See *AMS*, CLI-93-22, 38 NRC at 102. “Only

⁵ “In ruling on motions for summary disposition, the presiding officer shall apply the standards for summary disposition set forth in subpart G of this part.” 10 C.F.R. § 2.1205(c).

disputes over facts that might affect the outcome of a proceeding would preclude summary disposition.” *Pilgrim I*, CLI-10-11, 71 NRC at 297 (quoting *Liberty Lobby*, 477 U.S. at 248).

Although the opposing party need not show that it would prevail on the issues, it must at least demonstrate that there is a genuine factual issue to be tried. *AMS*, CLI-93-22, 38 NRC at 102. Nonetheless, at the summary disposition stage, the quality of evidentiary support is expected to be of a higher level than that at the contention filing stage. *Pilgrim II*, CLI-10-15, 71 NRC at 484. In addition, a party opposing summary disposition of its pending contention may not expand the scope of that contention as admitted to avoid summary disposition. See *Pilgrim II* at 480-481; *Pilgrim I* at 310-11.

B. Standards for environmental evaluation

By its terms, the National Environmental Policy Act of 1969, as amended (NEPA), imposes procedural rather than substantive constraints upon an agency’s decisionmaking process: The statute requires only that an agency undertake an appropriate assessment of the environmental impacts of its action without mandating that the agency reach any particular result concerning that action. See, e.g., *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); *Northeast Nuclear Energy Co.* (Millstone Nuclear Power Station, Unit 3), CLI-01-3, 53 NRC 22, 44 (2001).

NEPA must be construed “in the light of reason if it is not to demand virtually infinite study and resources.” *Pilgrim I*, CLI-10-11, 71 NRC at 315 (quoting *Natural Resources Defense 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.* 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)). NEPA analyses need not consider “worst-case” scenarios. See *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340, 348-49 (2002).

II. The Applicant is Entitled to Summary Disposition on Amended Contention NEPA 2.1.

The Staff supports the FPL Motion in light of two key sets of facts as to which there is no material dispute. First, the Staff used the concentration data in the ER for its DEIS analysis of the chemical constituents identified in Amended Contention NEPA 2.1, and the ER data is sufficiently accurate and reliable for such use. Barnhurst Aff. ¶¶ 11, 12; FPL Motion at 4; FPL Statement ¶¶ 11, 26, 41 (with which the Staff does not take issue, see Barnhurst Aff. ¶ 4, 12). In this regard, the Staff determined that the concentrations of these chemical constituents are reasonable and bound the concentrations detected in the reported samples. Barnhurst Aff. ¶ 12; see FPL Statement ¶¶ 26, 41. Second, potential upwelling would not be expected to reach or adversely impact the Upper Floridan aquifer. Barnhurst Aff. ¶¶ 15-17, 26-30; FPL Motion at 2-3; FPL Statement ¶ 70, 71, 90 (with which the Staff does not take issue, see Barnhurst Aff. ¶ 4, 16, 17). Accordingly, the available information does not support the Joint Intervenors' argument that the chemicals identified in Amended Contention NEPA 2.1 could migrate into the underground source of drinking water in the Upper Floridan aquifer in the vicinity of the proposed FPL deep injection wells, and that argument, in turn, no longer supports a litigable issue in Amended Contention NEPA 2.1. As explained below, these facts are dispositive, and the Applicant is entitled to judgment as a matter of law.

In its motion, the Applicant asserts that it is entitled to summary disposition of Amended Contention 2.1 on the grounds that no genuine issue as to any material fact exists, and that thus it is entitled to a decision as a matter of law. FPL Motion at 1. The Applicant appears to assert that the data on the concentrations of ethylbenzene, heptachlor, tetrachloroethylene, and toluene and the information regarding confinement are separate, independent bases for granting its Motion. FPL Motion at 2; FPL Statement ¶ 42. In particular, the Applicant states that the concentration data are "irrelevant" to the confinement argument. *Id.* The Staff understands the Applicant's position to mean that the injectate concentrations of the chemicals identified in the contention are "irrelevant" to the environmental impacts of the injectate in that

the chemical concentrations are insignificant as compared to the confinement afforded by the Middle Confining Unit (MCU), as explained below. In any event, the undisputed facts described above are dispositive, and the Staff agrees that summary disposition of Amended Contention NEPA 2.1 is warranted.

A. There is no genuine issue in regard to any material fact.

As set forth below, the Staff has reviewed Attachment 2 to the FPL Motion, the FPL Statement, and the Staff agrees that no genuine issue exists in regard to the facts material to Amended Contention NEPA 2.1. The Staff does not take issue with ¶¶ 1-8, 10-12, 14-41, 43-57, 59-83, and 85-90 of the FPL Statement, subject to clarification or qualification of the Applicant statements in ¶¶ 23, 26, 38-41, 49, 56, 71, and 90, as discussed below.⁶ See Barnhurst Aff. ¶ 4. In regard to ¶¶ 9, 13, 42, 58 and 84 of the FPL Statement, with which the Staff disagrees in some respect, the disagreements are not material to the FPL Motion, as explained below.

Clarifications and qualifications:

In regard to the FPL statements of fact with which the Staff does not take issue subject to certain clarifications or qualifications, the Staff states the clarification or qualification for each such fact below.

⁶ Except for the Applicant statements identified below, the Staff has verified all of the Applicant's individual statements in its Statement of Facts as to which the Staff does not take issue. The Staff has verified these statements through reviewing the application, audits of additional documentation, site visits to observe characterization activities, independent calculations and literature review, and other activities. Barnhurst Aff. ¶ 5. The Staff, however, has not verified certain statements in the FPL Statement of Facts. Specifically, FPL Statement 3 states FPL's intention to use 12 or 13 injection wells, and this is consistent with the Application, assuming FPL uses the exploratory well for injection, but the Staff has no further information in this regard (Barnhurst Aff. ¶ 6); FPL Statements 15, 17, 18, 20-22, 25, and 34-36 state facts, such as events, about which the Staff has no independent knowledge (Barnhurst Aff. ¶ 7); and FPL Statements 24, 27, 29, 31, and 33 state results or propositions for which the Staff did not evaluate or analyze the bases (Barnhurst Aff. ¶ 8). The Staff does not have information inconsistent with any of these Applicant statements. Barnhurst Aff. ¶ 9. In addition, the Staff notes that while Applicant Statement 7 correctly lists four of the chemical species that were the subject of Contention NEPA 2.1 as originally admitted by the Board in 2011, the original contention also challenged the omission of selenium and thallium from the ER. See *Turkey Point*, LBP-11-06, 73 NRC at 190.

FPL Statement 14 relates to improvements in the water treatment processes at the Miami-Dade Water and Sewer Department South District Wastewater Treatment Plant (SDWWTP), but the Staff did not evaluate the efficacy of such improvements. Barnhurst Aff. ¶ 10.

FPL Statement 23 indicates that the number of samples taken in the PACE Analytical Services, Inc. (PACE) sampling program provides an accurate representation of the concentrations of the chemical constituents identified in Amended Contention NEPA 2.1 in the future reclaimed water the SDWWTP will supply to Turkey Point Units 6 & 7. The Staff, however, has not performed a statistical analysis of the variation in these data. *Id.* ¶ 11. Nonetheless, the Staff does agree that this new data provides additional insight into the concentrations of the chemicals identified in the contention that may be reasonable to expect in the wastewater used at Turkey Point Units 6 & 7. *Id.* In view of the confinement offered by the MCU, the concentrations would not likely vary enough to affect the impact level. *Id.*

Applicant Statements 26 and 41 indicate that the SDWWTP concentration data are conservative. However, the Staff believes the term “conservative,” as used to describe data, should be understood only with reference to other potential values of the data, and such reference values are lacking here. *Id.* ¶ 12. Nonetheless, the Staff agrees that the SDWWTP concentration data could be considered “conservative” in the sense that the ER used concentration data that bound the results obtained, except for tetrachloroethylene (see *id.* ¶¶ 18-25). Accordingly, the SDWWTP data provide insight into the concentrations of the chemicals identified in Amended Contention NEPA 2.1 and the use of those data is reasonable. *Id.* ¶ 12.

FPL Statements 38-40 relate to volatilization of ethylbenzene, tetrachloroethylene, and toluene that might occur in the cooling towers, and while the Staff acknowledges that such volatilization could occur, the Staff did not quantify volatilization in the cooling towers (heptachlor is not a volatile chemical species). *Id.* ¶ 13.

FPL Statement 49 refers to the Middle Floridan aquifer as the “Middle Confining Unit,” but the Staff uses the term “Middle Confining Unit” to include the assemblage of formations between the Upper Floridan aquifer and the Lower Floridan aquifer. *Id.* ¶ 14.

FPL Statement 56 indicates that the data collected during the construction and testing of exploratory well no. 1 (EW-1) confirmed the subsurface geology in the vicinity of the Turkey Point site. The Staff agrees that these data support the current understanding of the hydrogeology of the site and are consistent with descriptions of hydrogeologic units presented in local and regional studies cited in the DEIS at 2-54, consistent with FPL Statement 60. *Id.* ¶ 15. Since the data are from one borehole, they cannot be said to exactly represent the hydrogeology of the entire site. *Id.* However, as discussed in the DEIS, the staff does not expect that the hydrogeology across the site will vary significantly from that at EW-1. *Id.*

FPL Statement 71 indicates that the Staff conclusion that vertical flow through the confining units is unlikely since EW-1 construction and testing did not reveal the presence of enhanced flow features, but while that information was part of the Staff basis for its conclusion, it was not the sole basis for that conclusion. *Id.* ¶ 16. The Staff also relied on Staff review of local and regional studies of the confining nature of the MCU; Staff review of studies of deep well injection sites in south Florida, particularly the SDWWTP site; Staff modeling to evaluate the impacts of upwelling; and Staff review of FEP UIC permit requirements for injection well construction techniques and injection well testing and monitoring programs. *Id.*

Finally, FPL Statement 90 indicates that the Staff relied on the monitoring program to conclude that “in the extremely unlikely event that migration occurred ‘the impact of upward migration that could occur before detection would be minor,’” but the Staff did not rely solely on the monitoring program to reach this conclusion, as explained in the DEIS section that includes the text quoted in FPL Statement 90. *Id.* ¶¶ 16, 17.

Issues not material to the FPL Motion:

In addition to the Statements of Fact discussed above that warrant clarification or qualification, the Staff has also identified several statements in the FPL Statement with which it takes issue. None of these issues, however, is material to the FPL Motion. While one disagreement amounts to no more than an apparent clerical or typographical matter,⁷ others might at first blush appear material to the FPL Motion, and the Staff discusses these below.

FPL Statement 13 indicates that FPL selected the highest concentration of each of the constituents found in the SDWWTP's reports for its source data for ER Table 3.6-2. For tetrachloroethylene, however, the Staff found that the concentration selected by FPL as the maximum detected value for tetrachloroethylene was lower than the values in the SDWWTP annual reports for the year it was detected (2007). Barnhurst Aff. ¶ 23. FPL reported that the maximum detected value for tetrachloroethylene of 1.1 µg/L occurred in 2007 and was detected using EPA Test Method 524.2 (Table 1 of RAI Response H4.2-2 (5765)). *Id.* ¶. However, in the 2007 annual report, the value for tetrachloroethylene resulting from this same test method (524.2) is 1.6 µg/L. *Id.* Additionally, the report indicates that a tetrachloroethylene concentration of 2.0 µg/L was detected by EPA Test Method 624. *Id.* This 2.0 µg/l would represent a new maximum detected value for tetrachloroethylene. *Id.* Nonetheless, this maximum concentration value for tetrachloroethylene remains very small in absolute terms, as is the value reported by FPL, such that either value would be reasonable to use in evaluating the impacts of tetrachloroethylene in the injectate, and the Staff used the higher value in its analysis in the DEIS. *Id.* ¶ 25. Accordingly, the difference between the concentration of tetrachloroethylene that the Staff used and that identified in FPL Statement 13 is not material to the FPL Motion.

⁷ Specifically, FPL Statement 9 omits text from Amended Contention NEPA 2.1, as noted above. See note 3, *supra*.

FPL Statement 42 states as follows:

The DEIS concluded that the environmental impact from deep well injection would be SMALL. DEIS at 5-29. The Constituent concentrations presented in the ER and DEIS are irrelevant to this conclusion, because (1) the injectate will be confined within the Boulder Zone; (2) the injection wells' design and testing are highly regulated to prevent leaks; and (3) the state of Florida requires that the injection wells be monitored to ensure they are functioning properly during operation. DEIS at § 2.3.1.2 at p. 2-55; § 5.2.13, p 5-18, § 5.2.3, p 5-29.

While the Staff does not take issue with items (2) and (3) in FPL Statement 42, the FPL statement that the concentrations presented in the ER and DEIS are "irrelevant" to the DEIS conclusion should be understood as indicating that the chemical concentrations are insignificant to that conclusion when considered in the context of the confinement afforded by the MCU. Moreover, the Staff determined that the concentrations used in the DEIS are adequate to inform the Staff evaluation of the impacts of those chemical constituents of the injectate, in that those concentrations are reasonable and bound the concentrations that have been detected in every reported sampling. Barnhurst Aff. ¶ 12.

The Staff, however, disagrees with the Applicant's assertion that the injectate will necessarily be confined within the Boulder Zone, as stated in item (1) in FPL Statement 42. Barnhurst Aff. ¶ 26. To the contrary, the Staff review and analysis indicate that there could be limited upwelling of injectate out of the Boulder Zone. *Id.* ¶ 26. However, the Staff concludes that, for reasons presented in the DEIS, potential upwelling would not be expected to reach or adversely impact the Upper Floridan aquifer. *Id.* ¶ 26, citing DEIS §§ 2.3.1.2, 5.2.1.3, 5.2.3.1; DEIS App. G, § G.3.3. The Staff analysis shows that, in the absence of enhanced vertical flow features, upward migration could occur but would likely be limited to 300 feet into the base of the Middle Confining Unit. *Id.* ¶ 27. Nevertheless, FPL Statement 70 correctly reflects this Staff analysis. *Id.* Accordingly, the Staff issue with respect to FPL Statement 42 is not material to the FPL Motion.

Related to the Staff disagreement with item (1) in FPL Statement 42, FPL Statement 58 indicates, in part, that the MCU will act as a barrier preventing fluids that are injected below the MCU from escaping the injection zone, but the Staff disagrees, as explained above. *Id.* ¶ 28. Nevertheless, FPL Statement 70 correctly reflects the Staff analysis. *Id.* Accordingly, the Staff issue with respect to FPL Statement 58 is not material to the FPL Motion.⁸

FPL Statement 84 indicates that dual-zone monitoring wells operated in accordance with FDEP sampling requirements allow detection of any upward fluid movement before drinking water is impacted. The Staff acknowledges that the dual-zone monitoring wells are designed to detect upward movement of injected fluid, and would detect any migration that occurred in their vicinity. *Id.* ¶ 29. While the Staff does not dispute the effectiveness of the dual-zone monitoring wells within the range in which they are capable of detecting upward fluid movement, they are but one element the Staff considered in reaching the conclusion in the DEIS. *Id.* ¶ 30. The Staff note that even though upwelling has been documented at the SDWWTP site north of the Turkey Point COL site, there was no impact to the Upper Floridan aquifer, and such an impact is unlikely at the Turkey Point COL site as well. *Id.* ¶ 17. The monitoring wells nonetheless provide an additional measure of assurance that the confinement afforded by the MCU remains effective. *Id.* ¶ 30. Accordingly, there is no need to rely solely on the monitoring wells, and thus the Staff issue with respect to FPL Statement 84 is not material to the FPL Motion.

B. The Applicant is entitled to judgment as a matter of law.

As stated above, there is no dispute regarding whether the concentration data in the ER for the chemical constituents identified in Amended Contention NEPA 2.1 is sufficiently accurate and reliable for use in the DEIS, and the concentrations of these chemical constituents are reasonable and bound the concentrations detected in the reported samples. Barnhurst Aff. ¶¶ 11, 12; FPL Motion at 4; FPL Statement ¶¶ 11, 26, 41 (with which the Staff does not take

⁸ The Staff does not take issue with remainder of FPL Statement 58.

issue, see Barnhurst Aff. ¶ 4, 12). Further, in view of the confinement afforded by the MCU, there is no dispute that enhanced vertical flow to the Upper Floridan aquifer is extremely unlikely at the Turkey Point site. Barnhurst Aff. ¶¶ 16, 17, 26-30; FPL Motion at 2-3; FPL Statement ¶¶ 70, 71, 90 (with which the Staff does not take issue, see Barnhurst Aff. ¶ 4, 16, 17). To avoid summary disposition, the Joint Intervenors must provide actual data contrary to that referenced in the FPL Motion or analysis to show that the environmental impact of deep well injection of these chemicals could be anything other than SMALL. See *AMS*, CLI-93-22, 38 NRC at 102; *Pilgrim II*, CLI-10-15, 71 NRC at 484.

In any case, the EIS on the Turkey Point COL application need not be a “research document” in regard to the factual matters about which there is no genuine dispute. *Pilgrim I*, CLI-10-11, 71 NRC at 315. Otherwise, determination of the concentrations of the chemicals identified in Amended Contention NEPA 2.1 and the degree of confinement afforded by the MCU will “demand virtually infinite study and resources,” which is not required by NEPA. *Id.* In accordance with *Pilgrim I*, no further study of this matter is warranted in the absence of evidence to the contrary. These matters of undisputed fact described above are dispositive, and the environmental impact of deep well injection, including the chemicals identified in Amended Contention NEPA 2.1, is SMALL as documented in the DEIS. Accordingly, the Applicant is entitled to judgment as a matter of law and Amended Contention NEPA 2.1 should be dismissed.

CONCLUSION

For the reasons set forth above, the Board should grant the FPL Motion.

Respectfully submitted,

/Signed (electronically) by/
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Dated at Rockville, Maryland
this 3rd day of February, 2016.

STAFF ATTACHMENT 1

February 3, 2016

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
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FLORIDA POWER & LIGHT COMPANY) Docket Nos. 52-040 & 52-041
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(Turkey Point Units 6 and 7))

AFFIDAVIT OF DANIEL O. BARNHURST
CONCERNING AMENDED CONTENTION NEPA 2.1

I, Daniel O. Barnhurst, do state as follows:

1. I am employed by the United States Nuclear Regulatory Commission (NRC) as a Hydrologist in the Division of Site Safety and Environmental Analysis, Office of New Reactors. I have been employed by the NRC since May 2008. I am a Professional Geologist with more than 14 years of experience in hydrogeological applications including hydrogeochemistry; aquifer characterization; groundwater flow and contaminant fate and transport modeling; and design of monitoring well networks. Before coming to the NRC, I worked at the Savannah River Site as part of a team that characterized the long term impact of the operation of multiple reactors on groundwater quality through installation and sampling of monitoring wells and development of predictive numerical models. Since coming to the NRC in 2008, I have provided technical input to impact analyses in EISs evaluating reactor construction and operation on both ground and surface water quality at sites in the southeast United States, including Florida. A statement of my professional qualifications is attached hereto as Staff Attachment 2.

2. The purpose of this affidavit is to present the NRC Staff's analysis of the information provided by Florida Power & Light (FPL or Applicant) in its Motion for Summary Disposition of

Joint Intervenors' Amended Contention 2.1 (Motion) concerning the source data for the concentrations shown in Table 3.6-2 of the Applicant's Environmental Report (ER), Revision 3, for ethylbenzene, heptachlor, tetrachloroethylene, and toluene, which the Applicant expects to be part of the reclaimed wastewater supplied as cooling water by the Miami-Dade Water and Sewer Department (MDWASD) South District Wastewater Treatment Plant (SDWWTP) and discharged via deep injection wells into the Boulder Zone of the Floridan Aquifer during operation of Turkey Point Units 6 and 7. In Attachment 2 to its Motion, the Applicant provided "Statement of Material Facts as to which No Genuine Issue Exists, in Support of [the Motion]." I will address the Applicant statements in Attachment 2 in this affidavit.

3. FPL has applied, pursuant to 10 C.F.R. Part 52, Subpart C, for combined licenses (COLs) to construct and operate two AP1000 pressurized water reactor units to be designated Turkey Point Units 6 and 7. 74 Fed. Reg. 38,477 (Aug. 3, 2009) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091830589). On March 5, 2015, the NRC published a notice of availability of the draft Environmental Impact Statement (EIS) on the Application, NUREG-2167, "[EIS] for [COLs] for Turkey Point Nuclear Plant Units 6 and 7—Draft Report for Comment" (ML15055A103) (DEIS). I provided input to the DEIS, including detailed information regarding the environmental effects of deep well injection.

4. The NRC Staff agrees that there is no genuine issue of material fact as to the Applicant's Statement of Material Facts Nos. 1-8, 10-12, 14-41, 43-57, 59-83, and 85-90 of the FPL Statement of Facts, subject to clarification or qualification of Applicant statements number 23, 26, 38-41, 49, 56, 71, and 90, as set forth below.

5. Except for Applicant statements 3, 15, 17, 18, 20-22, 24, 25, 27, 29, 31, and 33-36, the Staff has verified all of the Applicant's individual statements identified in ¶ 4 above.

The Staff has verified these statements through reviewing the application, audits of additional documentation, site visits to observe characterization activities, independent calculations and literature review, and other activities.

6. In regard to Applicant statement 3, which states FPL's intention to use 12 or 13 injection wells, this is consistent with the Application, assuming FPL uses the exploratory well for injection, but the Staff has no further information in this regard.

7. In regard to Applicant statements 15, 17, 18, 20-22, 25, and 34-36, these state facts, such as events, about which the Staff has no independent knowledge.

8. In regard to Applicant statements 24, 27, 29, 31, and 33, these state results or propositions for which the Staff did not evaluate or analyze the bases.

9. The Staff does not have information inconsistent with any Applicant statement identified in ¶¶ 6-8 above.

Applicant statements identified in ¶ 4 above as warranting clarification:

10. Applicant statement 14 relates to improvements in the water treatment processes at the SDWWTP, but the Staff did not evaluate the efficacy of such improvements.

11. Applicant statement 23 indicates that the number of samples taken in PACE's sampling program provides an accurate representation of the concentrations of the chemical constituents identified in Amended Contention NEPA 2.1 in the future reclaimed water the SDWWTP will supply to Turkey Point Units 6 & 7. The Staff, however, has not performed a statistical analysis of the variation in these data. Nonetheless, the Staff has no information contrary to the Applicant's statement. Further, the Staff does agree that this new data provides additional insight into the concentrations of the chemicals identified in the contention that may be reasonable to expect in the wastewater used at Turkey Point Units 6 & 7. In view of the confinement offered by the MCU, the concentrations would not likely vary enough to affect the impact level.

12. Applicant statement 26 and 41 indicate that the SDWWTP concentration data are conservative. However, the Staff believes the term “conservative,” as used to describe data, should be understood only with reference to other potential values of the data, and such reference values are lacking here. Nonetheless, the Staff agrees that the SDWWTP concentration data could be considered “conservative” in the sense that the ER used concentration data that bound the results obtained, except for tetrachloroethylene (see ¶¶ 18-25 below). Accordingly, the SDWWTP data provide insight into the concentrations of the chemicals identified in Amended Contention NEPA 2.1, and the use of those data in the DEIS is reasonable. The Staff, however, did not use these concentration data to perform a transport analysis. In sum, the Staff determined that the concentrations used in the DEIS are adequate to inform the Staff evaluation of the impacts of those chemical constituents of the injectate, in that those concentrations are reasonable and bound the concentrations that have been detected in every reported sampling.

13. Applicant statements 38-40 relate to volatilization of ethylbenzene, tetrachloroethylene, and toluene that might occur in the cooling towers, and while the Staff acknowledges that such volatilization could occur (DEIS at 5-10), the Staff did not quantify volatilization in the cooling towers (heptachlor is not a volatile chemical species).

14. Applicant statement 49 refers to the Middle Floridan Aquifer as the “Middle Confining Unit,” but the Staff uses the term “Middle Confining Unit” to include the assemblage of formations between the Upper Floridan Aquifer and the Lower Floridan Aquifer.

15. Applicant statement 56 indicates that the data collected during the testing of exploratory well no. 1 (EW-1) confirmed the subsurface geology in the vicinity of the Turkey Point site. The Staff agrees that these data support the current understanding of the hydrogeology of the site and are consistent with descriptions of hydrogeologic units presented in local and regional studies cited in the DEIS at 2-54, consistent with Applicant statement 60.

Since the data are from one borehole, they cannot be said to exactly represent the hydrogeology of the entire site. However, as discussed in the DEIS, the staff does not expect that the hydrogeology across the site will vary significantly from that at EW-1.

16. Applicant statement 71 indicates that the Staff conclusion that vertical flow through the confining units is unlikely since EW-1 construction and testing did not reveal the presence of enhanced flow features. The Staff evaluated geological and hydrogeological information from site wells EW-1 and DZMW-1. This information included geologic and geophysical logs, and field and laboratory test results. DEIS at 2-54, 2-56 to 2-57, 2-204, 5-18, and 5-28. While that information was part of the Staff basis for its conclusion, it was not the sole basis for that conclusion. Other bases for the Staff conclusion include the following:

(a) Review of local and regional studies of the confining nature of the Middle Confining Unit of the Floridan Aquifer System. DEIS at 2-53 to 2-54, 2-56 to 2-57, and 5-18.

(b) Review of studies of deep well injection sites in south Florida to evaluate characteristics affecting upwelling of effluent. The Staff specifically focused on studies of the SDWWTP, which is approximately 9 miles north of the site. These studies included both data and modeling. DEIS at 2-55 to 2-56, 5-17 to 5-18, and 5-28.

(c) Staff modeling to evaluate the impacts of upwelling of injected effluent through the following scenarios: (1) Matrix flow through a competent Middle Confining Unit; and (2) Rapid migration through the Middle Confining Unit due to channelized flow due to either well construction issues or fracture pathways. DEIS at 5-17 to 5-18; DEIS App. G at G-46 to G-50.

(d) Review of FDEP UIC permit requirements for injection well construction techniques, and injection well testing and monitoring programs developed to prevent and detect upward migration of injected effluent. DEIS at 5-29.

17. Applicant statement 90 indicates that the Staff relied on the monitoring program to conclude that “in the extremely unlikely event that migration occurred ‘the impact of upward migration that could occur before detection would be minor,’” but the Staff did not rely solely on the monitoring program to reach this conclusion, as explained in the DEIS section that includes the text quoted in Applicant statement 90. These reasons include but are not limited to the confining nature of the MCU at the proposed Turkey Point COL site and site studies of locations at which upwelling has occurred.

The Staff notes that such upwelling has not caused impact to the Upper Floridan aquifer. DEIS at 5-18. Karst collapse features did result in upwelling at one well in the city of Sunrise in Broward County, which is approximately sixty miles to the north of the Turkey Point COL site, but the effect of this upwelling extended only to the Lower Floridan aquifer, and the upwelling from this well did not affect the Upper Floridan aquifer or any source of drinking water. See DEIS at 5-18. Even though upwelling has been documented at the SDWWTP site north of the Turkey Point COL site, there was no impact to the Upper Floridan aquifer, and such an impact is unlikely at the Turkey Point COL site as well.

Applicant statements with which the Staff takes issue:

18. Applicant statement 13 is based on Attachment 2 to the “[FPL] Motion for Summary Disposition of Joint Intervenor’s Amended Contention 2.1,” dated July 19, 2012 (ML12201A278) (2012 FPL Motion), namely, the Declaration of David M. Wagner (Wagner Declaration). Motion at 7-8, n. 34-36. The Wagner Declaration describes the source of the data as “the South District Wastewater Treatment Plant (“SDWWTP”) annual reports for the years 2007 through 2011 prepared by the Miami-Dade Water and Sewer Department (“MDWASD”) and filed with the Underground Injection Control Program of the Florida Department of Environmental Protection.” See Wagner Declaration, 2012 FPL Motion, Attachment 2, at 3 ¶ 6.

19. The NRC Staff contacted MDWASD and obtained reports believed to be the 2007 to 2011 SDWWTP annual reports containing the data referenced by FPL. The Staff used these reports to verify that FPL did select the highest concentrations of ethylbenzene, heptachlor, and toluene found in the reclaimed water from the SDWWTP from 2007 to 2011 to calculate the final concentrations discharged to injection wells as listed in ER Rev. 3 Table 3.6-2.

20. In the Wagner Declaration, FPL identified the SDWWTP annual reports for the years 2007 through 2011 prepared by the MDWASD and filed with the Underground Injection Control Program of the Florida as the source of the data used to determine the estimated concentrations of ethylbenzene, heptachlor, tetrachloroethylene, and toluene

reported in ER Rev. 3 Table 3.6-2. See Wagner Declaration, 2012 FPL Motion, Attachment 2, at 3 ¶ 6. The actual reports were not provided to the NRC Staff by FPL, though values from these reports were summarized by FPL in Table 1 of the response to NRC Request for Additional Information (RAI) H4.2-2 (5765).

21. In order to verify source concentrations used by FPL, the Staff independently obtained reports from MDWASD on July 31, 2012, that we believe to be the reports referenced by FPL. These reports are:

(a) South District WWTP–2007 Annual Wastestream Analysis Sampling Results. Included as attachment to letter dated April 24, 2007 from Vicente E. Arrebola, P.E. (SDWWTP) to Joseph R. May, P.G. (UIC Program Manager FDEP) containing results for KSA Laboratory Combined Effluent Sample Number Q001359-01. (ADAMS Accession No. ML12219A155)

(b) South District WWTP–2008 Annual Wastestream Analysis Sampling Results. Included as attachment to letter dated April 29, 2008 from Vicente E. Arrebola, P.E. (SDWWTP) to Joseph R. May, P.G. (UIC Program Manager FDEP) containing results for Genapure Laboratory Combined Effluent Sample Number L246684-2. (ADAMS Accession No. ML12219A156)

(c) South District WWTP–2009 Annual Wastestream Analysis Sampling Results. Included as attachment to letter dated April 15, 2009 from Vicente E. Arrebola, P.E. (SDWWTP) to Joseph R. May, P.G. (UIC Program Manager FDEP) containing results for Genapure Laboratory Combined Effluent Sample Number 901842001. (ADAMS Accession No. ML12219A157)

(d) South District WWTP–2010 Annual Wastestream Analysis Sampling Results. Included as attachment to letter dated April 12, 2010 from Vicente E. Arrebola, P.E. (SDWWTP) to Joseph R. May, P.G. (UIC Program Manager FDEP) containing results for XENCO Laboratory SD-Combined Effluent Sample Number 363251-001. (ADAMS Accession No. ML12219A158)

(e) 2011–Reclaimed Water Analysis Report. Included as attachment to letter dated December 5, 2011 from Vicente E. Arrebola, P.E. (SDWWTP) to Michael Hambor (Compliance and Enforcement FDEP) containing results for XENCO Laboratory SD-Combined Effluent Sample Numbers 407304-001 and 407304-002. (ADAMS Accession No. ML12220A391)

22. The Staff compared the concentrations reported in the SDWWTP annual reports for the years 2007 through 2011 (listed above) for heptachlor, ethylbenzene, tetrachloroethylene, and toluene with the concentrations reported by FPL as maximum detected values in Exhibits 2, 4, and 5 of the Wagner Declaration (in Exhibit 2 as “Maximum Detected Value” and in Exhibits 4

and 5 as “Source Concentration”). Using the SDWWTP annual reports, the NRC Staff verified that FPL did select the highest reported concentrations occurring between 2007 to 2011 as the maximum detected values in Exhibits 2, 4, and 5 for three constituents: ethylbenzene, heptachlor, and toluene.

23. The Staff found that the concentration selected by FPL as the maximum detected value for tetrachloroethylene was lower than the values in the SDWWTP annual reports for the year it was detected (2007). FPL reported that the maximum detected value for tetrachloroethylene of 1.1 µg/L occurred in 2007 and was detected using EPA Test Method (Table 1 of RAI Response H4.2-2 (5765)). However, in the 2007 annual report, the value for tetrachloroethylene resulting from this same test method (524.2) is 1.6 µg/L. Additionally, the report indicates that a tetrachloroethylene concentration of 2.0 µg/L was detected by EPA Test Method 624. This 2.0 µg/l would represent a new maximum detected value for tetrachloroethylene.

24. In sum, other than the discrepancy in the maximum detected value for tetrachloroethylene as reported in the SDWWTP annual report for 2007, the detected values reported in the SDWWTP annual reports for the years 2007 through 2011 align with the detected values reported by FPL in its Motion and the Wagner Declaration.

25. The maximum concentration value for tetrachloroethylene identified in ¶ 23 above remains very small in absolute terms, as is the value reported by FPL, such that either value would be reasonable to use in evaluating the impacts of tetrachloroethylene in the injectate, and the Staff used the higher value in its analysis in the DEIS.

26. The Staff disagrees with the Applicant’s assertion that the injectate will necessarily be confined within the Boulder Zone, as stated in item (1) in Applicant statement 42. Review of relevant studies at deep well injection sites and independent analysis performed by the staff indicate that there could be limited upwelling of injectate out of the Boulder Zone,

contrary to the assertion in item (1) of Applicant statement 42. However, the Staff concludes that, for reasons presented in the DEIS, potential upwelling would not be expected to reach or adversely impact the Upper Floridan aquifer. DEIS §§ 2.3.1.2, 5.2.1.3, 5.2.3.1; DEIS App. G, § G.3.3.

27. Contrary to Applicant statement 42, item (1), the Staff analysis shows that, in the absence of enhanced vertical flow features, upward migration could occur but would likely be limited to 300 feet into the base of the approximately 1,400 ft thick Middle Confining Unit. DEIS § 5.1.2.3; DEIS App. G, § G.3.3. Nevertheless, FPL Statement 70 correctly reflects this Staff analysis.

28. Related to ¶¶ 26 and 27 above, Applicant statement 58 indicates, in part, that the MCU will act as a barrier preventing fluids that are injected below the MCU from escaping the injection zone. As stated in ¶¶ 16, 17, and 27 above, the staff concluded that limited upward migration could occur, but would not adversely impact the Upper Floridan Aquifer. Nevertheless, Applicant statement 70 correctly reflects the Staff analysis.

29. Applicant statement 84 indicates that dual-zone monitoring wells operated in accordance with FDEP sampling requirements allow detection of any upward fluid movement before drinking water is impacted. The Staff acknowledges that the dual-zone monitoring wells are designed to detect upward movement of injected fluid, and would detect any migration that occurred in their vicinity.

30. While the Staff does not dispute the effectiveness of the dual-zone monitoring wells within the range in which they are capable of detecting upward fluid movement, they are but one element the Staff considered in reaching the conclusion in the DEIS. See ¶ 16 above. The monitoring wells nonetheless provide an additional measure of assurance that the confinement afforded by the MCU remains effective.

31. I declare under penalty of perjury that my statements set forth above and in my statement of professional qualifications attached hereto are true and correct to the best of my knowledge, information and belief.

Executed in Accord with 10 CFR § 2.304(d)

Daniel O. Barnhurst
Hydrologist
U.S. Nuclear Regulatory Commission
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Executed in Rockville, MD
this 3rd day of February, 2015

STAFF ATTACHMENT 2

Daniel Barnhurst

Statement of Professional Qualifications

Current Position

Hydrologist

Office of New Reactors (NRO)

US Nuclear Regulatory Commission (NRC)

Education

2003 M.S., Geology, Brigham Young University

2000 B.S., Geology, Brigham Young University

Professional

Professional Geologist

Experience

U.S. Nuclear Regulatory Commission, Rockville, MD

May 2008 to
present

Hydrologist

Responsibilities include:

NEPA EIS Development for hydrology portions of new reactor applications.

Review and analysis of groundwater and surface water models.

Hydrological analysis of potential impact at proposed facilities. Technical review areas include characterization, modeling and analysis of surface and ground area including; flow, contaminant fate and transport, water use and quality impacts.

Safety and environmental technical reviews, participation in technical site audits with new reactor applicants, participation in legal licensing hearings.

Developing and maintaining professional relationships with other Federal agencies and industry.

Review and development of guidance documents for NRC staff and industry.

Washington Savannah River Co., Aiken, SC

October 2003 to
May 2008

Geologist

Responsibilities Included:

Plan and perform characterization of geology, hydrology and contamination at RCRA/CERCLA waste units per applicable regulations.

Responsible for geologic analysis and creation of various geologic maps (i.e., structure, cross-section and isopach maps) using core and geophysical data.

Groundwater flow and contaminant fate and transport modeling to support remedy selection, monitoring well network optimization and characterization planning for nuclear RCRA/CECLA waste units.

Plan and perform groundwater and surface water sampling including measurement of head, stage and flow as well as creation of water budgets, potentiometric surface maps, cross-sections and conceptual models to detail groundwater/surface water interaction.

Responsible for detailed written and oral presentation of results to the project team, state and federal regulatory agencies (USEPA, SCDHEC), and the Department of Energy (USDOE) client.

Project planning and development of field work and monitoring documents (Work Scope, Sample and Analysis Plan, Monitoring Plans etc.).

Technical Oversight subcontractors and field activities including soil, groundwater and surface water sampling, well drilling and installation, and related activities (coring, logging, development, abandonment).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
FLORIDA POWER & LIGHT COMPANY) Docket Nos. 52-040 & 52-041
)
(Turkey Point Units 6 and 7))

CERTIFICATE OF SERVICE

I hereby certify that the "NRC Staff Answer to 'Florida Power & Light Company's Motion For Summary Disposition of Joint Intervenors' Amended Contention 2.1'" has been filed through the E-Filing system this 3rd day of February, 2016.

/Signed (electronically) by/

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