Attachment 10 – Affidavit of Dr. Griffin

Attachment C
Affidavit of Dr. Mitchell L. Griffin

August 17, 2010

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	Docket Nos. 52-029-COL
Progress Energy Florida, Inc.	)	52-030-COL
	)	
(Combined License Application for	)	
Levy Nuclear Plant, Units 1 and 2)	)	ASLBP No. 09-879-04-COL

AFFIDAVIT OF MITCHELL L. GRIFFIN IN SUPPORT OF PROGRESS'S MOTION FOR SUMMARY DISPOSITION OF JOINT INTERVENORS CONTENTION 4

MITCHELL L. GRIFFIN states as follows under penalties of perjury:

1. I am a Principal Technologist in Water Resources with CH2M HILL, Inc., an engineering company representing Progress Energy Florida, Inc. (PEF) for the Levy Nuclear Plant, Units 1 and 2 (LNP).
2. My professional and educational experience is summarized in the curriculum vitae included as Attachment 1 to this affidavit. I hold a Doctorate of Philosophy degree in Agricultural Engineering from Purdue University and a Bachelor of Science degree in Civil Engineering and a Master of Science degree in Agricultural Engineering from the University of Kentucky. I am a Professional Engineer (P.E.) in the States of Florida, Georgia, and Louisiana.
3. In my capacity as the surface water resources engineer for the proposed LNP project, I am responsible for providing technical support on the NPDES permit application and conducting senior review of surface water hydrologic evaluations. I am knowledgeable of passive dewatering issues related to LNP, stormwater, and the effects of dewatering on surface waters, including Outstanding Florida Waters (OFWs). I have reviewed the analysis and provided advice and input for preparation of the Environmental Report (ER). Specifically, I am knowledgeable of and have provided advice and input on formulating portions of the ER and the Site Certification Application (SCA) related to surface water hydrology and National Pollutant Discharge Elimination System (NPDES) permit application. I provided testimony during the SCA hearings on the NPDES application and related water quality

issues, affects of the LNP project on the CFBC and portions of the Withlacoochee River, and also the groundwater impacts near the Cross Florida Barge Canal (CFBC). I am familiar with the Draft Environmental Impact Statement (DEIS) published on August 5, 2010.

4. I am familiar with Joint Intervenors Contention 4, which was raised by the Joint Intervenors in the U.S. Nuclear Regulatory Commission (NRC) licensing proceeding for the LNP plant licensing. As admitted into the proceeding by the Atomic Safety and Licensing Board (Board) and clarified by the Commission, Contention 4 asserts that the PEF ER is deficient, in part, because it fails to adequately address, and inappropriately characterizes as SMALL, certain specific environmental impacts resulting from passive dewatering on the affected aquatic resources of (a) the aquifer system underlying the project area and (b) the OFWs such as Withlacoochee and Waccasassa Rivers. The Board narrowed the submitted Contention 4 from the broad, non-specific discussion of "wetlands, floodplains, special aquatic sites, and other waters" to (a) the aquifer system underlying the project area and (b) the Withlacoochee and Waccasassa Rivers.[1]

5. My declaration addresses claims raised by the Joint Intervenors in Contention 4 concerning passive dewatering and stormwater effects on (a) the aquifer system underlying the project area, and (b) the Withlacoochee and Waccasassa Rivers. I also identify other sensitive surface water bodies, OFWs, wetlands, and floodplains for context.

6. For the LNP project, I prepared the sections of the SCA that dealt with surface water impacts, including the preparation of the NPDES and Environmental Resource Permit (ERP) applications. I was responsible for preparing the NPDES application and follow-up information requests with the Florida Department of Environmental Protection (FDEP) on that federal permit. I provided senior review and advice to the LNP designers, Sargent & Lundy and The Shaw Group, Inc., on how to comply with Florida stormwater regulations. As part of the Section 316 Clean Water Act studies, I led

[1] The affected resources include onsite freshwater wetland areas, but Contention 4 as restated by the Board states that addressing impacts to that resource is specific to salt drift, which is not within the scope of my Affidavit.

the evaluation of the flows into the CFBC from Lake Rousseau, the water quality data from the CFBC and the Gulf, potential flow and water quality of the LNP discharge, and flows from Lake Rousseau into the lower Withlacoochee River. The SCA heavily referenced the ER, which I also reviewed during its development. The ER was submitted as Appendix 10.11 to the SCA. The ERP application was Appendix 10.4 of the SCA. As part of the administrative hearing for the SCA, I provided testimony on the NPDES permitting issues and potential changes to groundwater salinity near the CFBC. I was accepted in the Florida SCA proceeding as an expert on NPDES and groundwater impacts near the CFBC. After the Consent Order was issued, I performed senior review of additional floodplain evaluations that were conducted to assess the amount of fill in wetlands (for the Section 404 CWA permit) and changes to the 100-year flood levels. I have also helped to prepare plans of study to conduct monitoring of water quality in the Gulf of Mexico prior to and after LNP operation.

Passive Dewatering Definition

7. Passive dewatering is defined as the removal of site water through non-mechanical means (no pumping involved). Passive dewatering most often occurs from manmade drainage designed to remove site water to facilitate a new land use. In this affidavit, site water may include surface water, stormwater, and runoff (another term for stormwater) that are often used synonymously. Some rural lands and developments (like subdivisions) attempt to "dry-up" wet conditions through lowering near-surface groundwater levels by either underground drain tiles, pipes, or ditching. Another potential impact occurs downstream when small creeks or flow-ways are mechanically altered to remove site water from the land quickly without careful planning and engineering. In other instances the natural groundwater system of a site could be altered indirectly through profile modification, like deep excavations conducted by mining activities.

8. No passive dewatering is included in the LNP project; rather, features of the project are included to avoid the type of activities that will cause dewatering. New facilities are being built on a raised "island" above ground and drainage facilities around the new buildings and roads are designed to detain stormwater, releasing it in a controlled manner onsite to the natural landscape. Surface water

will not be ditched offsite through channels and, therefore, will not cause rapid runoff. Open mine pits will not occur at the LNP site; therefore, profile modification that will cause passive dewatering will not occur. The LNP project will generally sit on top of the natural landscape, collect and treat stormwater from the new buildings and roads, release stormwater from the new facilities in a controlled manner onto the natural ground (onsite), and let any runoff occurring from "up-hill" to flow through the site in a manner that will not increase peak runoff flow rates. These items are described further in the following paragraphs.

Stormwater Facilities at LNP

9. The LNP site (specifically, the location of the main power generation facilities including buildings and cooling towers) will be elevated above the natural ground surface by approximately 8 feet (ER 3.6.3.2, ER 4.1.1.1.2, DEIS 4.1.1) creating a higher "island" that raises the powerblock, cooling towers, and associated service buildings above the floodplain (DEIS 3.3.1.13). Drainage from the elevated LNP site will be piped or ditched to collect in three large stormwater ponds surrounding the raised landscape, that will hold water at or above the natural ground level (ER 4.1.1.1.2, DEIS Figure 3-4). The ponds will have raised dikes surrounding them to keep the collected stormwater staged above ground level. These ponds are called "wet ponds" in Florida because the pond bottoms will be below the natural groundwater level, so there will always be some open water in the ponds. Over the last three decades wet ponds have emerged as the preferred stormwater treatment method because they have a proven track record of nutrient and sediment removal. The depth of the ponds will be consistent with FDEP guidelines that will limit the average depth of the ponds (about 6 to 8 feet average depth below the ground). The stormwater collected in the wet ponds will be detained to treat the water to allow sediment and solids to settle and trap in its lower portion. The stormwater will be exposed to sunlight and vegetation that will allow for natural processes to treat nutrients and other pollutants. The surrounding dike will have a spillway that releases high levels of stormwater down to the natural ground, which will be dispersed on the downstream side to prevent erosion or scouring, and allowed to flow into the onsite landscape. All of these features will minimize the stormwater

effects from the LNP project and constitute the current standard of practice for stormwater management in Florida.

10. The roadways to the LNP site will be elevated above natural grade and treat stormwater in surrounding swales that will discharge to surrounding wetlands (SCA Appendix 10.4). Swales are wide, shallow grassy areas that will treat the stormwater from the roadways by filtering (shallow flow across grassy area) and percolation that will reduce solids and sediment in the runoff. Some culverts will be installed under the roads at natural flow paths to allow stormwater to drain from higher ground elevations to lower ground elevations to preserve the natural flow patterns of the overall landscape. There are no onsite ditches now and there will be no ditches leading offsite in the future. Water passing through the culverts will be dispersed on the downstream side and allowed to flow into the onsite landscape in areas that maintain the general flow paths of the property prior to the LNP project. These equalizer culverts are necessary to avoid redirecting the overall site water to other locations.

11. There will be no profile modifications that would alter the subsurface soils or water levels to depths that would be considered significant from a geologic standpoint. The stormwater facilities are being designed to account for the natural seasonal high water table that is near the ground surface (ER 4.1.1.1.2). Stormwater is release from the wet ponds over the crest of the main spillways (approximately 1 foot above the natural ground) and small pipes at natural ground level that slowly release water. Dikes surround the ponds because the water levels in the ponds will fluctuate between natural ground level and the raised powerblock. There will be no construction that will modify the soil profiles so deeply that it may induce indirect drainage because new facilities are above grade and the primary water control features (stormwater ponds) will maintain water levels at or above the seasonal high water table, so the near-surface groundwater levels will not be artificially lowered.

12. The Florida Final Order on Certification included the floodplain requirements of the Levy County Code of Ordinances, *Chapter 50 Article VI Flood Damage Protection* (Levy County, 1991), and the Southwest Florida Water Management District (SWFWMD), the local regional state agency, in the Conditions of Certification (COCs, Attachment B of the Final Order on Certification). The FDEP is

identified as the lead review agency for local and state requirements. The SWFWMD requirements are to protect adjacent property owners from increased flood stages and to prevent water quality and quantity impacts associated with stormwater from developments.

13. Florida has been proactive in regulating stormwater since the early 1980s. No new development that may change stormwater, use sovereign land, or conduct dredge and fill in waters of the state can be built without state approval, which is commonly addressed by meeting ERP requirements. ERP requirements are established by the local water management district, SWFWMD in this case and have been incorporated into the COCs. Engineers rely on the water management district's guidelines and rules in designing stormwater management facilities. LNP drainage facilities must meet the criteria shown in the SWFWMD ERP Basis of Review (BOR) as adopted by the FDEP in 2006 (see Rule 62-330.200(3), Florida Administrative Code [F.A.C.]). The BOR (the adopted SWFWMD BOR, 2006 version, is provided as Attachment 2) contains the pertinent criteria that the LNP project must meet so this project will have no offsite impacts or indirect passive dewatering. Pertinent criteria can be summarized as follows:

    A. It is permissible to allow wetlands on your property to receive stormwater and to consider their compensating storage effect when estimating impacts (BOR 4.9).

    B. No offsite impacts can result during a 100-year storm, which is 11.3 inches of rainfall in 24 hours at LNP (BOR 4.4).

    C. If one places fill in low lands, including wetlands, they must replace the stormwater volume that would have stayed onsite prior to development (BOR 4.7).

14. In total, when the LNP site meets the criteria in Paragraph 13, no offsite effects will occur and the recharge of stormwater into the underlying aquifer system will not be reduced. The reasons why these provisions mitigate potential impacts are explained in detail in the following paragraphs.

15. The SWFWMD BOR requires that the quantity of stormwater runoff be regulated to prevent offsite impacts by controlling peak stormwater runoff rates from a 25-year, 24-hour storm (8.5 inches of

rainfall). The post-development peak runoff rate must be less than or equal to the pre-development rates to prevent an increase in offsite flooding. This is a basic Florida requirement that all projects must meet to get an ERP permit. This requirement will be managed on the LNP site by directing the stormwater to the wet ponds that surround the raised power plant island. The three large stormwater ponds at the LNP site were sized to collect and hold the entire runoff from the 100-year storm (11.3 inches) without overtopping even if there were no outlets. Stormwater will be stored in the three wet ponds and released more slowly (SCA Appendix 10.4). The shallow, broad-grassed swales slow down the stormwater runoff from roadways and cause some ponding prior to release to the natural landscape. The peak runoff rate from the centrally located LNP site facilities is further attenuated as stormwater flows into the undisturbed landscape and wetlands that surround the actual development. Because of the stormwater detention ponds, roadside swales, and the central location of the developed area compared to the site boundary, I expect that runoff flow rates at the LNP site boundary will not exceed runoff rates prior to development.

16. Stormwater quality is also regulated by the FDEP and is addressed by the SWFWMD BOR. Florida has some of the most stringent stormwater quality treatment requirements in the nation. Projects designed to meet the SWFWMD criteria provide reasonable assurance of compliance with the state water quality standards. On average at any given location in Florida there are about 120 storms per year, with about 70 of them greater than 0.5 inch of rainfall. Stormwater treatment of 1 inch of rainfall will completely treat about 85 percent of the average annual rainfall volume because most of the storms are small. The wet ponds surrounding the powerblock collect and slowly dewater the runoff volume from 1 inch of rain. While all of the runoff is treated, 85 percent of the volume will be subject to a longer detention time, which enhances treatment including removing sediment. Wet ponds provide superior stormwater treatment when compared to other treatment types. The ponds will have wetland plants across at least 35 percent of the shallow areas to filter and use nutrients. The open water areas are exposed to sunlight (ultraviolet radiation) that will reduce some pollutants and allow algae to remove more nutrients. A moderately deep permanent pool will prevent scouring and allow

longer detention time for settling between storm events. The small pipe at natural ground level in the spillway will be sized to restore the treatment volume in about 5 days; because it rains on average every 3 to 5 days in Florida. These three wet ponds are the best alternatives for treating the runoff from the LNP powerblock.

17. Swales are required to be designed to ensure shallow flow that will provide treatment benefits from filtration through grass. Swales are required in Florida to be at least 12 feet wide and about 1 foot deep. A typical design cross section provided in the SCA shows the swales along the haul road to be approximately 46 feet wide to allow ample storage in the LNP's swales to collect and treat runoff from the road (Appendix 10.4, Attachment A.3, Drawing LNG-G1-X0-043).

18. Floodplain 100-year flood water levels were evaluated in two separate efforts by CH2M HILL personnel. I provided senior quality control reviews for both evaluations conducted under my general direction and agreement by CH2M HILL engineers. The first evaluation was an estimate of the amount of fill that would be placed in the delineated 100-year floodplain. The 100-year floodplain is defined by the Federal Emergency Management Agency (FEMA) on their Flood Insurance Rate Maps (FIRMs). This map was constructed by FEMA using aerial photographs and Soil Conservation Service soil mapping, a typical approach used in rural areas to construct FIRMs where no detailed flood level evaluations are available.. This first evaluation by CH2M HILL quantified the fill volume that may displace stormwater volume on the site within the mapped 100-year flood boundaries. The results of the first evaluation demonstrated that there would be enough land available onsite to compensate for the loss of floodplain storage if soil had to be removed to provide compensation. These results were provided to the U.S. Army Corps of Engineers (USACE) for their consideration of the total land area that may be impacted by the LNP project. CH2M HILL and PEF called this the "Floodplain Bounding Analysis" because it represented a worst-case scenario if more land were needed to mitigate fill effects on stormwater.

19. USACE, FEMA, and FDEP will rely on the results of a more detailed analysis (the second evaluation). The second evaluation of the 100-year floodplain for the LNP site was conducted using

the U.S. Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) (Version 5, 2009) computer model, which is a FEMA-approved software program used to determine the elevation of the 100-year floodplain. The SWMM modeling estimated the stormwater runoff and flow rates and water depths considering storage in wetlands, water backing up as it flows through culverts, and flow across broad shallow flow ways, which are critical for flood modeling in flat landscapes. The existing ground elevations were available with 1-foot contours from detailed topographic mapping obtained by PEF. Existing and future water levels were predicted using the computer model and then compared to see how the LNP project would affect offsite flood conditions. The evaluation included offsite lands up-hill (actually higher ground to the north and east – no hills here) and downhill (west) of the LNP project. As noted in Paragraph 13.B, the project cannot cause offsite impacts, but if water stages onsite, then that is allowable (refer to Paragraph 13.A). This kind of evaluation could only be done with detailed computer simulation, which was completed in February 2010. This detailed evaluation was required in the COC to address local requirements.

20. The topographic mapping indicates that drainage within the modeled area generally flows from the northeast to the southwest toward existing culverts under U.S. Highway 19 (US 19) and County Road 40 (CR 40). The model predicts that some land uphill of the LNP powerblock and haul road (that is, east and north of the property) will experience a backing up of water levels during the 100-year flood event between the pre- and post-project conditions; however, all increases in the flood levels remain onsite. The ground slopes enough uphill of the new facilities such that all increases in flood elevations remain on PEF-owned property. The evaluation indicated some downhill (that is, west and south of the property) offsite sub-basins as having either a slight reduction or a slight increase to flood stages (rise of 1 inch or less). This change occurred because the new facilities will create slight changes in the timing of the peak storm, as well as the way the numerical model estimates water levels given the input data. I do not consider that these downstream changes would be detectable. They are not significant because they do not exceed the acceptable tolerance in the variation in modeling results considering the accuracy of the modeling approach and the accuracy of the topographic data. There

will be no need to mitigate impacts to the floodplain by extra excavation to offset the change in water levels because there are no offsite impacts.

21. The LNP project's effect on stormwater storage onsite, both in the floodplain and historic basin storage, were evaluated together by using the detailed dynamic modeling that takes the existing and proposed ground contours into account. For stormwater evaluations, detention is temporary storage that occurs when water is staged up in a pond or wetland and is slowed down by a restriction like a pond outlet, culvert, or just a narrow spot in the flow way. Retention is when water fills up a low spot and cannot leave except by percolation, including water that may percolate during the storm while flow is occurring too. Floodplain storage is considered to be the detention volume above the elevation where stormwater runoff occurs by sheet flow from natural low areas. The detailed computer simulations include this temporary detention volume when we compare the total flood elevation between pre- and post-project conditions. As described in Paragraph 20, stormwater backs up behind the raised powerblock and haul road, which replaces detention volume that may be lost from within the project footprint. Since this backup remains onsite, there is no offsite impact from loss of detention storage.

22. Historic basin storage is the available retention volume below this discharge elevation. The historic basin storage volume remains onsite and percolates to recharge the near-surface aquifer system after the storm is complete and overland flow ceases. The SWFWMD requires that lost historic basin storage be replaced so that groundwater recharge opportunities are maintained with site development. There are three wet ponds proposed, covering approximately 105 acres (ER 4.1.1.1.2.1). The average depth of a wet pond's permanent pool will be about 6 feet or more, so this generates approximately 630 acre-feet or more of compensating storage. The results of the Bounding Analysis estimated the potential loss of historic storage at 88 acre-feet. Because the wet ponds provide much more than 88 acre-feet storage, the wet ponds more than compensate for the historic storage loss. The proposed LNP project will not decrease the amount of stormwater reaching the near-surface groundwater under

the site because of this detailed analysis. If anything, the project increases recharge capacity of the site. Furthermore, soil removal for floodplain mitigation purposes is not required.

23. The stormwater ponds will be a source of recharge for the near-surface aquifer rather than a source of indirect dewatering because the average annual lake evaporation near the LNP project is about 46 to 50 inches per year, and the annual precipitation is about 53 inches per year. These values are based on the long-term averages available from the National Oceanic Atmospheric Administration (NOAA). Direct precipitation on the ponds will offset evaporation over a long-term average by 3 to 7 inches. Since the wet ponds occupy approximately 105 acres, 5 inches of excess rainfall (precipitation minus evaporation, mid-point of the above range) would provide an additional 43.8 acre-feet of water per year over these ponds, which will be available for percolation or runoff. Therefore, I expect the series of stormwater ditches that direct stormwater from the LNP facilities, as required to meet applicable safety General Design Criteria, to the three stormwater ponds will be a source of recharge to the aquifer and cannot reasonably be foreseen to cause dewatering.

24. The LNP project proposed to pump stormwater out of the wet ponds to the cooling towers, if necessary, to achieve more storage in the event of successive large storms. An analysis of the potential effect of actively dewatering the wet ponds was conducted as part of the ERP (stormwater permit) application (see SCA Appendix 10.4, Attachment A.2 Ecological Report). A long-term water balance of the ponds and downstream wetlands was simulated assuming that the maximum amount of pumping occurs from the stormwater pond regardless of whether successive storms occurred or not. This is the most conservative assessment possible as it would remove the most water from the ponds. A range of assumptions was simulated to account for the possible variation in the actual percolation rates. The maximum reduction in offsite runoff by using the maximum pumping rates at every available opportunity was 0.2 inch per year. Pumping water out of the stormwater ponds will only occur during extended wet conditions to provide room in the wet ponds to capture more stormwater runoff. During periods of frequent rainfall the ground would be saturated and recharge would not be occurring, just runoff. In comparing recharge to the aquifer before and after the LNP is constructed,

the stormwater pumped to the cooling towers is not a significant factor because the amount of excess water in the wet ponds would likely be runoff prior to the construction of the ponds because of the saturated ground conditions. So pumping the ponds will not change the expected percolation. In practice, PEF will use the pumps only as needed during very wet periods, so there will be negligible reduction on the water balance around the LNP site from the occasional pumping of stormwater. In fact, because of the size of the wet ponds and elevation of the spillways, I expect percolation will increase after construction.

Proximity of Surface Waters and OFWs to LNP Project

25. For context in understanding the aquatic resources within the scope of Contention 4, I am providing comments on potential effects to waters of special concern. These comments explain the special regulatory meaning of certain surface waters. The LNP project does not have passive dewatering, as described previously, but I describe the regulatory status of wetlands, floodplains, special aquatic sites, and other waters in relation to the LNP project. There are no creeks, streams, ditches, or channels that lead offsite; therefore, only stormwater runoff by overland flow is pertinent to the discussion of surface water impacts from the LNP. Only a few surface waters are in proximity to the LNP project because stormwater runoff would not "jump over" a river or stream to reach other surface waters farther away. Also, as described in the DEIS (Section 2.3.1.2, pg 2-27, lines 16 through 20), there is a strong connection between the near-surface groundwater levels and the regional Upper Floridan aquifer in the area around the LNP site. The Floridan aquifer is flowing mostly west by southwest, directly to the Gulf or toward the lower Withlacoochee River or Lake Rousseau. Therefore, only the surface waters and groundwater levels in immediate proximity to the LNP site, and the waters further away to the north and east of the site, or south of Lake Rousseau are not relevant.

26. EPA identifies six categories of "special aquatic sites" in their Section 404 b.(I) guidelines (Federal Register 1980), including the following:

A. Sanctuaries and refuges

B. Wetlands

C. Mudflats

D. Vegetated shallows

E. Coral reefs

F. Riffle and pool complexes

27. Of EPA's categories of special waters listed in Paragraph 26, only wetlands are present at the inland LNP site; there are no lakes or streams. The property's ecology is a north Florida flatwood with mostly level landscape scattered with both hydrologically interconnected and isolated wetlands with slightly lower elevations than the surrounding woods. The LNP site landscape has been modified heavily from past silviculture activities. The wetlands on the LNP site are all freshwater wetlands.

28. The classification of surface waters by their designated use is delegated to states in the Clean Water Act, and surface water classifications are included in Section 62-302.400, F.A.C. There are five use classifications recognized in Florida: Class I (Potable Water Supply), Class II (Shellfish Propagation or Harvesting), Class III (Recreation, Fish, and Wildlife), Class IV (Agricultural Water Supply), and Class V (Navigation, Utility, and Industrial). There currently are no Class V designated waters in Florida. All surface waters not designated otherwise are considered Class III waters. All wetlands on the LNP site are Class III waters and, therefore, are not considered "special" aquatic sites under state surface water quality standards. That is to not to say that wetlands are not afforded regulatory considerations, but none of the wetlands on the LNP site have extraordinary regulatory status.

29. Florida has a category of surface waters called OFWs that do have special regulatory considerations. OFWs are defined explicitly in Section 62-302.700 F.A.C., Special Protection, Outstanding Florida Waters, Outstanding National Resource Waters. OFWs include waters located in state or national parks, refuges, recreational areas, and preserves, or are specifically designated as special waters. I developed a figure showing all of the OFWs and lands with OFWs that FDEP has published in a geographic information system (GIS) database in the vicinity of the LNP project (see Figure Griffin-1 included as Attachment 3). This figure is a combination of figures available in the DEIS, including

Figure 2-8 (shows three sub-basins) and Figure 2-17 (shows preserves). There are many shaded areas included in this new figure but many are state-owned lands that have a preservation function. For example, the Levy County Forest/sandhill polygon adjacent to the northeast section of the LNP site (also known as Goethe State Forest), means that any waters within its boundaries have OFW protection, not that the entire shaded area is water. The reason that I combined this information on one map is to be complete as an aide to readily show all OFWs in proximity of the LNP site. This map can be used as a reference for the following discussion.

30. The LNP site lies in two primary watersheds as defined by the FDEP: Wacassassa and Withlacoochee Rivers (ER Figure 2.3-4). However, most of the site drains into three smaller sub-basins, defined by FDEP as Spring Run Creek, Direct Runoff to Gulf, and Withlacoochee River (ER Figure 2.3-5, Figure Griffin-1, DEIS Figure 2-8). The Wacassassa River is north of the Spring Run Creek sub-basin so surface water from the LNP site will not reach that river, or any other OFW that may lie outside of these three drainage sub-basins. Surface water will not flow back to the east either, so the waters in Goethe State Forest will not be affected.

31. The only OFW in the vicinity of the LNP site is the lower Withlacoochee River, from the Gulf of Mexico to the Inglis Lock Bypass Channel but not including that isolated segment of the river between Lake Rousseau and the CFBC (the CFBC bifurcates the Withlacoochee River) (see DEIS Figures 2-6 and 2-9). The components of the CFBC project that have been redesignated by Florida as the Cross Florida Greenway Recreation and Conservation Area (including Lake Rousseau, CFBC, and the remnant of the Withlacoochee River below Inglis Dam) are not OFWs except for portions of the lands around Lake Rousseau that may lie in a state park. Only the lower Withlacoochee River downstream of the Bypass Channel is addressed further because the Withlacoochee River upstream and east of Lake Rousseau is not in proximity to the LNP site, and drainage from LNP flows mostly westward. The LNP site is approximately 3.4 miles from the lower Withlacoochee River, 3.0 miles from Lake Rousseau, and 7.9 miles from the Gulf of Mexico (Figure Griffin-1). Surface water derived from the northern portion of the LNP site is eventually intercepted by an offsite creek called

Spring Run Creek after stormwater flows through the flatwoods, into the US 19 drainage system, and then toward the Gulf of Mexico (Figure Griffin-1, DEIS Figure 2-8). The site portions draining to Spring Run lie north of the raised LNP powerblock. Little activity will be conducted in this sub-basin; portions will be used as material laydown and parking areas during construction and the permanent transmission switchyard. Spring Run Creek is a Class III waterbody and only some of the state preserve near the coast lies in this sub-basin. Because the preserve is in the salt marsh along the Gulf of Mexico, there will be little influence of freshwater on this area and the LNP site is located more than 7 miles away (about 7 miles in a straight line, but the flow path is much more winding and lengthy).

32. Portions of the LNP site, where the raised powerblock and stormwater ponds will be located, drain southwest into the US 19 drainage system and then directly to the Gulf of Mexico through a series of interconnected wetlands (Figure Griffin-1). There are no named streams or creeks in this sub-basin and there are preserves only in the salt marshes along the Gulf of Mexico.

33. A small portion of the LNP site lies in the lower Withlacoochee River basin (Figure Griffin-1). The portions of the site draining southward only contain the haul road and onsite pipeline and transmission line corridor (DEIS Figure 2-11). After a detailed review of the floodplain flow and detailed topography, I determined that the runoff from the southern LNP site drains south toward CR 40 and is intercepted by the Bypass Channel and does not directly flow to the lower Withlacoochee River. The Bypass Channel is a Class III waterbody but it does flow directly into the lower Withlacoochee River.

Effects to Offsite Surface Waters

34. Potential mechanisms by which active or passive dewatering could impact special aquatic sites or other waters is generally through a reduction of water levels or secondary effects caused by the lowering of the water table. I examined whether active dewatering by withdrawing water for the cooling tower makeup would affect water levels surrounding the intake. The intake is located in the CFBC that is connected directly to the Gulf of Mexico. Withdrawing makeup water does not lower

any water levels in the vicinity of the intake because withdrawal rate for LNP relative to the tidal flow in the canal is small (DEIS 5.2.3.1).

35. No passive dewatering will occur at the LNP site, but if passive dewatering were occurring it would not affect the volume of surface water reaching the lower Withlacoochee River because most of the LNP site to be developed with new buildings and facilities, drains directly toward the Gulf of Mexico and not into another named waterbody. Even though the LNP site is generally situated in the Waccasassa River watershed as defined by FDEP for area accounting purposes, no drainage in the "Direct Runoff to Gulf" sub-basin, where most development would occur, reaches the Waccasassa River. In addition, the LNP site is only a small portion of the entire sub-basin labeled as Direct Runoff to the Gulf in Figure Griffin-1 (also in DEIS Figure 2-8). The OFWs in this sub-basin are either preserves in the Gulf or in the adjacent salt marshes. The amount of freshwater flowing by overland flow toward the Gulf from the 3,105-acre (4.9-square-mile [mi^2]) LNP site is small in comparison to the amount of freshwater being introduced to the Gulf through the Withlacoochee River watershed (approximately 2,100 mi^2) and the Waccasassa River basin (approximately 936 mi^2). Freshwater flow from the LNP site is small because it is less than 0.2 percent in area of these other two river watersheds. See DEIS Figure 2-7 for a graphic depiction of the size of the two river's watersheds relative to the LNP site. DEIS Figure 2-8 is a close-up view of the three sub-basins where the LNP site lies that total 72 mi^2 (Spring Run sub-basin is 25.4 mi^2, Direct Runoff to the Gulf sub-basin is 33.1 mi^2, and the Withlacoochee River sub-basin is 13.5 mi^2). The 3,105-acre LNP site is less than 7 percent of these local drainage sub-basins.

36. The lower Withlacoochee River is the only flowing OFW waterbody in proximity to the LNP site that may be affected by changes in surface water discharges. The LNP project was carefully planned to make sure the lower Withlacoochee River was not affected, including using Gulf of Mexico water from the CFBC for cooling water. Pipelines to the CFBC intake will bridge over the Bypass Channel to avoid restricting any flow to the lower Withlacoochee River. The spillway located at the end of the Bypass Channel near the lower Withlacoochee River, controls the amount of surface water reaching

the river. The lake is maintained at a nearly constant water level by the State of Florida. Flow has nearly always passed through the Bypass spillway control structure to the lower Withlacoochee River to maintain a constant supply of water. The contributing watershed to Lake Rousseau is about 2,000 square miles, which provides baseflow during drought periods. The minimum annual 7-day low flow over the Bypass spillway during 40 years of record keeping was reported by the U.S. Geological Survey (USGS) to be about 56 mgd (86 cubic feet per second [cfs]), flow of at least 360 mgd (560 cfs) 90 percent of the time, and flow in excess of 653 mgd (1,010 cfs) more than half of the time (Attachment 4 presents the USGS Water-Data Report 2009 for Gauge 02313250 Withlacoochee River Bypass Channel near Dunnellon, FL, the most current data summary). By maintaining the lake at a nearly constant water level, Lake Rousseau provides a large source of water to keep the groundwater levels near the lower Withlacoochee River at nearly the same steady levels. Therefore, even if there were passive dewatering at LNP site, it would not have a noticeable effect on the flow to the lower Withlacoochee River because the contributing watershed is about 400 times larger than the LNP site, and groundwater levels near the river are controlled by the lake elevation.

37. The foregoing is complete and accurate in all material respects to the best of my knowledge and belief.

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Subscribed and sworn to before me this 17 day of August, 2010.

Dierdre T. Marsh Notary Public

DIERDRE T. MARSH
MY COMMISSION # DD811803
EXPIRES August 04, 2012
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My Commission expires: August 04, 2012