NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD
Before Administrative Judges:
Alex S. Karlin, Chairman
Dr. Anthony J. Baratta
Dr. Randall J. Charbeneau

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

INTERVENORS' RESPONSE STATEMENT OF POSITION
REGARDING CONTENTION 4

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I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.1207(a)(2) and LBP-09-22, 70 NRC 640, 655 (2009), the Ecology Party of Florida and Nuclear Information and Resources Service (hereinafter "Intervenors") hereby submit their written Response Statement of Position regarding the initial statements of position and testimony submitted by Progress Energy Florida, Inc. ("PEF") and the U.S. Nuclear Regulatory Commission ("NRC") Staff on June 26, 212. Progress Energy Florida, Inc.'s Initial Statement of Position in the Contested Hearing for Contention 4A (June 26, 2012) ("PEF SoP"); NRC Staff Initial Statement of Position (June 26, 2012) ("Staff SoP").

Intervenors' Initial Written Statement of Position Regarding Contention 4 (June 26, 2012; corrected July 6, 2012) ("Intervenors' Initial SOP"), laid out the fundamental legal and technical deficiencies that fatally undermine the conclusion of the Final Environmental Impact Statement for the Levy nuclear power plant, Units 1 and 2 (2012) ("FEIS") (**Exhibit NRC001**) that Levy Units 1 and 2 ("LNP") will not have any significant impacts on aquatic and terrestrial ecosystems. *See* pages 8 – 14. As a result of these deficiencies, the FEIS seriously understates both the severity and the geographical range of the environmental impacts of LNP and fails to

take the "hard look" required by the National Environmental Policy Act ("NEPA"). *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 349 (1989). These concerns have not been laid to rest by the arguments or evidence submitted by PEF and the NRC Staff.

To summarize:

- The FEIS' conclusion is based on the gross oversimplification of existing environmental conditions, including:
    - In particular, the complex karstic geology of the site which connects the groundwater and surface water on the LNP site to a huge region. The FEIS assumes the geology beneath the LNP site is uniformly permeable, like a sponge, and that therefore the effects of dewatering will be unnoticeable because they will be spread out over a large area. In reality the geology is karstic -- impermeable limestone laced with holes and conduits. If PEF's supply wells tap into underground conduits, water removal may fatally depress water flow to far corners of the wetlands. As conceded in the NRC Staff's testimony, "groundwater pumpage in formations containing preferential pathways could result in larger impacts to portions of the wetland sytem if large-scale fracture networks or dissolution channels are in direct hydraulic connection with a wetland feature." NRC Staff Testimony of Mallecia A. Sutton, et al Concerning Contention 4A, A.33 (June 26, 2012) ("Staff Testimony). The Staff's false assumption of a uniformly permeable substrate not only underlies the hydrological model on which the FEIS relies, but it permeates the entire FEIS. Because groundwater paths are unknown, it is not possible to rely upon the predictions in the FEIS that are based upon the assumption that the aquifers behave as though the flow travels evenly through the porous medium. In reality,

because of the nature of the flow paths, impacts from LNP on the flow of water could be more severe and occur further away than predicted, they could occur faster than expected, and freshwater springs could be cut-off. In addition, salinity levels could be affected.

  - The FEIS relies on out-of-date information about severe conditions in Florida that will affect the impacts of LNP, including increasing periods of drought. When utilizing freshwater from highly dynamic coastal karst systems, one cannot rely upon long term averaging of rainfall conditions. In the short term, during times of drought, the resource can be destroyed by over-pumping, which leads to saltwater intrusion. The FEIS grossly oversimplifies the hydroecological conditions of the LNP site and the geographic area of adverse impacts, averaging data regarding the hydroperiods (seasonal fluctuations in water levels) on which the plants and animals in the LNP wetlands depend.
  - The FEIS also ignores or downplays cumulative impacts that, together with the impacts of construction and operation of LNP, significantly threaten the health of the local environment. These cumulative impacts include mining (including mining to be conducted for the purpose of building LNP), increased conditions of drought in the area, increased salinity, water consumption by other users, and salt drift.

- By failing to model realistic geological and environmental conditions at the LNP site or address them in the FEIS, the NRC failed to meet even a minimal standard of rigor for its environmental analysis. *Hughes River Watershed Conservancy v. Glickman,* 81 F.3d 437, 445 (4th Cir. 1996).
- The fact that the model relied on in the FEIS has been approved by state authorities for

different purposes does not excuse the NRC from independently evaluating the suitability of the model for predicting groundwater behavior at LNP. *Calvert Cliffs Coordinating Comm. v. U.S. AEC,* 449 F.2d 1109, 1123 (D.C. Cir. 1971).

- The FEIS attempts to compensate for its inadequate analysis of water-use impacts by asserting that any significant impacts that may occur will be mitigated by groundwater monitoring and mitigation plans to be reviewed by the State of Florida after the COL is issued. By punting environmental issues into the future without addressing them in the FEIS, the NRC violates NEPA's cardinal principle that environmental impacts of agency action must be considered *before* the action is taken, not afterwards. *Robertson, 4*90 U.S. at 349. Moreover, the NRC may not assign to a state agency its own independent responsibility under NEPA for evaluating environmental impacts. *Calvert Cliffs Coordinating Comm. , 4*49 F.2d at 1123.
- Finally, the FEIS fails to provide an adequate assessment of alternatives. Although the NRC Staff believe that finding an alternative source of water to groundwater extraction could be a feasible mitigation alternative, the FEIS fails to assess whether this should be required at the outset. This is illegal because under NEPA, a reasonable array of alternatives must be considered *before* the action is taken, not afterwards. *Van Ee v. EPA,* 202 F.3d 296, 309 (D.C. Cir. 2000).

The SoPs and testimony submitted by PEF and the NRC Staff not only fail to refute Intervenors' claims, but they also make major concessions regarding the inadequacies of the technical analysis underlying the FEIS and the unlawful degree to which the NRC relies on future unspecified actions to compensate for its inadequate analysis of the environmental impacts of LNP. The NRC Staff concedes, for example, that with respect to the hydrological model that forms the principal basis for its environmental analysis of dewatering effects, it

"did not perform a rigorous evaluation of the relative contributions of various components of the water balance calculation or confirm that all model implementation assumptions were valid." NRC Staff Testimony, A.46. The Staff also concedes that the hydrological model relied in the FEIS (including the recalibrated model) is "subject to uncertainty," including the "relatively large" uncertainty "associated with trasmissivity estimates in the vicinity of the proposed wellfield." Staff Testimony, A.49. Under NEPA, the Staff should have examined the reasons for the large uncertainty and inquired whether a more accurate model could be used. *See* 40 C.F.R. § 1502.22(b)(1). Instead, in patent violation of NEPA, the Staff declared that *if* the impacts turn out to be significant *after* the NRC issues a combined license ("COL") for LNP, the impacts can be mitigated in the future. Staff SoP at 24.

The Staff's reasoning completely undermines NEPA's purpose of requiring agencies to account for environmental impacts and costs *before* they are incurred. *Robertson,* 490 U.S. at 349. Nor does NEPA allow the NRC to rely on mitigation plans without first having any understanding of what impacts are to be mitigated. *Cabinet Mountains Wilderness v. Peterson,* 685 F.2d 678 (D.C. Cir. 1982). In any event, the future mitigation measures on which the NRC relies – the Environmental Monitoring Program ("EMP"), the Aquifer Performance Testing Plan ("APT Plan"), and the Alternative Water Supply Plan ("AWS Plan") -- are substantially incomplete or non-existent, and none has been circulated for public comment or even approved by the agencies that supposedly will oversee mitigation measures. The NRC's failure to seek public comment on these concededly crucial mitigation plans violates NEPA's public participation requirements.

In any event, as discussed in the rebuttal testimony of David Still and Dr. Sydney Bacchus, PEF's proposed measures for monitoring wetlands affected by LNP are unlikely to detect harm to wetlands until it has become irreversible. Given what is at best an extremely

uncertain prospect that mitigation of impacts will be successful, NEPA required the NRC to examine alternative water supplies other than groundwater pumping. Contrary to NEPA's requirement for a detailed cost-benefit analysis of alternatives, the FEIS contains only a cursory discussion of alternative water supplies that includes no comparison of the relative costs and benefits of the proposed alternative of groundwater pumping with other alternatives such as desalinization or use of municipal wastewater.

II. INTERVE NORS' REBUTTAL WITNESSES

Intervenors' rebuttal testimony on Contention 4A will be given by the following witnesses in response to the direct testimony provided by PEF and the NRC Staff. As testified by all of the Intervenors' witnesses, none of the testimony submitted by PEF and the NRC Staff has caused them to change the views expressed in their Initial Pre-filed Testimony regarding the inadequacy of the measures used by PEF and the NRC Staff to evaluate the environmental impacts of LPN.

- **Gareth Davies:** Gareth Davies, whose qualifications were set forth in his Initial Pre-Testimony (June 26, 2012; corrected July 6, 2012) (**Exhibit INT001**) ("Davies Initial Testimony"), will rebut the testimony of PEF's and the NRC Staff's witnesses with respect to their mischaracterization of the geology of the LNP area and its significance with respect to the FEIS' environmental analysis. His rebuttal testimony is **Exhibit INT501.**

Mr. Davies testifies about the lack of understanding, monitoring and analysis of the karstic nature of the geology under the LNP site and its surrounding area. He states that the existing model is not sufficiently realistic to provide reliable predictions about the effects of the proposed groundwater withdrawal upon wetlands. **Ex. INT501**at A4. Even experts for PEF do not dispute that the LNP area is karstic, although they mischaracterize the nature of the karst. *Id.*

Because of this mischaracterization, the witnesses for PEF incorrectly conclude that the existing hydrological model, called DWRM2, in its original calibration reasonably predicts groundwater behavior. *Id.*

In fact, however, neither calibration of that model provides any useful predictions of the impact of the flow blockage that will be caused by the nuclear island and neither calibration can accurately predict the local effects of the proposed groundwater withdrawals. *Id.* The combined impact of both of these disturbances to the existing flow regime could include destruction of wetlands, cutting off of spring flow, accelerated development of sinkholes, and diverting water flows in conduits in unexpected ways. *Id.* These impacts could occur much more quickly than predicted by the FEIS or PEF because the speed of water flow in conduits is orders of magnitude greater than in the porous medium that is assumed in the existing DWRM2 model. *Id.* Therefore they could occur at a much greater distance than currently anticipated. Impacts will also be directional, aligned along the direction of flow of conduits. *Id.*

Mr. Davies finds no dispute among any of the experts that significantly more site characterization would be needed to enable a more realistic model to be created. *Id.* In addition to additional boreholes, this characterization would include flow tracing and mapping of the conduit system. *Id.* Finally, with such additional characterization, a reasonably accurate model could be produced that would predict the impacts of the proposed changes to the existing groundwater regime much more accurately. *Id.* Such a model would allow design alternatives, such as not using local groundwater, to be considered, and it could be used to derive appropriate mitigation for the residual impacts.

Mr. Davies also believes that the effects of the project on springs in the area has not been properly evaluated and could be much greater than anticipated in the FEIS. *Id.* at A.7 and A.8. The Staff should have considered the effects of drought in their analyses on wetland impacts as

well as the analyses on salt drift. *Id.* at A.9. There is a danger that the extraction wellfield could cause greater drawdown than expected if the wells do not hit conduits, or alternatively, they could affect springs and flow to other locations if they divert conduit flow. *Id.* at A.10. The Staff should take full account of this conduit flow in part because it could cause the wetlands in the area to be more responsive to groundwater withdrawal. *Id.* at A.13.

- **Dr. Tim Hazlett:** Dr. Tim Hazlett, whose qualifications were set forth in his Initial Pre-filed Testimony (June 26, 2012; corrected July 6, 2012) (**Exhibit INT101**) (Hazlett Initial Testimony"), will rebut the testimony of PEF's and the NRC Staff's witnesses with respect to the hydrogeology of the LPN area and the adequacy of the model used by PEF and the NRC Staff to evaluate the environmental impacts of groundwater withdrawal by the LPN. His rebuttal testimony is **Exhibit INT601.**

Dr. Hazlett is an expert on groundwater modeling and believes that the current model has many shortcomings that could have been addressed by use of a more sophisticated model and improved site characterization. He agrees with the NRC Staff that the model relied on by PEF and the NRC Staff is not sufficiently realistic to provide reliable predictions about the effects of the proposed groundwater withdrawal upon wetlands. **Exhibit INT601,** A.4. Furthermore, he observes that there has been no attempt here to realistically model the karst geology and the interactions between the surface water and the aquifer. *Id.* There is also no dispute among the experts that significantly more site characterization would be needed to enable the creation of a more realistic and reliable model. *Id.* Although NRC's and PEF's experts have not discussed in detail what additional data would be required, this should not be controversial. *Id.* In addition to more boreholes, this characterization would include flow tracing and mapping of the existing wetlands and karst features. *Id.* However, the Staff and PEF stop short of acknowledging that the FEIS for LNP should be revised to incorporate such additional characterization and the use of

a reasonably accurate model in order to predict impacts of the proposed changes to the existing groundwater regime and derive appropriate mitigation. *Id.* Instead, they assert that any significant adverse impacts can be detected and mitigated in the future. *Id.*

Dr. Hazlett believes that it is feasible for PEF and the NRC Staff to gather relevant data and use an appropriate model to make a reasonably accurate prediction of the environmental impacts of LNP on wetlands, but to date, this has not been done. *Id.* The peer review for the model used here noted that the model has serious limitations, such as the inability to predict salinity or water quality changes and very limited ability to predict how groundwater withdrawal could affect surface water flows and springs. *Id.* This peer review also suggested how the model could be modified to be an "integrated surface water and ground water tool that includes all of the major hydrologic processes except for hydraulic routing of water on the overland flow plane." *Id.* Without these improvements, the current model cannot simulate how the proposed withdrawal would affect water quality in the area, such as by causing increased salinity. *Id.*

Dr. Hazlett notes a disagreement between the NRC Staff and PEF testimony about the comparative adequacy of the original groundwater model and the recalibrated model. *Id.,* A.5. While PEF attempts to assert the original model, which predicted the least impacts, is valid, the Staff and Dr. Hazlett believe use of the recalibrated model is preferable to PEF's initial model because it provides a better fit to the field data and is more conservative. *Id.* However, in Dr. Hazlett's opinion, the model is fundamentally inadequate to predict groundwater behavior, regardless of whether it has been recalibrated, for a number of reasons. *Id.* The primary reason for this inadequacy is that the model fails to take into account that the aquifers are karstic and therefore not uniform. *Id.* The model only provides an average prediction of effects over space and time. This is not adequate here where a large withdrawal over a very small area could have significant local effects on surface water and springs. *Id.* These effects would be particularly

pronounced in times of drought, which the current model cannot simulate at all. *Id.*

Dr. Hazlett shows that the difference in onsite simulated drawdown in the Unit 1 & 2 Area in the Upper Floridan Aquifer ("UFA") and the Surface Aquifer System ("SAS") between the original model and the recalibrated model is approximately 1.6 ft, or a factor of four. *Id.,* A.6. If the results of a model change that much due to mere recalibration, it is an indication that the model itself is not conceptually accurate or that the amount and types of data that are put into the model need to be re-examined. *Id.* In other words, the difference indicates a problem rather than providing a basis for concluding that impacts are insignificant. *Id.* Data was also excluded from the calibration without adequate justification. *Id.,* A.15.

Dr. Hazlett opines that the model also cannot simulate the impacts on wetlands, because it is not an integrated surface water and groundwater model. *Id.,* A.17. He agrees with the peer reviewers that such an integrated model would be a major improvement. *Id.* He believes that such a model is necessary here to simulate the impacts on wetlands from the groundwater withdrawals and other changes. *Id.* For example, reducing the water table could induce additional recharge from wetlands into the lower aquifer. *Id.* Such induced recharge in the zone of capture for the simulated pumping necessarily should include simulated interaction with surface water features. *Id.* The model should also include preferential flow paths, such as fracture traces, bedding plane parallel fracture or dissolution features, or other karst conduits. The end result of including these types of features in the model would be a simulated cone of depression that would generally not appear radial in map view, but rather would extend outward in a "star" pattern, seeking water both horizontally and vertically along the paths of least resistance. *Id.*

- **David Still**: David Still, whose qualifications were set forth in his Initial Pre-filed Testimony (June 26, 2012; corrected July 6, 2012) (**Exhibit INT201**) ("Still Initial

Testimony"), will rebut PEF's and the NRC Staff's testimony with respect to the significance of LNP's environmental impacts and the inadequacy of proposed monitoring and mitigation measures discussed for the first time in their testimony. His rebuttal testimony is **Exhibit INT701.**

David Still is a former head of a water management district in Florida. He is therefore an expert on the processes used by Florida and uses this expertise to show that NRC's blind reliance on these processes is misplaced. He first notes that the FEIS omits the EMP. **Ex. INT701,** A.4. This is a significant omission, because the approach taken in the FEIS by the NRC Staff is to build first and monitor and mitigate after, rather than attempting to accurately predict the impacts caused by the groundwater extraction. *Id.* He states that the harm criterion used in the FEIS was a mere rule of thumb at state agencies and the predictions of drawdown caused by groundwater extraction are highly uncertain. *Id.,* A.5. The combination of a harm criterion not recognized by all agencies concerned, along with a high degree of uncertainty about the drawdown predictions, means that the FEIS has failed to provide useful predictions about harm to sensitive areas, such as wetlands. *Id.*

Mr. Still believes that using the initial PEF groundwater model that predicts the lowest impacts to derive the CoC is inappropriate because NRC Staff required, and received, a more detailed modeling that predicted significantly greater drawdown due to groundwater withdrawals. *Id.,* A.7. For example, the original DWRM2 predicted that no wetlands would exceed a 0.5 foot drawdown, while the recalibrated model predicted 2092 acres of wetlands would exceed that same 0.5 foot drawdown. *Id.* The initial model predicted a drawdown of only 4.8 to 6 inches immediately adjacent to the well heads, whereas the recalibrated model predicts a surficial aquifer drawdown of up to 2.5 feet near the wellheads and 6 inches extending up to three miles from the wellheads. *Id.* He considers these differences significant. If the

recalibrated model (which Dr. Hazlett and Mr. Davies testify is still not accurate for predicting impacts) is the better model, and the NRC Staff are relying on the COC to preclude harm, then the draft EMP should at the very least be based on the model the NRC believes is more accurate. *Id.* It is inconsistent and illogical for NRC Staff to accept the CoC when they are based on a model the NRC Staff themselves believe is faulty. *Id.*

Even using the recalibrated model and then relying on the CoC to limit impacts would not be sufficient because the CoC largely identifies impacts rather than limits them. *Id.,* A.8. Relying on the CoC will not prevent LARGE impacts. *Id.,* A.9. Instead, for a project of this size, accurate prediction of impact is necessary because it would enable feasible mitigation alternatives to be properly evaluated. *Id*. One such alternative is the alternative water supply. *Id.* Another area of inaccurate prediction is in assuming in the modeling of salt drift that the cooling water will be brackish when in fact it could be approximately as saline as the Gulf ocean water if the springs adding fresh water to the Cross Florida Barge Canal are impacted by LNP. *Id.*

Mr. Still also finds that the EMP is fundamentally flawed. Most obviously, it could be terminated within 5 years, before many of the predicted impacts manifest themselves. *Id.,* A.10. Impact monitoring should be required for the life of the plant. *Id.* In addition, the EMP will be based on an inappropriate baseline, because the baseline data is currently due to be taken during construction, when 90,000 gallons per day of groundwater is being extracted. *Id.,* A.11. Baseline conditions, if they are to mean anything, should be determined before *any* dewatering begins at the site. *Id.* The EMP fails to monitor for potential far-field impacts on springs and wetlands. *Id.,* A.12. The EMP also fails to align the monitoring along the lines of conduit flow and could therefore miss impacts. *Id.,* A.13. Furthermore, the EMP fails to monitor for water quality. *Id.,* A.18. Finally, the EMP is too narrowly focused on impacts whose sole cause is the

groundwater pumping, rather than impacts which the construction and operation of the LNP plant could contribute in addition to other factors. *Id.* A.12.

Mr. Still is not confident that the proposed wetlands mitigation will work because he has seen many wetland mitigation projects in Florida fail. *Id.,* A.15. He therefore believes the NRC should have allowed the Army Corps of Engineers to review the mitigation plan before issuing the FEIS. *Id.,* A.14. The NRC also relies on something called the aquifer performance testing plan ("APT") to improve knowledge about the aquifers, but in this case it fails to include required tracer testing. *Id.,* A.16. Had the NRC required this APT testing, including the tracers, it would have been able to properly evaluate the impacts of the groundwater withdrawals and whether to require mitigation such as the development of an alternative water supply to groundwater withdrawal prior to the commencement of operation of the plant. *Id.,* A.17. Here, NRC has inappropriately tried to substitute an adaptive management strategy for accurate predictions of impacts. *Id.,* A.18.

Mr. Still notes that the NRC Staff relied too heavily on prediction of average effects caused by the groundwater withdrawal. *Id.,* A.19. For example, the FEIS failed to address how variations in rainfall could affect the impacts. *Id.* Notably, the Staff inconsistently considered how the changes in the stormwater regime could affect the hydroperiod of the wetlands, but then claimed that such an analysis is not necessary for the groundwater withdrawals. *Id.,* A.20. Although the groundwater withdrawals are relatively constant, their impacts are cumulative with the stormwater impacts, and the other changes in flow, such as the construction of the nuclear island. *Id.* Therefore, an analysis of how all these changes affect the wetland hydroperiod is required, but has not been done. *Id.*

- **Dr. Sydney Bacchus:** Dr. Sydney Bacchus, whose qualifications were set forth in her Initial Pre-filed Testimony (June 26, 2012; corrected July 6, 2012) (**Exhibit INT301**)

("Bacchus Initial Testimony"), will rebut testimony by the PEF and the NRC Staff (**Exhibit INT301**) regarding the significance of LNP's environmental impacts and the inadequacy of monitoring and mitigation measures discussed for the first time in their testimony. Her rebuttal testimony is **Exhibit INT801.**

Dr. Bacchus is a hydroecologist with a multi-disciplinary doctoral degree in the fields of hydrology, ecology and plant pathology, specializing in the assessment of environmental impacts in the southeastern coastal plains physiographic province of the United States. Her rebuttal testimony addresses the adequacy of PEF's EMP to detect significant adverse environmental impacts in time to remediate them successfully. She is concerned that the EMP fails to provide the precise locations that would be monitored; implies that monitoring would be confined to the proposed LNP site, excluding the surrounding vicinity; excludes monitoring of groundwater discharges and water quality from nearby springs and throughout Gulf Hammock, such as the springs discharging along the Withlacoochee canal and King Springs; includes only on-site wetland habitats; fails to acknowledge the existence of supply well #5 in the LNP north parcel near the adjacent red-cockaded woodpecker nesting trees; and relies on assumptions and presumptions that have no scientific basis, including that existing environmental impacts on the proposed LNP site and surrounding vicinity were caused by the Withlacoochee canal that is referenced in the EMP as the "Cross-Florida Barge Canal," despite clear evidence that those impacts were caused by more recent actions. **Exhibit INT801**, A.6.

Dr. Bacchus testifies that the EMP failed to consider adequately the influence of preferential flow paths in the local geology on alterations to the natural hydroperiod and thus all of the wildlife habitats throughout the proposed LNP site and surrounding vicinity. The EMP is based on the premise that essentially symmetrical radial drawdown spanning a period of years will occur surrounding the supply wells, also referenced as production wells, in the south parcel

and that the drawdown impacts in wetlands "are likely to be detected first" within the "near vicinity of the production wells" (EMP, p. 11). *Id.* In reality, the magnitude and extent of the drawdowns in the surficial aquifer will mimic those in the upper Floridan aquifer. That is because the fractures and associated relict sinkholes extending throughout the proposed LNP site and surrounding vicinity will result in vertical and lateral induced recharge or "capture" of water from the surficial aquifer by the UFA where the proposed groundwater wells will be withdrawing water. *Id.*

As Dr. Bacchus also testifies, the EMP presumes that potential adverse impacts to wetlands from CH2M Hill's predicted "drawdown" of ground water "are likely to be detected first" within the "near vicinity of the production wells" (EMP p. 11). Therefore, PEF proposes monitoring near production wells, also known as supply wells, although it excludes supply well #5 in the LNP north parcel. That presumption and proposed monitoring method described in CH2M Hill's EMP have been shown to be an inaccurate presumption for depressional wetlands, however, because of the unaddressed impacts of induced recharge and capture. *Id.*

In Dr. Bacchus' expert opinion, as a result of the flawed assumptions underlying the EMP, the EMP would fail to detect the LARGE adverse impacts on natural hydroperiods in the area throughout and surrounding the proposed LNP site because those plans are based on the same flawed assumptions of CH2M Hill's model. Likewise, the EMP and other newly submitted plans would fail to detect the LARGE adverse environmental impacts, including degraded water quality, on Big and Little King Springs and the numerous small springs discharging ground water to the Withlacoochee canal from hydroperiod alterations resulting from proposed activities such as the change in flow induced by the construction of the nuclear island for the same reason, despite claims by the NRC Staff (SoP at 37). In fact, impacts to Big and Little King Springs from existing hydroperiod alterations already are significant (*i.e.,* "LARGE") because those

impacts have caused Spring Run Creek, that previously flowed out of King Springs, to cease flowing.

Another deficiency in the EMP identified by Dr. Bacchus is that CH2M Hill's "dewatering" model did not include the effects of converting natural overland flow to impounded stormwater. Therefore, the simulated drawdowns that should have provided guidance for formulating the EMP cannot be used for that purpose and the NRC Staff's presumptions regarding the effects of stormwater (e.g., SoP at 33) are not supported. In summary, neither the models nor the EMP and other newly submitted plans consider: 1) preferential flow through the myriad types of karst features known to occur on the proposed LNP sites and surrounding vicinity; 2) surfacewater alterations from construction and operation of the proposed LNP; 3) alterations to surface and ground water from existing and other proposed changes; 4) any scientifically based aspects related to how model predictions of physical changes in water will affect chemical and biological components essential for maintaining healthy wetlands and other wildlife habitats. *Id.,* A.7.

In addition, Dr. Bacchus testifies that the EMP makes no mention of any type of monitoring to assess the impacts from salt drift and deposition on the vegetation and water on the proposed LNP and surrounding vicinity. The EMP's failure to include any type of monitoring of the impacts of salt deposition is a grave omission considering the sensitivity of vegetation to ionic changes, particularly salt, is well established . *Id.*

Dr. Bacchus notes the absence of minimum flows and levels ("MFLs"). She is also concerned that the EMP does not provide for establishment of a valid "baseline" for monitoring impacts to wetlands, because the initial monitoring would not take into account alterations of the natural hydroperiods that have occurred already or would occur during construction.

Dr. Bacchus raises the concern that PEF is authorized to request a release from the

requirements of the EMP after five years of monitoring. It is well established, however, that adverse impacts to pond-cypress (*T. asendens*) wetlands using the monitoring methodolgy proposed in the EMP may not be detected until well after 5 years. By the time the monitoring proposed in the EMP detects those adverse impacts those impacts are irreversible. *Id.,* A.9, A.10.

Dr. Bacchus also evaluates the State's requirements that applicants compensate for any encroachment on the 100-year floodplain that may result in loss of flood storage. As she points out, this is an engineering requirement that does not "compensate" for adverse impacts to wetlands other wildlife habitat or any other adverse environmental impacts. In fact, that engineering-related compensation results in additional, more severe and irreversible adverse impacts to wetlands. *Id.,* A. 11.

Finally, Dr. Bacchus addresses the EMP's proposal to "deepen production wells" as a mitigation measure in the EMP (p. 26). She opines that this alternative would not eliminate induced recharge and capture because water still would be pulled downward from the surficial aquifer and laterally from surrounding springs, streams and other surface waters in the vicinity, such as the numerous springs discharging into the Withlacoochee canal. Induced recharge from the proposed LNP groundwater withdrawals also would result in induced saltwater intrusion from the coast and would increase the potential for contamination of the aquifer system due to upconing, or upward induced recharge, of more saline water at deeper intervals.

III. ARGUMENT

In their Initial SoP and supporting testimony, Intervenors demonstrate that the FEIS failed to take NEPA's required "hard look" at the environmental impacts of LNP (*Robertson ,* 490 U.S. at 349-50) because its conclusion that the environmental impacts of dewatering are "SMALL" in most cases and only "MODERATE" in some cases is primarily based on a conceptually inappropriate hydrological model. As testified by Dr. Tim Hazlett, despite a recalibration of the model prior to publication of the Draft EIS, the model has "serious shortcomings" because "it cannot predict how changes will occur over time, it omitted salinity interactions with the nearby barge canal from the model, it is not well-suited to predicting how pumping of the FAS will affect levels or salinity in the SAS [surficial aquifer system], and it assumes that the aquifers themselves are uniform, which they are not." Hazlett Initial Testimony, A.3. *See also* Davies Initial Testimony, A.3; Still Initial Testimony, A.15; Bacchus Initial Testimony, A.12, regarding karstic nature of the geology underlying LNP.

In its SoP, the Staff makes numerous attempts to defend the adequacy of its environmental analysis, but none is legally or factually supportable.

A. The Staff's Failure to Independently Verify the Appropriateness of the DWRM2 Model Violates NEPA's Requirement for Independence and Rigor in the Agency's Review.

The Staff first argues that it did not need to verify the conceptual adequacy of the model because the model was based on the District Wide Regulation Model ("DWRM2"), which had been developed by the South West Florida Water Management District ("SWFWMD"). Staff SoP at 23-24. But it is well-established that an agency must reach its own independent conclusions and may not delegate its NEPA responsibility to other federal agencies or state agencies. *Calvert Cliffs,* 449 F.3d at 1123. The Atomic Safety and Licensing Board also recognized this NEPA principle in LBP-09-10, 70 NRC 51, 100 (rejecting "the proposition that

the ER [Environmental Report] and EIS [for the Levy LNP] can properly exclude any environmental impact that is regulated by another federal or state entity or that, because NRC has no jurisdiction to *regulate* an environmental impact, it can be excluded, *per se,* from the ER or EIS").

Here, the NRC Staff had ample reason to question the appropriateness of the DWRM2 model. As noted by Dr. Hazlett, the DWRM2 model was designed for regional use in analyzing water use, a different purpose than the localized water modeling needed for an analysis of the environmental impacts of LNP. Direct Hazlett Testimony, A.7. As a result, it had inherent technical flaws that made it unsuitable for some applications as noted by peer reviewers. *Id.* Indeed, after PEF initially used the DWRM2 in the Environmental Report, the NRC Staff concluded that it did not yield credible results and required it to be recalibrated. *See* Staff SoP at 24 (noting that in the initial modeling using the DWRM2, "the measured water levels at the site did not match the results of the model.") The very existence of a significant difference between the results obtained from the initial model and the recalibrated model provided a "strong indication that the model is unable to simulate actual field conditions." Direct Hazlett Testimony, A.4.; *see also* A.6.

Thus, the NRC ignored obvious signs that the model was not suitable for the LNP site and that recalibration was not a sufficient fix for the problem. By disregarding evidence that the model was not adequate, the NRC violated NEPA's requirement to "carefully consider" relevant information regarding the environmental impacts of LNP. *Robertson,* 490 U.S. at 349.

B. The Staff's Assertion that the DWRM2 Model is Just as Good as any Other Because all Groundwater Models Have Uncertainty is Irrational and Lacks the Requisite Degree of Analytical Rigor.

Next, the Staff blithely asserts that all groundwater models are uncertain to some degree; "therefore, there are usually several plausible conceptual groundwater models." *Id.* at 23.

However, such a vague generalization falls far short of satisfying the "hard look" required by NEPA and ignores the fundamental importance of geology to groundwater behavior and successful groundwater monitoring. *See* Pre-Filed Direct Testimony of James O. Rumbaugh III, Etc., A.14 (June 26, 2012) (**Exhibit PEF100),** which describes the geological assumptions used in the model.[1] As observed by Dr. Hazlett: "A model is only an approximation of reality, but the more that model parameter calibration values (i.e. – hydraulic conductivities) differ from measured (field) values, the less reliable predictions derived from the model become." *Id.,* A.4. As Dr. Hazlett testified, it is feasible for PEF and the NRC Staff to gather relevant data and use an appropriate model to make a reasonably accurate prediction of the environmental impacts of LNP on wetlands. Hazlett Rebuttal Testimony, A.4. Yet, neither the FEIS nor the Staff's testimony gives any indication that the Staff attempted to identify a groundwater model that would be suitable for a karst terrain with significant conduit flow and marked hydroperiods, as is the case for the LNP site. The NRC must do more than vaguely say the uncertainty is large. *San Luis Obispo Mothers for Peace v. NRC,* 449 F.3d 1016, 1031-32 (9th Cir. 2006). The NRC's own guidance for consideration of reactor accident risks, quoted in *San Luis Obispo*

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[1] As stated in Mr. Rumbaugh's testimony, he built the DWRM2 in his Groundwater Vistas software "according to specifications provided by the SWFWMD and in a manner consistent with ASTM standards." *Id.,* A.14. His description of the DMWRM2 model makes clear that the geology of the LNP site was essential input to the model:

> consists of 59,840 cells arranged in five layers representing from top to bottom) the surficial aquifer system (SAS), two layers of the Intermediate Aquifer System, the Upper Floridan Aquifer (UFA), and the Lower Floridan Aquifer. Each grid cell in the DWRM2 measures 5,000 ft. on each side. *The elevations of each layer were obtained from a study conducted by the Florida Geological Survey (FGS) of the hydrostratigraphy (the delineation of a body of rock into relatively more or less permeable units to aid in the understanding of a flow system)* of the SWFWMD, including the area in the vicinity of the LNP site.

(Emphasis added).

Mothers for Peace, provides useful guidance regarding what the NRC considers reasonable with respect to uncertainty analysis:

> In addressing potential accident initiators (including earthquakes, sabotage, and multiple human errors (where empirical data are limited and *residual uncertainty is large,* the use of conceptual modeling and scenario assumptions in Safety Analysis Reports will be helpful. They should be based on *the best qualified judgments of experts,* either in the form of subjective numerical probability estimates or *qualitative assessments of initiating events and casual [sic] linkages in accident sequences.*

449 F.3d at 1031-32 (quoting Proposed Policy Statement on Severe Accidents and Related Views on Nuclear Reactor regulation, 48 Fed. Reg. 16,014, 16,020 (1983) (emphasis in original)).

C. The Model Was Not Conservatively Applied Because It Did Not Use Sufficient or Complete Data.

The Staff also claims that the model was conservatively applied because the data it used were "generally consistent with the regional descriptions provided by SWFWMD and the USGS" and were improved upon by the use of more site-specific data in the recalibrated model. *Id.* at 23-24. As discussed in Dr. Hazlett's testimony, however, the data used in the model were insufficient and incomplete. In particular, the data input to the model should have included more wells, at varying depths, being monitored and tested over a longer period of time; monitoring of water levels in wetlands over at least one year (ideally longer), and measurement of streamflows and spring discharges during both wet and dry season conditions. Direct Hazlett Testimony, A.5, A.9. *See also* Hazlett Rebuttal Testimony, A.4, A.5, A.8, A.12, A.13, A.14, A.15, A.17. As discussed in Dr. Bacchus' testimony, it is extremely important to measure such temporal variations because of the major role played by hydroperiods in the health of wetlands. Bacchus Initial Testimony, A.12 – A.15. In addition, the modeling should have included tracer tests to determine the location of major preferential flow pathways. *Id*; Davies Initial Testimony, A.8. The model also should have examined the potential effects of sea level rise due to climate

change, by adjusting the "sea level" boundary along the Gulf to a higher mean level. *Id.,* A.10.

D. The Existence of the Conditions of Certification and Environmental Monitoring Plan Does Not Excuse the Staff's Failure to Rigorously Evaluate the Environmental Impacts of LNP.

The Staff concedes that it "did not perform a rigorous evaluation of the relative contributions of various components of the water balance calculation or confirm that all model implementation assumptions were valid." NRC Staff Testimony, A.46. Given the crucial role played by hydrological modeling in the Staff's environmental analysis, this amounts to a concession that the Staff failed to take a "hard look" at the environmental impacts of the LNP. *Robertson,* 490 U.S. at 349.

The Staff claims it is excused, however, by two factors: PEF's failure to point out any problems with the recalibrated model, and the existence of the Conditions of Certification, including the EMP. Neither excuse is legally valid.

1. The Staff is not excused by PEF's failure to identify a problem with the model.

According to the Staff, "there was no mention of any model validity or mass balance concerns in the model calibration technical memorandum" that PEF submitted as part of the recalibration effort. Staff Testimony, A.46. Therefore, "Staff considered results provided under oath an (sic) affirmation for both the original and recalibrated models to be technically sound." *Id.* But the Staff overlooks its own independent obligation to evaluate the model and not just accept the unverified assertions by PEF. The fact that PEF's statements were made under oath or affirmation simply does not answer the question of whether PEF's analysis was technically sufficient.

2. The Certificates of Compliance and Environmental Monitoring Plan do not excuse the NRC Staff from performing an adequate evaluation of the environmental impacts of LNP.

The Staff states that the model "was not used as the sole basis of the assessment." Staff Testimony, A. 47; Staff SoP at 24. Instead of using "just the model," the Staff "also relied on the Applicant's compliance with conditions of certification issued by the Florida Department of Environmental Protection (FDEP) regarding groundwater usage." Staff SoP at 24-25. Although the Staff acknowledged "uncertainty regarding whether PEF's monitoring program under the FDEP Conditions of Certification can predict or detect the occurrence of wetland impacts with sufficient margin to preclude noticeable impacts," it concluded that it was inappropriate to find that environmental impacts were significant (i.e., "LARGE") "because the FDEP Conditions of Certification require corrective action as soon as adverse wetland impacts are detected or predicted." Staff SoP at 33.

The "monitoring program" described by the Staff in its SoP is the Environmental Monitoring Plan ("EMP") submitted by PEF as **Exhibit PEF305.** As stated in the EMP itself, the purpose of the EMP is to "provide a framework for monitoring the hydrology and ecology in the vicinity of the LNP site that could potentially be affected by operation of the LNP well field." EMP at 6. For a host of legal and technical reasons, however, the EMP provides no basis for the Staff's conclusion that the environmental impacts of LNP are insignificant or that LNP's environmental impacts be detected and mitigated.

a. Under NEPA, the NRC may not substitute the EMP for a valid analysis of environmental impacts of LNP.

The NRC effectively relies on the existence of the EMP and other aspects of the Conditions of Certification as a substitute for conducting an adequate environmental analysis in the first place. Staff SoP at 24-25. But the NRC Staff completely fails the four-part test

established in *Cabinet Mountains* for reliance on mitigation measures in a NEPA analysis:

> (1) whether the agency took a 'hard look' at the problem; (2) whether the agency identified the relevant areas of environmental concern; (3) as to the problems studied and identified, whether the agency made a convincing case that the impact was insignificant; and (4) if there was an impact of true significance, whether the agency convincingly established that changes in the project sufficiently reduced it to a minimum.

Cabinet Mountains Wilderness, 685 F.2d at 682. Under this test, the deficiencies in the Staff's environmental analysis discussed above completely preclude it from relying on proposed mitigation measures to avoid the "hard look" at LNP impacts that it has yet to take. To do so would violate NEPA's fundamental requirement that environmental impacts must be fully considered *before* action is taken. *Robertson,* 490 U.S. at 349.

b. NEPA does not permit unquestioning reliance on SWFWMD and reliance is not justified.

As discussed above, NEPA does not permit the Staff to rely unquestioningly on state or regional regulatory programs for its assessment of environmental impacts; it must make its own determination. *See Calvert Cliffs,* 449 F.2d at 1123. Here, there is no indication in the record that the Staff evaluated the adequacy of the EMP to predict adverse environmental impacts in time to reverse them. In fact, the date of the EMP is May 29, 2012, after the publication of the FEIS in April. To the contrary, the Staff deferred to the judgment of the SWFWMD and relied on PEF to point out any problems. The Staff's contrary assertion that the Conditions of Certification "do not stand in" for the Staff's independent review (Staff SoP page 17) simply is unsupported in the record.[2]

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[2] The Staff also states that the Conditions of Certification "provide the Staff with a realistic picture of potential future environmental impacts because they set an upper bound to permissible impacts." Staff SoP at 17. This assertion is utterly illogical because it presumes that because the State sets limits on PEF that PEF is capable of meeting them. It is the job of the Staff in the EIS to evaluate the risk that PEF will exceed the State's limits. The Staff's position is also illogical because, as stated above, some essential limits in the Conditions of Certification have yet to be established.

In any event, the Staff's reliance is not justified. Although the Staff claims that the Conditions of Certification "provide a number of legally binding requirements with which PEF must comply" in order to maintain its groundwater withdrawal permits (Staff SoP at 17), some of these legally binding requirements have never been established. For instance, the SWFWMD has failed to establish minimum flows and levels ("MFLs") for the aquifer and surface waters in the vicinity of the proposed LNP, as required by Florida law. Bacchus Initial Testimony, A.47; Bacchus Rebuttal Testimony, A.7; Still Initial Testimony, A.24 Thus, the NRC Staff reviewers lack an adequate technical basis for approving the adequacy or effectiveness of the EMP.

Moreover, it appears from the language of the EMP itself that the establishment of some of the most important standards in the EMP will be left to be determined by the PEF contractor assigned to administer the EMP, CH2M Hill rather than the SWFWMD. For instance, the EMP states that a methodology "similar" to that used by SWFWMD will be used to establish "management thresholds" for wetlands monitored as part of the EMP. **Exhibit PEF 305** at 17. If PEF's contractor and not the SWFWMD is to establish such an important standard, then the Staff has no basis whatsoever for deferring to the judgment of the SWFWMD. The delegation of establishment of management thresholds to PEF through its contractor also raises the question of whether the NRC has abdicated its authority to PEF, not just to SWFWMD.

c. The Staff's reliance on the EMP violates NEPA because it did not subject the EMP to public comment in the draft EIS.

Despite the Staff's crucial reliance on the EMP for its determination that the impacts of the LNP are insignificant, it failed to comply with NEPA's procedural requirement that its conclusion must be submitted in draft form for public comment. *See* 10 C.F.R. §§ 51.74 and 51.75(c), *Robertson,* 490 U.S. at 349 (quoting *Baltimore Gas & Electric Co.,* 462 U.S. 87, 97 (1983) (public comment requirement serves one of NEPA's key purposes: to give the public "a

springboard for public comment")). *See also* 10 C.F.R. § 51.91(b) (final EIS must respond to "relevant responsible opposing views"). In addition, the *draft* version of an EIS must address "significant problems and objections raised by other Federal, State, and local agencies, by affected Indian tribes and by other interested persons." 10 C.F.R. § 51.71(b).

While the future existence of an EMP was mentioned in the FEIS for LNP, and while the Army Corps of Engineers is a reviewing agency (*see* Testimony of William J. Dunn, Ph.D. (June 26, 2012) (**Exhibit PEF300)**, no EMP was submitted on the public record until PEF submitted it to the ASLB as an exhibit to its testimony. As a result, the NRC provided no other federal regulatory agencies, state and local regulatory agencies, or the general public with an opportunity to comment on such issues presented in the EMP as what should be appropriate "management thresholds" (EMP at 17) for instituting mitigation measures. In addition, the comments of the Army Corps of Engineers were not included in the DEIS, although that is contemplated by 10 C.F.R. § 51.71(b). Moreover, given the crucial role assigned to the EMP and the degree to which its requirements remain undetermined, the document should be circulated for public comment before any reliance is placed on it. *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87 (1998) (remanding deficient EIS for revision, recirculation and public comment); *Hughes River Watershed Conservancy ,* 81 F.3d at 443 (agency's environmental analysis must be published for public comment "to permit the public a role in the agency's decision-making process.") Intervenors wish to clarify, however, that to circulate the EMP before it has been revised to take account of a more accurate hydrological analysis would be a misleading exercise.

d. The NRC Staff has no rational basis for its reliance on the EMP to state that the environmental impacts of LNP will be insignificant.

Finally, the NRC Staff has no rational basis for relying on the EMP as grounds for stating

that the environmental impacts of LNP will not be significant (*i.e.*, "LARGE"). The Staff's own position on this issue is internally contradictory. While the Staff asserts that it can rely on the EMP to maintain the environmental impacts of LNP at an insignificant level (Staff SoP at 34), it also acknowledges the uncertainty of whether the EMP "can predict or detect the occurrence of wetland impacts with sufficient margin to predict noticeable impacts." *Id.* at 33. Given the conceded uncertainty in *both* the hydrological modeling of impacts *and* the EMP, the NRC should have treated the environmental impacts of dewatering as significant. 40 C.F.R. § 1508.27(b)(5) (the significance of environmental impacts must be analyzed in the context of the "degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.") *See also San Luis Obispo Mothers for Peace,* 449 F.3d at 1031-32.

In any event, the effectiveness of the EMP is worse than uncertain. Because the EMP is based on the same faulty assumptions that underlie the FEIS and the great gaps in the FEIS' analysis, it is unlikely to detect environmental impacts in time to correct them before they become irreversible. *See* Still Rebuttal Testimony, A.6 – A.19, Bacchus Rebuttal Testimony, A.5 – A.11. As Mr. Still points out, salinity changes due to sea level rise and climate change have not been modeled, but could occur. He asks: "In the absence of good predictions of these changes, how can the EMP be well-designed to catch such impacts before they become unacceptable?" Still Rebuttal Testimony, A.18. Because this question cannot be answered positively, the ASLB should reject the FEIS as unsupportable.

E. Inadequate Analysis of Alternatives

The NRC Staff and PEF assert that if monitoring during LNP operation detects adverse impacts to wetlands, "PEF must acceptably mitigate the impacts or use an alternative source of water." SoP at 17 (citing **Exhibit PEF005** at 43-44). As discussed in Mr. Still's and Dr. Bacchus' testimony, however, the effectiveness of the EMP is chimerical. By the time impacts

to wetlands are noticed, the effects will have become irreversible. Bacchus Rebuttal Testimony, A.9, 10. In addition, the EMP may be terminated within five years, before adverse effects are identified. Still Rebuttal Testimony, A.10. While the NRC Staff claims that other alternatives such as use of waste water and desalinization will be considered in the future if adverse impacts are detected, it fails to discuss the very real potential that electing alternative service water supply options after the proposed alternative has failed will be too late to save wetlands from the adverse effects of LNP. Institution of alternative water supply measures such as waste water treatment and supply or construction of a desalinization plant is likely to take years. Will LNP shut down while PEF obtains the necessary studies and approvals? That is doubtful. It is more likely that the plant will continue to operate, destroying large areas of wetlands and their associated wildlife, while alternative solutions are sought.

Under NEPA, a reasonable array of alternatives constitutes the "heart" of an EIS, *Van Ee v. EPA,* 202 F.3d at 309, and therefore must be considered *before* the action is taken, not afterwards. Given the Staff's failure to support its conclusion that the environmental impacts of dewatering on wetlands surrounding the LNP are insignificant, it is essential for the FEIS to discuss a reasonable array of alternatives. That discussion should include an analysis of the relative costs and benefits of the alternatives in comparison to the proposed alternative. 10 C.F.R. § 51.71(d). In violation of this requirement, the FEIS contains only a cursory discussion of one alternative: desalinization. The FEIS states:

> A desalination (also called desalinization or desal) plant could be built on the LNP site. Water could be routed from the proposed CWS intake structure to the desalination plant. PEF has estimated that plant operations would require an annual average total withdrawal of 1.58 Mgd (1097 gpm) of groundwater, and a potential maximum daily withdrawal of 5.8 Mgd (4028 gpm) (PEF 2009e) to meet freshwater needs. PEF indicates that desalination would produce 45 gal of freshwater for every 100 gal of water processed (PEF 2011), so between 2500 gpm and 9000 gpm would need to be withdrawn from the CFBC to meet the freshwater needs. PEF has indicated that the rate for water withdrawal from the CFBC to provide makeup water to the CWS would be 84,780 gpm (Table 3-4). The potential added withdrawal to supply a desalination plant represents an increased withdrawal from the CFBC of approximately 3 percent for normal

> conditions and 9 percent for maximal conditions.
>
> Discharge of brine from the desalination plant would likely be mixed with blowdown from the cooling tower basins for discharge through the Crystal River Discharge Canal (CRDC). The salt concentration of the discharge stream would likely be about twice that of the CFBC salinity and be similar to salinity of the cooling-tower blowdown water. PEF has indicated that the blowdown rate for water from the cooling-tower basins to the CRDC would be 57,923 gpm (Table 3-4). The potential added discharge from a desalination plant (approximately 1300 gpm normal or 4900 gpm maximal) represents an increase of approximately 2 percent for normal conditions and 8 percent for maximal conditions.
>
> Given that (1) the CFBC provides a virtually unlimited supply of water from the Gulf of Mexico, (2) the increase in withdrawal through the proposed intake structure would be a small increment, and (3) that the discharge from the desalination plant would be similar in chemistry to the blowdown water from the cooling towers and a small incremental increase in discharge, the review team determined that the use of desalination to meet the plants need for freshwater is a viable alternative.

FEIS (**Exhibit NRC001)** at 9-250. Despite the FEIS' conclusion that the alternative of desalinization is "viable," it contains no analysis of the relative costs and benefits of desalinization. The FEIS' failure to provide a detailed cost-benefit analysis violates NEPA and the NRC's implementing regulations at 10 C.F.R. § 51.71(d). As Mr. Still testifies, the FEIS should have seriously considered an alternative to using valuable groundwater should have been considered as an alternative from the outset rather than postponed until problems are discovered. Still Rebuttal Testimony, A.18.

IV. CONCL USION

For the foregoing reasons, the ASLB should find that the FEIS for the Levy COL is inadequate to comply with NEPA or justify the licensing of LNP.

Respectfully submitted,

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