

ATTACHMENT 5

Statement of Material Facts As to Which Genuine Issues Exist

Intervenors hereby submit in Support of its Answer to Summary Disposition of Contention 4 with regard to Salt Drift and Passive Dewatering this Statement of Material Facts in Dispute that need to be heard.

PEF's assertions are in italics, Intervenors' in plain text.

I. General

1. On July 28, 2008, Progress submitted a Combined Construction Permit and Operating License Application ("COLA") for two AP1000 units at the proposed Levy Nuclear Plant Units 1 and 2 ("LNP") site.

Intervenors agree that an application was filed on July 8, 2008, but Intervenors dispute the sufficiency of the application for the reasons set forth in Contention 4.

2. On February 6, 2009, Joint Intervenors filed their Petition to Intervene and Request for Hearing ("JI Petition"), including Contention 4 alleging "[o]missions, misrepresentations and failures of the Levy Environmental Report ("ER") to address adverse direct, indirect and cumulative environmental impacts." JI Petition at 32.

2. Intervenors agree that our Petition to Intervene was filed on February 6, 2009, but dispute the reductionist description used by PEF. Our Petition is attached as Attachment 6 It is much more comprehensive than the excerpt above.

3. In its Memorandum and Order of July 8, 2009, the Board admitted Contention 4 in part

as follows:

Progress Energy Florida (PEF's) Environmental Report fails to comply with 10 C.F.R. Part 51 because it fails to adequately address, and inappropriately characterizes as SMALL, certain direct, indirect, and cumulative impacts, on-site and off-site, of constructing and operating the proposed [Levy] facility:

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

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

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

C. As a result of the omissions and inadequacies described above, the Environmental Report also failed to adequately identify, and inappropriately characterizes as SMALL, the proposed project's zone of:

- 1. Environmental impacts,*
- 2. Impact on Federally listed species,*

3. *Irreversible and irretrievable environmental impacts, and*
4. *Appropriate mitigation measures.*

Intervenors agree this appears to be Contention 4 as admitted by the ASLB.

4. *On January 7, 2010, the Nuclear Regulatory Commission (“NRC” or “Commission”) affirmed the Board’s decision to admit Contention 4, clarifying that the affected aquatic resources are “the aquifer system underlying the project area, the Withlacoochee and Waccasassa rivers, and the freshwater wetlands in the area of the project site.” CLI-10 02 at 14-15.*

Intervenors vigorously dispute this assertion here, as we did in our Answer. In reality the Commission merely reaffirmed the Board’s decision in denying PEF’s Appeal by stating (emphasis in bold):

“The Board’s decision here was thorough and clear, and, **with the exception of one matter related to Contentions 7 and 8** – the Board’s consideration of Greater-than-Class-C (GTCC) waste – **we decline to disturb the challenged contention admissibility rulings.**” CLI-10-02 at 2.

So, contrary to PEF’s repeated assertions, the Board decision was in no way changed or “clarified” by the Commission. It rests as admitted.

5. *The source of cooling water that will be used in the Levy cooling towers will be saltwater pumped from the Cross Florida Barge Canal (“CFBC”). Howroyd Affidavit at ¶ 9.*

While true enough that overall the cooling towers will be fed by saltwater, this statement ignores the fact that fresh water that currently feeds the estuary at the Gulf of Mexico will

no longer do so, creating impacts in estuarine waters .Bacchus ¶ B-2 The fresh water involved “would start to experience elevated salinity as a result of incoming tidal waters when the combined freshwater discharge from the Inglis Dam and spring inflow is smaller than 1073 cfs, which would occur approximately 89 percent of the time.”(DEIS p5-12, Line 3) Bacchus ¶ D-10, D-14

6. Cooling towers of the type being proposed for the Levy Project emit water vapor (as a result of the heat rejection process) as well as a very small quantity of what is often referred to as “drift.” Cooling tower drift consists of water droplets that are entrained into the air stream exiting the cooling tower. Howroyd Affidavit at ¶ 10.

To say that there will be “a very small quantity of what is often referred to as “drift.” is misleading. Interveners are unclear as to whether PEF means “a very small percentage.” A major part of Contention 4 deals with salt drift, and the fact that a when dealing with millions of gallons of salt water, over extended periods of time, there are significant impacts that must be acknowledged and rectified Bacchus ¶ E-1

7. Salt drift is regulated as an air emission by the State of Florida. For Levy, the Florida Final SC Order and the PSD Permit to construct Levy establish that the amount of drift that will be entrained into the Levy cooling tower exhaust cannot exceed 0.0005 percent of the circulating water flow rate as the Best Available Control Technology. Howroyd Affidavit at ¶ 31.

While salt drift may be regulated as an air emission, the permit described above also refers to 514 tons per year of particulate matter, (primarily salt) Bacchus ¶ . Conditions, furthermore, are not physical restraints that stop harm from occurring Bacchus ¶ E-2

8. Based on the maximum operation water flow rate of 531,000 gpm in each cooling

tower and the limitation under the Conditions of Certification (“COC”), up to 2.66 gallons per minute (gpm) of entrained water droplets or “drift” could be emitted by each cooling tower during normal maximum operation. Howroyd Affidavit at ¶ 11.

What Dr. Howroyd wrote was “The two banks of cooling towers will each circulate up to 531,000 gallons per minute (gpm) during normal maximum operation, with a capacity of up to 600,000 gpm for short periods of time.” Howroyd Affidavit at ¶ 9.

Five hundred and thirty one thousand is NOT six hundred thousand Bacchus ¶ E-10.

There is no explanation from PEF on just how long a “short period” is. If the 531,000 is incorrect, so is the 2.66 gpm, and perhaps the entire COC is inaccurate. There is no explanation from Dr. Howroyd on just how long a “short period” is. If the 530,000 is incorrect, so is the 2.66 gpm, and perhaps the all the COC are inaccurate Bacchus ¶ E-10 Dr. Howroyd DID do his modeling at the higher rate, but apparently the COC used the lower. This needs to be explained. Additionally, as Interveners are forced to keep pointing out, the COC are not physical restraints limiting salt drift. They are merely rules which may or may not be followed and furthermore, they are state rules which have no obligation to comply with NEPA .Bacchus ¶ E-11

9. These entrained water droplets will contain both suspended and dissolved solids, including both salts and inert solids; therefore, the assumption that all drift is salt is conservative. Howroyd Affidavit at ¶ 16

There has been no attempt by PEF to break down the makeup of the drift. While it may be conservative to call the entire drift salt, Interveners do not accept an attempt by PEF to minimize the effects of salt drift by purporting that only a fraction of the drift solids is, indeed, salt. Bacchus ¶ E-5 We .agree that part of the percentage of the drift will be

made up of other than salt particles. In the COC, however, (the very document being used to assure us there can be no harm from the LNP) in Section 4, Appendix D, p.D-1 one finds, "The cooling towers will emit particulate matter (PM) as a result of the carry over of solids (primarily salt)...Based on the application, future PM emissions are estimated to be 514 tons/year based on 8760 hours per year of operation...PM emissions will exceed the significant emissions rate of 25 tons per year..." Five hundred and fourteen tons per year (primarily salt) is not a small amount Bacchus ¶ E-1.

10. Dispersion modeling of salt drift emissions from the Levy cooling towers was performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model("AERMOD") dispersion model, using as input to the model the design parameters of the Levy cooling towers and five years of hourly meteorological data.

Howroyd Affidavit at ¶¶ 18-19.

The referenced model may have been used, but is no confirmation that the results of the modeling are valid or indicative of a thorough accurate assessment of salt drift impacts because the model input files have not been reviewed Bacchus ¶ E-12

The five years of weather data referenced in Howroyd's Affidavit (¶¶ 18-19) cannot be justified because the DEIS (2-176, Line 34) states there is only wind data from 2007-2009 at the actual proposed LNP site. Therefore, it appears that the data used in the dispersion model is actually from Tampa or Gainesville based on statements in the DEIS (2-175, Line 33). The wind data from Tampa is different from that of the proposed LNP site, resulting in essentially irrelevant salt drift assessment using AERMOD model.

Bacchus ¶ E-13

11. The dispersion modeling demonstrates that the maximum predicted off-site

deposition rate is 6.81 kilograms/hectare/month (kg/ha/mo) of total solids at the nearest site boundary. The dispersion modeling also demonstrates that the off-site deposition rate would decrease significantly with increasing distance from the plant. Howroyd Affidavit at ¶¶ 20-21.

That deposition rate is not consistent with the following statement in the DEIS (p. 2-176, line 35-36) that the maximum predicted off-site deposition is **6.83 (kg/ha/mo)**. [emphasis added] Furthermore, the DEIS states that the prevailing winds at Levy are from the **east-northeast** and from the **west**. If, indeed the DEIS is correct then logically the offsite deposition from the towers would not be due west (closer to the coast) but southwest, and east (away from the coast), presumably increasing the extent and magnitude of adverse environmental impacts from drift if the proposed LNP was constructed and became operational. The problems described above, related to the dispersion model suggest that the data from the Tampa site was used to obfuscate the full magnitude and extent of adverse environmental impacts of drift from the proposed LNP Bacchus E-14.

12. The threshold salt deposition rate used to identify a potential impact to vegetation off-site at Levy is 10 kg/ha/mo. Howroyd Affidavit at ¶ 22.

This threshold for potential impact was derived from studies on an agricultural crop, specifically corn, which is intensely irrigated. There are no cornfields in the vicinity of the proposed LNP, as noted by PEF. Therefore, that threshold is inappropriate and is irrelevant for predicting adverse impacts to native vegetation and ecosystems in the vicinity of the proposed LNP, which must survive without agricultural irrigation. Bacchus ¶ E-16 . Neither PEF nor the DEIS provided any scientific support for using corn to predict effects on native vegetation Bacchus ¶ E-16

13. Evaluating the potential for adverse impacts from salt deposition to on-site freshwater wetlands is based on the impact to vegetation. Minor and infrequent leaf damage does not noticeably alter adversely wetland vegetation. Howroyd Affidavit at ¶ 29.

In fact, Dr Howroyd states “These results are not inconsistent with the possibility of some isolated damage to vegetation at onsite locations”. Howroyd Affidavit at ¶ 29. The second statement contradicts “minor and infrequent leaf damage,” furthermore, neither statement quantifies the damage that would occur Bacchus ¶ E-18. Additionally, Chapter 7 of the DEIS attempted to address cumulative impacts of the proposed LNP, referencing the Crystal River Energy Complex (CREC). Based on Dr. Bacchus’s personal knowledge and review of documents and photographs of the CREC vicinity, much of the native vegetation, including native trees at the “control” site for the CREC salt drift report is dead or exhibiting signs of severe stress. Bacchus ¶ E-19 Therefore, vegetation damage at CREC is far greater than “minor and infrequent leaf damage.” Bacchus P E-19 Additionally, the vegetation at CREC was evaluated only for mechanical draft cooling tower impacts for one year. Bacchus ¶ E-19 Levy will have mechanical draft towers and an additional cooling tower is proposed for CREC (DEIS 7-12, Line15)

14. The dispersion modeling demonstrates that the maximum potential on-site deposition of solids is 10.75 kg/ha/mo. Howroyd Affidavit at ¶ 23.

See 11. The same arguments apply.

15. The maximum predicted worst-case on-site salt deposition is within the range of 10

to 20kg/ha/mo where, at most, only minor and infrequent leaf damage would be expected. Howroyd Affidavit at ¶ 25.

That statement is based on the unsupported assumption that native plant communities in the vicinity of the proposed LNP are not more sensitive to airborne salt deposition than corn Bacchus ¶ E-15.

16. A fourteen year study of the potential impacts of salt deposition from saltwater-based cooling towers at the Crystal River Energy Complex (“CREC”) showed that salt drift and salt deposition at that facility did not have any discernible impact on vegetation other than minor and infrequent leaf damage Howroyd Affidavit at ¶ 28. The CREC is located approximately 15.5 km south of the Levy Project site, with vegetation similar to that at the Levy Project site. Howroyd Affidavit at ¶ 28.

While the study may have lasted 14 years, only one control site was monitored for the entire 14 years. Bacchus ¶ E-19. CREC is not south of the LNP, but southwest and sits on the coast. The LNP site is approximately 7 miles from the Gulf of Mexico, CREC is essentially on the Gulf. Flora is not similar to CREC, there are significant differences. Bacchus ¶ E-20. The final report on the study has numerous references to dead vegetation, “moderately high density of dead or heavily stressed trees,” “Heavily Stressed and Dead Cabbage Palm and Red Cedar,” and “ranges from only scattered dead or stressed trees to very heavy loss of the woody species” Bacchus ¶E-19

17. Based on the analysis performed, including considering that frequent rainfall at Levy reduces the duration that vegetation is exposed to deposited salt, adverse impacts to vegetation from salt deposition are not expected and other adverse impacts to

freshwater wetland areas of the Levy site are even less likely. Howroyd Affidavit at ¶¶ 25, 26.

Relying on hypothetical frequent rain to preclude adverse effects of salt drift is unsupportable. The DEIS states:

While the GCRP has not incrementally forecasted the change in precipitation by decade to align with the licensing action, the projected change in precipitation from the “recent past” (1961–1979) to the period 2080 to 2099 is a decrease of between 20 to 25 percent in spring and an increase of between 15 to 20 percent in the fall (GCRP 2009). Declines in aquifer water levels may continue throughout Florida, as the aquifers are relied on in response to changes in precipitation and the growth in demand for freshwater (GCRP 2009)(DEIS p 7-12, Line 19)

Using the same Tampa weather as the DEIS and Dr. Howroyd, we note that there have been months where NO rain has fallen Bacchus ¶ E-23, and there is no guarantee that this lack of precipitation would not start in the middle of one month and continue into the third month.

18. No passive dewatering is included in the Levy Project. The Levy Project has been designed to specifically exclude passive dewatering features. Griffin Affidavit at ¶ 8.

Passive dewatering is inherent in the Levy design Bacchus ¶ D-2 . The below-ground construction of the nuclear islands will dewater Bacchus ¶ D-2. Those areas the water normally would have flowed through will be inaccessible after construction Bacchus ¶ D-2 Instead, the footings will act as immense plugs The above- ground structures will be huge obstructions to the historic overland flow. Anywhere that water would have gone prior to the Levy construction will be dewatered. Bacchus ¶ D-2 Additionally, the swales and ditches will also be a source of passive dewatering Bacchus ¶ D-4.

19. The new facilities at the Levy site are being built above ground and the drainage facilities are designed to detain stormwater, releasing it in a controlled manner on-site to the natural landscape. Therefore, they will not dewater the site. Griffin Affidavit at ¶ 8.

These retention ponds will be dug into the surficial aquifer which means the surficial aquifer welling up to replace 105 acres of evaporative loss Bacchus ¶ D-8. The ponds will hold the water, stacking it up where it never was stacked before, holding static the natural overland flow so vital to wetlands and dewatering those areas that would otherwise have benefited from the dispersed water Bacchus D-9 ¶ . This is dewatering.

20. The stormwater ponds will be a source of recharge for the near-surface aquifer rather than a source of indirect dewatering. Griffin Affidavit at ¶ 22.

Rather than precipitation recharging the aquifer, during drier periods when that water would be most useful, it will be evaporating in the ponds. Bacchus ¶ D-6, D-7.

21. The average annual lake evaporation near the Levy site is about 46 to 50 inches per year, and the annual precipitation is about 53 inches per year. Griffin Affidavit at ¶ 23.

As previously explained, the stormwater ponds will not recharge, but will instead dewater the aquifer Bacchus ¶ D-6, D-7. Additionally, as also explained previously, the weather data relied upon is erroneous Bacchus ¶ E-13, E-23, and the expectation is for a decrease in rainfall Bacchus ¶ E-17, E-25 resulting in even more pronounced active and passive dewatering effects Bacchus ¶ E-13.

22. Direct precipitation on the ponds will offset evaporation over a long-term average by

3 to 7 inches. Griffin Affidavit at ¶ 23.

The dispute lies here: This is a purely mathematical reckoning that has no relevance to living systems. Long-term averages are irrelevant to living organisms that are forced to struggle under periods of drought and dry seasons. Under the guise of “long-term average,” the wetlands affected by salt drift could die from drift and dewatering, while the long-term average rainfall remained theoretically adequate. Bacchus ¶ D-3. As stated above, there is no expectation that the rainfall averages of the past will project into the future Bacchus ¶ E-17.f

23. The stormwater ponds will occupy approximately 105 acres, and 5 inches of excess rainfall (precipitation minus evaporation, mid-point of the above the range) would provide an additional 43.8 acre-feet of water per year over these ponds, which will be available for percolation to recharge the aquifer. Griffin Affidavit at ¶ 23.

Intervenors agree that there will be 105 acres of stormwater stacked in an unnatural configuration. “Wet ponds” at Levy WILL dewater the aquifer through evaporation and restriction of historic overland flow. Bacchus ¶ D-8. PEF cannot predict the weather, and can only speak in long-term averages that will not even be predictive of future rainfall. During low rainfall conditions, and a stressed wetland due to dewatering, salt drift effects will be compounded. Bacchus ¶ E-15

24. The Levy Project is expected to comply with Florida requirements that ensure that stormwater is collected and treated without reducing recharge to the aquifer. Griffin Affidavit at ¶¶ 13-17.

Intervenors agree that the LNP may comply with state requirements but dispute the ability of the permit to protect the environment. Expectations of future compliance are speculative and cannot be used to determine the effects of the Levy project Bacchus ¶ E-11. The DEIS is expected to make plain the effects, both singularly and cumulatively, without relying on actions in the future. NEPA also demands responsibility for compliance not be fobbed off on other agencies' permits.

25. Because there is no direct connection from on-site to off-site surface waters, impact to the Withlacoochee or Waccasassa Rivers is precluded. Griffin Affidavit at ¶ 31-33.

Groundwater connections to surface waters in Florida represent a continuum of waters of the US. Bacchus ¶ D-9. Waters on the proposed LNP site, including those that would be destroyed by the proposed project, are connected to and/or would adversely impact the Withlacoochee or Waccasassa Rivers if the proposed LNP is constructed and becomes operational. Bacchus ¶ D-9. There is no scientific basis for claims that there will be no off-site impacts from stormwater that is captured on the proposed LNP site. Bacchus ¶ D-9. "Stormwater" is an engineering term for "historic overland flow" or the natural sheet flow of water to surrounding wetland and upland ecosystems and surface waters prior to development of a site Bacchus ¶ D-9. There is a direct connection, in that water withdrawn from the CFBC and groundwater wells adjacent to the CFBC for the proposed LNP would reduce fresh water that formerly flowed to the Gulf of Mexico and associate estuarine ecosystems Bacchus ¶ D-9. The proposed LNP would directly inhibit the flow of water from the Old Withlacoochee to the Gulf of Mexico, a rather large surface water within the affected area of the proposed facility LNP Bacchus ¶ D-9.

