Progress Energy

Serial: NPD-MISC-2011-016
October 20, 2011

Mr. Osvaldo Collazo
Chief, North Permits Branch
Department of the Army
Jacksonville District Corps of Engineers
Panama City Regulatory Office
1002 West 23rd Street, Suite 350
Panama City, Florida 32405-3648

Levy Nuclear Plant/PEF
SAJ-2008-00490 (IP-GAH)
Response #3 to Corps Position Letter dated June 23, 2011

References:

1. Letter from Osvaldo Collazo (USACE) to John Elnitsky (PEF), dated June 23, 2011, Reference: SAJ-2008-00490 (IP-GAH)

2. Letter from John Elnitsky (PEF) to Osvaldo Collazo (USACE), dated July 22, 2011, Reference: Levy Nuclear Plant/PEF, SAJ-2008-00490 (IP-GAH), Serial: NPD-MISC-2011-010

3. Letter from Robert Ktichen (PEF) to Osvaldo Collazo (USACE), dated September 20, 2011, Reference: Levy Nuclear Plant/PEF, SAJ-2008-00490 (IP-GAH), Response #1 to Corps Position Letter dated June 23, 2011, Serial: NPD-MISC-2011-014

4. Letter from Robert Ktichen (PEF) to Osvaldo Collazo (USACE), dated October 4, 2011, Reference: Levy Nuclear Plant/PEF, SAJ-2008-00490 (IP-GAH), Response #2 to Corps Position Letter dated June 23, 2011, Serial: NPD-MISC-2011-015

Dear Mr. Collazo:

The purpose of this letter is to provide the third set of responses to your letter dated June 23, 2011 (Reference 1) regarding positions, comments, and requests for information concerning a requested CWA § 404 permit associated with construction of the Progress Energy Florida (PEF) Levy Nuclear Plant (LNP) and various associated integral projects. As stated in our letter dated July 22, 2011 (Reference 2), PEF is working on responses to your requests, and as materials become available, we will provide them to you. Responses have been provided in letters dated July 22, 2011, September 20, 2011 and October 4, 2011 (References 2 through 4, respectively). Additionally, a response to six of the USACE requests is addressed in the enclosure to this letter. We expect all responses to be complete and submitted to your office no later than November 18, 2011.

The attachments referred to in this letter are provided electronically on a disc. In addition, original signed and sealed drawings in Attachment C, LNP Preliminary Construction drawings, are included with the copy sent to Mr. Gordon Donald Hambrick, USACE.

Progress Energy Florida, Inc.
P.O. Box 14042
St. Petersburg, FL 33733

If you have any questions regarding this letter, or need additional information, please contact me at (919) 546-6992 or Paul Snead at (919) 546-2836.

Sincerely,

Robert Kitchen
Manager, Nuclear Plant Licensing
New Generation Programs & Projects

Enclosure / Attachments

cc: Gordon Donald Hambrick, USACE (plus original drawings, Attachment C)
Douglas Bruner, USNRC
David Pritchett, EPA
Paul Gagliano, EPA

Levy Nuclear Plant Units 1 and 2
Response #3 to Corps Position Letter for USACE-SAJ-2008-00490, dated June 23, 2011

RAI #	PEF RAI #	Progress Energy Response
EPA #1	L-0960	Sept. 20, 2011; Serial NPD-MISC-2011-014
EPA #2	L-0961	Sept. 20, 2011; Serial NPD-MISC-2011-014
EPA #3	L-0962	Sept. 20, 2011; Serial NPD-MISC-2011-014
EPA #4	L-0976	Response enclosed – see following pages
EPA #5	L-0975	Response enclosed – see following pages
EPA #6	L-0980	Response pending in a future submittal
EPA #7	L-0978	Response enclosed – see following pages
EPA #8	L-0968	Oct. 4, 2011; Serial NPD-MISC-2011-015
EPA #9	L-0981	Response pending in a future submittal
EPA #10	L-0963	Sept. 20, 2011; Serial NPD-MISC-2011-014
EPA #11	L-0969	Oct. 4, 2011; Serial NPD-MISC-2011-015
EPA #12	L-0984	Response pending in a future submittal
EPA #13	L-0979	Response enclosed – see following pages
NMFS EFH #1/Corps NMFS #1	L-0970	Oct. 4, 2011; Serial NPD-MISC-2011-015
NMFS EFH #2/Corps NMFS #1	L-0971	Oct. 4, 2011; Serial NPD-MISC-2011-015
NMFS EFH #3/Corps NMFS #2	L-0972	Oct. 4, 2011; Serial NPD-MISC-2011-015
NMFS EFH #4/Corps NMFS #3	L-0973	Oct. 4, 2011; Serial NPD-MISC-2011-015
NMFS EFH #5	L-0974	Oct. 4, 2011; Serial NPD-MISC-2011-015
LEDPA – CORPS #1	L-0964	Sept. 20, 2011; Serial NPD-MISC-2011-014
LEDPA – CORPS #2	L-0985	Pending resolution of USACE GW modeling
LEDPA – CORPS #3	L-0965	Sept. 20, 2011; Serial NPD-MISC-2011-014
LEDPA – CORPS #4	L-0966	Sept. 20, 2011; Serial NPD-MISC-2011-014
CORPS – OTHER #1	L-0967	Response enclosed – see following pages
CORPS – OTHER #2	L-0977	Response enclosed – see following pages
CORPS – OTHER #3	L-0982	Response pending in a future submittal
CORPS – OTHER #4	L-0952	July 22, 2011; Serial NPD-MISC-2011-010
CORPS – OTHER #5	L-0983	Response pending in a future submittal

Levy Nuclear Plant Units 1 and 2
Response #3 to Corps Position Letter for USACE-SAJ-2008-00490, dated June 23, 2011
Cumulative List of Attachments Provided

Attachment	Progress Energy Submittal
July 14, 2011 Meeting Attendees	July 22, 2011; Serial NPD-MISC-2011-010
Proposed Conditions for USACE Approval of Levy as the LEDPA Site	July 22, 2011; Serial NPD-MISC-2011-010
Technical Memorandum 338884-TMEM-129, Rev. 2, Evaluation and Management of Materials Dredged from the Cross Florida Barge Canal for the Construction of Barge Slip, Intake Structure, and Pipeline Facilities Associated with the Levy Nuclear Plant, Florida (on attached CD)	September 20, 2011; Serial NPD-MISC-2011-014
Technical Memorandum 338884-TMEM-130, Rev. 1, Functional Evaluation of Wetlands for the Alternative Sites, Levy Nuclear Plant, Florida (on attached CD)	September 20, 2011; Serial NPD-MISC-2011-014
Technical Memorandum 338884-TMEM-131, Rev. 1, Effects of Temporary Dewatering on Wetlands for the Construction of the Levy Nuclear Plant, Levy County, Florida (on attached CD)	September 20, 2011; Serial NPD-MISC-2011-014
Figure: Site Location Map, showing proposed blowdown pipeline route	October 4, 2011; Serial NPD-MISC-2011-015
Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, September 2011 (on attached CD)	October 4, 2011; Serial NPD-MISC-2011-015
Technical Memorandum 338884-TMEM-127, Rev. 0, Summary of Available Depth Data for the Cross Florida Barge Canal and Nearshore Environments for the Levy Nuclear Plant, Florida	October 4, 2011; Serial NPD-MISC-2011-015
Levy Nuclear Plant – Transmission Lines, Alternatives Analysis and Avoidance and Minimization (October 2011)	October 20, 2011; Serial NPD-MISC-2011-016
Figure 1 – Preliminary Conceptual Geology, LNP Site	October 20, 2011; Serial NPD-MISC-2011-016
LNP Preliminary Construction Drawings	October 20, 2011; Serial NPD-MISC-2011-016
LNP Transmission Preliminary Construction Drawings	October 20, 2011; Serial NPD-MISC-2011-016
338884-TMEM-132, Rev. 1, Avoidance and Minimization Analysis for the Levy Nuclear Plant	October 20, 2011; Serial NPD-MISC-2011-016

Text of USACE RAI:

In order to protect high quality wetlands, transmission line right-of-ways (ROWs) should be reduced to as minimum dimensions, as practicable.

Corps's Note: During a teleconference amongst the EPA, NRC and the Corps on February 10, 2011, the EPA further identified that EPA concerns were not limited to fill impacts, but also impacts to vegetation in developing and maintaining the ROWs, such as trimming, mowing, use of herbicides, etc.

PGN RAI ID #: L-0976

PGN Response to USACE RAI:

The process PEF used to protect high quality wetlands by reducing transmission line ROWs to the minimum practical dimensions and to minimize impacts to vegetation in ROWs is described in Attachment A.

Attachments:

Attachment A, Levy Nuclear Plant – Transmission Lines, Alternatives Analysis and Avoidance and Minimization (October 2011)

USACE Letter No.: Corps Position Letter USACE-SAJ-2008-00490(IP-GAH)

USACE Letter Date: June 23, 2011

USACE RAI #: EPA #5

Text of USACE RAI:

Why was the detailed site layout, as it is presently configured, selected? It appears that by shifting the project further south, overall wetland impacts would be lessened. Moving the site layout southward appears to reduce the length of the transmission line corridor and reduces impacts to other onsite wetlands.

Corps's Note: Your response should address both the South and North parcels.

PGN RAI ID #: L-0975

PGN Response to USACE RAI:

Both geotechnical and non-geotechnical factors were considered in the development of the site layout. The entire property (including north and south parcels) was evaluated from a geotechnical basis for the plant's foundation with the north parcel providing preferred siting characteristics. Non-geotechnical evaluation factors also were considered in the site selection process, including but not limited to, proximity to population centers, major highways, major surface water bodies (Environmental Report [ER] Tables 9.3-2, 9.3-4, 9.3-5, 9.3-6, and 9.3.7). While a site layout on the south property might avoid some wetland impacts associated with reducing the length of the transmission corridor, it would also require longer access roads from US 19, which could result in additional wetland and upland impacts.

The specific location, offset, and orientation of the two LNP units was based on the results of the soil borings and geotechnical assessment conducted in 2006 and 2007. The orientation and spacing of the cooling towers was based on wind direction and cooling tower plume dispersion. The setting and design of the LNP nuclear islands and key infrastructure components were developed based on the technical specifications set forth in the Westinghouse AP1000 Design Control Document (DCD), in addition to applicable regulatory requirements (see 338884-TMEM-132, Rev. 0, entitled "Avoidance and Minimization Analysis for the Levy Nuclear Plant"). The Final Safety Analysis Report (FSAR), Table 2.0-201 (Progress Energy, 2010), addresses design criteria for the AP1000, and provides a comprehensive evaluation of the LNP site relative to the DCD standards.

The base of the LNP 1 and LNP 2 nuclear island standard AP1000 foundations will be founded at subgrade elevation 3.4 meters (m) (11 feet [ft.]) North American Vertical Datum of 1988 (NAVD88). The site-specific foundations will be set at -7.3 m (-24 ft.) NAVD88 with the foundations located on the subsurface Eocene age rock unit of the Avon Park Formation at substantial depths below current site grade. The depth, strength, and stability of the subsurface rock layer at the site is a key factor in determining how the plant was designed to meet design and operational criteria for the nuclear islands and reactors. Geotechnical and geophysical investigation activities at the LNP parcels were conducted to develop a comprehensive characterization of subsurface conditions that will influence foundation performance of safety related structures, including the static and dynamic engineering properties of soil and rock in the site area.

In order to document site-specific subsurface conditions and whether they meet the design criteria, geotechnical data were gathered from both surface geophysical and subsurface geophysical and geotechnical programs. During the site selection investigations on the north and south parcels, a wide range of geotechnical data was gathered from a series of rock core borings, including characteristics of unconsolidated overburden, depth to top of rock, percent recovery of rock core, relative strength of the rock based on ASTM International Rock Quality Designation, and presence of cavities or voids. Surface seismic refraction and microgravity geophysical surveys were performed on the north parcel of the LNP property, in addition to installing a series of preliminary boreholes on both the north and south parcels.

Results of the boring and geophysical program indicated that the north parcel had several important geotechnical advantages over the south parcel if selected for plant design, such as a generally shallower depth to competent subsurface rock, a more regular and less variable depth to competent rock, a generally higher competency of the rock, and higher land surface elevation (Attachment B provides a conceptual model of local geology for the north and south parcels as it was understood from limited pre-COLA site selection study borings conducted in 2006 and 2007). Once the COLA geotechnical program was initiated at the north parcel the site geologic model was further refined to the present geological model presented in the FSAR.

Section 2.5 of the FSAR presents information on the geology, seismology, and geotechnical engineering characteristics of the region, vicinity, and area of the LNP site. This work was conducted in accordance with requirements outlined in Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)." The geotechnical drilling, coring, and sampling methods selected for the project are standard procedures recommended in U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide 1.132. They are considered appropriate for the subsurface materials encountered at the LNP site, and they provide reliable data for characterizing foundation conditions for safety-related structures.

During the initial phase of the geotechnical program, the plant conceptual layout was oriented to a compass north-south direction, but as more subsurface geotechnical data became available, the plant orientations for both LNP 1 and LNP 2 units were rotated 45 degrees from compass north for a variety of reasons, including to take advantage of the best subsurface geotechnical conditions on the site. The main phase borings, supplemental borings, and offset borings were all performed to meet the design criteria for the nuclear islands in this 45-degree offset configuration as the final footprint for the facility.

Attachments:

Attachment B, Figure 1 – Preliminary Conceptual Geology, LNP Site

USACE Letter No.: Corps Position Letter USACE-SAJ-2008-00490(IP-GAH)

USACE Letter Date: June 23, 2011

USACE RAI #: EPA #7

Text of USACE RAI:

Provide clarification and information as to what specific wetlands are associated with miscellaneous fill, pipelines, and structures, as identified in the DEIS.

See Corps's specific comments in paragraph # 1 on page 20 below in regard to this EPA comment.

PGN RAI ID #: L-0978

PGN Response to USACE RAI:

Areas previously identified in the DEIS as "miscellaneous" have now been defined. These included such areas as support buildings located along the main access road; centrally located buildings, facilities, and parking areas; and the makeup and blowdown pipeline on either side of CR 40. PEF has prepared dredge and fill drawings that show all impacts (permanent and temporary) to wetlands in these and all other onsite areas using current wetland jurisdictional boundaries. Wetland impact areas have been quantified by Florida Land Use and Cover Classification System (FLUCCS) category and include Cypress, Wetland Forested Mixed, Wet Planted Pine, Mixed Wetland Hardwoods, Wet Prairies, and Freshwater Marshes. These drawings and impact tables are submitted with the enclosed response to USACE RAI #: Other #1 (RAI # L-0967).

Attachments:

None.

USACE Letter No.: Corps Position Letter USACE-SAJ-2008-00490(IP-GAH)

USACE Letter Date: June 23, 2011

USACE RAI #: EPA #13

Text of USACE RAI:

The DEIS states that strategic considerations indicated that the LNP site would be preferable to collocating at the Crystal River. The EPA believes a stronger narrative with more details, including additional technical rationale, regarding the strategic considerations for why the LNP site is preferable to collocating at the Crystal River Energy Complex location is needed, than that as was provided in the DEIS.

PGN RAI ID #: L-0979

PGN Response to USACE RAI:

The determination that the LNP site would be preferable to Crystal River Energy Complex (CREC) for the location of two nuclear generating units was based primarily on strategic considerations rather than technical criteria.

From a strategic perspective, as a site for new units, the LNP site is considered more reliable than the CREC site. A qualitative analysis of risk factors that could impact reliable power production and supply (for example, vulnerability to single-event failures) was conducted for these sites. It was determined that adding two nuclear units to the existing units at the CREC site would result in the concentration of a large fraction of Progress Energy Florida (PEF)'s total generating capacity at one site, which could be subject to disruption by a single weather event, such as a hurricane, tornado, or storm surge flooding. Other types of single-event failures (such as security threats) could disrupt overall power generation or transmission capability at the CREC site. Vulnerability of the CREC site to such events extends to the transmission lines because connections for the new units would be collocated with existing transmission lines near the CREC site. Five generating units are currently located at the CREC site. The additional siting of LNP Units 1 and 2 at the CREC site would increase system vulnerability and also increase the potential scale of impacts of single-event failures on the PEF service area as well as the entire state.

Attachments:

None.

USACE Letter No.: Corps Position Letter USACE-SAJ-2008-00490(IP-GAH)

USACE Letter Date: June 23, 2011

USACE RAI #: OTHER #1

Text of USACE RAI:

Provide project plan drawings in sufficient detail to accurately show all impacts both permanent and temporary to wetlands and other waters associated with this proposed project, including the facility site, parking lots, stormwater facilities, laydown areas, buffers, fencing, blowdown pipeline, blowdown discharge structure/work, haul road, barge slip and associated components (i.e., boat docks, piers, pilings, boat ramps, dredging, filling, revetments, seawalls, dredge spoiling, etc.), water intake structure, utilities, water wells, access roads, transmission lines, switchyards, substations, etc. Cross-sectional drawings should be provided as appropriate. Wetland delineation lines on the drawings must be those most recently and specifically approved in writing by the Corps to PEF. Types of wetlands to be impacted should be accurately identified and impact quantified. Use of FLUCCS to identify wetland types would be acceptable. Examples of the level of detail required in the above drawings were provided to representatives of PEF by the Corps at a meeting in Panama City on November 18, 2010.

PGN RAI ID #: L-0967

PGN Response to USACE RAI:

Progress Energy Florida (PEF) has completed dredge and fill drawings showing all impacts (permanent and temporary) to wetlands, using current wetland jurisdictional boundaries. Wetland impact areas have been quantified by Florida Land Use and Cover Classification System (FLUCCS) category. These drawings and impact tables are included as Attachment C. Attachment D provides drawings of typical access roads and structure pads for the LNP transmission lines. Aerials showing specific impact areas and aerial crossing drawings for Section 10 waters are also included in this attachment.

Attachments:

Attachment C, Preliminary Construction Drawings

Attachment D, Transmission Preliminary Construction Drawings

USACE Letter No.: Corps Position Letter USACE-SAJ-2008-00490(IP-GAH)

USACE Letter Date: June 23, 2011

USACE RAI #: OTHER #2

Text of USACE RAI:

PEF must demonstrate that impacts to wetlands and other waters have been minimized to the maximum extent practicable. The drawings referenced above should clearly show the identity and use of structures, fills, excavations, etc. Written justification as to why specific project components must be located in wetlands or other waters, rather than reconfigured so as to avoid wetlands and other waters, should be provided.

PGN RAI ID #: L-0977

PGN Response to USACE RAI:

PEF has conducted a rigorous avoidance and minimization sequencing process for the LNP project, which is documented in Attachment E (338884-TMEM-132). Avoidance and minimization of transmission line impacts are described in Attachment A. This documentation, along with dredge and fill drawings showing specific impact areas provided in response to USACE RAI #: Other #1, demonstrate how PEF has minimized impacts to wetlands and other waters to the maximum extent practicable. Unavoidable impacts will be mitigated in accordance with the document titled "Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, September 2011," which was previously submitted in response to USACE RAI #: EPA-11.

Attachments:

Attachment E, 338884-TMEM-132, Rev. 1, Avoidance and Minimization Analysis for the Levy Nuclear Plant

Attachment A, Levy Nuclear Plant – Transmission Lines, Alternatives Analysis and Avoidance and Minimization (October 2011)