COMBINED LICENSE

LEVY NUCLEAR PLANT UNIT 1

DUKE ENERGY FLORIDA, LLC

Docket No. 52-029

License No. NPF-99

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for a combined license (COL) for Levy Nuclear Plant (LNP) Unit 1 filed by Duke Energy Florida, LLC (DEF), which incorporates by reference Appendix D to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, complies with the applicable standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;

   B. There is reasonable assurance that the facility will be constructed and will operate in conformity with the license, as amended, the provisions of the Act, and the Commission regulations set forth in 10 CFR Chapter I, except as exempted from compliance in Section 2.F below;

   C. There is reasonable assurance (i) that the activities authorized by this COL can be conducted without endangering the health and safety of the public and (ii) that such activities will be conducted in compliance with the Commission regulations set forth in 10 CFR Chapter I, except as exempted from compliance in Section 2.F below;

   D. DEF is technically qualified to engage in the activities authorized by this license in accordance with the Commission regulations set forth in 10 CFR Chapter I. DEF is financially qualified to engage in the activities authorized by this COL in accordance with the Commission regulations set forth in 10 CFR Chapter I;

   E. DEF has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements;"

   F. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;

   G. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering reasonable available alternatives, the issuance of this license subject to the conditions for protection of the environment set forth herein is in accordance with Subpart A of 10 CFR Part 51 and all applicable requirements have been satisfied; and

   H. The receipt, possession, and use of source, byproduct, and special nuclear material as authorized by this license will be in accordance with the applicable regulations in 10 CFR Parts 30, 40, and 70.

2. On the basis of the foregoing findings regarding this facility, COL No. NPF-99 is hereby issued to DEF (the licensee), to read as follows:

A. This license applies to the LNP Unit 1, a light-water nuclear reactor and associated equipment (the facility), owned by DEF. The facility would be located approximately 9.6 miles northeast of the Crystal River Energy Complex in Levy County, Florida, and is described in DEF's final safety analysis report (FSAR), as supplemented and amended.

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

(1) DEF, pursuant to Sections 103 and 185b. of the Act and 10 CFR Part 52, to construct, possess, use, and operate the facility at the designated location in accordance with the procedures and limitations set forth in this license;

(2) (a) DEF, pursuant to the Act and 10 CFR Part 70, to receive and possess at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and in amounts necessary for reactor operation, described in the FSAR, as supplemented and amended;

(b) DEF, pursuant to the Act and 10 CFR Part 70, to use special nuclear material as reactor fuel, after a Commission finding under 10 CFR 52.103(g) has been made, in accordance with the limitations for storage and in amounts necessary for reactor operation, described in the FSAR, as supplemented and amended;

(3) (a) DEF, pursuant to the Act and 10 CFR Parts 30 and 70, to receive, possess, and use, at any time before a Commission finding under 10 CFR 52.103(g), such byproduct and special nuclear material (but not uranium hexafluoride) as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts not exceeding those specified in 10 CFR 30.35(d) and 10 CFR 70.25(d) for establishing decommissioning financial assurance, and not exceeding those specified in 10 CFR 30.72 and 10 CFR 70.22(i)(1);

(b) DEF, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use, after a Commission finding under 10 CFR 52.103(g), any byproduct, source, and special nuclear material (but not uranium hexafluoride) as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts, as necessary;

(4) (a) DEF, pursuant to the Act and 10 CFR Parts 30 and 70, to receive, possess, and use, before a Commission finding under 10 CFR 52.103(g), in amounts not exceeding those specified in 10 CFR 30.72, any byproduct or special nuclear material (but not uranium hexafluoride) that is (1) in unsealed form; (2) on foils or plated surfaces, or (3) sealed in

glass, for sample analysis or instrument calibration or other activity associated with radioactive apparatus or components, in amounts not exceeding those specified in 10 CFR 30.35(d) and 10 CFR 70.25(d) for establishing decommissioning financial assurance, and not exceeding those specified in 10 CFR 30.72 and 10 CFR 70.22(i)(1);

(b) DEF, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use, after a Commission finding under 10 CFR 52.103(g), in amounts as necessary, any byproduct, source, or special nuclear material (but not uranium hexafluoride) without restriction as to chemical or physical form, for sample analysis or instrument calibration or other activity associated with radioactive apparatus or components; and

(5) DEF, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. The license is subject to, and DEF shall comply with, all applicable provisions of the Act and the rules, regulations, and orders of the Commission, including the conditions set forth in 10 CFR Chapter I, now or hereafter in effect.

D. The license is subject to, and DEF shall comply with, the conditions specified and incorporated below:

(1) <u>Changes during Construction</u>

(a) DEF may request use of a preliminary amendment request (PAR) process, for license amendments, at any time before a Commission finding under 10 CFR 52.103(g). To use the PAR process, DEF shall submit a written request to the Office of New Reactors (NRO) in accordance with COL-ISG-025, "Changes during Construction under Part 52."

(b) Before NRO's issuance of a written PAR notification, DEF shall submit the license amendment request (LAR). Thereafter, NRO will issue a written PAR notification, setting forth whether DEF may proceed in accordance with the PAR, LAR, and COL-ISG-025. If DEF elects to proceed and the LAR is subsequently denied, DEF shall return the facility to its current licensing basis.

(2) <u>Pre-operational Testing</u>

(a) DEF shall perform the design-specific pre-operational tests identified below:

1. In-Containment Refueling Water Storage Tank (IRWST) Heatup Test (first plant test as identified in AP1000 Design Control Document (DCD), Rev. 19, Section 14.2.9.1.3 Item (h));

2. Pressurizer Surge Line Stratification Evaluation (first plant test as identified in AP1000 DCD, Rev. 19, Section 14.2.9.1.7 Item (d));

3. Reactor Vessel Internals Vibration Testing (first plant test as identified in AP1000 DCD, Rev. 19, Section 14.2.9.1.9);

4. Core Makeup Tank Heated Recirculation Tests (first three plants test as identified in AP1000 DCD, Rev. 19, Section 14.2.9.1.3 Items (k) and (w)); and

5. Automatic Depressurization System Blowdown Test (first three plants test as identified in AP1000 DCD, Rev. 19, Section 14.2.9.1.3 Item (s)).

(b) DEF shall review and evaluate the results of the tests identified in Section 2.D.(2)(a) of this license and confirm that these test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specified functions in accordance with AP1000 DCD Rev. 19, Section 14.2.9.

(c) DEF shall notify the Director of NRO, or the Director's designee, in writing, upon successful completion of the design-specific pre-operational tests identified in Section 2.D.(2)(a) of this license; and

(d) DEF shall notify the Director of NRO, or the Director's designee, in writing, upon the successful completion of all the ITAAC included in Appendix C to this license.

(3) <u>Nuclear Fuel Loading and Pre-critical Testing</u>

(a) Until the submission of the notification required by Section 2.D.(2)(c) of this license, DEF shall not load fuel into the reactor vessel;

(b) Upon submission of the notification required by Section 2.D.(2)(c) of this license and upon a Commission finding in accordance with 10 CFR 52.103(g) that all the acceptance criteria in the ITAAC in Appendix C to this license are met, DEF is authorized to perform pre-critical tests in accordance with the conditions specified herein;

(c) DEF shall perform the pre-critical tests identified in AP1000 DCD Rev. 19, Section 14.2.10.1;

(d) DEF shall review and evaluate the results of the tests identified in Section 2.D.(3)(c) of this license and confirm that these test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specified functions in accordance with AP1000 DCD Rev. 19, Section 14.2.10; and

(e) DEF shall notify the Director of NRO, or the Director's designee, in writing, upon successful completion of the pre-critical tests identified in Section 2.D.(3)(c) of this license.

(4) <u>Initial Criticality and Low-Power Testing</u>

(a) Upon submission of the notification required by Section 2.D.(3)(e) of this license, DEF is authorized to operate the facility at reactor steady-state core power levels not to exceed 5-percent thermal power in accordance with the conditions specified herein;

(b) DEF shall perform the initial criticality and low-power tests identified in AP1000 DCD Rev. 19, Sections 14.2.10.2 and 14.2.10.3, respectively, the Natural Circulation (first plant test) identified in AP1000 DCD Rev. 19, Section 14.2.10.3.6, and the Passive Residual Heat Removal Heat Exchanger (first plant test) identified in AP1000 DCD Rev. 19, Section 14.2.10.3.7;

(c) DEF shall review and evaluate the results of the tests identified in Section 2.D.(4)(b) of this license and confirm that these test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specified functions in accordance with AP1000 DCD Rev. 19, Section 14.2.10.2 and 14.2.10.3; and

(d) DEF shall notify the Director of NRO, or the Director's designee, in writing, upon successful completion of initial criticality and low-power tests identified in Section 2.D.(4)(b) of this license, including the design-specific tests identified therein.

(5) <u>Power Ascension Testing</u>

(a) Upon submission of the notification required by Section 2.D.(4)(d) of this license, DEF is authorized to operate the facility at reactor steady-state core power levels not to exceed 100-percent thermal power in accordance with the conditions specified herein, but only for the purpose of performing power ascension testing;

(b) DEF shall perform the power ascension tests identified in the AP1000 DCD Rev. 19, Section 14.2.10.4, the Rod Cluster Control Assembly Out of Bank Measurements (first plant test) identified in AP1000 DCD, Rev. 19, Section 14.2.10.4.6, and the Load Follow Demonstration (first plant test) identified in AP1000 DCD, Rev. 19, Section 14.2.10.4.22;

(c) DEF shall review and evaluate the results of the tests identified in Section 2.D.(5)(b) of this license and confirm that these test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specified functions in accordance with AP1000 DCD Rev.19, Section 14.2.10.4; and

(d) DEF shall notify the Director of NRO, or the Director's designee, in writing, upon successful completion of power ascension tests identified in Section 2.D.(5)(b) of this license, including the design-specific tests identified therein.

(6) Maximum Power Level

Upon submission of the notification required by Section 2.D.(5)(d) of this license, DEF is authorized to operate the facility at steady state reactor core power levels not to exceed 3400 MW thermal (100-percent thermal power), as described in the FSAR, in accordance with the conditions specified herein.

(7) Reporting Requirements

(a) Within 30 days of a change to the initial test program described in FSAR Section 14, Initial Test Program, made in accordance with 10 CFR 50.59 or in accordance with 10 CFR Part 52, Appendix D, Section VIII, "Processes for Changes and Departures," DEF shall report the change to the Director of NRO, or the Director's designee, in accordance with 10 CFR 50.59(d).

(b) DEF shall report any violation of a requirement in Section 2.D.(3), Section 2.D.(4), Section 2.D.(5), and Section 2.D.(6) of this license within 24 hours. Initial notification shall be made to the NRC Operations Center in accordance with 10 CFR 50.72, with written follow up in accordance with 10 CFR 50.73.

(8) Incorporation

The Technical Specifications, Environmental Protection Plan, and ITAAC in Appendices A, B, and C, respectively, of this license are hereby incorporated into this license.

(9) Technical Specifications

The technical specifications in Appendix A to this license become effective upon a Commission finding that the acceptance criteria in this license (ITAAC) are met in accordance with 10 CFR 52.103(g).

(10) Operational Program Implementation

DEF shall implement the programs or portions of programs identified below, on or before the date DEF achieves the following milestones.

(a) Environmental Qualification Program implemented before initial fuel load;

(b) Reactor Vessel Material Surveillance Program implemented before initial criticality;

(c) Preservice Testing Program implemented before initial fuel load;

(d) Containment Leakage Rate Testing Program implemented before initial fuel load;

(e) Fire Protection Program

1. The fire protection measures in accordance with Regulatory Guide (RG) 1.189 for designated storage building areas (including adjacent fire areas that could affect the storage area) implemented before initial receipt of byproduct or special nuclear materials that are not fuel (excluding exempt quantities as described in 10 CFR 30.18);

2. The fire protection measures in accordance with RG 1.189 for areas containing new fuel (including adjacent areas where a fire could affect the new fuel) implemented before receipt of fuel onsite;

3. All fire protection program features implemented before initial fuel load;

(f) Standard Radiological Effluent Controls implemented before initial fuel load;

(g) Offsite Dose Calculation Manual implemented before initial fuel load;

(h) Radiological Environmental Monitoring Program implemented before initial fuel load;

(i) Process Control Program implemented before initial fuel load;

(j) Radiation Protection Program (RPP) (including the ALARA principle) or applicable portions as identified in FSAR Section 12.5 thereof:

1. RPP features (including the ALARA principle) applicable to receipt of by-product, source, or special nuclear materials (excluding exempt quantities as described in 10 CFR 30.18) implemented before initial receipt of such materials;

2. RPP features (including the ALARA principle) applicable to new fuel implemented before receipt of initial fuel on site;

3. All other RPP features (including the ALARA principle) except for those applicable to control radioactive waste shipment implemented before initial fuel load;

4. RPP features (including the ALARA principle) applicable to radioactive waste shipment implemented before first shipment of radioactive waste;

(k) Reactor Operator Training Program implemented 18 months before the scheduled date of initial fuel load;

(l) Motor-Operated Valve Testing Program implemented before initial fuel load;

(m) Initial Test Program

1. Construction Test Program implemented before the first construction test;

2. Preoperational Test Program implemented before the first preoperational test; and

3. Startup Test Program implemented before initial fuel load;

(n) Special Nuclear Material Control and Accounting Program implemented before initial receipt of special nuclear material; and

(o) Special Nuclear Material Physical Protection Program implemented before initial receipt of special nuclear material on site.

(11) <u>Operational Program Implementation Schedule</u>

No later than 12 months after issuance of the COL, DEF shall submit to the Director of NRO, or the Director's designee, a schedule for implementation of the operational programs listed in FSAR Table 13.4-201, including the associated estimated date for initial loading of fuel. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until all the operational programs listed in FSAR Table 13.4-201 have been fully implemented. The schedule shall identify the completion of or implementation of the following:

(a) The construction and inspection procedures for steel concrete composite (SC) construction activities for seismic Category I nuclear island modules (including shield building SC modules) described in AP1000 DCD Rev. 19, Section 3.8.4.8;

(b) The spent fuel rack Metamic Coupon monitoring program (before initial fuel load);

(c) Implementation of the flow accelerated corrosion (FAC) program including construction phase activities (before initial fuel load);

(d) A turbine maintenance and inspection program, which must be consistent with the maintenance and inspection program plan activities and inspection intervals identified in FSAR Section 10.2.3.6 (before initial fuel load);

(e) The availability of documented instrumentation uncertainties to calculate a power calorimetric uncertainty (before initial fuel load);

(f) The availability of administrative controls to implement maintenance and contingency activities related to the power calorimetric uncertainty instrumentation (before initial fuel load);

(g) The site-specific severe accident management guidelines (before startup testing);

(h) The operational and programmatic elements of the mitigative strategies for responding to circumstances associated with loss of large areas of the plant due to explosions or fire developed in accordance with 10 CFR 50.54(hh)(2) (before initial fuel load); and

(i) The pre-operational and startup procedures (including the site-specific startup administration manual) identified in FSAR Section 14.2.3 (before initiating the initial test program).

(12) <u>Site- and Unit-specific Conditions</u>

(a) Before commencing installation of individual piping segments and connected components in their final locations, DEF shall complete the as-designed pipe rupture hazards analysis for compartments (rooms) containing those segments in accordance with the criteria outlined in the AP1000 DCD, Rev. 19, Sections 3.6.1.3.2 and 3.6.2.5, and shall inform the Director of NRO, or the Director's designee, in writing, upon the completion of this analysis and the availability of the as-designed pipe rupture hazards analysis reports.

(b) Before commencing installation of individual piping segments identified in AP1000 DCD, Rev. 19, Section 3.9.8.7, and connected components in their final locations in the facility, DEF shall complete the analysis of the as-designed individual piping segments and shall inform the Director of NRO, or the Director's designee, in writing, upon the completion of these analyses and the availability of the design reports for the selected piping packages.

(c) No later than 180 days before initial fuel load, DEF shall submit to the Director of NRO, or the Director's designee, in writing:

1. A fully developed set of plant-specific emergency action levels (EALs) in accordance with Nuclear Energy Institute (NEI) 07-01, "Methodology for Development of Emergency Action Levels Advanced Passive Light Water Reactors," Revision 0, with no deviations. The EALs shall have been discussed and agreed upon with State and local officials.

2. An assessment of emergency response staffing performed in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0.

(d) Before initial fuel load, DEF shall:

1. Update the seismic interaction analysis in AP1000 DCD, Rev. 19, Section 3.7.5.3 to reflect as-built information, which must be based on as-procured data, as well as the as-constructed condition;

2. Reconcile the seismic analyses described in Section 3.7.2 of the AP1000 DCD, Rev. 19, to account for detailed design changes, including, but not limited to, those due to as-procured or as-built changes in component mass, center of gravity, and support configuration based on as-procured equipment information;

3. Calculate the instrumentation uncertainties of the actual plant operating instrumentation to confirm that either the design limit departure from nucleate boiling ratio (DNBR) values remain valid or that the safety analysis minimum DNBR bounds the new design limit DNBR values plus DNBR penalties;

4. Update the pressure-temperature (P-T) limits using the pressure temperature limits report (PTLR) methodologies approved in AP1000 DCD, Rev. 19, using the plant-specific material properties or confirm that the reactor vessel material properties meet the specifications of and use the Westinghouse generic PTLR curves;

5. Verify that plant-specific belt line material properties are consistent with the properties given in AP1000 DCD Rev. 19, Section 5.3.3.1 and Tables 5.3-1 and 5.3-3. The verification must include a pressurized thermal shock (PTS) evaluation based on as-procured reactor vessel material data and the projected neutron fluence for the plant design objective. Submit this PTS evaluation report to the Director of NRO, or the Director's designee, in writing, at least 18 months before initial fuel load;

6. Review differences between the as-built plant and the design used as the basis for the AP1000 seismic margin analysis. DEF shall perform a verification walkdown to identify differences between the as-built plant and the design. DEF shall evaluate any differences and must modify the seismic margin analysis as necessary to account for the plant-specific design and any design changes or departures from the certified design. DEF shall compare the as-built structures, systems, and components (SSC) high confidence, low probability of failures (HCLPFs) with those assumed in the AP1000 seismic margin evaluation, before initial fuel load. DEF shall evaluate deviations from the HCLPF values or assumptions in the seismic margin evaluation due to the as-built configuration and final analysis to determine if vulnerabilities have been introduced;

7. Review differences between the as-built plant and the design used as the basis for the AP1000 probabilistic risk assessment (PRA) and the AP1000 DCD, Rev. 19, Table 19.59-18. DEF shall evaluate the plant-specific PRA-based insight differences and shall modify the plant-specific PRA model as necessary to account for the plant-specific design and any design changes or departures from the design certified in Rev. 19 of the AP1000 DCD;

8. Review differences between the as-built plant and the design used as the basis for the AP1000 internal fire and internal flood analysis. DEF shall evaluate the plant-specific internal fire and internal flood analyses and shall modify the analyses as necessary to account for the plant-specific design and any design changes or departures from the design certified in Rev. 19 of the AP1000 DCD;

9. Perform a thermal lag assessment of the as-built equipment listed in Tables 6b and 6c in Attachment A of APP-GW-GLR-069, "Equipment Survivability Assessment," to provide additional assurance that this equipment can perform its severe accident functions during environmental conditions resulting from hydrogen burns associated with severe accidents. DEF shall perform this assessment for equipment used for severe accident mitigation that has not been tested at severe accident conditions. DEF shall assess the ability of the as-built equipment to perform during accident hydrogen burns using the environment enveloping method or the test based thermal analysis method described in Electric Power Research Institute (EPRI) NP-4354, "Large Scale Hydrogen Burn Equipment Experiments;"

10. Implement a surveillance program for explosively actuated valves (squib valves) that includes the following provisions in addition to the requirements specified in the edition of the ASME *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code) as incorporated by reference in 10 CFR 50.55a.

    a. Preservice Testing

       All explosively actuated valves shall be preservice tested by verifying the operational readiness of the actuation logic and associated electrical circuits for each explosively actuated valve with its pyrotechnic charge removed from the valve. This must include confirmation that sufficient electrical parameters (voltage, current, resistance) are available at the explosively actuated valve from each circuit that is relied upon to actuate the valve. In addition, a sample of at least 20% of the pyrotechnic charges in all explosively actuated valves shall be tested in the valve or a qualified test fixture to confirm the capability of each sampled pyrotechnic charge to provide the necessary motive force to operate the valve to perform its intended function without damage to the valve body or connected piping. The sampling must select at least one explosively actuated valve from each redundant safety train. Corrective action shall be taken to resolve any deficiencies identified in the operational readiness of the actuation logic or associated electrical circuits, or the capability of a pyrotechnic charge. If a charge fails to fire or its capability is not confirmed, all charges with the same batch number shall be removed, discarded, and replaced with charges from a different batch number that has demonstrated successful 20% sampling of the charges.

    b. Operational Surveillance

       Explosively actuated valves shall be subject to the following surveillance activities after commencing plant operation:

       i. At least once every 2 years, each explosively actuated valve shall undergo visual external examination and remote internal examination (including evaluation and removal of fluids or contaminants that may interfere with operation of the valve) to verify the operational readiness of the valve and its actuator. This examination shall also verify the appropriate position of the internal actuating mechanism and proper operation of remote position indicators. Corrective action shall be taken to resolve any deficiencies identified during the examination with post-maintenance testing conducted that satisfies the preservice testing requirements.

ii. At least once every 10 years, each explosively actuated valve shall be disassembled for internal examination of the valve and actuator to verify the operational readiness of the valve assembly and the integrity of individual components and to remove any foreign material, fluid, or corrosion. The examination schedule shall provide for both of the two valve designs used for explosively actuated valves at the facility to be included among the explosively actuated valves to be disassembled and examined every 2 years. Corrective action shall be taken to resolve any deficiencies identified during the examination with post-maintenance testing conducted that satisfies the preservice testing requirements.

iii. For explosively actuated valves selected for test sampling every 2 years in accordance with the ASME OM Code, the operational readiness of the actuation logic and associated electrical circuits shall be verified for each sampled explosively actuated valve following removal of its charge. This must include confirmation that sufficient electrical parameters (voltage, current, resistance) are available for each valve actuation circuit. Corrective action shall be taken to resolve any deficiencies identified in the actuation logic or associated electrical circuits.

iv. For explosively actuated valves selected for test sampling every 2 years in accordance with the ASME OM Code, the sampling must select at least one explosively actuated valve from each redundant safety train. Each sampled pyrotechnic charge shall be tested in the valve or a qualified test fixture to confirm the capability of the charge to provide the necessary motive force to operate the valve to perform its intended function without damage to the valve body or connected piping. Corrective action shall be taken to resolve any deficiencies identified in the capability of a pyrotechnic charge in accordance with the preservice testing requirements.

This license condition shall expire upon (1) incorporation of the above surveillance provisions for explosively actuated valves into the facility's inservice testing program, or (2) incorporation of inservice testing requirements for explosively actuated valves in new reactors (i.e., plants receiving a construction permit, or combined license for construction and operation, after January 1, 2000) to be specified in a future edition of the ASME OM Code as incorporated by reference in 10 CFR 50.55a, including any conditions imposed by the NRC, into the facility's inservice testing program.

11. Address the following requirements using the guidance contained in JLD ISG-2012-03, Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation, Revision 0:

    The spent fuel pool instrumentation shall be maintained available and reliable through the development and implementation of a training program. The training program shall include provisions to ensure trained personnel can route the temporary power lines from the alternate power source to the appropriate connection points, and connect the alternate power source to the safety-related level instrument channels; and

12. Develop, implement, and maintain procedural controls limiting radionuclide inventory in each of the Radwaste Building Monitor Tanks, and separately in each of up to three (3) Radwaste Building mobile radwaste processing systems to below A_2 quantities for radionuclides specified in Appendix A to 10 CFR Part 71 (Tables A-1 and A-3), as described in FSAR Subsection 13.5.2.2.5. The procedures shall also ensure that any additional equipment located in the Radwaste Building is limited to below A_2 quantities and that the total cumulative radioactive inventory contained in unpackaged wastes (including liquid waste, wet waste, solid waste, gaseous waste, activated or contaminated metals and components, and contaminated waste present at any time in the Radwaste Building) is limited so that an

unmitigated release, occurring over a two hour time period, would not result in a dose of greater than 500 millirem at the protected area boundary or an unmitigated exposure, occurring over a two hour time period, would not result in a dose of greater than 5 rem to site personnel located 10 feet from the total cumulative radioactive inventory.

(e) DEF shall perform geologic mapping of excavations for safety related structures; examine and evaluate geologic features discovered in these excavations; and shall inform the Director of NRO, or the Director's designee, in writing, once excavations for these safety related structures are open for examination.

(f) Emergency Planning Actions

1. Communications:

a. No later than eighteen (18) months before the latest date set forth in the schedule submitted in accordance with 10 CFR 52.99(a) for completing the inspections, tests, and analyses in the ITAAC, the licensee shall have performed an assessment of on-site and off-site communications systems and equipment relied upon during an emergency event to ensure communications capabilities can be maintained during an extended loss of alternating current power. The communications capability assessment shall be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0.

b. No later than one hundred eighty (180) days before the date scheduled for initial fuel load set forth in the notification submitted in accordance with 10 CFR 52.103(a), the licensee shall have completed implementation of corrective actions identified in the communications capability assessment, including revisions to the Emergency Plan.

2. Staffing:

a. No later than eighteen (18) months before the latest date set forth in the schedule submitted in accordance with 10 CFR 52.99(a) for completing the inspections, tests, and analyses in the ITAAC, the licensee shall have performed an assessment of the on-site and augmented staffing capability for response to a multi-unit event. The staffing assessment shall be performed in accordance with

NEI 12-01, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,” Revision 0.

b. No later than one hundred eighty (180) days before the date scheduled for initial fuel load, as set forth in the notification submitted in accordance with 10 CFR 52.103(a), the licensee shall revise the Emergency Plan to include the following:

i. Incorporation of corrective actions identified in the staffing assessments described by this license condition.

ii. Identification of how the augmented staff will be notified, given degraded communications capabilities.

(g) DEF shall complete and make available to the NRC no later than 180-days prior to construction the 90-day test report for the Roller Compacted Concrete Strength Verification and Constructability Testing in accordance with the criteria outlined in FSAR Subsection 3.8.5.11.3.

(h) Prior to the full participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF shall have available for NRC inspection the Letters of Agreement (LOAs) established with the following entities:

1. State of Florida Division of Emergency Management
2. Citrus County, Florida Emergency Management Agency
3. Levy County, Florida Emergency Management Agency
4. Marion County, Florida Emergency Management Agency
5. Citrus Memorial Hospital
6. Seven Rivers Regional Medical Center
7. Citrus County, Department of Public Safety Fire Rescue Division
8. Nature Coast Emergency Medical Services Fire Department

These Letters of Agreement shall specify the emergency measures to be provided in support of the LNP emergency organization to include response to a hostile action event at the site; the mutually acceptable criteria and availability of adequate resources for their implementation; and arrangements for the exchange of information.

(i) DEF shall distribute the initial LNP public information publications, consistent with the LNP Emergency Plan, within 180 days prior to fuel load at LNP.

(j) Mitigation Strategies for Beyond-Design-Basis External Events

1. DEF shall complete development of an overall integrated plan of strategies to mitigate a beyond-design-basis external event at least 1 year before the completion of the last ITAAC on the schedule required by 10 CFR 52.99(a).

2. The overall integrated plan required by this condition must include guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities. The overall integrated plan must include provisions to address all accident mitigation procedures and guidelines (including the guidance and strategies required by this section, emergency operating procedures, abnormal operating procedures, and extensive damage management guidelines).

3. The guidance and strategies required by this condition must be capable of (i) mitigating a simultaneous loss of all alternating current (ac) power and loss of normal access to the normal heat sink and (ii) providing for adequate capacity to perform the functions upon which the guidance and strategies rely for all units on the Levy site and in all modes at each unit on the site.

4. Before initial fuel load, the licensee shall fully implement the guidance and strategies required by this condition, including:

   a. Procedures;

   b. Training

   c. Acquisition, staging or installation of equipment and consumables relied upon in the strategies; and

   d. Configuration controls and provisions for maintenance and testing (including testing procedures and frequencies for preventative maintenance) of the equipment upon which the strategies and guidance required by this condition rely

5. The training required by this condition must use a Systematic Approach to Training (SAT) to evaluate training for station personnel, and must be based upon plant equipment and procedures upon which the guidance and strategies required by this Condition rely.

6. The licensee shall maintain the guidance and strategies described in the application upon issuance of the license, and the integrated plan of strategies upon its completion as required by this condition. The licensee may change the strategies and guidelines required by this condition provided that the licensee evaluates each such change to ensure that the provisions of 2.D.(12)(j)2 and 2.D.(12)(j)3 in this condition continue to be satisfied and the licensee documents the evaluation in an auditable form.

(k) Insurance and Indemnity

1. Before the scheduled date for initial fuel load, DEF shall provide satisfactory documentary evidence to the Director of the Office of Nuclear Reactor Regulation or designee that it has obtained the appropriate amount of financial protection (insurance) required of licensee pursuant to 10 CFR Part 140 and 10 CFR 50.54(w).

2. Before the scheduled date of initial fuel load, and within ninety (90) days after the NRC publishes the notice of intended operation in the Federal Register, the licensee shall provide evidence to the NRC that they would have the ability to pay into the nuclear industry retrospective rating plan in the event of a nuclear incident and in the amount specified in 10 CFR Part 140.11(a)(4) for one calendar year using one of the following methods:

   a. Surety bond,

   b. Letter of credit,

   c. Revolving credit/term loan arrangement,

   d. Maintenance of escrow deposits of government securities, or

   e. Annual certified financial statement showing either that a cash flow (i.e., cash available to a company after all operating expenses, taxes, interest charges, and dividends have been paid) can be generated and would be available for payment of retrospective premiums within three (3) months after submission of the statement, or a cash reserve or a combination of cash flow and cash reserve.

(l) At the first annual update of the Levy FSAR required by 10 CFR 50.71(e) DEF shall include the following changes based on inspection findings from NRC Inspection Report No. 99900404/2015-203:

1. Revise Appendix 19F.4.1, “Malevolent Aircraft,” to include the Auxiliary Building as a key design feature that also protects from physical damage the core cooling credited to meet 10 CFR 50.150(b)(2).

2. Revise DCD drawings to show the 5 psid and 3 hour fire rated doors that have been added to the inner portion (annulus side) of the shield building in accordance with final markups used to satisfy NRC Inspection Report No. 99900404/2015-203 and 10 CFR 50.150 (a)(1). The DCD figures listed below are to be revised:

a. Figure 1.2-7 – Nuclear Island General Arrangement Plan at Elevation 107'-2" & 111'-0"

b. Figure 1.2-10 – Nuclear Island General Arrangement Plan at El. 135'-3"

c. Figure 9A-1 (Sheet 5 of 16) – Nuclear Island Fire Areas Plan at Elevation 100'-0" & 107'-2"

d. Figure 9A-1 (Sheet 7 of 16) – Nuclear Island Fire Area Plan at Elevation 135'-3"

e. Figure 12.3-1 (Sheet 6 of 16) – Radiation Zones, Normal Operations/Shutdown Nuclear Island, Elevation 100'-0" & 107'-2"

f. Figure 12.3-1 (Sheet 8 of 16) – Radiation Zones, Normal Operations/Shutdown Nuclear Island, Elevation 135'-3"

g. Figure 12.3-2 (Sheet 6 of 15) – Radiation Zones, Post-Accident Nuclear Island, Elevation 100'-0" & 107'-2"

h. Figure 12.3-2 (Sheet 8 of 15) – Radiation Zones, Post-Accident Nuclear Island, Elevation 135'-3"

i. Figure 12.3-3 (Sheet 6 of 16) – Radiological Access Controls, Normal Operations/Shutdown Nuclear Island, Elevation 100'-0" & 107'-2"

j. Figure 12.3-3 (Sheet 8 of 16) – Radiological Access Controls, Normal Operations/Shutdown Nuclear Island, Elevation 135'-3"

E. DEF shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.

F. Exemptions

(1) The following exemptions from the regulations were granted in the rulemaking for the design certification rule that is referenced in the application. In accordance with 10 CFR Part 52, Appendix A, Section V, Applicable Regulations, Subsection B, and pursuant to 10 CFR 52.63(a)(5), DEF is exempt from the following portions of the regulations:

(a) Paragraph (f)(2)(iv) of 10 CFR 50.34—Plant Safety Parameter Display Console

(b) Paragraph (c)(1) of 10 CFR 50.62—Auxiliary (or emergency) feedwater system; and

(c) Appendix A to 10 CFR Part 50, GDC 17—Second offsite power supply circuit.

(2) The following exemption from part of the referenced design certification rule meets the requirements of 10 CFR 52.7 and Section VIII.A.4, VIII.B.4, or VIII.C.4 of Appendix D to 10 CFR Part 52, is authorized by law, will not present an undue risk to the public health or safety, and is consistent with the common defense and security. Special circumstances are present in that the application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule (10 CFR 50.12(a)(2)(ii)) as described in the application and the FSER associated with this license.

(a) DEF is exempt from the requirement of 10 CFR Part 52, Appendix D, Section IV.A.2.a to include a plant-specific DCD containing the same type of information and using the same organization and numbering as the generic DCD for the AP1000 certified design. This exemption is specific to the organization and numbering scheme in the FSAR and is related to departure number STD DEP 1.1-1.

(3) For the reasons set forth below, the following specific exemptions which are outside the scope of the design certification rule referenced in the application are granted:

(a) DEF is exempt from the requirements of 10 CFR 70.22(b), 10 CFR 70.32(c), 10 CFR 74.31, 10 CFR 74.41, and 10 CFR 74.51 because DEF meets the requirements of

10 CFR 70.17 and 74.7 as discussed in Section 1.5.4 of the final safety evaluation report (FSER) associated with this license. The exemption meets the requirements of 10 CFR 52.7 because it is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security. Additionally, special circumstances are present in that the application of the regulations in this particular circumstance is not necessary to achieve the underlying purpose of the rule (10 CFR 50.12(a)(ii)) as described in the FSER associated with this license.

(b) DEF is exempt from the requirements of 10 CFR 52.93(a)(1) as it relates to the exemption granted in Section 2.F.(2)(a) of this license because the exemption meets the requirements of 10 CFR 52.7 and because the exemption is authorized by law, will not present an undue risk to the public health or safety, and is consistent with the common defense and security. Additionally, special circumstances are present in that the application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule (10 CFR 50.12(a)(2)(ii)) as described in the FSER associated with this license.

(4) For the reasons set forth below, the following exemptions associated with departures from Tier 1 and generic technical specifications of the AP1000 design certification are granted:

- The Tier 1 and generic technical specifications departures listed below meet the requirements of 10 CFR Part 52, Appendix A, Section VIII.A.4 or VIII.C.4 and the regulations referenced therein because as discussed in Chapter 21 of the FSER associated with this license:

- The Tier 1 departures will not significantly decrease the level of safety otherwise provided by the design;

- The Tier 1 and generic technical specifications departures are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security;

- Special circumstances are present as required by 10 CFR 50.12(a)(2); specifically, as discussed in Chapter 21 of the final safety evaluation report for this license, the staff finds that there are special circumstances under 10 CFR 50.12(a)(2)(ii) for the following Tier 1 and generic technical specifications exemptions because application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule;

- For Tier 1 departures identified in 2.F.(4)(a), 2.F.(4)(b), 2.F.(4)(c), and 2.F.(4)(d), special circumstances do not outweigh any potential decrease in safety due to reduced standardization.

a. LNP DEP 3.2-1 (exemption from Tier 1 and generic technical specifications)

b. LNP DEP 6.4-1 (exemption from Tier 1 and generic technical specifications)

c. LNP DEP 6.4-2 (exemption from Tier 1 and generic technical specifications)

d. LNP DEP 6.2-1 (exemption from Tier 1)

e. LNP DEP 7.3-1 (exemption from generic technical specifications)

G. DEF shall maintain the guidance and strategies developed in accordance with 10 CFR 50.54(hh)(2).

H. This license is effective as of October 26, 2016, and shall expire at midnight on the date 40 years from the date that the Commission finds that the acceptance criteria in the combined license are met in accordance with 10 CFR 52.103(g).

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Vonna Ordaz, Acting Director
Office of New Reactors

Appendices:
Appendix A – Technical Specifications
Appendix B – Environmental Protection Plan
Appendix C – Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)