

**Levy Nuclear Plant Units 1 and 2**

**COL Application**

**Part 7**

**Departures and Exemption Requests**

**Revision 3**

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**Levy Nuclear Plant Units 1 and 2  
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Part 7, Departures and Exemptions**

**A. STD and LNP Departures**

This Departure Report includes deviations in the Levy Nuclear Plant, Units 1 and 2 COLA FSAR from the Tier 2 information in the applicable Design Control Document (DCD), pursuant to 10 CFR Part 52, Appendix D, Section VIII and Section X.B.1.

The following Departures are described and evaluated in detail in this report.

<b><u>Departure Number</u></b>	<b><u>Description</u></b>
STD DEP 1.1-1	Administrative departure for organization and numbering for the FSAR sections
LNP DEP 1.8-1	Correction of an inconsistency in regulatory citation in an interface description
LNP DEP 3.2-1	Addition of downspouts to the condensate return portion of the Passive Core Cooling System
LNP DEP 3.11-1	Revision of "Envir. Zone" numbers for Spent Fuel Pool Level instruments
STD DEP 8.3-1	Class 1E voltage regulating transformer current limiting features

Departure LNP DEP 3.2-1 is a departure from AP1000 Tier 1 information, in addition to Tier 2 information in the DCD; an exemption request and NRC approval is required prior to implementation.

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Departure Number: STD DEP 1.1-1

Affected DCD/FSAR Sections: 2.1.1; 2.1.4; 2.2.1; 2.2.4; 2.4.1; 2.4.15; 2.5; 2.5.6; 9.2.11; 9.2.12; 9.2.13; 9.5.1.8; 9.5.1.9; 13.1; 13.1.4; 13.5; 13.5.3; 13.7; 17.5; 17.6; 17.7; 17.8  
(Note the affected sections may vary in subsequent COL applications, but the departure is standard).

Summary of Departure:

This FSAR generally follows the AP1000 DCD organization and numbering. Some organization and numbering differences are adopted where necessary to include additional material, such as additional content identified in Regulatory Guide 1.206.

Scope/Extent of Departure:

The renumbered sections and subsections associated with this Departure are identified in the FSAR (at the sections and subsections identified above).

Departure Justification:

An administrative departure is established to identify instances where the renumbering of FSAR sections and subsections is necessary to effectively include content consistent with Regulatory Guide 1.206, as well as NUREG-0800, Standard Review Plan.

Departure Evaluation:

This Departure is an administrative change that affects only section and subsection numbering of the indicated FSAR sections and subsections. Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific DCD;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD;
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD;
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD;
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the plant-specific DCD.

Therefore, this Departure has no safety significance.

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Departure Number: STD DEP 1.1-1 (Continued)

NRC Approval Requirement

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

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Departure Number LNP DEP 1.8-1

Affected DCD/FSAR Sections: DCD Table 1.8-1 (Sheet 6 of 6)/FSAR Table 1.8-203 (Sheet 7 of 7)

Summary of Departure:

DCD Tier 2 Table 1.8-1 (Sheet 6 of 6), Item 13.1, is changed to correct an inconsistency in the DCD. The DCD Item 13.1 references 10 CFR 50, Appendix O, for features that may affect plans for coping with emergencies as opposed to the Part 52 requirements contained in 10 CFR 52.137(a)(11).

Scope/Extent of Departure:

This departure is identified in FSAR Table 1.8-203 (Sheet 7 of 7), Item 13.1. FSAR Table 1.8-203 replaced DCD Table 1.8-1.

The interface description in DCD Table 1.8-1 (Sheet 6 of 6), Item 13.1, is revised from "Features that may affect plans for coping with emergencies as specified in 10 CFR 50, Appendix O" to "The information pertaining to design features that affect plans for coping with emergencies in the operation of the reactor facility or a major portion thereof as specified in 10 CFR 52.137(a)(11)".

Departure Justification:

Appendix O was transferred from Part 50 to Part 52, effective May of 1989, although the NRC neglected to physically remove the Appendix O text from Part 50. Appendix O text was not physically removed from Part 50 until the reorganization of the regulations was published in August of 2007. In the August 2007 reorganization the content of Appendix O in Part 52 was relocated to the new Subpart E of Part 52. This relocation of the regulation impacts DCD Tier 2 Table 1.8-1 (Sheet 6 of 6), Summary Of AP1000 Plant Interfaces With Remainder Of Plant, Item 13.1, Features that may affect plans for coping with emergencies as specified in 10 CFR 50, Appendix O, as referenced to DCD Section 13.3, is replaced with "The information pertaining to design features that affect plans for coping with emergencies in the operation of the reactor facility or a major portion thereof as specified in 10 CFR 52.137(a)(11)". There is no change in requirements, only a relocation to another regulation. In conclusion, this is a departure from DCD Tier 2 Table 1.8-1, (Sheet 6 of 6), Item 13.1, which will be reflected in COLA Table 1.8-203, (Sheet 7 of 7), Item 13.1.

Departure Evaluation:

This Tier 2 departure revises DCD Table 1.8-1 (Sheet 6 of 6), Item 13.1. This departure does not result in any adverse affects to design features that affect plans for coping with emergencies in the operation of the reactor facility or a major portion thereof. Therefore, this departure does not:

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1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety and previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this departure has no safety significance.

NRC Approval Requirement:

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

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Departure Number LNP DEP 3.2-1

Affected DCD/FSAR Sections: 3.2, 3.8, 6.3

Summary of Departure:

Modifications to the Polar Crane Girder (PCG), Internal Stiffener, and Passive Core Cooling System (PXS) gutter design were made. The fabrication holes at the top surface of the PCG and in the stiffener are blocked. A downspout piping network was added to collect and transport condensation from the PCG and stiffener to PXS Collection Boxes. Eight new PXS downspout screens were added at the entrance of each of the downspouts at the PCG and stiffener to prevent any larger debris from blocking the downspout piping.

Scope/Extent of Departure:

This departure is identified in FSAR Table 3.2-202 and FSAR Figures 3.8-201 and 6.3-201. FSAR Table 3.2-201 replaces DCD Table 3.2-3 (Sheet 16 of 75). FSAR Figures 3.8-201 and 6.3-201 replace DCD Figures 3.8.2-1 (Sheet 3 of 3) and 6.3-2 (Sheet 2).

Upon actuation of the Passive Residual Heat Removal heat exchanger (PRHR HX), a series of air-operated valves are actuated to isolate the normal gutter drain path to the Liquid Radwaste System, and divert condensation to the In-containment Refueling Water Storage Tank (IRWST). It is important that sufficient condensate return is achieved during non-loss of coolant accident (LOCA) PRHR HX operation, since reduction of IRWST level to below the top of the tubes will begin to degrade the heat exchanger performance.

As steaming to the containment begins, following initiation of PRHR HX operation and saturation of the IRWST, there are a number of mechanisms that can prevent the condensed steam from returning to the IRWST. The mechanisms are as follows:

- 1) Condensation
- 2) Steam to pressurize the containment
- 3) Steam condensation on Passive Heat Sinks
- 4) Raining from the containment roof
- 5) Losses due to containment internal structures and features

Losses due to pressurization and condensation are being quantified with development of two new calculations.

As a result of the condensate return testing, modifications to the Polar Crane Girder (PCG), Internal Stiffener, and Passive Core Cooling System (PXS) gutter design were made. The fabrication holes at the top surface of the PCG and in the stiffener are blocked. A downspout piping network was added to collect and transport condensation from the PCG and stiffener to PXS Collection Boxes. Eight new PXS downspout screens were added at the entrance of each of the downspouts at the PCG and stiffener to prevent any larger debris from blocking the downspout piping.

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Departure Number LNP DEP 3.2-1 (Continued)

Departure Justification:

The proposed change does not involve a significant reduction in the margin of safety. The proposed change does not reduce the redundancy or diversity of any safety-related SSCs. The proposed changes increase the amount of condensate available in the IRWST after the initiation of a design basis event. Though the fraction of condensate returned is smaller than originally assumed, the changes do not significantly degrade overall PXS performance. Slightly lower condensate return rates result in a slightly earlier transition to PRHR HX uncover; but the margins to specified acceptable fuel design limits during these non-LOCA events are not significantly reduced.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the implementation of the change will not be inimical to the common defense and security or to the health and safety of the public.

Departure Evaluation:

This Tier 2 departure performs modifications to the PCG, Internal Stiffener, and PXS gutter design. The fabrication holes at the top surface of the PCG and in the stiffener are blocked. A downspout piping network was added to collect and transport condensation from the PCG and stiffener to PXS Collection Boxes. Eight new PXS downspout screens were added at the entrance of each of the downspouts at the PCG and stiffener to prevent any larger debris from blocking the downspout piping. The proposed change does not involve a significant reduction in the margin of safety. The proposed change does not reduce the redundancy or diversity of any safety-related SSCs. The proposed changes increase the amount of condensate available in the IRWST after the initiation of a design basis event. Therefore, this departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety and previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.



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Departure Number LNP DEP 3.2-1 (Continued)

This departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this departure has no safety significance.

NRC Approval Requirement:

This departure requires an exemption from the requirements of 10 CFR Part 52, Appendix D, Section III.B, which requires compliance with Tier 1 requirements of the AP1000 DCD. Therefore, an exemption is requested in Part B of this COL Application Part.

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Departure Number LNP DEP 3.11-1

Affected DCD/FSAR Sections: DCD Table 3.11-1 (Sheet 14 of 51)

Summary of Departure:

DCD Table 3.11-1 (Sheet 14 of 51) "Envir. Zone" numbers for Spent Fuel Pool Level instruments SFS-JE-LT019A, SFS-JE-LT019B, and SFS-JE-LT019C are changed to correct an inconsistency in the DCD. All 3 instruments currently have a Environmental Zone number of 11. SFS-JE-LT019A is changed to Envir. Zone 6, SFS-JE-LT019B is changed to Envir. Zone 7 and SFS-JE-LT019C is changed to Envir. Zone 6 in DCD Table 3.11-1 (Sheet 14 of 51).

Scope/Extent of Departure:

SFS-JE-LT019A is revised to Envir. Zone 6, SFS-JE-LT019B is revised to Envir. Zone 7 and SFS-JE-LT019C is revised to Envir. Zone 6 as identified in FSAR Table 3.11-201. This table replaces DCD Table 3.11-1 (Sheet 14 of 51).

Departure Justification:

The actual location of the Spent Fuel Pool Level instruments is not being changed from the designed location in this departure. The environmental zones the instruments are located in are being revised to be consistent with the designed instrument location. The AP1000 SFP level transmitters are located in rooms outside of the Fuel Handling Area in the Auxiliary Building. Per Westinghouse design documents, Spent Fuel Pool Level channels 019A and 019C are in room 12365 and channel 019B is in room 12341. Room 12365 is in Zone 6 on DCD Table 3.D.5-1 (Sheet 2 of 3). Room 12341 is in Zone 7 on DCD Table 3.D.5-1 (Sheet 2 of 3). Based on this information, SFS-JE-LT019A is being changed to Envir. Zone 6, SFS-JE-LT019B is being changed to Envir. Zone 7 and SFS-JE-LT019C is being changed to Envir. Zone 6 in DCD Table 3.11-1 (Sheet 14 of 51).

DCD Table 3.11-1 Environmental Zone numbers for Spent Fuel Pool Level provide a reference to environmental conditions in the associated instrument location correlated to an environmental zone in DCD Table 3D.5-1 for "Normal Operating Environments", DCD Table 3D.5-4 for "Abnormal Operating Environments Outside Containment" and DCD Table 3D.5-5 for "Accident Environments". The environmental qualification of the instrument is consistent with conditions identified for the associated environmental zone. Revising the Spent Fuel Pool Level instruments' environmental zone to accurately reflect their actual location will ensure they are environmentally qualified to function properly during normal, abnormal, and accident conditions.

Departure Evaluation:

This Tier 2 departure revises SFS-JE-LT019A Envir. Zone from 11 to 6, SFS-JE-LT019B Envir. Zone from 11 to 7, and SFS-JE-LT019C Envir. Zone from 11 to 6 in DCD Table 3.11-1 (Sheet 14 of 51). This departure does not result in any adverse affects to the SFP level indication design function and does not change the environmental qualification methodology. Therefore, this departure does not:

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1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD.
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety and previously evaluated in the plant-specific DCD.
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD.
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD.
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD.
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD.
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered.
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

This departure does not affect resolution of a severe accident issue identified in the plant-specific DCD. Therefore, this departure has no safety significance.

NRC Approval Requirement:

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

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Departure Number: STD DEP 8.3-1

Affected DCD/FSAR Sections: 8.3.2.2

Summary of Departure:

The DCD states that the Class 1E battery chargers and Class 1E voltage regulating transformers are designed to limit the input (ac) current to an acceptable value under faulted conditions on the output side. However, the AP1000 voltage regulating transformers do not have active components to limit current.

Scope/Extent of Departure:

This departure is identified in FSAR Subsection 8.3.2.2.

Departure Justification:

DCD Subsection 8.3.2.2 states that the Class 1E voltage regulating transformers have built-in circuit breakers at the input and output sides for protection and isolation. The circuit breakers are coordinated and periodically tested to verify their designed coordination and isolation function. They are qualified as isolation devices between Class 1E and non-Class 1E circuits in accordance with IEEE 384 and Regulatory Guide 1.75. Since the isolation and protection function is provided by the breakers, there is no need for the voltage regulating transformers to have current limiting capability. This departure does not adversely affect any safety-related system, nor does it conflict with applicable regulatory guidance.

Departure Evaluation:

This Tier 2 departure is associated with isolation between Class 1E loads and the non-Class 1E ac power source. The departure results in a change to the DCD that does not impact the required design function (i.e., isolation). Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific DCD;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD;
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD;
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD;
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

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Departure Number: STD DEP 8.3-1 (Continued)

This Tier 2 departure does not affect resolution of an ex-vessel severe accident design feature identified in the plant-specific DCD.

Therefore, this departure has no safety significance.

NRC Approval Requirement

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

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**B. Levy Nuclear Plant, Units 1 and 2 Exemption Requests**

Duke Energy Florida, Inc (DEF) requests the following exemptions related to:

1. Not used, and
2. Combined License (COL) Application Organization and Numbering
3. Special Nuclear Material (SNM) Material Control and Accounting Program Description
4. Containment Cooling Changes in regard to Passive Core Cooling System Condensate Return

Discussion and justification for each of these requests is provided in the following pages.

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**1) Fitness for Duty Program (FFD) Description (Part 26)**

Withdrawn – this exemption is no longer required.

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**2) Combined License (COL) Application Organization and Numbering (Part 52, Appendix D)**

Applicable Regulation(s): 10 CFR Part 52, Appendix D, Section IV.A.2.a

Specific wording from which exemption is requested:

“IV. Additional Requirements and Restrictions A. An applicant for a combined license that wishes to reference this appendix shall, in addition to complying with the requirements of 10 CFR 52.77, 52.79, and 52.80, comply with the following requirements:

1. Incorporate by reference, as part of its application, this appendix.

2. Include, as part of its application:

a. A plant-specific DCD containing the same type of information and using the same organization and numbering as the generic DCD for the AP1000 design, as modified and supplemented by the applicant’s exemptions and departures;”

Pursuant to 10 CFR 52.7 and 52.93 (as amended and promulgated effective Sept. 27, 2007), Duke Energy Florida (DEF) requests an exemption from the requirement of 10 CFR 52, Appendix D, Section IV.A.2.a, to include a plant-specific Design Control Document (DCD) “containing the same type of information and using the same organization and numbering as the generic DCD for the AP1000 design....” While the Levy Nuclear Plant, Units 1 and 2 (LNP 1 and 2) plant-specific DCD (i.e., the final safety analysis report [FSAR]) does contain the same type of information and generally follows the same organization and numbering as the generic DCD for the AP1000 design, some limited sections and subsections of the FSAR (as identified in the departures report as item STD DEP 1.1-1) do not follow the “same organization and numbering as the generic DCD for the AP1000 design.” DEF proposes to provide the plant-specific DCD (i.e., FSAR) with some administrative revisions to the organization and numbering of the AP1000 DCD.

Discussion:

The AP1000 DCD generally has an organization and numbering format that provides text by subject in general conformance with the Standard Review Plans (SRP) in effect at the time the DCD was written. Generally, COL information items are included at the end of a chapter, section, or subsection. In some cases, such as DCD Sections 2.1 and 2.2, the section may consist solely of a short description of the topic and the COL information item subsection. This organization and numbering does not allow for the detailed discussion of these topics that is to be included in a complete FSAR section. As such, it is necessary to include numerous additional sections and subsections to fully address the topic as identified in the guidance of Regulatory Guide 1.206 and the applicable SRP. In other cases, the organization and numbering must be modified slightly to allow for inclusion of plant-specific discussions within the appropriate section of the FSAR, such as including an additional water system description in Section 9.2. In these cases, the COL information item discussions are retained at the end of the DCD corresponding chapter, section, or subsection (to maintain the organization), but the numbering may be different.

These differences are well identified in the FSAR as STD DEP 1.1-1 at each location where the departure is taken and are considered to be purely administrative to support a logical construction of the document. Where the departure from the DCD organization and numbering is taken, the revised organization and numbering generally follows the guidance provided in



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Regulatory Guide 1.206 and the applicable SRP. As such, there are no significant departures from the expected organization and numbering of a typical FSAR, and the information is readily identifiable to facilitate NRC review.

In view of the above, we believe that it would be less efficient for both DEF and the NRC to fully comply with the regulation of 10 CFR Part 52, Appendix D, Section IV.A.2.a, that requires strict adherence to the “same organization and numbering as the generic DCD for the AP1000 design.” Accordingly, DEF hereby submits a request for an exemption from the regulations of 10 CFR 52, Appendix D, Section IV.A.2.a, pursuant to 10 CFR 52.7, “Specific Exemptions,” and 10 CFR 52.93, “Exemptions and Variances.”

Granting this request, which is authorized by law, would facilitate the NRC review of the LNP 1 and 2 COL application. For this and other reasons, granting this exemption request will not present an undue risk to the public health and safety, and is consistent with the common defense and security.

Moreover, compliance with the current rule would cause undue hardship for DEF and would also be inefficient and burdensome for the NRC staff. That approach would require DEF to prepare, and NRC to review, information with an organization and numbering that is unfamiliar and inconsistent with the current guidance for format and content of a COL application.

Additionally, compliance with Appendix D, Section IV.A.2.a is not necessary to achieve its underlying purpose. Most of the FSAR conforms to the organization and numbering of the referenced DCD. The exceptions are limited and do not lead to confusion regarding the incorporation of the DCD into the FSAR.

For these reasons, DEF requests approval of the requested exemption from current regulations of 10 CFR 52, Appendix D, Section IV.A.2.a, as identified herein and in the application departures report.

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**3) Special Nuclear Material (SNM) Material Control and Accounting (MC&A)  
Program Description [Part 70, Subpart D and Part 74, Subparts C, D, and  
E]**

Applicable Regulation(s): 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51

Specific wording from which exemption is requested:

10 CFR 70.22(b), Contents of applications:

- (b) Each application for a license to possess special nuclear material, to possess equipment capable of enriching uranium, to operate an uranium enrichment facility, to possess and use at any one time and location special nuclear material in a quantity exceeding one effective kilogram, except for applications for use as sealed sources and for those uses involved in the operation of a nuclear reactor licensed pursuant to part 50 of this chapter and those involved in a waste disposal operation, must contain a full description of the applicant's program for control and accounting of such special nuclear material or enrichment equipment that will be in the applicant's possession under license to show how compliance with the requirements of §§ 74.31, 74.33, 74.41, or 74.51 of this chapter, as applicable, will be accomplished.

10 CFR 70.32, Conditions of licenses:

- (c) (1) Each license authorizing the possession and use at any one time and location of uranium source material at an uranium enrichment facility or special nuclear material in a quantity exceeding one effective kilogram, except for use as sealed sources and those uses involved in the operation of a nuclear reactor licensed pursuant to part 50 of this chapter and those involved in a waste disposal operation, shall contain and be subject to a condition requiring the licensee to maintain and follow:
  - (i) The program for control and accounting of uranium source material at an uranium enrichment facility and special nuclear material at all applicable facilities as implemented pursuant to § 70.22(b), or §§ 74.31(b), 74.33(b), 74.41(b), or 74.51(c) of this chapter, as appropriate;
  - (ii) The measurement control program for uranium source material at an uranium enrichment facility and for special nuclear material at all applicable facilities as implemented pursuant to §§ 74.31(b), 74.33(b), 74.45(c), or 74.59(e) of this chapter, as appropriate; and
  - (iii) Other material control procedures as the Commission determines to be essential for the safeguarding of uranium source material at an uranium enrichment facility or of special nuclear material and providing that the licensee shall make no change that would decrease the effectiveness of the material control and accounting program implemented pursuant to § 70.22(b), or §§ 74.31(b), 74.33(b), 74.41(b), or 74.51(c) of this chapter, and the measurement control program implemented pursuant to §§ 74.31(b), 74.33(b), 74.41(b), or 74.59(e) of this chapter without the prior approval of the Commission. A licensee desiring to make changes that would decrease the effectiveness of its material control and accounting program or its measurement

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control program shall submit an application for amendment to its license pursuant to § 70.34.

10 CFR 74.31, Nuclear material control and accounting for special nuclear material of low strategic significance:

- (a) General performance objectives. Each licensee who is authorized to possess and use more than one effective kilogram of special nuclear material of low strategic significance, excluding sealed sources, at any site or contiguous sites subject to control by the licensee, other than a production or utilization facility licensed pursuant to part 50 or 70 of this chapter, or operations involved in waste disposal, shall implement and maintain a Commission approved material control and accounting system that will achieve the following objectives:

10 CFR 74.41, Nuclear material control and accounting for special nuclear material of moderate strategic significance:

- (a) General performance objectives. Each licensee who is authorized to possess special nuclear material (SNM) of moderate strategic significance or SNM in a quantity exceeding one effective kilogram of strategic special nuclear material in irradiated fuel reprocessing operations other than as sealed sources and to use this material at any site other than a nuclear reactor licensed pursuant to part 50 of this chapter; or as reactor irradiated fuels involved in research, development, and evaluation programs in facilities other than irradiated fuel reprocessing plants; or an operation involved with waste disposal, shall establish, implement, and maintain a Commission-approved material control and accounting (MC&A) system that will achieve the following performance objectives:

10 CFR 74.51, Nuclear material control and accounting for strategic special nuclear material:

- (a) General performance objectives. Each licensee who is authorized to possess five or more formula kilograms of strategic special nuclear material (SSNM) and to use such material at any site, other than a nuclear reactor licensed pursuant to part 50 of this chapter, an irradiated fuel reprocessing plant, an operation involved with waste disposal, or an independent spent fuel storage facility licensed pursuant to part 72 of this chapter shall establish, implement, and maintain a Commission-approved material control and accounting (MC&A) system that will achieve the following objectives:

Discussion:

Duke Energy Florida, Inc. (DEF) requests an exemption from the requirements of 10 CFR § 70.22(b) and, in turn, §§ 70.32(c), 74.31, 74.41, and 74.51. Section 70.22(b) requires an application for a license for special nuclear material to contain a full description of the applicant's program for material control and accounting (MC&A) of special nuclear material under §§ 74.31, 74.33, 74.41, and 74.51<sup>1</sup>. Section 70.32(c) requires a license authorizing the use of special nuclear material to contain and be subject to a condition requiring the licensee to maintain and follow a special nuclear material control and accounting program, measurement control program, and other material control procedures, including the corresponding records

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<sup>1</sup> While not containing an explicit exception for Part 50 reactors, § 74.33 applies only to uranium enrichment facilities and thus is not directly implicated in this exemption request.

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management requirements. However, §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 contain exceptions for nuclear reactors licensed under 10 CFR Part 50. The regulations applicable to the MC&A of special nuclear material for nuclear reactors licensed under 10 CFR Part 50 are provided in 10 CFR Part 74, Subpart B, §§ 74.11 through 74.19, excluding § 74.17. The purpose of this exemption request is to seek a similar exception for this combined license (COL) under 10 CFR Part 52, such that the same regulations will be applied to the special nuclear material MC&A program as nuclear reactors licensed under 10 CFR Part 50.

Nuclear reactors licensed under Part 50 are explicitly excepted from the requirements of §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51. There is no technical or regulatory reason to treat nuclear reactors licensed under Part 52 differently than reactors licensed under Part 50 with respect to the MC&A provisions in 10 CFR Part 74. As indicated in the Statement of Considerations for 10 CFR § 52.0(b) (72 Fed. Reg. 49352, 49372, 49436 (Aug. 28, 2007)), applicants and licensees under Part 52 are subject to all of the applicable requirements in 10 CFR Chapter I, whether or not those provisions explicitly mention a COL under Part 52. This regulation clearly indicates that plants licensed under Part 52 are to be treated no differently than plants licensed under Part 50 with respect to the substantive provisions in 10 CFR Chapter I (which includes Parts 70 and 74). In particular, the exception for nuclear reactors licensed under Part 50, as contained in §§ 70.22(b), 70.32(c), 74.31, 74.41, or 74.51, should also be applied to reactors licensed under Part 52.

An exemption from the requirements of §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not mean that a MC&A program would be unnecessary or that the COL application would be silent regarding MC&A. To the contrary, the MC&A requirements in Subpart B to Part 74 would still be applicable to the COL just as they are to licenses issued under Part 50. Additionally, the COL application will describe the MC&A program for satisfying Subpart B to Part 74.

This exemption request is evaluated under 10 CFR § 52.7, which incorporates the requirements of § 50.12. That section allows the Commission to grant an exemption if 1) the exemption is authorized by law, 2) will not present an undue risk to the public health and safety, 3) is consistent with the common defense and security, and 4) special circumstances are present as specified in 10 CFR § 50.12(a)(2). The criteria in § 50.12 encompass the criteria for an exemption in 10 CFR §§ 70.17(a) and 74.7, the specific exemption requirements for Parts 70 and 74, respectively. Therefore, by demonstrating that the exemption criteria in § 50.12 are satisfied, this request also demonstrates that the exemption criteria in §§ 52.7, 70.17(a) and 74.7 are satisfied.

**Evaluation Against Exemption Criteria**

- 1) This exemption is not inconsistent with the Atomic Energy Act or any other statute and is therefore authorized by law.
- 2) An exemption from the requirements of 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not present an undue risk to public health and safety. The exemption would treat the COL applicant similarly to Part 50 license applicants, who are excepted from the regulations in question. Furthermore, the COL application will contain a description of the applicant's MC&A program under Subpart B to Part 74. Therefore, the exemption from 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not present an undue risk to public health and safety.
- 3) An exemption from the requirements of 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not be inconsistent with the common defense and security. The exemption

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would treat the COL applicant similarly to Part 50 license applicants, who are excepted from the regulations in question. Furthermore, the COL application will contain a description of the applicant's MC&A program under Subpart B to Part 74. Therefore, the exemption from §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 is consistent with the common defense and security.

- 4) The exemption request involves special circumstances under 10 CFR § 50.12(a)(2)(ii). That subsection defines special circumstances as when “[a]pplication 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.” Since the Commission determined that the requirements in 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 are unnecessary for Part 50 applicants, those requirements are also unnecessary for Part 52 applicants.

As demonstrated above, the exemption complies with the requirements of 10 CFR §§ 50.12, 52.7, 70.17, and 74.7. For these reasons, approval of the requested exemption is requested from the regulations of 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51, as described herein.

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**4) Containment Cooling Changes in regard to Passive Core Cooling System Condensate Return**

Applicable Regulation(s): 10 CFR Part 52 Appendix D, Section III.B

Specific wording from which exemption is requested:

"III. Scope and Contents

- B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix, including Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3 of the DCD), and the generic TS except as otherwise provided in this appendix. Conceptual design information in the generic DCD and the evaluation of severe accident mitigation design alternatives in appendix 1B of the generic DCD are not part of this appendix."

Pursuant to 10 CFR §52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is requested for plant-specific Tier 1 material departures from the AP1000 DCD for Tier 1 information. This exemption request is in accordance with the provisions of 10 CFR §50.12, 10 CFR §52.7, and 10 CFR Part 52, Appendix D

Discussion:

The changes requested to Tier 1 Table 2.2.3-1 and Table 2.2.3-2 and associated Tier 2 changes, to Table 3.2-3, Figure 3.8.2-1 and Figure 6.3-2, provide additional equipment and construction of the components to insure Passive Core Cooling System (PXS) system performance during design basis scenarios.

Conclusion:

This exemption request is evaluated in accordance with 10 CFR Part 52, Appendix D, Section VIII.A.4, 10 CFR §50.12, 10 CFR §52.7 and 10 CFR §52.63, which state that the NRC may grant exemptions from the requirements of the regulations provided the following six conditions are met: 1) the exemption is authorized by law [§50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§50.12(a)(1)]; 4) special circumstances are present [§50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, Appendix D, VIII.A.1]. The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1. This exemption is authorized by law

The NRC has authority under 10 CFR §§ 50.12, 52.7, and 52.63 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR §§50.12 and 52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law

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exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

Accordingly, this requested exemption is "authorized by law," as required by 10 CFR §50.12(a)(1).

2. This exemption will not present an undue risk to the health and safety of the public

The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific Tier 1 DCD to depart from the AP1000 certified (Tier 1) design information. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the applicant, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. Because the change to the condensate return portion of the passive core cooling system description maintains its design functions, the changed design will ensure the protection of the health and safety of the public. Therefore, no adverse safety impact which would present any additional risk to the health and safety is present. The affected Design Description in the plant-specific Tier 1 DCD will continue to provide the detail necessary to support the performance of the associated ITAAC.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3. The exemption is consistent with the common defense and security

The exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would change elements of the plant-specific Tier 1 DCD by departing from the AP1000 certified (Tier 1) design information relating to the condensate return portion of the passive core cooling system. The exemption does not alter the design, function, or operation of any structures or plant equipment that are necessary to maintain a safe and secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures.

Therefore, the requested exemption is consistent with the common defense and security.

4. Special circumstances are present

10 CFR §50.12(a)(2) lists six "special circumstances" for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR §50.12(a)(2)(ii). That subsection defines special circumstances as when "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."

The rule under consideration in this request for exemption is 10 CFR 52, Appendix D, Section III.B, which requires that an applicant referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information. The Levy Units 1 and 2 COLA references the AP1000 Design Certification Rule and incorporates by reference the requirements of 10 CFR Part 52,

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Appendix D, including Tier 1 information. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D to maintain the level of safety in the design.

The proposed changes to the condensate return portion of the passive core cooling system maintain the design margins of the Passive Core Cooling System. This change does not impact the ability of any structures, systems, or components to perform their functions or negatively impact safety. Accordingly, this exemption from the certification information will enable the applicant to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current generic certified design information in Tier 1 as required by 10 CFR Part 52, Appendix D, Section III.B, in the particular circumstances discussed in this request would not achieve the underlying purpose of the rule.

5. The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption

Based on the nature of the changes to the plant-specific Tier 1 information and the understanding that these changes support the design function of the Passive Core Cooling System, it is expected that other AP1000 applicants and licensees will request this exemption. This exemption request and the associated marked-up tables demonstrate that there is a minimal change from the generic AP1000 DCD, minimizing the reduction in standardization and consequently the safety impact from the reduction.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. In fact, as described in 6. below, the exemption will result in no reduction in the level of safety.

6. The design change will not result in a significant decrease in the level of safety.

The exemption revises the plant-specific DCD Tier 1 information by altering the description of the passive core cooling system condensate return design. The components added to the condensate return function design enables the Passive Core Cooling System to meet its design functions. Because these functions are met, there is no reduction in the level of safety.

Therefore, the design change will not result in a significant decrease in the level of safety.

As demonstrated above, this exemption request satisfies NRC requirements for an exemption to the design certification rule for the AP1000.