16.0 TECHNICAL SPECIFICATIONS

This chapter discusses the plant-specific technical specifications (PTS), as well as the design reliability assurance program (D-RAP) and the controls for systems, structures, and components (SSCs) required for defense in depth in accordance with the program for regulatory treatment of nonsafety systems (RTNSS).

16.1 Technical Specifications

16.1.1 Introduction

Section 16.1, "Technical Specifications," of the Levy Nuclear Plant (LNP) combined license (COL) Final Safety Analysis Report (FSAR), and the LNP COL Part 4, "Technical Specifications," provide the PTS for LNP Units 1 and 2, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36, "Technical specifications," and 10 CFR 52.79(a)(30). Technical Specifications (TS) impose limits, operating conditions, and other requirements upon reactor facility operation for the public health and safety. The TS are derived from the analyses and evaluations in the safety analysis report. In general, TS must include: (1) safety limits and limiting safety system settings; (2) limiting conditions for operation (LCO); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. The PTS are derived from the analyses and evaluations in the AP1000 Design Control Document (DCD) and the LNP COL FSAR, Revision 9.

As part of the regulatory standardization effort, the U.S. Nuclear Regulatory Commission (NRC) staff has prepared standard technical specifications (STS) for each of the light-water reactor (LWR) nuclear steam supply systems and associated balance-of-plant equipment systems. In 1992, the NRC issued the STS to clarify the content and format of requirements necessary to ensure safe operation of nuclear power plants. The STS for Westinghouse pressurized water reactors are included in NUREG-1431, "Standard Technical Specifications - Westinghouse Plants." Volume 1 addresses the STS, and Volume 2 addresses the associated STS Bases. The STS include bases for safety limits, limiting safety system settings, LCO, and associated action and SRs. Major revisions to the STS were published in 1995 (Revision 1), 2001 (Revision 2), and 2004 (Revision 3).

The format and content of the PTS and Bases for a COL referencing a certified design should be based on the generic TS (GTS) and Bases for that design. For a COL application that references a certified design, the proposed PTS and Bases may include appropriate plant-specific departures from the referenced GTS and Bases when warranted. These departures, if included with the COL application, need to be justified to demonstrate that the requirements of 10 CFR 50.36 are met.

16.1.2 Summary of Application

Section 16.1 of the LNP COL FSAR, Revision 9, incorporates by reference Sections 16.1.1 and 16.1.2 of the AP1000 DCD, Revision 19. Part 4 of the LNP COL incorporates by reference the AP1000 GTS and Bases in Section 16.1 of the DCD. In accordance with Section IV(A)(2)(c) of Appendix D to 10 CFR Part 52, the applicant's PTS consist of the AP1000 GTS and site-specific information. The applicant took departures from the AP1000 GTS.

The AP1000 GTS include items that a COL applicant must satisfy in order to complete a particular GTS provision. Detailed design information, equipment selection, instrumentation settings, and other information not available at the time of design certification (DC), are needed to establish the values or information to be included in the PTS. Locations for the addition of this information are signified in the GTS by square brackets [ ] or reviewer's notes to indicate that the COL applicant must provide plant-specific values or alternate text.

In LNP COL application Part 4, the applicant provided the following:

Departures

- LNP DEP 3.2-1

The applicant provided additional information about LNP DEP 3.2-1 in LNP COL Part 4, including changes to TS SR 3.5.4.7 and corresponding Bases, Bases B3.3.3 (LCO Section), and Bases B3.5.4 (Background Section), related to design modifications to the condensate return portion of the Passive Core Cooling System. This information, as well as related LNP DEP 3.2-1 information appearing in other chapters of the FSAR, is reviewed in Section 21.1 of this SER.

- LNP DEP 6.4-1

The applicant provided additional information about LNP DEP 6.4-1 in LNP COL Part 4, including changes to TS LCO 3.7.4, TS SR 3.7.4.1, and Bases 3.4.10, 3.7.4, and 3.7.6 related to design changes affecting habitability of the main control room and changes to the calculated doses to control room operators. This information, as well as related LNP DEP 6.4-1 information appearing in other chapters of the FSAR, is reviewed in Section 21.2 of this SER.

- LNP DEP 6.4-2

The applicant provided additional information about LNP DEP 6.4-2 in LNP COL Part 4, including changes to TS 3.3.2 and corresponding Bases and TS 3.7.6 and corresponding Bases related to design changes affecting how the temperature and humidity in the main control room are maintained within the limits for reliable human performance. This information, as well as related LNP DEP 6.4-2 information appearing in other chapters of the FSAR, is reviewed in Section 21.3 of this SER.

- LNP DEP 7.3-1

The applicant provided additional information about LNP DEP 7.3-1 in LNP COL Part 4, including changes to TS Table 3.3.2-1 and associated Bases, related to required design changes for the PMS source range neutron flux doubling logic to comply with the requirements of IEEE Std. 603-1991, Clause 6.6. This information, as well as related LNP DEP 7.3-1 information appearing in other chapters of the FSAR, is reviewed in Section 21.5 of this SER.

AP1000 COL Information Item

- LNP COL 16.1-1

The applicant provided additional information in LNP COL 16.1-1 to resolve COL Information Item 16.1-1 (COL Action Item 16.2-1). The applicant provided additional information to address each of the remaining brackets [ ] and reviewer's notes in the AP1000 GTS.

The following sections of the LNP PTS and Bases include information that the applicant addressed as part of COL Information Item 16.1-1:

- PTS 3.3.1, 3.3.2, and 3.6.4
- PTS 4.1, 4.1.1, and 4.1.2
- PTS 5.1.1, 5.1.2, 5.2.1.a, 5.2.1.b, 5.2.2, 5.3, 5.3.1, 5.6.1, and 5.6.2

16.1.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793, "Final Safety Evaluation Report [FSER] Related to Certification of the AP1000 Standard Design," and its supplements.

In addition, the acceptance criteria for TS and Bases reviews are given in Section 16 of NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition." Areas of review that interface with other sections of the SRP can also be found in Section 16 of NUREG-0800.

The applicable regulatory requirements for the information being reviewed in this section are:

- 10 CFR 50.36, "Technical specifications."
- 10 CFR 52.79(a)(30)

16.1.4 Technical Evaluation

The NRC staff reviewed Section 16.1 of the LNP COL FSAR and Part 4 of the LNP COL application, and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic[1]. The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to the TS. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this safety evaluation report (SER) provides a discussion of the strategy used by the NRC staff to perform one technical review for each standard issue outside the scope of

[1] See Section 1.2.2 for a discussion of the staff's review related to verification of the scope of information to be included in a COL application that references a DC.

the DC and how the staff used this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (Vogtle Electric Generating Plant [VEGP], Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5, to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from requests for additional information (RAIs).

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) includes evaluation material from the SER for the Bellefonte Nuclear Station (BLN), Units 3 and 4 COL application.

Many VEGP SER section numbers were changed from those used in the BLN SER to more closely follow the PTS numbering. Therefore, the corresponding BLN SER section numbers are frequently identified when quoting standard content material from the SER for the reference COL application (VEGP).

The staff reviewed the information in the LNP COL FSAR and the LNP COL application, Part 4:

AP1000 COL Information Item

- LNP COL 16.1-1

The following portion of this technical evaluation section is reproduced from Section 16.1.4 of the VEGP SER:

> *The following portion of this technical evaluation section is reproduced from Section 16.1.4 of the BLN SER:*
>
> *In Section 16.1.1 of the BLN COL FSAR, the applicant provided additional information in BLN COL 16.1-1 to resolve COL Information Item 16.1-1 (COL Action Item 16.2-1) listed under the Section 16.1.1 header, "Combined License Information," of the AP1000 DCD, Revision 17, which states:*
>
> > *This set of technical specifications is intended to be used as a guide in the development of the plant-specific technical specifications. The preliminary information originally provided in*

brackets [ ] has been revised with the updated information APP-GW-GLR-064 and APP-GW-GLN-075. Combined License applicants referencing the AP1000 will be required to provide the final information for the remaining brackets [ ] with final plant-specific information.

In Section 16.1 of the BLN COL FSAR, the applicant noted that the GTS and Bases provided with Chapter 16 of the AP1000 DCD are incorporated by reference into the PTS provided in Part 4 of the BLN COL application.

The staff evaluated the applicant's disposition of each of the remaining bracketed information items in the respective TS sections listed below.

The staff did not review portions of the BLN PTS and Bases that were identical to the AP1000 GTS and Bases. The technical evaluation for those portions that are identical to the AP1000 GTS and Bases can be found in the NRC staff's FSER for the AP1000 DCD.

16.1.4.1 Use and Application

Section 1.0 of the BLN PTS includes definitions of terms used in the context of plant TS, and examples to illustrate the applications of logical connectors, completion times for required actions, and frequencies for surveillance requirements (SRs). Section 1.0 of the BLN PTS is identical to the AP1000 GTS. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.2 Safety Limits

Section 2.0 of the BLN PTS and Bases include[s] requirements for safety limits to ensure that the fuel design limits are not exceeded during steady state conditions, normal operational transients, and anticipated operational occurrence. Section 2.0 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.0 Limiting Condition for Operation and Surveillance Requirement Applicability

The following portion of this technical evaluation section is reproduced from Section 16.1.4.3 of the BLN SER:

Section 3.0 of the BLN PTS and Bases include[s] general provisions regarding determination of equipment operability and performance of SRs in specific TS sections (i.e., TS 3.1 through TS 3.9). Section 3.0 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.1 Reactivity Control Systems

The following portion of this technical evaluation section is reproduced from Section 16.1.4.4 of the BLN SER:

Section 3.1 of the BLN PTS and Bases include[s] requirements for the reactivity control systems which are designed to reliably control reactivity changes, and under postulated accident conditions, ensure that the capability to cool the core is maintained. Section 3.1 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.2 Power Distribution Limits

The following portion of this technical evaluation section is reproduced from Section 16.1.4.5 of the BLN SER:

Section 3.2 of the BLN PTS and Bases include[s] requirements for the reactor core power distribution limits which are designed to reliably control core thermal limits and core power distribution consistent with the design safety analysis. Section 3.2 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.3 Instrumentation

The following portion of this technical evaluation section is reproduced from Section 16.1.4.6 of the BLN SER:

Section 3.3 of the BLN PTS and Bases include[s] requirements for the instrumentation systems that display information required to protect against violating core fuel design limits and Reactor Coolant System (RCS) integrity, and to mitigate accidents.

The BLN instrumentation will be selected after COL issuance, and therefore, in accordance with COL/DC-ISG-8, "Necessary Content of Plant-Specific Technical Specifications When a Combined License is Issued," all trip setpoints and allowable values must be established through a staff-approved administrative control TS that specifies use of an NRC-approved methodology for determining the trip setpoints and allowable values, and a document controlled by 10 CFR 50.59 for recording this information. The trip setpoints and allowable values, referred to in Tables 3.3.1-1 and 3.3.2-1, will be determined after selection of specific instrumentation.

Request for additional information (RAI) 16-1 was issued in accordance with COL/DC-ISG-8, and requested that the applicant identify the method of determining the trip setpoints and allowable values, as well as establish an associated document in which to record the site-specific values and other

restrictions necessary to satisfy 10 CFR 50.36. The applicant should clarify that after selection of specific instrumentation, the trip setpoints and allowable values, referred to in Tables 3.3.1-1 and 3.3.2-1, will be calculated using the setpoint control program that specifies the approved methodology (i.e., WCAP-16361, APP-PMS-JEP-001, Revision 0, May 2006, "Westinghouse Setpoint Methodology for Protection Systems – AP1000"). In addition, the applicant should propose a setpoint control program to be added in the Administrative Control section of the TS, as stated in COL/DC-ISG-8. This is identified as ***Open Item 16.1-1****.*

Resolution of Standard Content Open Item 16.1-1

Resolution to this issue was brought forward at a public meeting on September 3, 2009, attended by the staff, Westinghouse, and the AP1000 COL applicants. Westinghouse committed to provide an acceptable setpoint control program in the AP1000 DC amendment application, which would then be adoptable by any COL applicants. This program was submitted to the staff in a letter dated February 19, 2010, and revised on May 6, 2010. The review of this program is documented in a supplement to NUREG-1793.

The applicant, in its May 21, 2010, supplemental response to this open item, committed to calculate trip setpoints and allowable values using the approved methodology cited above and to incorporate the AP1000 DCD setpoint control program in the Administrative Controls section of its PTS. The staff finds this response acceptable, since it ensures the applicant will use approved methodologies and a comprehensive administrative program to calculate setpoint values. The incorporation of this program into the VEGP TS in a later revision is ***Confirmatory Item 16.1-1.***

Resolution of Standard Content Confirmatory Item 16.1-1

Confirmatory Item 16.1-1 is an applicant commitment to revise its PTS to incorporate the AP1000 DCD setpoint control program in the Administrative Controls section of its PTS. The staff verified that the PTS was appropriately revised. As a result, Confirmatory Item 16.1-1 is now closed. [The Administrative controls section of the Levy PTS cites Revision 1 of WCAP-16361, consistent with the GTS in the AP1000 certified design.]

16.1.4.3.4 Reactor Coolant System

The following portion of this technical evaluation section is reproduced from Section 16.1.4.7 of the BLN SER:

Section 3.4 of the BLN PTS and Bases include[s] requirements for various RCS parameters (i.e., pressure, temperature, flow, etc.) and subsystems (i.e., RCS loops, pressurizer, low-temperature overpressure protection, etc.) to ensure the fuel integrity and the RCPB [reactor coolant pressure boundary] integrity are preserved during all modes of plant operation. Section 3.4 of the BLN PTS and

Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.5 Emergency Core Cooling Systems

The following portion of this technical evaluation section is reproduced from Section 16.1.4.8 of the BLN SER:

Section 3.5 of the BLN PTS and Bases include[s] requirements for the safety-related passive core cooling system, which is designed to perform emergency core decay heat removal, RCS emergency makeup and boration, and safety injection. Section 3.5 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.6 Containment Systems

The following portion of this technical evaluation section is reproduced from Section 16.1.4.9 of the BLN SER:

Section 3.6 of the BLN PTS and Bases include[s] requirements for the containment systems, which are designed to shield [contain] fission products that may be in the containment atmosphere following accident conditions. Section 3.6 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases, except for the deletion of a reviewer's note. For TS 3.6.4, the reviewer's note is not applicable to the PTS, and the applicant has appropriately removed the information. This is acceptable to the staff. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.7 Plant Systems

The following portion of this technical evaluation section is reproduced from Section 16.1.4.10 of the BLN SER:

Section 3.7 of the BLN PTS and Bases include[s] requirements for various systems in the secondary side of the steam generators (i.e., the main steam safety valves, the main steam isolation valves, the main feedwater isolation valves, etc.), the spent fuel pool water level and makeup systems, and the main control room habitability system. Section 3.7 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.8 Electrical Power Systems

The following portion of this technical evaluation section is reproduced from Section 16.1.4.11 of the BLN SER:

Section 3.8 of the BLN PTS and Bases include[s] requirements for the plant electrical systems that provide redundant, diverse and dependable power sources for all plant operating conditions. In the event of a total loss of off-site power, batteries and back-up on-site diesel generators are provided to supply electrical power equipment necessary for the safe shutdown of the plant. Section 3.8 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.3.9 Refueling Operations

The following portion of this technical evaluation section is reproduced from Section 16.1.4.12 of the BLN SER:

Section 3.9 of the BLN PTS and Bases include[s] requirements for boron concentration, unborated water sources, nuclear instrumentation, containment penetrations, and water inventory in the refueling pool during Mode 6. Section 3.9 of the BLN PTS and Bases are [is] identical to the AP1000 GTS and Bases. There is no site-specific information that the applicant needed to provide to complete this section.

16.1.4.1 *Design Features*

Section 4.0 of the LNP PTS includes other design features not covered elsewhere in the PTS such as the site location, the site maps, and other information related to core design and fuel storage design. Section 4.0 of the LNP PTS is identical to the AP1000 GTS except for site-specific information provided by the applicant. In Section 4.1, the applicant provided the LNP site location information to replace the bracketed information in the GTS. The staff found the added information acceptable since it is consistent with related information found in FSAR Section 2.1.1.1, and in accordance with guidance provided in the GTS. In Section 4.1.1, the applicant provided Figure 4.1-2, which describes its site and exclusion area boundaries. The staff found the added information acceptable since it is consistent with information found in LNP COL FSAR Sections 2.1.1.2 and 2.1.1.3, and in accordance with the guidance provided in the GTS. There are two exceptions to this. Figure 4.1-2 does not show, and Section 4.1.1 does not describe, the change found in FSAR Section 2.1.1.2 describing the indentation in the exclusion area boundary, shown in Figure 2.1.1-203. Also, the applicant referred to Figure 4.1-1 as containing the site boundary, which in Section 2.1.1.2 of the FSAR is defined as the property boundary. This boundary is shown in Figure 4.1-2.

In RAI 16.0-1 and 16.0-2, dated February 9, 2011, the staff requested that these errors be resolved or explained. In their response dated March 15, 2011 the applicant agreed to provide the correct references to these figures and to duplicate the figures used in Section 2.1.1.2 of the FSAR. The staff found this response acceptable, since it clarifies the location of these boundaries. The incorporation of these changes into a later revision are **Confirmatory Items 16.0-1 and 16.0-2.**

Resolution of Confirmatory Items 16.0-1 and 16.0-2

Confirmatory Items 16.0-1 and 16.0-2 were applicant commitments to provide the correct references to Figures 4.1-1 and 4.1-2, and to duplicate the figures used in Section 2.1.1.2 of the FSAR. The staff verified that the figures were appropriately corrected and duplicated. As a result, Confirmatory Items 16.0-1 and 16.0-2 are now closed.

In Section 4.1.2, the applicant also provided the site location in Figure 4.1-1 and a description of the radius, which establishes its low population zone. The staff found the added information acceptable since it is consistent with related information found in LNP COL FSAR Section 2.1.3.4, and is in accordance with the guidance provided in the GTS.

The following portion of this technical evaluation section is reproduced from Section 16.1.4.5 of the VEGP SER:

> *16.1.4.5 Administrative Controls*
>
> *The following portion of this technical evaluation section is reproduced from Section 16.1.4.14 of the BLN SER:*
>
> *This section of the BLN PTS includes provisions, which address various administrative controls related to plant key personnel responsibilities, plant procedures, special programs and reports, etc., to ensure the plant is safely operated. As discussed in Section 16.1.4.6 above,* [LNP SER Section 16.1.4.3.3,] *the BLN instrumentation will be selected after COL issuance, and therefore, in accordance with COL/DC-ISG-8, all trip setpoints and allowable values must be established through a staff-approved administrative control TS that specifies use of an NRC-approved methodology for determining the trip setpoints and allowable values, and a document controlled by 10 CFR 50.59 for recording this information. The trip setpoints and allowable values, referred to in Tables 3.3.1-1 and 3.3.2-1, will be determined after selection of specific instrumentation.*
>
> *The staff issued RAI 16-1 and requested that the applicant identify the method of determining the trip setpoints and allowable values, as well as establish an associated document in which to record the site-specific values and other restrictions necessary to satisfy 10 CFR 50.36. The applicant should clarify that after selection of specific instrumentation, the trip setpoints and allowable values, referred to in Tables 3.3.1-1 and 3.3.2-1, will be calculated using the setpoint control program that specifies the approved methodology (i.e., WCAP-16361, APP-PMS-JEP-001, Revision 0, May 2006, "Westinghouse Setpoint Methodology for Protection Systems – AP1000"). In addition, the applicant should propose a setpoint control program to be added in the Administrative Control section of the TS, as stipulated in COL/DC-ISG-8. This is identified as* ***Open Item 16.1-1****.*

Resolution of Standard Content Open Item 16.1-1

The resolution of this issue is discussed in the evaluation of Section 16.1.4.3.3, "Instrumentation," above. The applicant committed to adopting the setpoint control program approved in the AP1000 DC, which will be verified in a future revision of the VEGP TS. This is ***Confirmatory Item 16.1-1****.*

Resolution of Confirmatory Item 16.1-1

Confirmatory Item 16.1-1 is an applicant commitment to revise its PTS to incorporate the AP1000 DCD setpoint control program in the Administrative Controls section of its PTS. The staff verified that the PTS was appropriately revised. As a result, Confirmatory Item 16.1-1 is now closed. [The Administrative controls section of the Levy PTS cites Revision 1 of WCAP-16361, consistent with the GTS in the AP1000 certified design.]

The following portion of this technical evaluation section is reproduced from Section 16.1.4.14 of the BLN SER:

In Section 5.3.1 of the BLN PTS, the applicant replaced the GTS bracketed information, clarifying that each member of the unit staff shall meet or exceed minimum qualifications of RG [Regulatory Guide] *1.8, Revision 3 except for during cold license operator training where portions of RG 1.8, Revision 2 will apply. The staff finds this acceptable because RG 1.8, Revision 3 does not address cold license operator training. In other respects, Sections 5.0, 5.1.1, 5.1.2, 5.2.1a, 5.2.1b, 5.2.2, 5.3, 5.6.1, and 5.6.2 of the BLN PTS are identical to the AP1000 GTS, except for site-specific information provided by the applicant to replace the bracketed information in the GTS. The site-specific information provided was administrative in nature and the staff found it acceptable.*

In Section 5.2.2 of the VEGP PTS, the applicant proposed to remove the brackets around the COL item related to unit staff organization, as well as removing work hour restrictions in TS 5.2.2.d. The applicant refers to 73 Federal Register (FR) 79923 which provides the NRC's model application for adopting TSTF-511, Revision 0, "Eliminate Working Hour Restrictions from TS 5.2.2 to Support Compliance with 10 CFR Part 26 ["Fitness for Duty Programs"]*." The staff finds this deletion acceptable since it conforms to the guidance provided in the TSTF and working hour restrictions in 10 CFR Part 26, and therefore, is no longer required to be in the TS. This appropriately meets the intent of completing this bracketed information.*

Technical Specifications

In a letter dated February 21, 2013, the applicant proposed changes to various sections of TS Section 5.0, "Administrative Controls," to appear in Revision 4 of Part 4 of the COL application. These changes address various bracketed information items in response to COL information item 16.1-1, as follows:

1. Technical Specification 5.1.1. The title “Plant General Manager” is to be replaced with “plant manager.” There are 2 occurrences for this change in TS 5.1.1.

2. Technical Specification 5.1.2. The title “Nuclear Shift Manager (NSM)” is to be replaced with “shift manager (SM).” There are also 2 occurrences where the acronym “NSM” is to be replaced with the acronym “SM” in the same paragraph.

3. Technical Specification 5.2.1.b. The title “Plant General Manager” is to be replaced with “plant manager.”

4. Technical Specification 5.2.2.d. The titles “Manager Operations or Manager Shift Operations” is to be replaced with “operations manager or assistant operations manager.”

The staff found these changes acceptable because the position titles used are consistent with the organization description contained in Table 13.1-201 of FSAR Section 13.1. The staff reviewed Revision 6 of the COL application, which includes Revision 4 of Part 4 of the COL application, and found that all four items were correctly implemented.

16.1.5 Post Combined License Activities

There are no post-COL activities related to this section.

16.1.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff’s review confirmed that the applicant addressed the required information relating to the LNP PTS and Bases, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff’s technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable based on the regulatory basis addressed in NUREG-1793. The staff based its conclusion on the following:

- LNP COL 16.1-1, related to PTS and their Bases, is acceptable because the site-specific information is either identical to the GTS or will be completed using NRC-approved methodologies.

- LNP DEP 3.2-1, related to design modifications to the condensate return portion of the Passive Core Cooling System, is reviewed and found acceptable by the staff in Section 21.1 of this SER.

- LNP DEP 6.4-1, related to design changes affecting habitability of the main control room and changes to the calculated doses to control room operators, is reviewed and found acceptable by the staff in Section 21.2 of this SER.

- LNP DEP 6.4-2, related to design changes affecting how the temperature and humidity in the main control room are maintained within the limits for reliable human performance, is reviewed and found acceptable by the staff in Section 21.3 of this SER.

- LNP DEP 7.3-1, related to required design changes for the PMS source range neutron flux doubling logic to comply with the requirements of IEEE Std. 603-1991, Clause 6.6, is reviewed and found acceptable by the staff in Section 21.5 of this SER.

For the reasons set forth above, the staff finds that Section 16.1 of the LNP COL FSAR and Part 4 of the LNP COL application are acceptable and satisfy the requirements of 10 CFR 50.36; 10 CFR 50.36a, "Technical specifications on effluents from nuclear power reactors"; and 10 CFR 52.79(a)(30).

16.2 Design Reliability Assurance Program (Related to RG 1.206, Section C.III.1, Chapter 17, C.I.17.4, "Reliability Assurance Program Guidance")

The D-RAP comprises the reliability assurance activities that assure that the plant is consistent with the certified design when fuel is loaded for the first time.

Section 16.2 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 16.2, "Design Reliability Assurance Program," of Revision 19 of the AP1000 DCD, which in turn refers to Section 17.4 for a description of the program. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

The NRC staff's review of the applicant's D-RAP is documented in Section 17.4 of this SER.

16.3 Investment Protection

16.3.1 Introduction

The AP1000 design includes active systems that provide defense in depth capabilities (identified as "investment protection" by the applicant) for RCS makeup and decay heat removal. These active systems are the first line of defense in reducing challenges to the passive systems in the event of transients or plant upsets. Most active systems in the AP1000 design are designated as nonsafety-related. Because some active systems reduce challenges to safety-related systems to a significant degree, short-term availability controls are necessary to provide reasonable assurance that these SSCs are operable during anticipated events.

A detailed evaluation of the regulatory treatment of nonsafety systems for the AP1000 design, and the concept of investment protection, is addressed in Chapter 22 of NUREG-1793.

16.3.2 Summary of Application

Section 16.3 of the LNP COL FSAR, Revision 9, incorporates by reference Section 16.3 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 16.3, the applicant provided the following:

AP1000 COL Information Item

- STD COL 16.3-1

The applicant provided additional information in Standard (STD) COL 16.3-1 to address COL Information Item 16.3-1. This item is related to the development of a procedure to control the operability of investment protection SSCs.

16.3.3 Regulatory Basis

The regulatory basis of the information incorporated by reference, and the additional information presented in this application, is addressed in NUREG-1793 and its supplements.

16.3.4 Technical Evaluation

The NRC staff reviewed Section 16.3 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to SSCs required for defense in depth. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (VEGP Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5, to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) includes evaluation material from the SER for the BLN Units 3 and 4 COL application.

The following portion of this technical evaluation section is reproduced from Section 16.3.4 of the VEGP SER:

AP1000 COL Information Item

- *STD COL 16.3-1*

The applicant provided supplemental information by adding the following statement to DCD Section 16.3-1:

> *Station procedures govern and control the operability of investment protection systems, structures, and components in accordance with Table 16.3-2 of the DCD, and provide the operating staff with instruction for implementing required actions when operability requirements are not met. Procedure development is addressed in FSAR Section 13.5.*

Section 22.5.9 of the NRC staff's FSER related to the DCD (NUREG-1793) evaluated the short-term availability controls proposed by Westinghouse for important non-safety-related SSCs. The NRC staff concluded that the administrative controls for the SSCs required for defense in depth, listed in Table 16.3-2 of the AP1000 DCD, were acceptable. COL applicants referencing the AP1000 are responsible for developing a procedure to control the operability of these SSCs in accordance with DCD Table 16.3-2 (COL Information Item 16.3.2-1 [16.3-1]*).*

The applicant's response to STD COL 16.3-1 is acceptable because there were no exceptions taken to the list of SSCs required for defense in depth nor to the administrative procedures included in AP1000 DCD Table 16.3-2. The applicant also committed to place this information in station procedures. The information in DCD Table 16.3-2 also provides the operating staff with instruction for implementing required actions when operability requirements are not met.

16.3.5 Post Combined License Activities

There are no post-COL activities related to this section.

16.3.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information related to defense in depth using nonsafety-related SSCs, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable based on the regulatory basis addressed in NUREG-1793. The staff based its conclusion on the following:

- STD COL 16.3-1, as related to SSCs required for defense in depth, is acceptable because it states that station procedures will govern and control the operability of these SSCs, in accordance with Table 16.3-2 of the AP1000 DCD, without exceptions. The information in DCD Table 16.3-2 also provides the operating staff with guidance for taking required actions when operability requirements are not met.

17.0 QUALITY ASSURANCE (RELATED TO RG 1.206, SECTION C.III.1, CHAPTER 17, C.I.17, "QUALITY ASSURANCE AND RELIABILITY ASSURANCE")

The quality assurance (QA) program for design, fabrication, construction, testing, and operation, design reliability program, and Maintenance Rule (MR) program are discussed in this chapter.

17.1 Quality Assurance During the Design and Construction Phases

17.1.1 Introduction

The QA program related to design and construction activities is discussed in this section. It addresses the QA program implemented during combined license (COL) application development, including site characterization activities, design and construction phases.

17.1.2 Summary of Application

Section 17.1 of the Levy Nuclear Plant (LNP) COL Final Safety Analysis Report (FSAR), Revision 9, incorporates by reference Section 17.1 of the AP1000 Design Control Document (DCD), Revision 19.

In addition, in LNP COL FSAR Section 17.1, the applicant provided the following:

AP1000 COL Information Item

- LNP COL 17.5-1

The applicant provided additional information in LNP COL 17.5-1 to address COL Information Item 17.5-1. In LNP COL 17.5-1, the applicant addresses the Quality Assurance Program Description (QAPD) under which the COL application was developed for the design and construction phases up until COL issuance. Section 17.5 of the LNP COL FSAR addresses the QA program for the remaining portion of the design and construction phases following COL issuance.

17.1.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," and its supplements.

In addition, the relevant requirements of the Commission regulations for the resolution of LNP COL 17.5-1 are established in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic licensing of production and utilization facilities," Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," as required by 10 CFR 52.79(a)(25).

17.1.4 Technical Evaluation

The Nuclear Regulatory Commission (NRC) staff reviewed Section 17.1 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to QA during design and construction phases. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this safety evaluation report (SER) provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (Vogtle Electric Generating Plant [VEGP], Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5 to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from requests for additional information (RAIs).

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) includes evaluation material from the SER for the Bellefonte Nuclear Plant (BLN), Units 3 and 4 COL application. Any confirmatory items in the standard content material retain the numbers assigned in the VEGP SER. Confirmatory items that are first identified in this SER section have a LNP designation (e.g., Confirmatory Item LNP 17.1-1).

The staff reviewed the information in the LNP COL FSAR:

AP1000 COL Information Item

- LNP COL 17.5-1

The NRC staff reviewed the partial resolution of LNP COL 17.5-1 related to QA during the design and construction phases until COL issuance included under Section 17.1 of the LNP COL FSAR. The remaining information for LNP COL 17.5-1 is included in Section 17.5 of the

[1] See Section 1.2.2 for a discussion of the staff's review related to verification of the scope of information to be included in a COL application that references a design certification (DC).

LNP COL FSAR. The staff's review of LNP COL 17.5-1 is a combination of plant-specific evaluation and standard content evaluation.

The applicant replaced information in the AP1000 DCD, Section 17.1 with new text to address the QA program requirements for design and construction activities implemented from COL application development through operations. Upon review of the additional text provided by the applicant, the NRC staff identified areas where additional information was needed.

In RAI 17.5-6, dated February 27, 2009, the NRC staff requested that the applicant identify which QA program applied to design, procurement, and construction activities associated with the LNP Units 1 and 2 COL application before the COL is issued. In addition, the NRC staff requested clarification on the expected scope of work related to Levy Nuclear Plant COL application design and procurement activities from the time of docketing until the time the COL might be issued.

In letters dated March 31, 2009, and May 4, 2010, the applicant responded to the staff's RAI and stated, in part, that a revision to Section 17.1 of the COL application will be made to clarify the applicability of the applicant's QA program to design, procurement, and construction activities associated with Levy Nuclear Plant Units 1 and 2 that may occur before as well as after the COL is issued. By letter dated October 4, 2010, the applicant submitted Revision 2 of the LNP COL FSAR. The staff reviewed Section 17.1 of the LNP COL FSAR and Section 2 of the LNP QAPD and confirmed that the applicant had (1) adequately identified which QA programs applied to the design, procurement, and construction activities described in Section 17.1 of the LNP COL FSAR, and (2) adequately described the expected scope of work, consistent with the NEI 06-14A text, related to the COL activities; therefore, RAI 17.5-6 is closed.

In RAI 17.5-8, dated February 27, 2009, the NRC staff requested that the applicant provide an evaluation of the applicant's existing QA program against the applicable acceptance criteria in the Standard Review Plan, pursuant to the requirements of 10 CFR 52.79(a)(41).

By letter dated March 31, 2009, the applicant responded to the staff's RAI and stated, in part, that it is implementing its existing QA program for the activities associated with the LNP COL application prior to issuance of the LNP COL. The applicant's existing nuclear QA program has been reviewed and determined to meet the requirements of Appendix B to 10 CFR Part 50 by the NRC utilizing the acceptance criteria in NUREG-0800, Sections 13 and 17, respectively. The applicant also stated that the QAPD described in Section 17.5 of the LNP COL FSAR to be applied after COL issuance has been evaluated and discussed in Table 1.9-202 of the LNP COL FSAR for conformance to NUREG-0800, Section 17.1. The NRC staff has reviewed the response and determined that the applicant's response is acceptable; therefore, RAI 17.5-8 is closed.

In RAI 17.5-12, dated February 27, 2009, the NRC staff requested that the applicant provide references in Section 17.8 of the LNP COL FSAR for several documents referred to in Section 17.1 of the LNP COL FSAR.

By letter dated March 31, 2009, the applicant responded to the staff's RAI and stated, in part, that the LNP COL FSAR will be revised to address the references, and the applicant provided a proposed LNP COL FSAR revision to reflect these additions. By letter dated July 25, 2013, the applicant submitted Revision 6 of the LNP COL FSAR. The staff reviewed Section 17.1 and 17.8 of the LNP COL FSAR and confirmed that the applicant had adequately identified the documents referenced in Section 17.1 of the LNP COL FSAR; therefore, RAI 17.5-12 is closed.

The NRC staff also reviewed Appendix 1AA of the LNP COL FSAR which lists LNP's conformance with NRC regulatory guides (RGs) and provides any exceptions to conformance with those RGs. In RAI 17.5-13, dated February 27, 2009, the NRC staff requested that the applicant explain how Appendix 1AA addresses its existing nuclear QA program's conformance to the applicable RGs since this QA program is being used for activities associated with the LNP COL application prior to issuance of the LNP COL. In its letter dated March 31, 2009, the applicant stated, in part, that Chapter 17.1 of the Levy Nuclear Power Plant Units 1 and 2 FSAR, will be revised to clarify that its existing Nuclear Quality Assurance Program Description identifies the quality assurance requirements that will be in effect until the QAPD provided in Part 11 of the COL application is implemented. Included in its Nuclear Quality Assurance Program Description (Reference 201) is Chapter 1.8 which describes the conformance with NRC Regulatory Guides and any NRC approved exceptions or alternatives taken. The applicant's Nuclear Plant Development activities performed prior to implementation of the QAPD provided in Part 11 of the COL application are performed in accordance with these existing quality assurance program requirements. The applicant developed NGGM-PM-0030, Quality Assurance Plan for New Nuclear Plant Development and Construction Activities to identify the appropriate programs and procedures that implement existing nuclear commitments. By letter dated July 25, 2013, the applicant submitted Revision 6 of the LNP COL FSAR. The staff reviewed Section 17.1 of the LNP COL FSAR and confirmed that the applicant had adequately identified the applicability of its existing nuclear QA program and the associated RGs that apply to the LNP COL application prior to the issuance of the LNP COL; therefore, RAI 17.5-13 is closed.

The following portion of this technical evaluation section is reproduced from Section 17.1.4 of the VEGP SER:

> *In addition, the applicant proposed revisions to Appendix 1AA in its letter, dated August 19, 2008, in response to the NRC staff's RAI 1-5. In its response, the applicant proposed to change the exception statements to address the version of NQA-1 instead of addressing the QAPD included in Part 11 of the BLN COL application. The NRC staff has verified that the proposed revision was incorporated into Revision 1 of the BLN COL FSAR for those RGs with QA requirements. RAI 1-5 is closed for all RGs that contain exception statement referencing NQA-1 (i.e., RG 1.28, 1.30, 1.38, 1.39, 1.94, and 1.116*) *except for RG 1.33.*
>
> *In RAI 01-11, dated December 16, 2008, the NRC staff requested that the applicant document the mechanism for incorporation of the requirements of RG 1.33 since these requirements are not covered by NQA-1. In its letter, dated January 27, 2009, the applicant stated that conformance with RG 1.33 will be*

supplemented in a future amendment to include a reference to Nuclear Energy Institute (NEI) 06-14A. The NRC staff has addressed this issue with NEI since NEI 06-14A does not commit to RG 1.33. This issue will remain open until closure is reached with NEI 06-14A or the applicant. This is identified as ***Open Item 17.1-1****.*

Resolution of Standard Content Open Item 17.1-1

In its letter, dated December 31, 2009, the applicant proposed to revise VEGP COL FSAR Section 1.9, Table 1.9-201, "Regulatory Guide/FSAR Section Cross-References," to document that RG 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, is addressed in Section IV of the QAPD. Additionally, the applicant proposed to revise Appendix 1AA of the VEGP COL FSAR to document conformance to RG 1.33. Therefore, Open Item 17.1-1 is resolved for VEGP and the proposed revisions are identified as ***Confirmatory Item 17.1-1****, pending formal revision of the VEGP COL FSAR.*

LNP Resolution of Standard Content Open Item 17.1-1 and Associated Confirmatory Item 17.1-1

In a letter dated September 23, 2010, the applicant endorsed the standard content material provided by VEGP. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. In Revision 9 of the LNP Units 1 and 2 QAPD, the application addressed the information related to standard content Open Item 17.1-1. The NRC staff has confirmed through review of Revision 9 of the LNP Units 1 and 2 QAPD that the applicant has incorporated changes to Appendix 1AA of the LNP COL FSAR and Part IV, "Regulatory Commitments," of the LNP Units 1 and 2 QAPD. The staff confirmed that the applicant had adequately identified and specified exceptions to RG 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2; consistent with the NRC-approved NEI 06-14A, Revision 7 guidance, and incorporated specific changes into Part IV, "Regulatory Commitments," of the LNP Units 1 and 2 QAPD, Revision 9 that adequately addresses the issue. The staff's review of this information is provided in Section 17.5.4.20 of the staff's SER. Therefore, standard content Open Item 17.1-1 and associated Confirmatory Item 17.1-1 are resolved for the LNP COL application.

In April 2010, the NRC staff conducted a limited scope inspection at the applicant's facility in Raleigh, North Carolina, as documented in inspection report numbers 05200029/2010-201 and 05200030/2010-201 dated July 11, 2010. The purpose of the NRC inspection was to verify that the QA processes and procedures were effectively implemented with regards to the LNP COL application. In this inspection, the NRC inspectors did not identify any violations of NRC requirements related to the QA program. Based on the results of the inspection, the staff does not intend to conduct a follow-up inspection as part of licensing.

17.1.5 Post Combined License Activities

There are no post-COL activities related to this section.

17.1.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to QA during the design and construction phase, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Based on the information provided by the applicant which addresses the QA program requirements for design and construction activities, as well as endorsement of the standard content material provided by VEGP, the staff concludes that LNP COL 17.5-1 meets Appendix B to 10 CFR Part 50 and 10 CFR 52.79(a)(25) requirements regarding the identification of and description for quality assurance criteria for nuclear power plants.

17.2 Quality Assurance During the Operations Phase

Section 17.2 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 17.2 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

17.3 Quality Assurance During Design, Procurement, Fabrication, Inspection, and/or Testing of Nuclear Power Plant Items (Related to RG 1.206, Section C.III.1, Chapter 17, C.I.17.3, "Quality Assurance Program Description")

Section 17.3 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 17.3 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

17.4 Design Reliability Assurance Program (Related to RG 1.206, Section C.III.1, Chapter 17, C.I.17.4, "Reliability Assurance Program Guidance")

17.4.1 Introduction

This reliability assurance program (RAP) provides reasonable assurance that a plant is designed, constructed, and operated in a manner that is consistent with the assumptions and risk insights related to structures, systems, and components (SSCs) that are identified as being significant contributors to plant safety as determined by using probabilistic, deterministic, or other methods of analysis. The information is obtained from sources such as the plant- and

site-specific probabilistic risk assessment (PRA), industry operating experience, relevant component failure databases, and expert panels.

The RAP is implemented in two stages. The first stage, the design reliability assurance program (D-RAP), comprises the reliability assurance activities providing confidence that the plant is consistent with the certified design when fuel is loaded for the first time. The second stage comprises the operational phase reliability assurance activities (OPRAAs) that are to be integrated into other programs.

17.4.2 Summary of Application

Section 17.4 of the LNP COL FSAR, Revision 9, incorporates by reference Section 17.4 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 17.4, the applicant provided the following:

Supplemental (SUP) Information

- STD SUP 17.4-1

The applicant provided supplemental information in STD SUP 17.4-1 regarding the QA requirements for nonsafety-related SSCs within the scope of D-RAP.

- LNP SUP 17.4-1

The applicant provided plant-specific supplemental information in LNP SUP 17.4-1 related to inclusion of the safety-related, roller-compacted concrete bridging basemat in the D-RAP.

17.4.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the acceptance criteria associated with the relevant requirements of the Commission regulations for the D-RAP are given in Section 17.4 of NUREG-0800. SECY-95-132, "Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Designs," states the following:

> An application for advanced reactor DC or a COL must include: (1) the description of the RAP used during the design that includes, scope, purpose, and objectives; (2) the process used to evaluate and prioritize the SSCs in the design, based on their degree of risk significance; (3) a list of the SSCs designated as risk significant; and (4) for those SSCs designated as risk significant: (i) a process to determine dominant failure modes that considered industry experience, analytical models, and applicable requirements; and (ii) key assumptions and risk insights from probabilistic, deterministic, or other methods that considered operations, maintenance, and monitoring activities.

> Each licensee that references the advanced reactor design must implement the design reliability assurance program approved by the NRC.

The Commission approved this position in the associated staff requirements memorandum (SRM) dated June 28, 1995.

RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," describes an acceptable way to satisfy these requirements.

17.4.4 Technical Evaluation

The NRC staff reviewed Section 17.4 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to the D-RAP. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (VEGP Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5 to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) includes evaluation material from the SER for the BLN Units 3 and 4 COL application.

The following portion of this technical evaluation section is reproduced from Section 17.4.4 of the VEGP SER:

> *Supplemental Information*
>
> - *STD SUP 17.4-1*
>
> *The applicant provided supplemental information in STD SUP 17.4-1 to describe the QA requirements for nonsafety-related SSCs within the scope of D-RAP.*

The following portion of this technical evaluation section is reproduced from Section 17.4.4 of the BLN SER:

No site specific structures, systems, and components (SSCs) have been added to the D-RAP. The applicant asserts that the AP1000 DCD and PRA bound all site specific hazards and associated risks. The staff's evaluation of the probabilistic methods used to reach this conclusion is documented in Chapter 19 of this safety evaluation. The staff concludes that the list of SSCs incorporated by reference to the DCD is an acceptable list for the BLN COL.

The staff noted that risk metrics may change with modifications to the plant design or other new information and requested additional information on how the applicant would address risk significant SSCs that are identified after the COL is issued (RAI 17.4-1). In its response dated September 17, 2008, the applicant stated that such changes would be captured and included in the appropriate OPRAAs in accordance with procedures developed under the QA program. In addition, the response states that the [Maintenance Rule] MR program is to be consistent with NEI 07-02A, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed under 10 CFR Part 52," which has been endorsed by the staff in a letter to NEI, dated January 24, 2008.

The MR program description calls for establishment of an expert panel prior to fuel load. As additional information is developed, such a panel alters the scope of OPRAAs as appropriate. Because this provides assurance that changes will receive appropriate review, the staff finds it acceptable; therefore, RAI 17.4-1 is closed.

However, the staff requested that the applicant supplement the BLN COL FSAR to describe the organizational and process aspects of the RAP that will be performed by the COL holder (RAI 17.4-2). In its response dated April 9, 2009, the applicant proposed to revise the BLN COL FSAR Section 17.4 to include a standard supplement identifying the quality assurance requirements for non-safety-related SSCs within the scope of D-RAP. This is consistent with RG 1.206 and is therefore an acceptable method for meeting the Commission's policy for RAP. The staff identifies the need for a revision to the BLN COL FSAR as ***Confirmatory Item 17.4-1****.*

Resolution of Standard Content Confirmatory Item 17.4-1

Confirmatory Item 17.4-1 required the applicant to update its FSAR to include a standard supplement identifying the QA requirements for non-safety-related SSCs within the scope of D-RAP. The NRC staff verified that the VEGP COL FSAR was appropriately updated with STD SUP 17.4-1. As a result, Confirmatory Item 17.4-1 is resolved.

- LNP SUP 17.4-1

In RAI 19-75, the staff requested plant-specific supplemental information related to inclusion of the safety-related, roller-compacted concrete bridging basemat in the RAP. One part of the request was the capacity of the basemat to withstand earthquakes, expressed as the peak ground acceleration in the free field at which there is high confidence in low probability of failure (HCLPF) value.

In a letter dated November 17, 2011, and Revision 4 of the LNP COL FSAR, the applicant reported that the bridging basemat controls the plant HCLPF value for LNP. Because of its importance in the plant-specific seismic margin analysis, the structure has been added to the RAP. This is consistent with RG 1.206.

17.4.5 Post Combined License Activities

There are no post-COL activities related to this section.

17.4.6 Conclusion

The NRC staff reviewed the application. For the information incorporated by reference to the DCD, the NRC staff's review confirmed that the applicant addressed the required information relating to the D-RAP, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

The staff concludes that the plant specific information presented in Section 17.4 of the LNP COL FSAR is consistent with the guidance provided in SECY-95-132, and the requirements of 10 CFR 52.47(b)(1), "Contents of applications; technical information," and 10 CFR 52.80(a) "Contents of applications; additional technical information." Therefore, the LNP D-RAP is acceptable.

17.5 Quality Assurance Program Description – New License Applicants (Related to RG 1.206, Section C.III.1, Chapter 17, C.I.17.5, "Quality Assurance Program Guidance")

17.5.1 Introduction

The QA program during the design, fabrication, construction, testing, and operation phases of a nuclear power plant is discussed in this section. Implementation of the applicable portions of

the QAPD referenced in Section 17.5 begins at COL issuance with full implementation of the operations-related requirements consistent with LNP COL FSAR Table 13.4-201, “Operational Programs Required by NRC Regulations.”

17.5.2 Summary of Application

In Part 11 of the LNP COL application, the applicant provided a QAPD to be in place during the design, construction, and operations phases. This QAPD is incorporated by reference in Section 17.5 of the LNP COL FSAR.

In addition, in LNP COL FSAR Section 17.5, the applicant provided the following:

AP1000 COL Information Items

- LNP COL 17.5-1

The applicant provided additional information in LNP COL 17.5-1 to address COL Information Item 17.5-1. LNP COL 17.5-1 addresses the QA program in place during the design, construction, and operations phases.

- STD COL 17.5-2

The applicant provided additional information in STD COL 17.5-2 to address COL Information Item 17.5-2. STD COL 17.5-2 addresses QA programs for procurement, fabrication, installation, construction, and testing of SSCs in the plant.

- STD COL 17.5-4

The applicant provided additional information in STD COL 17.5-4 to address COL Information Item 17.5-4. STD COL 17.5-4 addresses the QA program for operations.

- STD COL 17.5-8

The applicant provided additional information in STD COL 17.5-8 to address COL Information Item 17.5-8. STD COL 17.5-8 addresses operational RAP integration with the QA program.

17.5.3 Regulatory Basis

The acceptance criteria associated with the relevant requirements of the Commission regulations for the QAPD are given in Section 17.5 of NUREG-0800.

The regulatory requirements for the QAPD include the following:

Appendix B to 10 CFR Part 50, requires that the application include a description of the QA program to be applied to the design, fabrication, construction, and testing of the SSCs of the facility and establishes QA requirements for the design, construction, and operation of those SSCs. The pertinent requirements of Appendix B apply to all activities affecting the safety-related functions of the SSCs, including designing, purchasing, fabricating, handling,

shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying.

Section 10 CFR 52.79(a)(17) requires that the application include information with respect to compliance with technically relevant positions of the Three Mile Island requirements of 10 CFR 50.34(f).

Section 10 CFR 52.79(a)(25) requires that the description of the QA program include a discussion of how the applicable requirements of Appendix B have been and will be satisfied, and also include a discussion of how the QA program will be implemented.

Further, 10 CFR 52.79(a)(27) requires that the application include information on the managerial and administrative controls to be used for a nuclear power plant and include a discussion of how the applicable requirements of Appendix B will be satisfied.

17.5.4 Technical Evaluation

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (VEGP Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5 to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) includes evaluation material from the SER for the BLN Units 3 and 4 COL application. Any confirmatory items in the standard content material retain the numbers assigned in the VEGP SER. Confirmatory items that are first identified in this SER section have a LNP designation (e.g., Confirmatory Item LNP 17.5-1).

Although the staff concluded that the evaluation performed for the standard content is directly applicable to the LNP COL application, there were differences between the information provided by the LNP applicant and that provided by the VEGP applicant regarding details in the LNP COL FSAR and the LNP Units 1 and 2 QAPD. The resolutions of these differences for LNP are evaluated by the staff following the standard content material to which they apply.

The following portion of this technical evaluation section is reproduced from Section 17.5.4 of the VEGP SER:

> *The NRC staff reviewed Section 17.5 of the BLN COL FSAR and the QAPD provided in Part 11 of the BLN COL application. In RAI 17.5-9, dated May 12, 2008, the NRC staff requested that the applicant explain why the QAPD provided in Part 11 of the BLN COL application is not referenced or incorporated by reference in the BLN COL FSAR Section 17.5. In its letters, dated June 26, 2008, and October 16, 2008, the applicant proposed to revise Section 17.5 of the BLN COL FSAR to state that the QAPD is incorporated by reference. In addition, the applicant proposed to revise Section 17.5 of the BLN COL FSAR to provide the title of the QAPD that is incorporated by reference. The NRC staff has reviewed the proposed revisions to Section 17.5 and concluded that the proposed changes are responsive to RAI 17.5-9. The NRC staff has verified that the proposed revision was incorporated into Revision 1 of the BLN COL FSAR. RAI 17.5-9 is closed.*
>
> *Resolution of Standard Content Open Item 17.5-9*
>
> *The NRC staff has verified that the proposed revision to incorporate the QAPD by reference was incorporated into the VEGP COL FSAR. In its letter dated January 29, 2010, the applicant proposed to revise Section 17.5 of the VEGP COL FSAR to provide the title of the QAPD that is incorporated by reference. This item is identified as* ***Confirmatory Item 17.5-1****, pending formal revision of the VEGP COL FSAR.*

LNP Resolution of Standard Content Open Item 17.5-9 and Associated Confirmatory Item 17.5-1

In a letter dated September 23, 2010, the applicant endorsed the standard content material provided by VEGP in its letters dated January 29, 2010, and April 02, 2010, with reference to BLN response to RAI 17.5-9 as standard, and proposed to incorporate the standard content in a future revision of the LNP COL FSAR. The applicant provided its commitment to incorporate the standard content material that consists of revising Section 17.1 of the LNP COL FSAR to incorporate the LNP Units 1 and 2 QAPD by reference and to provide the title of the QAPD that is incorporated by reference. The NRC staff reviewed the applicant's proposed commitment to incorporate the standard content with reference to the LNP Units 1 and 2 QAPD and determined the proposed commitment to be acceptable. By letter dated July 25, 2013, the applicant provided Revision 6 of the LNP COL FSAR. The staff confirmed that Revision 6 included reference to the LNP Units 1 and 2 QAPD by title in Section 17.1 and 17.5 of the LNP COL FSAR; therefore, standard content Open Item 17.5-9 and associated Confirmatory Item 17.5-1 are resolved for the LNP application.

In RAI 17.5-7, dated February 27, 2009, the NRC staff requested that the applicant clarify when the LNP Units 1 and 2 QAPD discussed in Section 17.5 of the LNP COL FSAR will be implemented.

By letter dated March 31, 2009, the applicant responded to the staff's RAI and stated, in part, that the LNP Units 1 and 2 QAPD discussed in LNP COL FSAR Section 17.5, will become effective on approval of the LNP COL and it will establish the QA program requirements for the remaining portion of the design, construction, and operational phases for the new nuclear reactors. Specifically, 30 days following the issuance of the LNP 1 and 2 COL, or prior to the initiation of quality related activities following COL issuance, whichever is later, the licensee will implement the QAPD discussed in FSAR Section 17.5. In addition, full implementation of specific operation related requirements will occur no later than 30 days prior to the scheduled date of initial fuel load. By letter dated July 25, 2013, the applicant provided Revision 6 of the LNP COL FSAR. The staff confirmed that Revision 6 incorporated a description of the implementation schedule for LNP Units 1 and 2 QAPD consistent with the applicant's RAI responses; therefore, RAI 17.5-7 is closed.

In RAI 17.5-9 dated February 27, 2009, the NRC staff requested that the applicant clarify how siting activities discussed in Section 1.1 of the LNP Units 1 and 2 QAPD in Attachment 11 would be subject to the provisions of the QAPD.

By letter dated March 31, 2009, the applicant responded to the staff's RAI and stated, in part, that the siting activity was included in the listing of activities to which the LNP Units 1 and 2 QAPD applies based on the development of the QAPD to serve as a topical report for all future applicant new nuclear plant development activities. For LNP site characterization, services were procured in accordance with the applicant's existing Quality Assurance Program Requirements.

On the basis of the applicant's response, which clarified how siting activity discussed in the LNP COL FSAR would be subject to the QAPD described in LNP COL FSAR Section 17.5, the NRC staff determined that the issue has been adequately resolved; therefore, RAI 17.5-9 is closed.

In RAI 17.5-10 dated February 27, 2009, the NRC staff requested that the applicant clarify how the organizational charts provided in Chapter 13 of the LNP COL FSAR describe the specific functions and responsibilities for various departments and organizations as well as ensuring that these descriptions are consistent with the organization described in the LNP Units 1 and 2 QAPD.

By letter dated March 31, 2009, the applicant responded to the staff's RAI 17.5-10, and stated, in part, that it will revise the LNP Units 1 and 2 QAPD and LNP COL FSAR Chapter 13 to address these concerns. The applicant also referred to their response to RAI 17.5-2 for details regarding the specific changes to be incorporated into the LNP COL FSAR and LNP Units 1 and 2 QAPD. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. The staff confirmed that Revision 9 of the LNP Units 1 and 2 QAPD incorporated a description of the LNP organization, including organizational charts, consistent with the applicant's RAI responses. In addition, the staff confirmed that the applicant had incorporated changes to Section 13, "Conduct of Operations," of the LNP COL FSAR to reflect that changes to the organization are reviewed under the provisions of 10 CFR 50.54(a) to ensure that any reduction in commitments in the QAPD are submitted to and approved by the NRC prior to implementation; therefore, RAI 17.5-7 is closed.

In addition, the NRC staff reviewed the resolution of COL information items STD COL 17.5-2, STD COL 17.5-4, STD COL 17.5-8, and LNP COL 17.5-1, which are addressed in the LNP QAPD. The LNP Units 1 and 2 QAPD is based on NEI 06-14A, "Quality Assurance Program Description," Revision 7, which was approved by the NRC staff using Section 17.5 of NUREG-0800. The staff's review of these four COL items is a combination of plant-specific evaluation and standard content evaluation.

AP1000 COL Information Items

- STD COL 17.5-2, STD COL 17.5-4, STD COL 17.5-8 and LNP COL 17.5-1

The following portion of this technical evaluation section is reproduced from Section 17.5.4 of the VEGP SER:

> *The NEI 06-14A template provided generic information and format for QAPDs with bracketed areas for applicants to provide plant-specific information. The generic information in NEI 06-14A provides the information required for STD COL 17.5-2, 17.5-4, and 17.5-8. In its review of TVA QAPD, the NRC staff used Section 17.5 of NUREG-0800 and RG 1.206 as guidance. The NRC staff developed Section 17.5 of NUREG-0800 using American Society of Mechanical Engineers (ASME) standard ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," as supplemented by additional regulatory and industry guidance for nuclear operating facilities.*

Further NRC staff evaluation of the COL review items and the LNP QAPD is provided in the following sections.

17.5.4.1 *Organization*

The following portion of this technical evaluation section is reproduced from Section 17.5.4.1 of the VEGP SER:

> *TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.A. The QAPD describes and defines the responsibility and authority for planning, establishing, and implementing an effective overall QA program. The QAPD provides a description of an organizational structure, functional responsibilities, levels of authority, and interfaces for establishing, executing, and verifying QAPD implementation. The QAPD establishes independence between the organization responsible for checking a function and the organization that performs the function. In addition, the QAPD allows TVA management to size the QA organization commensurate with the duties and responsibilities assigned.*
>
> *In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 1, and Supplement 1S-1.*

During its review of the LNP Units 1 and 2 QAPD, the NRC staff identified an issue in the Organization Section of the LNP Units 1 and 2 QAPD that required further clarification. In RAI 17.5-2, dated February 27, 2009, the NRC staff requested that the applicant provide clarification

regarding the inclusion of organizational charts in the LNP Units 1 and 2 QAPD, and additional clarifications regarding organizational descriptions provided in Part II, of Section I of the LNP Units 1 and 2 QAPD. By letter dated March 31, 2009, the applicant responded to RAI 17.5-2 and stated, in part, that it has defined the organizational structure; roles and responsibilities; and reporting relationships for the its organizations that will implement the requirements of this QAPD for the development, construction and operation of new nuclear generating plants. The organizational descriptions and organization charts contained within the QAPD define the corporate and Nuclear Generation Group organizations that implement the quality assurance requirements in the QAPD in support of the development, construction and operation of the units. The operational phase organization chart provided in the QAPD is representative of the typical site organizational structure identifying the various reporting relationships that implement the quality assurance requirements including Nuclear Oversight functions. The applicant elects to describe the detailed organization responsible for the operation of the new nuclear generating plants within the respective sites' FSAR Chapter 13. This detailed description is incorporated by reference into the QAPD, and changes to this organization are reviewed under the provisions of 10 CFR 50.54(a) to ensure that any reduction in commitments contained in the QAPD (as accepted by the NRC) are submitted to and approved by the NRC prior to implementation.

By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. The staff confirmed that Revision 9 of the LNP Units 1 and 2 QAPD incorporated a description of the LNP organization, including organizational charts, consistent with the applicant's RAI responses. In addition, the staff confirmed that the applicant had incorporated changes to Section 13, "Conduct of Operations," of the LNP COL FSAR to reflect that changes to the organization are reviewed under the provisions of 10 CFR 50.54(a) to ensure that any reduction in commitments in the QAPD are submitted to and approved by the NRC prior to implementation; therefore, RAI 17.5-2 is closed.

17.5.4.2 *Quality Assurance Program*

The following portion of this technical evaluation section is reproduced from Section 17.5.4.2 of the VEGP SER:

> *TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.B. The QAPD establishes measures to implement a QA program to ensure that the design, construction, and operation of a nuclear power plant are in accordance with governing regulations and license requirements. The QA program comprises those planned and systematic actions necessary to provide confidence that SSCs will perform their intended safety function, including certain non-safety-related SSCs and activities that are significant contributors to plant safety, as described in the applicant's FSAR. The QA program requires that a list or system identifying SSCs and activities to which the QAPD applies be maintained.*
>
> *The QAPD provides measures to assess the adequacy of the QAPD and to ensure its effective implementation at least once each year or at least once during the life of the activity, whichever is shorter. The program allows the period*

for assessing the QAPD during the operations phase to be extended to once every 2 years. In addition, consistent with Section 17.5 of NUREG-0800, paragraph II.B.8, the QAPD applies a grace period of 90 days to activities that must be performed on a periodic basis. The next due date for the performance of an activity that invokes the 90-day grace period remains unchanged. The next due date for an activity performed before the scheduled due date is moved backwards so that the interval prescribed for the performance of the activity is not exceeded.

The QAPD also follows the guidance of Section 17.5 of NUREG-0800, paragraphs II.S and II.T. The QAPD describes measures to establish and maintain formal indoctrination and training programs for personnel performing, verifying, or maintaining activities within the scope of the QAPD to ensure that they achieve and maintain suitable proficiency. The plant's technical specifications delineate the minimum qualifications for plant and support staff. Personnel are required to complete the training for positions identified in 10 CFR 50.120, "Training and Qualification of Nuclear Power Plant Personnel," according to programs accredited by the National Nuclear Accrediting Board of the National Academy for Nuclear Training. The QAPD also provides the minimum training requirements for managers responsible for QAPD implementation, in addition to the minimum training requirements for the individuals responsible for planning, implementing, and maintaining the QAPD.

The QAPD also follows Section 17.5 of NUREG-0800, paragraph II.W. The QAPD provides measures for establishing an independent review program for activities occurring during the operational phase. In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 2, and Supplements 2S-1, 2S-2, 2S-3, and 2S-4, with the following alternatives:

- *NQA-1-1994, Supplement 2S-1, includes NQA-1-1994, Appendix 2A-1.The QAPD proposes the following alternatives to the implementation of Supplement 2S-1 and Appendix 2A-1:*

  – *NQA-1-1994, Supplement 2S-1, states that the organization designate those activities that require qualified inspectors and test personnel and establish written procedures for the qualification of these personnel. As an alternative to this requirement, the QAPD proposes that a qualified engineer may plan inspections, evaluate the capabilities of an inspector, or evaluate the training program for inspectors. For the purposes of these functions, a qualified engineer is one who has a baccalaureate degree in engineering in a discipline related to the inspection or test activity (i.e., electrical, mechanical, or civil engineering) and has at least 5 years of engineering work experience, with at least 2 years of this experience regarding nuclear facilities. The NRC staff evaluated this proposed alternative and determined that the designation of a qualified engineer to plan*

inspections, evaluate inspectors, or evaluate the inspector qualification programs is consistent with the training and qualification criteria of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," and NQA-1-1994, Supplement 2S-1. Therefore, the NRC staff concluded that this alternative is acceptable.

– *NQA-1-1994, Appendix 2A-1 provides guidance for qualifying inspection and test personnel as Level I, II, or III. As an alternative to this guidance, the QAPD proposes that personnel performing independent quality verification inspections, examinations, measurements, or tests will be required to possess qualifications equal to or better than those required for performing the task being verified. In addition, the verification performed must be within the skills of these personnel and addressed by procedures. These personnel will not be responsible for planning quality verification inspections or tests (i.e., establishing hold points and acceptance criteria in procedures, and determining responsibility for performing the inspection), evaluating inspection training programs, or certifying inspection personnel. The NRC staff evaluated this proposed alternative and determined that it is consistent with inspection and test personnel initial qualification requirements specified in Section 17.5 of NUREG-0800, paragraph II.T.5. Therefore, the NRC staff concluded that this alternative is acceptable.*

- *NQA-1-1994, Supplement 2S-2, states that nondestructive examination personnel must be qualified. As an alternative to this requirement, the QAPD proposes to follow the applicable standard cited in Sections III and XI of the ASME Boiler and Pressure Vessel Code. 10 CFR 50.55a, "Codes and Standards," also requires the use of the latest Edition and Addenda of Sections III and XI of the ASME Code. The NRC staff evaluated this proposed alternative and determined that it is consistent with the regulation in 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program." Therefore, the NRC staff concluded that this alternative is acceptable.*

- *NQA-1-1994, Supplement 2S-3, states that the prospective lead auditors must have participated in a minimum of five audits in the previous 3 years. As an alternative to this requirement, the QAPD proposes to follow the guidance provided in Section 17.5 of NUREG-0800, paragraph II.S.4.c, which states that prospective lead auditors shall demonstrate their ability to properly conduct the audit process, as implemented by the company, to effectively lead an audit team, and to effectively organize and report results, including participation in at least one nuclear audit within the year preceding the date of qualification. The NRC staff evaluated this proposed alternative and determined that it is consistent with the regulation in 10 CFR Part 50, Appendix B, Criterion II. Therefore, the NRC staff concluded that this alternative is acceptable.*

The following portion of this technical evaluation section is reproduced from Section 17.5.4.2 of the VEGP SER:

> *In RAI 17.5-5, dated May 12, 2008, the NRC staff requested that the applicant revise the TVA QAPD Part II, Section 2.5 to cite the correct regulation of 10 CFR 52.79(a)(27) versus 10 CFR 50.34(b)(6)(ii). In its response dated June 26, 2008, the applicant proposed to revise the TVA QAPD Part II, Section 2.5 consistent with the proposed wording in NEI Technical Report 06-14A, "Quality Assurance Program Description," Revision 5, dated May 2008. Revision 5 of NEI 06-14A has not been approved by the NRC staff; therefore, this issue will remain open until Revision 5 of NEI 06-14A is approved and TVA has incorporated the approved changes into the TVA QAPD. This is identified as* ***Open Item 17.5-1****.*
>
> *Resolution of Standard Content Open Item 17.5-1*
>
> *Revision 7 of NEI 06-14A was approved by the NRC staff in a letter dated November 3, 2009, and adequately addressed RAI 17-5-5. In a letter dated December 31, 2009, the VEGP applicant provided a markup of Revision 9 of the SNC QAPD. The NRC staff has reviewed the markup of SNC QAPD, Revision 9, and determined that conforming changes have been proposed to Section 2.5 consistent with NEI 06-14A, Revision 7. On this basis, Open Item 17.5-1 is* ***Confirmatory Item 17.5-7*** *for the VEGP COL application.*

LNP Resolution of Standard Content Open Item 17.5-1 and Associated Confirmatory Item 17.5-7

In a letter dated September 23, 2010, the applicant endorsed the standard content material provided by VEGP. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. In Revision 9 of the LNP Units 1 and 2 QAPD, the application addressed the information related to standard content Open Item 17.5-1. The NRC staff has confirmed through review of the Revision 9 of the LNP Units 1 and 2 QAPD that the applicant has incorporated changes to Section 2.5 of the LNP Units 1 and 2 QAPD, which is consistent with the NRC-approved NEI 06-14A, Revision 7 guidance, that adequately addresses the issue; therefore, standard content Open Item 17.5-1 and associated Confirmatory Item 17.5-7 are resolved for the LNP COL application.

The following portion of this technical evaluation section is reproduced from Section 17.5.4.2 of the VEGP SER:

> *In RAI 17.5-6, the NRC staff requested that the applicant explain how the discussion of the Independent Review Committee responsibilities in Part II, Section 2.7 of the TVA QAPD is consistent with the requirements of American National Standards Institute (ANSI) N18.7. In its response dated June 26, 2008, the applicant proposed to revise the TVA QAPD Part II, Section 2.7 consistent with the proposed wording in NEI 06-14A, Revision 5. This issue will remain*

open until Revision 5 of NEI 06-14A is approved and TVA has incorporated the approved changes into the TVA QAPD. This is identified as ***Open Item 17.5-2****.*

Resolution of Standard Content Open Item 17.5-2

NEI 06-14A, Revision 7, adequately addressed RAI 17.5-6. In a letter dated December 31, 2009, the applicant provided a markup of Revision 9 of the SNC QAPD. The NRC staff has reviewed the markup of SNC QAPD, Revision 9, and determined that conforming changes have been proposed to Section 2.7 consistent with NEI 06-14A, Revision 7. On this basis, Open Item 17.5-2 is ***Confirmatory Item 17.5-8*** *for the VEGP COL application.*

LNP Resolution of Standard Content Open Item 17.5-2 and Associated Confirmatory Item 17.5-8

By letters dated April 26, 2010, and September 23, 2010, the applicant provided responses to address concurrence with standard content Open Item 17.5-2 in response to requests for information. With respect to standard content Open Item 17.5-2, regarding the Independent Review Committee, the applicant noted that Part II Section 2.7 of NEI 06-14A provides two different acceptable options for implementing the required activities associated with the Independent Review Process. Option II is implemented by the R-COL application QAPD, while the LNP COL applicant elected to implement Option I. Since the R-COL application implements Option II, the changes to Option II incorporated into NEI 06-14A Revision 7 are addressed in the standard response to NRC SER Open Item 17.05-02. Option I is not addressed or impacted by this standard response. The R-COL application standard response is not applicable to the LNP S-COL applications because the LNP COL applicant does not implement Option II in its QAPD. Therefore, the LNP COL applicant's QAPD is not impacted by the standard response to NRC SER Open Item 17.05-02. The staff has reviewed the applicant's response and finds that it adequately addresses the issue; therefore Standard Content RAI 17.5-2 and associated Confirmatory Item 17.5-8 are resolved for the LNP application. By letter dated June 19, 2013, the applicant provided Revision 9 of the LNP Units 1 and 2 QAPD, which provided a change to Section 2.7, "Independent Review," which relocated the description of the independent review function to Section V, "Additional Quality Assurance and Administrative Controls for the Plant Operational Phase," of the QAPD. This revision was to maintain consistency with the NRC-approved NEI 06-14A, Revision 7 guidance. The staff's review of this information is provided in Section 17.5.4.21 of the staff's SER.

In RAI 17.5-3, dated February 27, 2009, the NRC staff requested that the applicant provide a revision to the QAPD Part II, Section 2, which states that the LNP Units 1 and 2 QAPD applies to those quality-related activities that involve the functions of safety-related activities of structures, systems, and components SSCs as described in the COL FSAR consistent with Appendix B to 10 CFR Part 50 which requires, in part, that Part 52 applicants include in the FSAR a description of the quality assurance [program] applied to the design, and to be applied to the fabrication, construction, and testing of the SSCs of the facility and to the managerial and administrative controls to be used to assure safe operations.

In letter dated March 31, 2009, the applicant responded to RAI 17.5-3 and stated, in part, that: it developed and prepared the LNP Units 1 and 2 QAPD consistent with the NRC approved template NEI 06-14A, Revision 4, for the format and content of standard and site specific sections. The applicant committed to review and implement the appropriate standard and site specific text changes to Section 2 describing these programmatic controls within the QAPD following approval of NEI 06-14, Revision 5 by the NRC. Since that time the NRC has reviewed and approved NEI 06-14A, Revision 7 which has been adopted by the applicant as the foundation for the LNP Units 1 and 2 QAPD. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. The staff confirmed that Revision 9 of the LNP Units 1 and 2 QAPD incorporated a description of the quality-related activities, consistent with the NRC-approved NEI 06-14A, Revision 7 description; therefore RAI 17.5-3 is closed.

In RAI 17.5-4, dated February 27, 2009, the NRC staff requested that the applicant identify the site-specific design basis activities consistent with the guidance in NEI 06-14A, Section 2.3, or justify its omission. In letter dated March 31, 2009, the applicant responded to RAI 17.5-4 and stated, in part, that the section from NEI 06-14A was erroneously omitted during the preparation of the LNP Units 1 and 2 QAPD, and that the LNP Units 1 and 2 QAPD will be revised to include the site specific text contained within Section 2.3 of NEI 06-14A. Since that time the NRC has reviewed and approved NEI 06-14A, Revision 7 which has been adopted by the applicant as the foundation for the LNP Units 1 and 2 QAPD. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. The staff confirmed that Revision 9 of the LNP Units 1 and 2 QAPD incorporated a description of the site specific safety-related design basis activities, consistent with the NRC-approved NEI 06-14A, Revision 7 description; therefore RAI 17.5-4 is closed.

In RAI 17.5-5, dated February 27, 2009, the NRC staff requested that the applicant revise the LNP QAPD to include a description consistent with NEI 06-14A regarding the applicability of the QAPD to “those [Nuclear Development] and [CA] activities that can affect either directly or indirectly the safety-related site characteristics or analysis of those characteristics.”

In a letter dated March 31, 2009, the applicant responded to RAI 17.5-5 and stated, in part, that the paragraph from NEI 06-14A was erroneously omitted during the preparation of the LNP Units 1 and 2 QAPD, and that the QAPD will be revised to be consistent with the NRC approved standard text contained within Section 2 of NEI 06-14A. Since that time the NRC has reviewed and approved NEI 06-14A, Revision 7 which has been adopted by the applicant as the foundation for the LNP Units 1 and 2 QAPD. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. The staff reviewed Section 2 of the LNP QAPD and confirmed that the applicant had adequately described those activities that can affect the safety-related site characteristics or analysis of those characteristics expected scope of work, consistent with the NRC- approved NEI 06-14A guidance, related to the COL; therefore, RAI 17.5-5 is closed.

The following portion of this technical evaluation section is reproduced from Section 17.5.4 of the VEGP SER:

17.5.4.3 *Design Control*

The following portion of this technical evaluation section is reproduced from Section 17.5.4.3 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.C. The QAPD establishes the necessary measures to control the design, design changes, and temporary modifications (e.g., temporary bypass lines, electrical jumpers and lifted wires, and temporary setpoints) of items that are subject to the provisions of the QAPD. The QAPD design process includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces with the applicant and its suppliers. These provisions ensure that the design inputs (i.e., design bases and the performance, regulatory, quality, and quality verification requirements) are correctly translated into design outputs (i.e., analyses, specifications, drawings, procedures, and instructions). In addition, the QAPD provides for individuals knowledgeable in QA principles to review design documents to ensure that they contain the necessary QA requirements.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 3 and Supplement 3S-1, to establish the program for design control and verification, Subpart 2.20 for the subsurface investigation requirements, and Subpart 2.7 for the standards for computer software QA controls.

17.5.4.4 *Procurement Document Control*

The following portion of this technical evaluation section is reproduced from Section 17.5.4.4 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.D. The QAPD establishes the necessary administrative controls and processes to ensure that procurement documents include or reference applicable regulatory, technical, and QA program requirements. As noted in Section 17.5 of NUREG-0800, paragraph II.D.1, applicable technical, regulatory, administrative, quality, and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and the regulation in 10 CFR Part 21, "Reporting of Defects and Noncompliance") are invoked for procurement of items and services.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 4, and Supplement 4S-1, with the following alternatives and commitment:

- *NQA-1-1994, Supplement 4S-1, Section 2.3, states that procurement documents must require suppliers to have a documented QA program that implements NQA-1-1994, Part I.*

  – *As an alternative to this requirement, the QAPD proposes that suppliers have a documented QA program that meets Appendix B to 10 CFR Part 50, as applicable to the circumstances of the procurement. The NRC staff evaluated this proposed alternative and determined that it is consistent with Appendix B, Criterion IV, "Procurement Document Control." Therefore, the NRC staff concluded that this alternative is acceptable.*

  - *As an alternative to this requirement, the QAPD proposes that procurement documents allow suppliers to work under TVA's QAPD, including implementing procedures, if suppliers do not have their own QA program. The NRC staff evaluated this proposed alternative and determined that TVA's QAPD follows the guidance in Section 17.5 of NUREG-0800, paragraph II.G, regarding "Control of Purchased Material, Equipment, and Services." Specifically, the QAPD provides measures to evaluate prospective suppliers so that only qualified suppliers are selected, acceptance actions are performed for procured products and services, and suppliers are periodically audited and evaluated to ensure that qualified suppliers continue to provide acceptable products and services. Therefore, the NRC staff concluded that this alternative is acceptable.*

- *NQA-1-1994, Supplement 4S-1, Section 3, states that procurement documents are to be reviewed before award of the contract. As an alternative to this requirement, the QAPD proposes to conduct the QA review of procurement documents through review of the applicable procurement specification, including the technical and quality procurement requirements, before contract award. In addition, procurement document changes (e.g., scope, technical, or quality requirements) will also receive QA review. The NRC staff evaluated this proposed alternative and determined that it provides adequate QA review of procurement documents before awarding the contract and after any change. Therefore, the NRC staff concluded that this alternative is acceptable.*

- *In the QAPD, TVA commits that procurement documents prepared for commercial-grade items, procured as safety-related items, shall contain technical and quality requirements such that the procured item can be appropriately dedicated. The NRC staff evaluated this proposed*

commitment and determined that it is consistent with NRC staff guidance in Generic Letter (GL) 89-02, "Actions to Improve the Detection of Counterfeit and Fraudulently Marked Products," dated March 21, 1989, and GL 91-05, "Licensee Commercial-Grade Procurement and Dedication Programs," dated April 9, 1991, as delineated in Section 17.5 of NUREG-0800, paragraphs II.U.1.d and II.U.1.e. Therefore, the NRC staff concluded that this commitment is acceptable.

In RAI 17.5-7, dated May 12, 2008, the NRC staff requested that the applicant revise TVA QAPD Part II, Section 4 to substitute "TVA's" for "licensee's" to make it clear that a supplier may work under TVA's approved QA program. In its response dated June 26, 2008, the applicant stated that current use of "licensee's" is consistent with the wording in NEI 06-14A, Revision 4, which has been approved by the NRC staff. In a letter, dated September 17, 2008, the NRC staff requested NEI to address this question as part of a future revision to NEI 06-14A. This issue will remain open until Revision 5 of NEI 06-14A is approved and TVA has incorporated the approved changes into the TVA QAPD. This is identified as ***Open Item 17.5-3****.*

Resolution of Standard Content Open Item 17.5-3

NEI 06-14A, Revision 7, adequately addressed RAI 17.5-7. In a letter dated December 31, 2009, the applicant provided a markup of Revision 9 of the SNC QAPD. The NRC staff has reviewed the markup of SNC QAPD, Revision 9, and determined that conforming changes have been proposed to Section 4 consistent with NEI 06-14A, Revision 7. On this basis, Open Item 17.5-3 is Confirmatory Item 17.5-9 for the VEGP COL application.

LNP Resolution of Standard Content Open Item 17.5-3 and Associated Confirmatory Item 17.5-9

In a letter dated September 23, 2010, the applicant endorsed the standard content material provided by VEGP. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. In Revision 9 of the LNP Units 1 and 2 QAPD, the application addressed the information related to the standard content Open Item 17.5-3. The NRC staff has confirmed, through review of Revision 9 of the LNP Units 1 and 2 QAPD, that the applicant has incorporated changes to Section 4 of the LNP Units 1 and 2 QAPD, consistent with the NRC-approved NEI 06-14A, Revision 7 guidance that adequately addresses the issue; therefore, standard content Open Item 17.5-3 and associated Confirmatory Item 17.5-9 are resolved for the LNP COL application.

17.5.4.5 Instructions, Procedures, and Drawings

The following portion of this technical evaluation section is reproduced from Section 17.5.4.5 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.E. The QAPD establishes the necessary measures and governing

procedures to ensure that activities affecting quality are prescribed by and performed in accordance with documented instructions, procedures, and drawings.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 5, to establish procedural controls.

17.5.4.6 Document Control

The following portion of this technical evaluation section is reproduced from Section 17.5.4.6 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.F. The QAPD establishes the necessary measures and governing procedures to control the preparation, review, approval, issuance, and changes of documents that specify quality requirements or prescribe measures for controlling activities affecting quality, including organizational interfaces. The QAPD provides measures to ensure that the same organization that performed the original review and approval also review and approve revisions or changes to documents, unless other organizations are specifically designated.

A listing of all controlled documents identifying the current approved revision or date is maintained so personnel can readily determine the appropriate document for use. To ensure effective and accurate procedures during the operational phase, applicable procedures are reviewed and updated as necessary, consistent with NRC staff guidance provided in Section 17.5 of NUREG-0800, paragraph II.F.8.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 6 and Supplement 6S-1, to establish provisions for document control.

17.5.4.7 Control of Purchased Material, Equipment, and Services

The following portion of this technical evaluation section is reproduced from Section 17.5.4.7 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.G. The QAPD establishes the necessary measures and governing procedures to control the procurement of items and services to ensure conformance with specified requirements. The program provides measures to evaluate prospective suppliers so that only qualified suppliers are selected. In addition, the program requires that suppliers be periodically audited and evaluated to ensure that qualified suppliers continue to provide acceptable products and services.

The program provides for acceptance actions, such as source verification, receipt inspection, pre- and post-installation tests, and review of documentation, such as

certificates of conformance, to ensure that procurement, inspection, and test requirements have been satisfied before relying on the item to perform its intended safety function. Purchased items (such as components, spares, and replacement parts necessary for plant operation, refueling, maintenance, and modifications) and services are subject to quality and technical requirements at least equivalent to those specified for original equipment or by properly reviewed and approved revisions to ensure that the items are suitable for the intended service and are of acceptable quality, consistent with their effect on safety.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 7 and Supplement 7S-1, to establish procurement verification control, with the following exceptions and alternatives:

- *NQA-1-1994, Basic Requirement 7 and Supplement 7S-1, state that procurement sources and suppliers' performance are to be evaluated. As an exception to these requirements, the QAPD proposes that other 10 CFR Part 50 licensees (other than TVA), authorized nuclear inspection agencies, the National Institute of Standards and Technology (NIST), and other State and Federal agencies that may provide items or services to TVA are not required to be evaluated or audited.*

  The NRC staff acknowledges that 10 CFR Part 50 licensees, authorized nuclear inspection agencies, the National Voluntary Laboratory Accreditation Program (NVLAP) administered by NIST, and other state and federal agencies perform work under quality programs acceptable to the NRC, and that no additional audits or evaluations are required. However, TVA remains responsible for ensuring that procured items or services conform to its Appendix B program, applicable ASME Boiler and Pressure Vessel Code requirements, and other regulatory requirements and commitments. TVA also remains responsible for ensuring that the items or services are suitable for the intended application and for documenting the evaluation that supports this conclusion. The proposed exception provides an appropriate level of quality and safety. The NRC staff determined that this exception is acceptable as documented in a previous SE.

- *Section 17.5 of NUREG-0800, paragraph II.L.8, establishes provisions for the procurement of commercial-grade calibration services for safety-related applications. As an exception to these provisions, the QAPD proposes that procurement source evaluation and selection measures not be required, provided all of the following conditions are met:*

  - *Purchase documents impose additional technical and administrative requirements to satisfy any licensee-specific QAPD and technical requirements.*

- *Purchase documents require reporting as-found calibration data when calibrated items are found to be out of tolerance.*

- *A documented review of the supplier's accreditation will be performed and will include a verification of the following:*

  - *The calibration laboratory holds a domestic accreditation by any one of the following accrediting bodies, which are recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA):*

    - *National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards & Technology,*

    - *American Association for Laboratory Accreditation (A2LA).*

  - *The accreditation encompasses ANS/ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories."*

  - *The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, range, and uncertainties.*

The NRC staff evaluated and found to be acceptable the NVLAP and A2LA accreditation programs. In RAI 17.5-13, dated May 12, 2008, the NRC staff requested that the applicant justify the wording discrepancy between TVA QAPD Part II, Section 7.2 and Section 17.5 of NUREG-0800, Section II.L.8.c, regarding the NRC approved alternative for commercial grade calibration services. In its response dated June 24, 2008, the applicant stated that wording is consistent with the wording in NEI 06-14A, Revision 4, which has been approved by the NRC staff. In a letter, dated September 17, 2008, the NRC staff requested NEI to address this question as part of Revision 5 to NEI 06-14A. This issue will remain open until Revision 5 of NEI 06-14A is approved and TVA has incorporated the approved changes into the TVA QAPD. This is identified as ***Open Item 17.5-4****.*

Resolution of Standard Content Open Item 17.5-4

NEI 06-14A, Revision 7, adequately addressed RAI 17.5-13. In a letter dated December 31, 2009, the VEGP applicant provided a markup of Revision 9 of the SNC QAPD. The NRC staff has reviewed the markup of SNC QAPD, Revision 9, and determined that conforming changes have been proposed to Section 7.2 consistent with NEI 06-14A, Revision 7. On this basis, Open Item 17.5-4 is ***Confirmatory Item 17.5-10*** *for the VEGP COL application.*

LNP Resolution of Standard Content Open Item 17.5-4 and Associated Confirmatory Item 17.5-10

In a letter dated September 23, 2010, the applicant endorsed the standard content material provided by VEGP. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. In Revision 9 of the LNP Units 1 and 2 QAPD, the application addressed the information related the standard content Open Item 17.5-4. The NRC staff has confirmed through review of the Revision 9 of the LNP Units 1 and 2 QAPD that the applicant has incorporated changes to Section 7 of the LNP Units 1 and 2 QAPD, consistent with the NRC-approved NEI 06-14A, Revision 7 guidance that adequately addresses the issue; therefore, standard content Open Item 17.5-4 and associated Confirmatory Item 17.5-10 are resolved for the LNP COL application.

The following portion of this technical evaluation section is reproduced from Section 17.5.4.7 of the BLN SER:

- *NQA-1-1994, Supplement 7S-1, Section 8.1, states that documentary evidence that items conform to procurement documents shall be available at the nuclear facility site prior to installation or use. As an alternative to the requirement for procurement documentary evidence to be available at the nuclear facility site during construction. The QAPD proposes that documentary evidence may be stored in physical form or in electronic media, under the control of TVA or its supplier(s), at a location(s) other than the nuclear facility site, as long as the documents can be accessed at the nuclear facility site during construction. After completion of construction, TVA will have sufficient documentary evidence to support operations. The NRC staff determined that implementation of this alternative would allow access to and review of the necessary procurement documentary evidence at the nuclear facility site, both before installation and use. Therefore, the NRC staff concluded that this alternative is acceptable.*

- *As an alternative to the requirements for the control of commercial-grade items and services in NQA-1-1994, Supplement 7S-1, Section 10, TVA commits in the QAPD to follow NRC guidance discussed in GL 89-02 and GL 91-05. In addition, TVA commits to establish and describe special quality verification requirements in applicable documents to assure that the commercially procured items will perform satisfactorily in service. In addition, the documents should provide for determining critical characteristics, technical evaluation, receipt requirements, and quality evaluation of the items to ensure that the items are suitable for their intended use. The NRC staff determined that this alternative will improve detection of counterfeit and fraudulently marked products and will improve the commercial-grade dedication programs. This alternative is consistent with the guidance of Section 17.5 of NUREG-0800, paragraphs II.U.1.d and II.U.1.e. Therefore, the NRC staff concluded that this alternative is acceptable.*

- *As an alternative to the requirements for the control of commercial-grade items and services in NQA-1-1994, Supplement 7S-1, Section 10, TVA commits to use other appropriate approved regulatory means and controls to support TVA commercial grade dedication activities. One example of this is NRC Regulatory Issue Summary (RIS) 2002-22, "Use of EPRI/NEI Joint Task Force Report, 'Guideline on Licensing Digital Upgrades: EPRI TR-102348, Revision 1, NEI 01-01: A Revision of EPRI TR-102348 to Reflect Changes to the 10 CFR 50.59 Rule.'" TVA will assume 10 CFR Part 21 reporting responsibility for all items that TVA dedicates as safety-related.*

In RAI 17.5-14, the NRC staff requested that the applicant provide an explanation as to how RIS 2002-22 represents an example of other approved regulatory means for commercial grade dedication activities. In its response dated June 24, 2008, the applicant stated that wording is consistent with the wording in NEI 06-14A, Revision 4, which has been approved by the NRC staff. In a letter, dated September 17, 2008, the NRC staff requested NEI to address this question as part of Revision 5 to NEI 06-14A. This issue will remain open until Revision 5 of NEI 06-14A is approved and TVA has incorporated the approved changes into the TVA QAPD. This is identified as ***Open Item 17.5-5****.*

Resolution of Standard Content Open Item 17.5-5

NEI 06-14A, Revision 7, adequately addressed RAI 17.5-14. In a letter dated December 31, 2009, the VEGP applicant provided a markup of Revision 9 of the SNC QAPD. The NRC staff has reviewed the markup of SNC QAPD, Revision 9, and determined that conforming changes have been proposed to Section 7.2 consistent with NEI 06-14A, Revision 7. On this basis, Open Item 17.5-5 is ***Confirmatory Item 17.5-11*** *for the VEGP COL application.*

LNP Resolution of Standard Content Open Item 17.5-5 and Associated Confirmatory Item 17.5-11

In a letter dated September 23, 2010, the applicant endorsed the standard content material provided by VEGP. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. In Revision 9 of the LNP Units 1 and 2 QAPD, the application addressed the information related to the standard content Open Item 17.5-5. The NRC staff has confirmed through review of Revision 9 of the LNP Units 1 and 2 QAPD that the applicant has incorporated changes to Section 7 of the LNP Units 1 and 2 QAPD, consistent with the NRC-approved NEI 06-14A, Revision 7 guidance that adequately addresses the issue; therefore, standard content Open Item 17.5-5 and associated Confirmatory Item 17.5-11 are resolved for the LNP COL application.

The following portion of this technical evaluation section is reproduced from Section 17.5.4 of the VEGP SER:

17.5.4.8 Identification and Control of Materials, Parts, and Components

The following portion of this technical evaluation section is reproduced from Section 17.5.4.8 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.H. The QAPD establishes the necessary measures for the identification and control of items such as materials, including consumables and items with limited shelf life, parts, components, and partially fabricated subassemblies. The identification of items is maintained throughout fabrication, erection, installation, and use so that the item can be traced to its documentation, consistent with the item's effect on safety.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 8 and Supplement 8S-1, to establish provisions for identification and control of items.

17.5.4.9 Control of Special Processes

The following portion of this technical evaluation section is reproduced from Section 17.5.4.9 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.I. The QAPD establishes programs, procedures, and processes to ensure that special processes requiring interim process controls to ensure quality, such as welding, heat treating, chemical cleaning, and nondestructive examinations are implemented and controlled in accordance with applicable codes, specifications, and standards.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 9 and Supplement 9S-1, to establish measures for the control of special processes.

17.5.4.10 Inspection

The following portion of this technical evaluation section is reproduced from Section 17.5.4.10 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.J. The QAPD establishes the necessary measures to implement inspections that ensure items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. The inspection program establishes requirements for planning inspections, determining applicable acceptance criteria, setting the frequency of inspection, and identifying special tools needed to perform the inspection. Properly qualified personnel independent of those who performed or directly supervised the work are required to perform the inspections.

In the QAPD, TVA commits to comply with NQA-1-1994, Basic Requirement 10, Supplement 10S-1, and Subparts 2.4, 2.5, and 2.8, to establish inspection requirements, with the following commitment and alternative:

- *NQA-1-1994, Subpart 2.4, requires the use of the Institute of Electrical and Electronic Engineers (IEEE) Standard 336-1985, "IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities." IEEE Standard 336-1985 refers to IEEE 498-1985, "IEEE Standard Requirements for the Calibration and Control of Measuring and Test Equipment Used in Nuclear Facilities." Each of these standards uses the definition of safety systems equipment from IEEE Standard 603-1980, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations." IEEE Standard 603-1980 defines "safety system" as:*

  > *Those systems (the reactor trip system, an engineered safety feature, or both, including all their auxiliary supporting features and other auxiliary feature) which provide a safety function. A safety system is comprised of more than one safety group of which any one safety group can provide the safety function.*

  The QAPD must commit to the definition of safety systems equipment from IEEE Standard 603-1980 to appropriately implement NQA-1-1994, Subpart 2.4. In the QAPD, TVA commits to the definition of safety systems equipment from IEEE Standard 603-1980, but does not commit to the balance of IEEE Standard 603-1980. This definition applies only to equipment in the context of Subpart 2.4. The NRC staff determined that the use of the definition of safety systems equipment is acceptable because it is consistent with the requirements of NQA-1-1994, Subpart 2.4.

- *NQA-1-1994, Supplement 10S-1, Section 3.1, states that inspection personnel shall not report to the immediate supervisor who is responsible for performing the work being inspected. As an alternative to this requirement, the QAPD proposes that QA inspectors will report to quality control management while performing such inspections. The NRC staff determined that the use of this alternative is consistent with guidance provided in Section 17.5 of NUREG-0800, paragraph II.J.1. Therefore, the NRC staff concluded that this alternative is acceptable.*

In a letter dated December 31, 2009, the VEGP applicant provided a markup of Revision 9 of the SNC QAPD that includes the alternative to NQA-1-1994, Supplement 10S-1, Section 3.1, discussed above. The NRC staff has reviewed the markup of SNC QAPD, Revision 9, and determined that the proposed changes are consistent with the alternative evaluated in the BLN SER. These

*items are identified as **Confirmatory Item 17.5-12**, pending NRC review of the revised QAPD as referenced in Section 17.5 of the VEGP COL FSAR.*

Resolution of Standard Content Confirmatory Item 17.5-12.

Confirmatory Item 17.5-12 is an applicant commitment to revise its QAPD. The staff verified that the VEGP COL application was appropriately updated. As a result, Confirmatory Item 17.5-12 is now closed.

The following portion of this technical evaluation section is reproduced from Section 17.5.4 of the VEGP SER:

17.5.4.11 Test Control

The following portion of this technical evaluation section is reproduced from Section 17.5.4.11 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.K. The QAPD establishes the necessary measures and governing provisions to demonstrate that items subject to the provisions of the QAPD will perform satisfactorily in service, that the plant can be operated safely as designed, and that the operation of the plant, as a whole, is satisfactory.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 11 and Supplement 11S-1, to establish provisions for testing.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Supplement 11S-2 and Subpart 2.7, to establish provisions to ensure that computer software used in applications affecting safety be prepared, documented, verified, tested, and used such that the expected outputs are obtained and configuration control maintained.

17.5.4.12 Control of Measuring and Test Equipment

The following portion of this technical evaluation section is reproduced from Section 17.5.4.12 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.L. The QAPD establishes the necessary measures to control the calibration, maintenance, and use of measuring and test equipment that provide information important to safe plant operation.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 12 and Supplement 12S-1, to establish provisions for control of measuring and test equipment, with the following clarification and exception:

- *The QAPD clarifies that the out-of-calibration conditions, described in paragraph 3.2 of Supplement 12S-1 of NQA-1-1994, refer to cases where the measuring and test equipment are found to be out of the required accuracy limits (i.e., out of tolerance) during calibration. The NRC staff determined that the clarification for the out-of-calibration conditions is consistent with Supplement 12S-1. Therefore, the NRC staff concluded that this clarification is acceptable.*

- *As an alternative to the NQA-1-1994, Subpart 2.4, Section 7.2.1, calibration labeling requirements, the QAPD proposes that, when it is impossible or impractical to mark equipment with required calibration information because of equipment size or configuration, the required calibration information will be documented and traceable to the equipment. The NRC staff determined that this alternative is consistent with NRC staff guidance provided in Section 17.5 of NUREG-0800, paragraph II.L.3. Therefore, the NRC staff concluded that this alternative is acceptable.*

17.5.4.13 Handling, Storage, and Shipping

The following portion of this technical evaluation section is reproduced from Section 17.5.4.13 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.M. The QAPD establishes the necessary measures to control the handling, storage, packaging, shipping, cleaning, and preservation of items to prevent inadvertent damage or loss and to minimize deterioration.

In the QAPD, TVA commits to comply with NQA-1-1994, Basic Requirement 13 and Supplement 13S-1, and to establish provisions for handling, storage, and shipping. In the QAPD, TVA also commits to comply with NQA-1-1994, Subparts 2.1 and 2.2 during the construction and pre-operations phase of the plant, as applicable, with the following alternative:

- *NQA-1-1994, Subpart 2.2, Section 6.6, states that the preparation of records must include information on personnel access to QA records. The QAPD establishes the necessary measures to document personnel authorized to access storage areas and recording personnel access. However, the QAPD proposes to not consider these documents as quality records. As an alternative, SNC will retain these documents in accordance with plant administrative controls. The NRC staff determined that these records do not meet the classification of a quality record as defined in NQA-1-1994, Supplement 17S-1, Section 2.7. Therefore, the NRC staff concluded that this alternative is acceptable.*

- *NQA-1-1994, Subpart 2.2, Section 7.1, refers to Subpart 2.15 for requirements related to handling of items. The QAPD clarifies that the*

scope of Subpart 2.15 includes hoisting, rigging and transporting of items for nuclear power plants during construction. The NRC staff has determined that this clarification is acceptable because it distinguishes between the requirements for construction and operation.

By letter dated June 19, 2013, the applicant provided Revision 9 of the LNP Units 1 and 2 QAPD. In Revision 9 of the LNP Units 1 and 2 QAPD, the application revised Section 13, "Handling, Storage, and Shipping," to reflect the NRC-approved NEI 06-14A, Revision 7 guidance on the subject. The staff has completed its review of this revised material as documented herein.

The LNP Units 1 and 2 QAPD follows the guidance of Section 17.5 of NUREG-0800, Paragraph II.M. The LNP Units 1 and 2 QAPD establishes the necessary measures to control the handling, storage, packaging, shipping, cleaning, and preservation of items to prevent inadvertent damage or loss and to minimize deterioration.

In the LNP Units 1 and 2 QAPD, the applicant commits to comply with NQA-1-1994, "Basic Requirement 13 and Supplement 13S-1," and to establish provisions for handling, storage, and shipping. In the LNP Units 1 and 2 QAPD, the applicant also commits to comply with NQA-1-1994, Subparts 2.1 and 2.2, during the construction and pre-operations phase of the plant, as applicable, with the following clarifications and exceptions:

- NQA-1-1994, Subpart 2.1, Sections 3.1 and 3.2 establish criteria for classifying items into cleanliness classes and requirements for each class. Instead of using the cleanliness level system of Subpart 2.1, the applicant may establish cleanliness requirements on a case-by-case basis, consistent with the other provisions of Subpart 2.1. The LNP Units 1 and 2 QAPD establishes appropriate cleanliness controls for work on safety-related equipment to minimize introduction of foreign material and maintain system/component cleanliness throughout maintenance or modification activities, including documented verification of absence of foreign material prior to system closure. The NRC staff determined that this alternative is consistent with previous NRC-approved QAPD changes for operating reactors (Approval of Nuclear Management Company Quality Assurance Topical Report, dated March 24, 2005 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML050700416)) and applicable to the LNP Units 1 and 2 QAPD during the operational phase of the LNP Units 1 and 2. Therefore, the NRC staff concluded that this alternative is acceptable.

- NQA-1-1994, Subpart 2.2, Section 2.2 establishes criteria for classifying items into protection levels. Instead of classifying items into protection levels during the operational phase, the applicant may establish controls for the packaging, shipping, handling, and storage of such items on a case-by-case basis with due regard for the item's complexity, use, and sensitivity to damage. Prior to installation or use, the items are inspected and serviced as necessary to assure that no damage or deterioration exists which could affect their function. The NRC staff determined that this alternative is consistent with previous

NRC-approved QAPD changes for operating reactors (Refer to ADAMS Accession Number ML050700416) and is applicable to the LNP Units 1 and 2 QAPD during the operational phase of the LNP Units 1 and 2. Therefore, the NRC staff concluded that this alternative is acceptable.

- NQA-1-1994, Subpart 2.2, Section 6.6, states that the preparation of records must include information on personnel access to QA records. The LNP Units 1 and 2 QAPD establishes the necessary measures to document personnel authorized to access storage areas and recording personnel access. However, the LNP Units 1 and 2 QAPD proposes to not consider these documents as quality records. As an alternative, the applicant will retain these documents in accordance with plant administrative controls. The NRC staff determined that these records do not meet the classification of a quality record as defined in NQA-1-1994, Supplement 17S-1, Section 2.7. Therefore, the NRC staff concluded that this alternative is acceptable.

- NQA-1-1994, Subpart 2.2, Section 7.1, refers to Subpart 2.15 for requirements related to handling of items. The LNP Units 1 and 2 QAPD clarifies that the scope of Subpart 2.15 includes hoisting, rigging, and transporting of items for nuclear power plants during construction. The NRC staff has determined that this clarification is acceptable because it distinguishes between the requirements for construction and operation.

- NQA-1-1994, Subpart 2.3, Section 2.3 provides for the establishment of five zone designations for housekeeping cleanliness controls. Instead of the five-level zone designation, the applicant may base its control over housekeeping activities on a consideration of what is necessary and appropriate for the activity involved. The LNP Units 1 and 2 QAPD states that the controls are implemented through procedures or instructions which, in the case of maintenance or modification work, are developed on a case-by-case basis. Factors considered in developing the procedures and instructions include cleanliness control, personnel safety, fire prevention and protection, radiation control, and security. The procedures and instructions make use of standard janitorial and work practices to the extent possible. The NRC staff determined that this alternative is consistent with previous NRC-approved QAPD changes for operating reactors (Refer to ADAMS Accession Number ML050700416) and is applicable to the LNP Units 1 and 2 QAPD during the operational phase of the LNP Units 1 and 2. Therefore, the NRC staff concluded that this alternative is acceptable.

- NQA-1-1994, Subpart 3.2, Appendix 2.1. The LNP Units 1 and 2 QAPD clarifies that only Section 3 precautions are being committed to in accordance with RG 1.37. In addition, a suitable chloride stress-cracking inhibitor should be added to the fresh water used to flush systems containing austenitic stainless steels. The NRC staff has determined that this clarification is acceptable because it is consistent with the precautions and recommendations contained in RG 1.37.

The following portion of this technical evaluation section is reproduced from Section 17.5.4 of the VEGP SER:

17.5.4.14 Inspection, Test, and Operating Status

The following portion of this technical evaluation section is reproduced from Section 17.5.4.14 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.N. The QAPD establishes the necessary measures to identify the inspection, test, and operating status of items and components subject to the provisions of the QAPD to maintain personnel and reactor safety and avoid inadvertent operation of equipment.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 14, for identifying inspection, test, and operating status.

17.5.4.15 Nonconforming Materials, Parts, or Components

The following portion of this technical evaluation section is reproduced from Section 17.5.4.15 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.O. The QAPD establishes the necessary measures to control items, including services that do not conform to specified requirements to prevent inadvertent installation or use. Nonconformances are evaluated for their impact on operability of quality SSCs to ensure that the final condition does not adversely affect safety, operation, or maintenance of the item or service. The results of evaluations of conditions adverse to quality are analyzed to identify quality trends, documented, and reported to upper management in accordance with applicable procedures.

In addition, the QAPD provides for establishing the necessary measures to implement the requirements of Subparts A and C of 10 CFR Part 52, 10 CFR 50.55(e), and 10 CFR Part 21, as applicable.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 15 and Supplement 15S-1, to establish measures for nonconforming material.

17.5.4.16 Corrective Action

The following portion of this technical evaluation section is reproduced from Section 17.5.4.16 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.P. The QAPD establishes the necessary measures to promptly

identify, control, document, classify, and correct conditions adverse to quality. The QAPD requires personnel to identify known conditions adverse to quality. Reports of conditions adverse to quality are analyzed to identify trends. Significant conditions adverse to quality are documented and reported to responsible management. In the case of suppliers working on safety-related activities or similar situations, TVA may delegate specific responsibility for the corrective action program, but TVA maintains responsibility for the program's effectiveness.

In addition, the QAPD provides for establishing the necessary measures to implement a reporting program in accordance with the requirements of 10 CFR Part 21.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 16, to establish a corrective action program.

17.5.4.17 Quality Assurance Records

The following portion of this technical evaluation section is reproduced from Section 17.5.4.17 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.Q. The QAPD establishes the necessary measures to ensure that sufficient records of items and activities affecting quality are generated, identified, retained, maintained, and retrievable.

Concerning the use of electronic records storage and retrieval systems, the QAPD complies with the NRC guidance given in RIS 2000-18, "Guidance on Managing Quality Assurance Records in Electronic Media," dated October 23, 2000, and associated Nuclear Information and Records Management Association (NIRMA) guidelines TG 11-1998, TG 15-1998, TG 16-1998 and TG 21-1998.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 17 and Supplement 17S-1, to establish provisions for records, with the following alternative:

- *NQA-1-1994, Supplement 17S-1, Section 4.2(b) states that records must be firmly attached in binders or placed in folders or envelopes for storage in steel file cabinets or on shelving in containers. As an alternative to this requirement, the QAPD proposes that hard-copy records be stored in steel cabinets or on shelving in containers, except that methods other than binders, folders, or envelopes may be used to organize records for storage. The NRC staff determined that this alternative is acceptable as documented in an SER dated September 1, 2005 for Nuclear Management Company.*

17.5.4.18 Quality Assurance Audits

The following portion of this technical evaluation section is reproduced from Section 17.5.4.18 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.R. The QAPD establishes the necessary measures to implement audits to verify that activities covered by the QAPD are performed in conformance with documented requirements. The audit program is reviewed for effectiveness as part of the overall audit process.

The QAPD provides for the applicant or holder to conduct periodic internal and external audits. Internal audits are conducted to determine that the program and procedures being audited comply with the QAPD. Internal audits, conducted after placing the facility in operation, are performed with a frequency commensurate with safety significance and in such a manner as to ensure that an audit of all applicable QA program elements is completed for each functional area within a period of 2 years. External audits determine the adequacy of a supplier's or contractor's QA program.

TVA ensures that audits are documented and reviews audit results. TVA responds to all audit findings and initiates appropriate corrective actions. In addition, where corrective actions are indicated, TVA documents follow-up of applicable areas through inspections, review, re-audits, or other appropriate means to verify implementation of assigned corrective actions.

In the QAPD, TVA commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 18 and Supplement 18S-1, to establish the independent audit program.

By letter dated June 19, 2013, the applicant provided Revision 9 of the LNP Units 1 and 2 QAPD. In Revision 9 of the LNP Units 1 and 2 QAPD, the application revised Section 18, "Audits," to reflect the NRC-approved NEI 06-14A, Revision 7 guidance on the subject. The staff has completed its review of this revised material as documented herein.

The LNP Units 1 and 2 QAPD follows the guidance of Section 17.5 of NUREG-0800, Paragraph II.R. The LNP Units 1 and 2 QAPD establishes the necessary measures to implement audits to verify that activities covered by the LNP Units 1 and 2 QAPD are performed in conformance with documented requirements. The audit program is reviewed for effectiveness as part of the overall audit process.

The LNP Units 1 and 2 QAPD provides for the applicant or holder to conduct periodic internal and external audits. Internal audits are conducted to determine that the program and procedures being audited comply with the LNP Units 1 and 2 QAPD. Internal audits of organization and facility activities, conducted prior to placing the facility in operation, should be performed in such a manner as to assure that an audit of all applicable QAP elements is completed for each functional area at least once each year or at least once during the life of the

activity, whichever is shorter. Internal audits, conducted after placing the facility in operation, are performed with a frequency commensurate with safety significance and in such a manner as to ensure that an audit of all applicable QAP elements are completed for each functional area within a period of two years. External audits determine the adequacy of a supplier's or contractor's QAP.

This section of the LNP Units 1 and 2 QAPD states that the applicant is to ensure that audits are documented and that it reviews audit results. The applicant is to respond to all audit findings and initiates appropriate corrective actions. In addition, where corrective actions are indicated, the applicant is to document follow-up of applicable areas through inspections, review, re-audits, or other appropriate means to verify implementation of assigned corrective actions.

In the LNP Units 1 and 2 QAPD, the applicant commits to comply with the quality standards described in NQA-1-1994, "Basic Requirement 18 and Supplement 18S-1," to establish the independent audit program.

The following portion of this technical evaluation section is reproduced from Section 17.5.4.19 of the VEGP SER:

17.5.4.19 Nonsafety-Related SSCs Quality Assurance Control

17.5.4.19.1 Nonsafety-Related SSCs - Significant Contributors to Plant Safety

The following portion of this technical evaluation section is reproduced from Section 17.5.4.19.1 of the BLN SER:

TVA's QAPD follows the guidance of Section 17.5 of NUREG-0800, paragraph II.V.1. The QAPD establishes program controls applied to non-safety-related SSCs that are significant contributors to plant safety and to which Appendix B does not apply. The QAPD applies specific controls to these items in a selected manner, targeting the characteristics or critical attributes that render the SSC a significant contributor to plant safety consistent with applicable sections of the QAPD.

In RAI 17.5-7, dated November 25, 2008, the NRC staff requested that the applicant provide additional description for SNC simultaneous and similar processes and the qualifications for personnel performing these inspections. In its response, dated December 17, 2008, the applicant stated that conforming changes to the SNC QAPD will be made consistent with NEI 06-14A after the revision has been formally approved by the NRC. In a letter dated December 31, 2009, the applicant proposed a markup of Revision 9 of the SNC QAPD. The NRC staff has verified that the SNC QAPD, Revision 9, markup has deleted the language. These items are identified as ***Confirmatory Item 17.5-14****, pending NRC review of the revised QAPD as referenced in Section 17.5 of the VEGP COL FSAR.*

Resolution of Standard Content Confirmatory Item 17.5-14

Confirmatory Item 17.5-14 is an applicant commitment to revise its QAPD. The staff verified that the VEGP COL application was appropriately updated. As a result, Confirmatory Item 17.5-14 is now closed.

17.5.4.19.2 *Nonsafety-Related SSCs Credited for Regulatory Events*

The LNP Units 1 and 2 QAPD follows the guidance of Section 17.5 of NUREG-0800; paragraph II.V.2, to establish the quality requirements for nonsafety-related SSCs credited for regulatory events. In the QAPD, the applicant commits to comply with the following regulatory guidance:

- The applicant implements quality requirements for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in RG 1.189, "Fire Protection for Operating Nuclear Power Plants," as identified in FSAR Chapter 1.

- The applicant implements the quality requirements for anticipated transient without scram (ATWS) equipment in accordance with Part III, Section 1. The applicant implements quality requirements for station blackout (SBO) equipment in accordance with Part III, Section 1. Regulatory Guide 1.155, is not applicable for the AP1000 design in accordance with the certified design as shown in DCD Appendix 1A. Regulatory Guide 1.155 relates to the availability of safety related functions supported by AC power. Since AC power is not required to support the availability of safety-related functions, the guidance is not applicable.

17.5.4.20 *Regulatory Commitments*

The following portion of this technical evaluation section is reproduced from Section 17.5.4.20 of the VEGP SER:

In RAI 17.5-15 dated May 12, 2008, the NRC staff requested that the applicant revise the TVA QAPD Part IV to commit to RG 1.37 Revision 1, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants," issued March 2007. In its response dated June 24, 2008, the applicant stated that Part IV of the TVA QAPD is consistent with Revision 4 of NEI 06-14A. In a letter, dated September 17, 2008, the NRC staff requested NEI to address this question as part of Revision 5 to NEI 06-14A. However, the applicant committed to RG 1.37, Revision 1, in Revision 1 of the BLN QAPD. RAI 17.5-15 is closed.

The following portion of this technical evaluation section is reproduced from Section 17.5.4.20 of the VEGP SER:

The NRC staff also reviewed Appendix 1AA of the BLN COL FSAR, which lists BLN's conformance with NRC RGs and provides any exceptions to conformance with those RGs. In RAI 17.5-17, the NRC staff requested that the applicant

explain how the QAPD provides an acceptable exception to the RGs described in Appendix 1AA. In its response (ML081780171), the applicant stated that Part IV of the TVA QAPD is consistent with Revision 4 of NEI 06-14A. Additionally, the applicant provided further information addressing these RGs in response to RAIs 17.5-15 and 17.5-17. The response to RAI 17.5-15 proposed revisions to Appendix 1AA and Parts II and *IV of the QAPD, whereas the response to RAI 17.5-17 provided further justification. The applicant provided a response to RAI 1-5 in a letter dated August 19, 2008, to address the discrepancies between the revisions of the RGs addressed in Appendix 1AA and those addressed in Westinghouse DCD Appendix 1A. The information in this letter appears to have superseded the changes that were proposed and acceptable to the NRC staff in the applicant's June 24, 2008, letter, thereby reopening the issue identified in RAI 17.5-17. This is identified as* ***Open Item 17.5-6****.*

Resolution of Standard Content Open Item 17.5-6

In a letter dated July 29, 2009, the VEGP applicant stated that the revisions to the COL application identified in the referenced TVA August 19, 2008, letter do supersede the changes identified in the referenced TVA June 24, 2008, letter, as shown in Revision 1 of the BLN COL application. In a letter dated December 31, 2009, the VEGP applicant proposed additional changes to FSAR Chapter 1, Appendix 1AA to address conformance to RG 1.33, Revision 2. The NRC staff has reviewed the proposed changes to VEGP COL FSAR Chapter 1, Appendix 1AA, and determined that the changes are responsive to RAI 17.5-17. On this basis, Open Item 17.5-6 is ***Confirmatory Item 17.5-17*** *for the VEGP COL application*.

LNP Resolution of Standard Content Open Item 17.5-6 and Associated Confirmatory Item 17.5-17

In a letter dated September 23, 2010, the applicant endorsed the standard content material provided by VEGP. By letters dated July 25, 2013, and June 19, 2013, the applicant provided Revision 6 of the LNP COL FSAR and Revision 9 of the LNP Units 1 and 2 QAPD, respectively. In Revision 9 of the LNP Units 1 and 2 QAPD, the application addressed the information related to the standard content Open Item 17.5-6 regarding applicability of the RGs identified in Part IV of the LNP Units 1 and 2 QAPD and in Appendix 1AA of the LNP COL FSAR. The NRC staff has confirmed through review of the Revision 9 of the LNP Units 1 and 2 QAPD and Appendix 1AA of the LNP COL FSAR that the applicant had identified conformance with and exceptions to RGs 1.8, 1.26, 1.29, and 1.33, 1.37, and 1.54. With respect to RG 1.28, the applicant identifies conformance with RG 1.28 for the DCD scope of work, and commits to ASME NQA-1-1994, Parts I, II, III in lieu of a commitment to RG 1.28 for the remaining scope of work, consistent with the NRC-approved NEI 06-14A, Revision 7 guidance. With respect to RG 1.33, the applicant identifies an alternative to commitment to RG 1.33, based on incorporation of the NRC-approved NEI 06-14A, Revision 7, guidance (Refer to ADAMS Accession Number ML070510300) into Revision 9 of the LNP Unit 1 and 2 QAPD and the addition of Section V, "Additional Quality Assurance and Administrative Controls for the Plant Operational Phase," to address the regulatory guidance of ANSI N18/7-1976/ANS-3.2. The

staff determined that these revisions to the LNP Units 1 and 2 QAPD and Appendix 1AA of the LNP COL FSAR adequately address the issues associated with each RG as described below. Therefore, standard content Open Item 17.5-6 and associated Confirmatory Item 17.5-17 are resolved for the LNP COL application.

1) RG 1.8, Revision 3, "Qualification and Training of Personnel for Nuclear Power Plants," issued May 2000. In the LNP Units 1 and 2 QAPD, the applicant states that LNP Units 1 and 2 complies with the applicable regulatory guidance with the following exception as identified in LNP COL FSAR, Appendix AA, "Conformance with Regulatory Guides." The exception is:

   (a) Qualification requirements for licensed personnel cannot be met prior to operations (Section 4 of ANSI/ANS 3.1-1993). As a further alternative to the selection and qualification requirements for licensed operators contained in ANSI-3.1-1993, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants," the requirements for NEI 06-13A, Revision 1, may be used for cold-licensing of operators. The staff has reviewed this exception and found it is acceptable on the basis that it is consistent with the SRP 17.5 criteria and the programmatic guidance described in NEI 06-13A, Revision 1 that has been previously reviewed and approved by the NRC staff.

2) RG 1.26, Revision 4, "Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," issued March 2007. In the LNP Units 1 and 2 QAPD, the applicant states that LNP complies with the applicable regulatory guidance provided in this RG as identified in the LNP COL FSAR Appendix AA, "Conformance with Regulatory Guides."

3) RG 1.28, Revision 3, "Quality Assurance Program Requirements (Design and Construction)," issued August 1985. In the LNP Units 1 and 2 QAPD, the applicant states that LNP complies with the applicable regulatory guidance with exceptions as identified in the LNP COL FSAR Appendix AA, "Conformance with Regulatory Guides." These exceptions are:

   (a) This RG endorses the basic and supplementary requirements in ANSI/ASME NQA-1-1983, "Quality Assurance Program Requirements for Nuclear Power Plants," and the ANSI/ASME NQA-1a-1983 Addenda along with the regulatory positions for the establishment and execution of QAPs during the design and construction phases of nuclear power plants. The LNP Units 1 and 2 QAPD provides adequate guidance for establishing a QAP that complies with Appendix B to 10 CFR Part 50 by using ASME NQA Standard NQA-1-1994, as supplemented by additional regulatory guidance and industry guidance as clarified in Parts II, IV, and V of the LNP Units 1 and 2 QAPD. The staff has reviewed this exception and found it is acceptable on the basis that it is consistent with the SRP 17.5, the NEI 06-14A, Revision 7, guidance that has been previously reviewed and approved by the NRC staff (Refer to ADAMS Accession Number ML070510300), and with previous NRC-approved QAPD

changes for operating reactors (Refer to ADAMS Accession Number ML023440300).

4) RG 1.29, Revision 4, "Seismic Design Classification," issued March 2007. In the LNP Units 1 and 2 QAPD, the applicant states that LNP complies with the applicable regulatory guidance without exceptions as identified in as identified in the LNP COL FSAR Appendix AA, "Conformance with Regulatory Guides." The staff has reviewed the applicant's evaluation and found it is acceptable on the basis that it is consistent with the SRP 17.5, and the NEI 06-14A, Revision 7, guidance that has been previously reviewed and approved by the NRC staff (ADAMS Accession Number ML070510300).

5) RG 1.33, Revision 2, "Quality Assurance Program Requirements (Operations)," issued February 1978. In the LNP Units 1 and 2 QAPD, the applicant states that the applicant complies with the applicable regulatory guidance with clarification as identified in the LNP COL FSAR Appendix AA, "Conformance with Regulatory Guides." The applicant has chosen to follow the guidance provided in Section 3.2.3.1, "Alternative for Commitment to RG 1.33," of the staff's SER regarding the QAPD template (NEI 06-14, Revision 9) (ADAMS Accession Number ML101800497), which was subsequently incorporated into the NRC-approved NEI 06-14A, Revision 7, guidance (Refer to ADAMS Accession Number ML070510300). In addressing this issue, the applicant has revised Revision 6 of the LNP Unit 1 and 2 QAPD to add Section V, "Additional Quality Assurance and Administrative Controls for the Plant Operational Phase," to address the regulatory guidance of ANSI N18/7-1976/ANS-3.2.

   Consistent with the staff's SER on the QAPD template, the NRC staff requested that the applicant provide the information described Appendix 1 to NEI 06-14A, Revision 7, in addition to the incorporation Part V into the LNP Units 1 and 2 QAPD. By letter dated March 21, 2013, the applicant submitted the requested information described in Appendix 1 to NEI 06-14A. The staff reviewed the information and confirmed that each regulatory position in RG 1.33 was adequately addressed and specifically identified in the LNP Units 1 and 2 QAPD.

6) RG 1.37, Revision 1, "Quality Assurance Requirements for Cleaning Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants," issued March 2007. In the LNP Units 1 and 2 QAPD, the applicant states that LNP complies with the applicable regulatory guidance without exceptions as identified in LNP COL FSAR, Appendix AA, "Conformance with Regulatory Guides." The staff has reviewed the applicant's evaluation and found it is acceptable on the basis that it is consistent with the SRP 17.5, and the NEI 06-14A, Revision 7, guidance that has been previously reviewed and approved by the NRC staff (Refer to ADAMS Accession Number ML070510300).

7) RG 1.54, Revision 1, July 2000 - Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants. In the LNP Units 1 and 2 QAPD, the applicant states that LNP complies with the applicable regulatory guidance without exceptions as identified in LNP COL FSAR, Appendix AA, "Conformance with Regulatory Guides." The staff has reviewed the applicant's evaluation and found it is acceptable on the basis that it is consistent with the SRP 17.5, and the NEI 06-14A, Revision 7, guidance that has been

previously reviewed and approved by the NRC staff (ADAMS Accession Number ML070510300).

8) ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," Parts I, II, and III are described in Parts II and V of the LNP Units 1 and 2 QAPD. The staff has reviewed the applicable portions of the LNP Units 1 and 2 QAPD to confirm adequate incorporation of the guidance, and found it is acceptable on the basis that it is consistent with the SRP 17.5, and the NEI 06-14A, Revision 7, guidance that has been previously reviewed and approved by the NRC staff (Refer to ADAMS Accession Number ML070510300).

9) NIRMA technical guides, as described in Part II, Section 17 of the LNP Units 1 and 2 QAPD. The staff has reviewed the applicable portions of the LNP Units 1 and 2 QAPD to confirm adequate incorporation of the guidance, and found it is acceptable on the basis that it is consistent with the SRP 17.5, and the NEI 06-14A, Revision 7, guidance that has been previously reviewed and approved by the NRC staff (Refer to ADAMS Accession Number ML070510300).

17.5.4.21 *Additional Quality Assurance and Administrative Controls for the Plant Operational Phase*

The LNP Units 1 and 2 QAPD follows the guidance of Section 17.5 of NUREG-0800 for establishing quality and administrative controls for plant operation. Part V of the LNP Units 1 and 2 QAPD provides measures to assess the adequacy of review activities affecting safe plant operation. The LNP Units 1 and 2 QAPD provides a description of the on-site operational organization review program which includes measures for establishing an independent review program for activities occurring during the operational phase. The LNP Units 1 and 2 QAPD describes the independent review activities, establishes the scope of the independent review program, roles and responsibilities of the Operations Review Committee, and minimum qualifications for members of that committee.

The LNP Units 1 and 2 QAPD provides measures to establish and control operational phase procedures and follows the guidance in Appendix A to RG 1.33 in identifying the types of activities that should have procedures or instructions to control the activity. Each procedure shall be sufficiently detailed for a qualified individual to perform the required function without direct supervision, but need not provide a complete description of the system or plant process. The LNP Units 1 and 2 QAPD identified each type of procedure to be established, provides a description of the purpose for each type of procedure, and identifies the format and content requirements, as appropriate, for the development of plant operational procedures.

The LNP Units 1 and 2 QAPD provides measures to establish and control systems and equipment during the operational phase. Permission to release systems and equipment for maintenance or modification is controlled by designated operating personnel and documented. Measures, such as installation of tags or locks and releasing stored energy, are used to ensure personnel and equipment safety. Administrative procedures require the designated operating personnel to verify that the system or equipment can be released and determine the length of time it may be out of service. When systems or equipment are ready to be returned to service,

designated operating personnel control placing the items in service and document its functional acceptability. Independent verifications, where appropriate, are used to ensure that the necessary measures have been implemented correctly.

The LNP Units 1 and 2 QAPD provides measures to establish and control plant maintenance during the operational phase. The applicant establishes controls for the maintenance or modification of items and equipment subject to this QAPD to ensure quality at least equivalent to that specified in original design bases and requirements, such that safety-related structures, systems and components are maintained in a manner that assures its ability to perform its intended safety function(s).

Maintenance activities (both corrective and preventive) are scheduled and planned so as not to unnecessarily compromise the safety of the plant. In establishing controls for plant maintenance, the applicant commits to compliance with NQA-1-1994, Subpart 2.18, with the following clarifications:

- Where Subpart 2.18 refers to the requirements of ANS-3.2, it shall be interpreted to mean the applicable standards and requirements established within the QAPD.

- Section 2.3 requires cleanliness during maintenance to be in accordance with Subpart 2.1. The commitment to Subpart 2.1 is described in the QAPD, Part II, Section 13.2.

The staff has reviewed the description of the QA and administrative controls for plant operations contained in Part V, “Additional Quality Assurance and Administrative Controls for the Plant Operational Phase,” of the LNP Units 1 and 2 QAPD, and has confirmed that it provides an adequate description of the programmatic controls for the plant operational phase consistent with the guidance in RG 1.33, and the description provided in the previously NRC-approved QAPD template (ADAMS Accession Number ML101800497), and is, therefore, acceptable.

17.5.5 Post Combined License Activities

There are no post-COL activities related to this section.

17.5.6 Conclusion

The NRC staff used the requirements of 10 CFR Part 50, Appendix B and the guidance of Section 17.5 of NUREG-0800 as the basis for evaluating the acceptability of the LNP Units 1 and 2 QAPD and concludes that:

- The QAPD provides adequate guidance for the applicant to describe the authority and responsibility of management and supervisory personnel, performance/verification personnel, and self-assessment personnel.

- The QAPD provides adequate guidance for the applicant to provide for organizations and persons to perform verification and self-assessment functions with the authority and independence to conduct their activities without undue influence from those directly responsible for costs and schedules.

- The QAPD provides adequate guidance for the applicant to apply a QAPD to activities and items that are important to safety.

- The QAPD provides adequate guidance for the applicant to establish controls that, when properly implemented, comply with 10 CFR Part 52, Appendix B to 10 CFR Part 50; 10 CFR Part 21; and 10 CFR 50.55(e), with the acceptance criteria associated with Section 17.5 of NUREG-0800, and with the commitments to applicable regulatory guidance.

The LNP Units 1 and 2 QAPD addresses LNP COL 17.5-1, STD COL 17.5-2, STD COL 17.5-4, and STD COL 17.5-8.

Based on the information provided by the applicant, the staff concludes that Section 17.5 of the LNP COL FSAR and the LNP Units 1 and 2 QAPD meet the requirements of Appendix B to 10 CFR Part 50; 10 CFR 52.79(a)(17); 10 CFR 52.79(a)(25); and 10 CFR 52.79(a)(27).

17.6 Maintenance Rule Program (Related to RG 1.206, Section C.III.1, Chapter 17, C.I.17.6, "Description of the Applicant's Program for Implementation of 10 CFR 50.65, The Maintenance Rule")

17.6.1 Introduction

This section addresses the program for MR implementation. It is based on the requirements of 10 CFR Part 52 and the guidance provided to the industry by the Nuclear Management and Resources Council (NUMARC) and its successor, the NEI. NUMARC 93-01, "Industry Guidance for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is endorsed by the staff in RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2. Section 11.0 of NUMARC 93-01 was later revised; the revision, as modified by RG 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," is also endorsed by the staff. NEI 07-02A provides a template for presenting this information that has also been endorsed by the staff in a letter to NEI, dated January 24, 2008.

17.6.2 Summary of Application

In Section 17.6 of the LNP COL FSAR, Revision 9, the applicant provided the following:

Supplemental Information

- STD SUP 17.6-1

The applicant provided additional information which incorporates, by reference, NEI 07-02A. The applicant also identified where operational programs are described in the LNP COL FSAR, including a description of and milestones for the MR program.

- STD SUP 17.6-2

The applicant provided additional information to incorporate condition monitoring of underground or inaccessible cables into the MR program.

License Condition

- Part 10, License Condition 6, "Operational Program Readiness"

This license condition states that the COL holder shall provide an operational program schedule to support NRC inspections.

17.6.3 Regulatory Basis

Commission regulations for the MR program include the requirements of 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," and 10 CFR 52.79(a)(15). The staff reviews this part of the application in accordance with Section 17.6 of NUREG-0800.

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements. The NRC's Safety Evaluation for topical report NEI 07-02A includes additional regulatory information and was transmitted to NEI by letter, dated January 24, 2008.

SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria [ITAAC]," identifies schedule requirements and proposes a license condition to be satisfied by COL holders.

17.6.4 Technical Evaluation

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (VEGP Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5 to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) includes evaluation material from the SER for the BLN Units 3 and 4 COL application.

The following portion of this technical evaluation section is reproduced from Section 17.6.4 of the VEGP SER.

The NRC staff reviewed conformance of Section 17.6 of the BLN COL FSAR, including the COL standard information item identified in Subsection 17.6.2, with the guidance in NUREG-0800, Section 17.6. The staff also compared it with RG 1.206, Section C.III.1, Chapter 17, C.I.17.6, "Description of the Applicant's Program for Implementation of 10 CFR 50.65, the Maintenance Rule."

In addition, the NRC staff reviewed the COL standard information item identified in Subsection 17.6.2 above. In its review, the staff used NUREG-0800, Section 17.6, "Maintenance Rule," as guidance.

Supplemental Information

- *STD SUP 17.6-1, which incorporated NEI 07-02A and identified where operational programs are described in the BLN COL FSAR, including a description of the MR program.*

The applicant added the following text to Section 17.6 of the BLN COL FSAR:

> *This section incorporates by reference NEI 07-02A, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed under 10 CFR Part 52," with the following supplemental information. See Table 1.6-201.*
>
> *Table 13.4-201 provides milestones for maintenance rule [MR] program implementation.*

The applicant indicated where, in the BLN COL FSAR, the programs listed in Subsection 17.X.3 of NEI 07-02A are described:

- *MR program (Section 17.6)*
- *QA program (Section 17.5)*
- *inservice inspection program (Sections 5.2 and 6.6)*
- *inservice testing program (Section 3.9)*
- *technical specifications surveillance test program (Chapter 16)*

The NRC staff endorsed NEI 07-02A, stating that it provides an acceptable method:

- *for complying with the requirement in 10 CFR 52.79(a)(15) that FSARs contain a description of the program and its implementation*

- *for monitoring the effectiveness of maintenance to meet the requirements of Section 50.65*

- *for satisfying the acceptance criteria of NUREG-0800, Section 17.6*

Because STD SUP 17.6-1 incorporates NEI 07-02A by reference and identifies the relevant operational programs and milestones, the staff finds that the applicant has provided sufficient information to fully describe the maintenance rule program. This provides reasonable assurance that the program, when implemented, satisfies the requirements of 10 CFR 50.65.

- *STD SUP 17.6-2*

In response to RAI 8.2-14, the applicant incorporated cable monitoring into its maintenance rule program. The program will monitor the condition of inaccessible or underground cables, including all those that support SSCs within the scope of 10 CFR 50.65. The staff documented its evaluation of the cable monitoring program in SER Section 8.2.4.

License Condition

- *Part 10, License Condition 6*

The applicant proposed a license condition to provide a schedule to support NRC inspection of operational programs including the MR program. The proposed license condition is consistent with the policy established in SECY-05-0197 and is acceptable.

17.6.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff finds the following license condition acceptable:

- License Condition (17-1) ─ No later than 12 months after issuance of the COL, the licensee shall submit to the Director of Office of New Reactors (NRO) a schedule that supports planning for and conduct of NRC inspections of the Maintenance Rule (MR) program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the MR program has been fully implemented.

17.6.6 Conclusion

The NRC staff reviewed the application and confirmed that the applicant addressed the required information relating to the MR program. STD SUP 17.6-1 incorporated NEI 07-02A by reference; identified where operational programs are described in the LNP COL FSAR, including a description of the MR program; and provided a schedule for implementation of the MR program. STD SUP 17.6-2 incorporated condition monitoring of inaccessible or

underground cables into the MR program. The staff concludes that the relevant information presented in Section 17.6 of the LNP COL FSAR meets the requirements of 10 CFR 50.65 and 10 CFR 52.79(a)(15) and is, therefore, acceptable.

18.0 HUMAN FACTORS ENGINEERING

18.1 Overview (No Corresponding Section in Regulatory Guide (RG) 1.206)

Section 18.1 of the Levy Nuclear Plant (LNP) combined license (COL) Final Safety Analysis Report (FSAR), Revision 9, incorporates by reference, with no departures or supplements, Section 18.1 of Revision 19 of the AP1000 Design Control Document (DCD). The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," and its supplements.

18.2 Human Factors Engineering Program Management (Related to RG 1.206, Section C.I.18.1, "HFE Program Management")

18.2.1 Introduction

The Human Factors Engineering (HFE) Program Management plan describes the HFE program in sufficient detail to ensure that all aspects of the human-system interfaces (HSIs), procedures, staffing, and training are developed, designed, and evaluated on the basis of a structured top-down systems analysis using accepted HFE guidance.

18.2.2 Summary of Application

Section 18.2 of the LNP COL FSAR, Revision 9, incorporates by reference Section 18.2 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 18.2.1.3, the applicant provided the following:

AP1000 COL Information Item

- LNP COL 18.2-2

The applicant provided additional information in LNP COL 18.2-2 to address COL Information Item 18.2-2 related to the emergency operations facility (EOF). In a letter dated December 21, 2010, the applicant proposed to revise LNP COL 18.2-2 to indicate that the EOF and technical support center (TSC) communications strategies and EOF and TSC human factors attributes are addressed in the emergency plan. In addition, the applicant proposed to delete information identifying the location of the EOF from Section 18.2 of the application.

[1] See Section 1.2.2 for a discussion of the staff's review related to verification of the scope of information to be included in a COL application that references a design certification (DC).

License Condition

- License Condition 1, regarding the HFE inspections, tests, analyses and acceptance criteria (ITAAC).

18.2.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the acceptance criteria associated with the relevant requirements of the Commission regulations for LNP COL 18.2-2 are given in Chapter 18 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)."

The applicable regulatory requirements for LNP COL 18.2-2 are as follows:

- Title 10 of the *Code of Federal Regulations* (10 CFR) 52.79(c)

The related acceptance criteria are as follows:

- NUREG-0711, "Human Factors Engineering Program Review Model," Revision 2, Chapter 2

- NUREG-0696, "Functional Criteria for Emergency Response Facilities"

18.2.4 Technical Evaluation

The NRC staff reviewed Section 18.2 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to the HFE program management. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this safety evaluation report (SER) provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (Vogtle Electric Generating Plant (VEGP), Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5, to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from requests for additional information (RAIs).

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) contains evaluation material from the SER for the Bellefonte Nuclear Plant (BLN), Units 3 and 4 COL application.

The staff reviewed the information in the LNP COL FSAR:

AP1000 COL Information Item

- LNP COL 18.2-2

In its July 31, 2009, response to the NRC staff's request for additional information (RAI) (RAI-SRP18-COLP-21), Westinghouse revised COL Information Item 18.2-2. In the revised COL information item, the need to specify the location of the EOF was eliminated. The revised COL information item states:

> Specific information regarding EOF and TSC communications, and EOF and TSC human factors attributes will be provided by the Combined Operating License applicant to address the Combined License information requested in this subsection.

In a letter dated December 21, 2010, the applicant proposed to revise Chapter 18 of the LNP COL FSAR to indicate that the EOF and TSC communications strategies and EOF and TSC human factors attributes are addressed in the emergency plan and committed to revise the emergency plan to indicate that the EOF is established consistent with NUREG-0696.

This is acceptable because, as discussed in the following technical evaluation, an EOF and TSC established consistent with NUREG-0696 would address communications strategies and human factors attributes.

Until the applicant includes these changes in a future revision of the FSAR, this is being tracked as **Confirmatory Item 18.2-1**.

Resolution of Confirmatory Item 18.2-1

Confirmatory Item 18.2-1 was an applicant commitment to revise its application in two locations. FSAR Section 18.2.1.3 needed to be revised to indicate that the communication strategies and human factors attributes of the EOF and TSC are addressed in the emergency plan, and the emergency plan needed to be revised to indicate that the EOF is established consistent with NUREG-0696. The staff verified that the proposed changes were made to the emergency plan and LNP COL FSAR. As a result, Confirmatory Item 18.2-1 is now closed.

The effectiveness of the EOF facility communications is addressed in Section 13.3 of this SER.

The following portion of this technical evaluation section is reproduced from Section 18.2.4 of the VEGP SER:

> *The following portion of this technical evaluation section is reproduced from Section 18.2.4 of the BLN SER:*
>
> *In its September 2, 2008, response to RAI 18-3, the applicant stated that the scope of the HFE design includes implementation and verification of applicable EOF/Technical Support Center (TSC) displays consistent with the AP1000 HFE program. TR-136* [Technical Report] *(APP-GW-GLR-136, Revision 1, "AP1000 Human Factors Program Implementation for the Emergency Operations Facility and Technical Support Center") indicates that the Westinghouse DCD does not cover all aspects of the HSI design (such as panel layouts, room configuration, and indications/controls) for the EOF/TSC. The applicant states that the EOF/TSC functions and tasks that are not within the scope of the AP1000 HFE Program will be subject to HFE principles and practices as described in NUREG-0737, "Clarification of TMI [Three Mile Island] Action Plan Requirements."*
>
> *The staff was concerned that, since NUREG-0737 does not have HFE guidance comparable to that of NUREG-0711, EOF/TSC design elements would fall outside the scope of the HFE program. The applicant addressed this concern in its RAI 18-4 response dated February 23, 2009, stating that the HSI design will meet the data and availability criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Section II.H, 'Emergency Facilities and Equipment,'" which states that the TSC and the EOF will be established in accordance with NUREG-0696.*
>
> *The staff agrees that NUREG-0696 describes an acceptable method for meeting EOF/TSC requirements and contains guidance for managing the EOF/TSC HFE design based on the following:*
>
> - *NUREG-0696, Section 2.8, states, "The design of the TSC data system equipment shall incorporate human factors engineering with consideration for both operating and maintenance personnel."*
> - *NUREG-0696, Section 4.7, states, "The design of the EOF data system equipment shall incorporate human-factors engineering with consideration for both operating and maintenance personnel."*
> - *NUREG-0696, Section 4.8, states, "Human-factors engineering shall be incorporated in the design of the EOF." This section of the NUREG also addresses data availability and human factors design criteria.*

- *The AP1000 DCD includes a structured approach for identifying data needed to support the EOF/TSC functions.*

- *The guidance in NUREG-0696 addresses information usability. While some guidance is generic, the staff concludes APP-OCS-J1-002, "AP1000 HSI Design Guidelines," which is included by reference in Chapter 18 of the AP1000 DCD, is applicable to the definition of more explicit, measurable design acceptance criteria. Use of these guidelines will ensure that general design principles, such as "callup, manipulation, and presentation of data can be easily performed," and, "display formats shall present information so that it can be easily understood," will be subject to more explicit design acceptance criteria.*

Emergency planning drills and inspections provide repeated opportunities to identify improvements to HSIs. In the case of BLN, for which a common EOF will be used, EOF design improvements have already been implemented based on operating experience.

HFE design verification and validation (V&V) is a second area of NUREG-0711 guidance that is not being directly applied by the applicant. As an alternative, the applicant states in their RAI 18-4 response dated February 23, 2009, that V&V of the EOF HFE design is achieved by the evaluation of equipment and personnel performance during drills and exercises. The staff concludes that although the specific guidance in NUREG-0711 for V&V is not being applied, the alternative V&V approach provides reasonable assurance that the HFE aspects of the EOF and TSC will be acceptably designed based on the following:

- *NUREG-0696 contains guidance on V&V. Section 9 states, "The design, development, qualification, and installation of the SPDS [safety parameter display system], TSC, EOF, and NDL [nuclear data link] facilities and systems shall be independently verified and validated by qualified personnel other than the original designers and developers."*

  The RAI 18-4 response indicates both equipment and personnel performance will be evaluated during drills and exercises.

- *Exercises and drills are conducted on a periodic basis, and therefore, provide repeated opportunities to test and improve the HSIs.*

- *The first exercise is included as an inspection, test, analysis and acceptance criterion (ITAAC) that ensures EOF/TSC functionality prior to fuel load. The BLN COL application Part 10, "Proposed License Conditions," Revision 1, Table 3.8-1, ITAAC contain the following inspections, tests and analyses:*

  ITAAC 1.1: An inspection of the control room, TSC, and CECC [Central Emergency Control Center] will be performed to verify that

they have displays for retrieving facility system and effluent parameters in specific emergency action levels (EALs).

ITAAC 8.1: A full-participation exercise (test) will be conducted within the specified time periods of Appendix E to 10 CFR Part 50.

- *Exercises and drills are conducted in the actual facilities, (vice a simulator), allowing direct observation of the HSI.*

Evaluation of Site-Specific Information Related to Standard Content

Part 10, "Proposed License Conditions (Including ITAAC)," Table 3.8-1 of the LNP COL FSAR includes the following relevant site-specific ITAAC for LNP Units 1 and 2 that addresses a verification inspection to ensure functionality of the control room, EOF, and TSC prior to fuel load:

ITAAC 3.1: An inspection of the Control Rooms, Technical Support Centers (TSCs), and Emergency Operations Facility (EOF) will be performed to verify that they have displays for retrieving facility system and effluent parameters are specified in the Emergency Classification and EAL scheme and the displays are functional.

ITAAC 12.1: A full participation exercise (test) will be conducted within the specified time periods of Appendix E to 10 CFR Part 50.

The staff found that LNP ITAAC 3.1 and LNP ITAAC 12.1 were comparable to those proposed by VEGP and concluded that the site-specific ITAAC provided an acceptable V&V approach to ensure functionality of the EOF, and TSC from an HFE perspective. Therefore, the conclusions reached by the NRC staff related to VEGP COL 18.2-2 are directly applicable to the LNP COL application. These ITAAC will be included in the COL.

The evaluation of these ITAAC from an emergency planning perspective is addressed in SER Section 13.3. License Condition 1 is evaluated in Chapter 1 of this SER.

18.2.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff proposes to include the following ITAAC proposed by the applicant to ensure functionality of the EOF, and TSC HFE design.

- The Licensee shall perform the following ITAAC:
  - ITAAC 3.1: An inspection of the Control Rooms, Technical Support Centers (TSCs), and Emergency Operations Facility (EOF) will be performed to verify that they have displays for retrieving facility system and effluent parameters are specified in the Emergency Classification and EAL scheme and the displays are functional.

– ITAAC 12.1: A full participation exercise (test) will be conducted within the specified time periods of Appendix E to 10 CFR Part 50.

18.2.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to HFE program management, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements, and reflected in Section 13.3 of this SER.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and meets the requirements of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and 10 CFR 52.79, "Contents of applications; technical information in final safety analysis report," and meets the guidance in Chapter 18 of NUREG-0800. The staff based its conclusion on the following:

- LNP COL 18.2-2 is acceptable because the applicant will design the EOF/TSC in accordance with appropriate elements of the AP1000 HFE program and approved staff guidance associated with the emergency response facility design.

18.3 Operating Experience Review (Related to RG 1.206, Section C.I.18.2, "Operating Experience Review")

Operating experience review (OER) identifies and analyzes HFE-related problems and issues in previous designs. In this way, negative features associated with predecessor designs may be avoided in the current one, while retaining positive features. This section describes the applicant's OER and how it was used to identify HFE-related safety issues. OER includes a summary discussion of the source materials, such as documents, event reports, and personnel interviews. OER-identified issues are included along with their resolution.

Section 18.3 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.3 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.4 Functional Requirements Analysis and Allocation (Related to RG 1.206, Section C.I.18.3, "Functional Requirements Analysis and Function Allocation")

Functional requirements analysis and function allocation demonstrate that functions are allocated to human and system resources in a manner that takes advantage of human strengths and avoids human limitations. The scope includes identification and analysis of those functions that must be performed to satisfy the plant's safety objectives that is, to prevent or mitigate the

consequences of postulated accidents that could cause undue risk to the health and safety of the public.

Section 18.4 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.4 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.5 AP1000 Task Analysis Implementation Plan (Related to RG 1.206, Section C.I.18.4, "Task Analysis")

Task analyses identify the specific tasks that are needed for function accomplishment and their information, control, and task support requirements. The analyses address how representative and important operations, maintenance, test, inspection, and surveillance tasks are selected, as well as the range of operating modes included in the analyses. This includes the use of probabilistic risk assessment (PRA)/human reliability analysis (HRA) for the identification of the risk-important human actions, including the monitoring and backup of automatic actions. The task analysis results are used as input to the design of HSIs, procedures, and training programs.

Section 18.5 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.5 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.6 Staffing (Related to RG 1.206, Section C.I.18.5, "Staffing and Qualifications")

18.6.1 Introduction

Staffing and qualification analyzes the requirements for the number and qualifications of personnel in a systematic manner that includes a thorough understanding of task requirements and applicable regulatory requirements.

This section is coordinated with Section 13.1 of this SER, which also relates to organization and staffing. The staffing analysis is iterative in nature and discusses how the initial staffing goals have been reviewed and modified as the analyses associated with other HFE elements are complete. Staffing and qualifications are also shown to be in compliance with 10 CFR 50.54(m).

18.6.2 Summary of Application

Section 18.6 of the LNP COL FSAR, Revision 9, incorporates by reference Section 18.6 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 18.6, the applicant provided the following:

AP1000 COL Information Item

- STD COL 18.6-1

The applicant provided additional information in Standard (STD) COL 18.6-1 to resolve COL Information Item 18.6-1, addressing staffing level and qualification of plant personnel.

18.6.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the acceptance criteria associated with the relevant requirements of the Commission regulations for STD COL 18.6-1 are given in Chapter 18 of NUREG-0800.

The applicable regulatory requirements for STD COL 18-1 are as follows:

- 10 CFR 52.79(c)
- 10 CFR 50.54(m)
- 10 CFR 52.79(a)(26)

The related acceptance criterion is as follows:

- NUREG-0711, Section 6.4

18.6.4 Technical Evaluation

The NRC staff reviewed Section 18.6 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to staffing and qualification. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure the staff's findings on standard content that were documented in the SER for the reference COL application VEGP Units 3 and 4 were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5, to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application VEGP contains evaluation material from the SER for the BLN Units 3 and 4 COL application.

Although the staff concluded that the evaluation performed for the standard content is directly applicable to the LNP COL application, there was a difference in the information provided by the LNP applicant from that provided by the VEGP applicant regarding the plant operating experience. This difference is evaluated by the staff below, following the standard content material.

The following portion of this technical evaluation section is reproduced from Section 18.6.4 of the VEGP SER:

AP1000 COL Information Item

The following portion of this technical evaluation section is reproduced from Section 18.6.4 of the BLN SER:

- *STD COL 18.6-1, addressing staffing level and qualification of plant personnel*.

The applicant provided additional information in STD COL 18.6-1 to resolve COL Information Item 18.6-1. COL Information Item 18.6-1 states:

> *Combined License applicants referencing the AP1000 design will address the staffing levels and qualifications of plant personnel including operations, maintenance, engineering, instrumentation and control technicians, radiological protection technicians, security, and chemists. The number of operators needed to directly monitor and control the plant from the main control room, including the staffing requirements of 10 CFR 50.54(m), will be addressed.*

The commitment was also captured as COL Action Item 18.6.3-1 in Appendix F of the NRC staff's FSER for the AP1000 DCD (NUREG-1793), which states:

> *The COL applicant will address the staffing level and qualifications of plant personnel including operations, maintenance* [, engineering, instrumentation] *and control technicians, radiological protection technicians, security, and chemists. Specifically, the COL applicant will (1) address the staffing considerations in NUREG-0711, and (2) identify the minimum documentation that is necessary for the staff to complete the review.*

Information pertaining to the staffing level and qualifications is contained in BLN COL FSAR Chapter 13 and is summarized here. The applicant provided the estimated staffing levels for different categories of personnel that are addressed by the HFE program in accordance with NUREG-0711. The minimum staffing level for control room personnel is also stated. Information about the staffing level of security personnel is contained in the separately submitted physical security plan. Qualification requirements of Technical Support Personnel, Nuclear Plant Personnel, and Security Personnel are also included.

The baseline level of staffing is derived from experience from current operating nuclear power plants. Iterative adjustments are implemented with input from other elements of the HFE program.

The NRC staff reviewed the resolution to COL Information Item 18.6-1 related to staffing and qualifications included under Section 18.6 of the BLN COL FSAR, Revision 1.

NUREG-0711 states that satisfying criterion 4 for the staffing and qualifications should be in part based on an operating experience review. The applicant addresses this in Chapter 13, Conduct of Operations, by stating:

> *The Tennessee Valley Authority (TVA) has over 30 years of experience in the design, construction and operation of nuclear generating stations. TVA has designed, constructed, and operates six nuclear units at three sites: Browns Ferry Nuclear Plant Units 1, 2, and 3; Watts Bar Nuclear Plant Unit 1; and Sequoyah Nuclear Plant Units 1 and 2.*

NUREG-0711, Criterion 1 states that the staffing and qualifications should address applicable guidance in NUREG-0800, Section 13.1 and 10 CFR 50.54.

Section 18.6 references BLN COL FSAR Section 13, which discusses staffing levels that meet the requirements in 10 CFR 50.54.

NUREG-0711, Criterion 2 states that the staffing analysis should determine the number and background of personnel for the full range of plant conditions

including operational tasks, plant maintenance, and plant surveillance and testing.

Section 18.6 of the COL states that Table 13.1-201 of the COL application contains the estimated staffing levels for those categories of personnel that are addressed in NUREG-0711, as follows:

> *1) licensed operators, 2) shift supervisors, 3) non-licensed operators, 4) shift technical advisors, 5) instrumentation and control technicians, 6) mechanical maintenance technicians, 7) electrical maintenance technicians, 8) radiation protection technicians, 9) chemistry technicians, and 10) engineering support.*

The applicant states that the minimum level of control room staffing is also stated in Table 13.1-201 and meets the requirements of 10 CFR 50.54(m).

The staff reviewed the requirements of 10 CFR 50.54, which state:

> *A senior operator licensed pursuant to Part 55 shall be present at the facility or readily available on call at all times during its operations, and shall be present at the facility during initial start-up and approach to power, recovery from an unplanned or unscheduled shut-down or significant reduction in power, and refueling.*

This section of 10 CFR contains a table that describes the minimum staffing requirements in the control room for one, two and three unit sites. For example, a one unit site with one control room is required to maintain two Senior Operators, and two Operators at all times. Table 13.1-201 describes numbers for control room operators that meet these limits and, therefore, meet the requirements for operator staffing in 10 CFR 50.54.

NUREG-0711 states that the applicant should have systematically analyzed the need for the number and qualifications of personnel and have demonstrated a thorough understanding of task requirements and regulatory requirements. NUREG-0711 also references NUREG-0800, Section 13.1 that describes the roles and responsibilities for design and construction activities and pre-operational activities. NUREG-0711 also spells out specific acceptance criteria for providing the NRC with specific information about qualification levels of the staff. In Section 13.1 of the BLN COL FSAR, the applicant describes in detail the organizational structure of the AP1000 plant. The roles and qualifications described include: Management and Technical Support Organization; Engineering; Quality Assurance; Chemistry; Radiation Protection; Fueling and Refueling Support; Training and Development; Maintenance Support; Operations Support; and Fire Protection. Each of these sections describes the applicant's commitment for maintaining qualified staff to carry out

the responsibilities of each position. For example, in Section 13.1.1.2.1, "Engineering," the applicant states:

> *The engineering department consists of system engineering, design engineering, engineering programs, and safety and engineering analysis. These groups are responsible for performing the classical design activities as well as providing engineering expertise in other areas. Each of the engineering groups has a functional manager who reports to the manager in charge of engineering and site support.*

The applicant then describes the overall roles that the engineering department is responsible for, such as:

> *Support of plant operations in the engineering areas of mechanical, structural, electrical, thermal-hydraulic, metallurgy and materials, electronic, instrument and control and fire protection. Priorities for support activities are established based on input from the plant manager with emphasis on issues affecting safe operation of the plant.*

Review Criterion 3 in NUREG-0711 states that the staffing analysis should be iterative, meaning that staffing goals should be reviewed and modified as the analyses associated with other elements are completed. The applicant addresses this criterion by stating:

> *Iterative adjustments are implemented to the staffing, as necessary, based on findings and input from periodic reviews and staffing analysis. Input to this analysis includes information derived from the other elements of the human factors engineering program, particularly operating experience reviews, functional requirements analysis and function allocation, task analysis, human reliability analysis, human-system interface design, procedure development, and training program development.*

The staff finds this information sufficient for meeting the criteria for the level and qualification of staffing contained in NUREG-0711, NUREG-0800, and 10 CFR 50.54.

<u>Evaluation of Site-Specific Information Related to Standard Content</u>

In Section 13.1.1 of the VEGP COL FSAR, the applicant provided site-specific information regarding its operating experience that the staff considered to address the staffing and qualifications basis for NUREG-0711 Criterion 4. The applicant stated:

> *Southern Nuclear Operating Company, Inc. (SNC) has over 30 years of experience in the design, construction, and operation of nuclear generating plants. SNC, with its architectural engineering predecessor Southern Company Services, Inc., has designed, constructed, and currently operates six nuclear units at three sites: Edwin I. Hatch Nuclear Plant Units 1 and 2, Joseph M. Farley Nuclear Plant Units 1 and 2, and Vogtle Electric Generating Plant Units 1 and 2.*

The staff found the VEGP operating experience to be comparable to that described by BLN. Therefore, the Staff finds this information sufficient for meeting the criteria for the level and qualification of staffing described in NUREG-0711, NUREG-0800, and 10 CFR 50.54.

Evaluation of Site-Specific Information Related to Standard Content

In Section 13.1.1 of the LNP COL FSAR, the applicant provided site-specific information regarding its operating experience that the staff considered to address the staffing and qualifications basis for NUREG-0711, Criterion 4. The applicant stated:

> Duke Energy has over 40 years of experience in the design, construction, and operation of nuclear generating stations. Duke Energy operates 12 nuclear units on seven sites: McGuire Units 1 and 2; Catawba Units 1 and 2; Oconee Units 1, 2 and 3; Harris Nuclear Plant Unit 1; Brunswick Nuclear Plant Units 1 and 2; H.B. Robinson Nuclear Plant Unit 2; and Crystal River Nuclear Plant Unit 3 (permanent shutdown/retired). The Nuclear Generation organization includes, but is not limited to, nuclear engineering, nuclear operations, corporate governance and operations support, corporate organizational effectiveness, nuclear major projects, nuclear development, and nuclear oversight.

The staff found the LNP operating experience to be comparable to that described by the VEGP SER. Therefore, the staff finds this information sufficient for meeting the criteria for the level and qualification of staffing described in NUREG-0711, NUREG-0800, and 10 CFR 50.54.

18.6.5 Post Combined License Activities

There are no post-COL activities related to this section.

18.6.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to staffing and qualification, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and meets the acceptance criteria defined in NUREG-0711, Section 6.4. The staff based its conclusion on the following:

- STD COL 18.6-1 is acceptable because it is within the scope of the DC and adequately incorporates by reference Section 18.6 of the AP1000 DCD, and meets the acceptance criteria described in NUREG-0711, NUREG-0800, and 10 CFR 50.54

18.7 Integration of Human Reliability Analysis with Human Factors Engineering (Related to RG 1.206, Section C.I.18.6, "Human Reliability Analysis")

HRA is an integral activity of a complete PRA. HRA seeks to evaluate the potential for, and mechanisms of, human error that may affect plant safety. Thus, it is an essential element in achieving the HFE design goal of providing a design that will minimize personnel errors, allow their detection, and provide recovery capability.

Section 18.7 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.7 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.8 Human-System Interface Design (Related to RG 1.206, Section C.I.18.7, "Human System Interface Design")

HSI design describes the design process and scope, including the translation of function and task requirements into the detailed design of alarms, displays, controls, and other aspects of the HSI through the systematic application of HFE principles and criteria. It also describes the process by which HSI design requirements are developed and HSI designs are identified and refined.

Section 18.8 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.8 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.9 Procedure Development (Related to RG 1.206, Section C.I.18.8, "Procedure Development")

Procedure development documents, in coordination with LNP COL FSAR Section 13.5, ensure that the HFE principles and criteria, along with other design requirements, are incorporated in developing procedures that are technically accurate, comprehensive, explicit, easy to use, and validated. The procedure development program addresses the requirements specified in

10 CFR 50.34(f)(2)(ii) and describes the procedure writer's guide that establishes the process for developing technical procedures. The writer's guide ensures that procedures are consistent in organization, style, and content, and it also specifies which procedures fall within the purview of the guide.

Section 18.9 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.9 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding information related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.10 Training Program Development (Related to RG 1.206, Section C.I.18.9, "Training Program Development")

18.10.1 Introduction

Training programs help to provide reasonable assurance that plant personnel have the knowledge, skills, and abilities to properly perform their roles and responsibilities. The training program, as discussed in this section, is coordinated with the training discussions in LNP COL FSAR Section 13.2, and describes how the training program follows a systems approach to training, and how it addresses the requirements of 10 CFR 50.120, "Training and qualification of nuclear power plant personnel," 10 CFR 52.79(a)(33), and 10 CFR Part 55, "Operators' Licenses."

18.10.2 Summary of Application

Section 18.10 of the LNP COL FSAR, Revision 9, incorporates by reference Section 18.10 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 18.10, the applicant provided the following:

AP1000 COL Information Item

- STD COL 18.10-1

The applicant provided additional information in STD COL 18.10-1 to resolve COL Information Item 18.10-1, addressing the execution of a training plan.

18.10.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the acceptance criteria associated with the relevant requirements of the Commission regulations for STD COL 18.10-1 are given in Chapter 18, Section II.A.9 of NUREG-0800.

The applicable regulatory requirements for STD COL 18.10-1 are as follows:

- 10 CFR 52.79(c)
- 10 CFR 52.79(a)(14)
- 10 CFR 52.79(a)(33)

The related acceptance criteria are as follows:

- NUREG-0711, Section 10.4

- Nuclear Energy Institute (NEI) 06-13A, "Template for an Industry Training Program Description," Revision 1

The LNP FSAR references NEI 06-13A, Revision 2 in the FSAR. The staff reviewed NEI 06-13 Revision 1, an NRC endorsed NEI document with a separate Safety Evaluation. The staff found the only changes made to Revision 2 were made to the cover page, thus Revision 2 had no substantial differences from Revision 1. Therefore the staff's review is applicable to both Revisions 1 and 2, while Revision 1 remains the endorsed document.

18.10.4 Technical Evaluation

The NRC staff reviewed Section 18.10 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to training program development. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure the staff's findings on standard content that were documented in the SER for the reference COL application VEGP Units 3 and 4 were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5, to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified

in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application VEGP contains evaluation material from the SER for the BLN Units 3 and 4 COL application.

The following portion of this technical evaluation section is reproduced from Section 18.10.4 of the VEGP SER:

> *The following portion of this technical evaluation section is reproduced from Section 18.10.4 of the BLN SER:*
>
> *AP1000 COL Information Item*
>
> - *STD COL 18.10-1, addressing execution of a training plan*
>
> *The applicant provided additional information in STD COL 18.10-1 to resolve COL Information Item 18.10-1. COL Information Item 18.10-1 refers to Section 13.2, where the COL information item in Section 13.2.1 states:*
>
> > *Combined License applicants referencing the AP1000 certified design will develop and implement training programs for plant personnel. This includes the training program for the operations personnel who participate as subjects in the human factors engineering verification and validation. These Combined License applicant training programs will address the scope of licensing examinations as well as new training requirements.*
>
> *The commitment was also captured as COL Action Item 18.10.3-1 in Appendix F of the NRC staff's FSER for the AP1000 DCD (NUREG-1793), which states:*
>
> > *With regard to the training program development, the COL applicant will: (1) address the training program development in NUREG-0711; (2) address relevant concerns identified in NUREG-1793; and (3) identify the minimum documentation that the COL applicant will provide to enable the staff to complete its review.*
>
> *The NRC staff reviewed the resolution to COL Information Item 18.10-1 related to staffing and qualifications included under Section 18.10 of the BLN COL FSAR, Revision 1. Section 18.10 in the BLN COL FSAR refers to Section 13.1, "Organizational Structure of Applicant," and Section 13.2, "Training," regarding the training program development. In Section 13.2 of the BLN COL FSAR, the applicant provided the referenced, NRC approved, NEI 06-13A [Revision 1], "Template for an Industry Training Program Description" to address COL Information Item 18.10-1. The applicant also noted that a systematic approach to training development will be conducted in accordance with the referenced staff approved WCAP-14655, "Designer's Input for the Training of the Human Factors Engineering Verification and Validation Personnel."*

The applicant provided information for the operational programs relating to non-licensed plant staff training, reactor operator training, and reactor operator re-qualification, by referencing NEI 06-13A [Revision 1], "Template for an Industry Training Program Description."

NEI 06-13A was created to provide applicants with a generic program description for use with COL application submittals. In a letter dated March 7, 2007, the staff stated that the template was an acceptable means for describing reactor operator and non-licensed plant staff training programs. The staff finds this approach to be acceptable because NEI 06-13A addresses non-licensed plant staff training, reactor operator training, and reactor operator re-qualification.

18.10.5 Post Combined License Activities

There are no post-COL activities related to this section.

18.10.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to training program development, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and is sufficient to resolve COL Action Item 18.10.3-1. The staff based its conclusion on the following:

- COL Information Item 18.10-1, relating to training, appropriately references Section 13.2 "Training." In Section 13.2, the applicant has committed to using Westinghouse Commercial Atomic Power 14655 to ensure a systematic approach to training development, and the applicant has referenced the staff-endorsed NEI 06-13A, Revision 1.

- Information involving non-licensed plant staff training, reactor operator training, and reactor operator requalification are acceptably addressed because the applicant referenced NEI 06-13A, Revision 1.

- The staff's review of the LNP training program is found in Sections 13.2 and 13.4 of this SER.

18.11 Human Factors Engineering Verification and Validation (Related to RG 1.206, Section C.I.18.10, "Verification and Validation")

Human factors V&V documents the V&V activities confirming that the HSI design conforms to HFE design principles and that it enables plant personnel to successfully perform their tasks to achieve plant safety and other operational goals.

Section 18.11 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.11 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.12 Inventory (No Corresponding Section in RG 1.206)

The specific sensors, instrumentation, controls, and alarms that are needed to operate the various plant systems constitute the inventory. The instruments, alarms, and controls for each system are documented in the piping and instrumentation diagrams. The minimum inventory required to safely shutdown the reactor and maintain it shutdown is also identified.

Section 18.12 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.12 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.13 Design Implementation (Related to RG 1.206, Section C.I.18.11, "Design Implementation")

Design implementation verifies that the as-built design conforms to the verified and validated design that resulted from the HFE design process. The scope of the design implementation includes the following considerations:

- V&V of design aspects that cannot be completed as part of the HSI V&V program
- confirmation that the as-built HSI, procedures, and training conform to the approved design
- confirmation that all HFE issues in the tracking system are appropriately addressed

Section 18.13 of the LNP COL FSAR, Revision 9, incorporates by reference, with no departures or supplements, Section 18.13 of Revision 19 of the AP1000 DCD. The NRC staff reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The NRC staff's review confirmed that there is no outstanding issue

related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

18.14 Human Performance Monitoring (Related to RG 1.206, Section C.I.18.12, "Human Performance Monitoring")

18.14.1 Introduction

Human performance monitoring is used to assure that no significant safety degradation occurs because of any changes that are made in the plant and to confirm that the conclusions that have been drawn from the integrated system validation remain valid over time. Human performance monitoring is a program that begins after plant operation commences. Therefore, the applicant describes the documentation to be maintained after the program is implemented. The objective of this review is to verify that the applicant has prepared a human performance monitoring strategy for ensuring that no significant safety degradation occurs because of any changes that are made in the plant.

The program describes: (1) a human performance monitoring strategy; (2) how it trends human performance relative to changes implemented in the plant after startup; and (3) how it demonstrates that performance is consistent with that assumed in the various analyses conducted to justify the changes.

The program provides for specific cause determination, trending of performance degradation and failures, and determination of appropriate corrective actions. Detailed implementation plans and procedures for human performance monitoring remain available for NRC review.

18.14.2 Summary of Application

Section 18.14 of the LNP COL FSAR, Revision 9, incorporates by reference Section 18.14 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 18.14, the applicant provided the following:

AP1000 COL Information Item

- STD COL 18.14-1

The applicant provided additional information in STD COL 18.14-1 to resolve COL Information Item 18.14-1, addressing human performance monitoring after the plant is placed in operation.

18.14.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the acceptance criteria associated with the relevant requirements of the Commission regulations for STD COL 18.14-1 are given in Chapter 18, Section II A.12 of NUREG-0800.

The applicable regulatory requirements for STD COL 18.14-1 are as follows:

- 10 CFR 52.79(c)

The related acceptance criteria are as follows:

- NUREG-0711, Section 13.4

18.14.4 Technical Evaluation

The NRC staff reviewed Section 18.14 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to human performance monitoring. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure the staff's findings on standard content that were documented in the SER for the reference COL application VEGP Units 3 and 4 were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5, to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application VEGP contains evaluation material from the SER for the BLN Units 3 and 4 COL application.

The following portion of this technical evaluation section is reproduced from Section 18.14.4 of the VEGP SER:

> *The following portion of this technical evaluation section is reproduced from Section 18.14.4 of the BLN SER:*

AP1000 COL Information Item

- *STD COL 18.14-1 (COL Action Item 18.13-1)*

The applicant provided additional information in STD COL 18.14-1 to resolve COL Information Item 18.14-1. COL Information Item 18.14-1 states:

> *Human performance monitoring applies after the plant is placed in operation, and is a Combined License Applicant responsibility.*

The commitment was also captured as COL Action Item 18.13-1 in Appendix F of the NRC staff's FSER for the AP1000 DCD (NUREG-1793), which states:

> *The COL applicant is responsible for human performance monitoring after the plant is placed into operation. ~~The human performance monitoring process implements the guidance and methods as described in DCD Section 18.14 Reference 1 (NUREG-0711)~~.*

The applicant noted that the human performance monitoring process implements the guidance and methods as described in DCD Section 18.14. The applicant defines a broad outline of the structure of the human performance monitoring process and the assurances that can be obtained through implementation of the process. The human performance monitoring process for risk-informed changes is integrated into the corrective action program, training program, and other programs as appropriate. The cause determination process is also defined. It states that monitoring strategies for human performance trending after the implementation of the design changes are capable of demonstrating that performance is consistent with that assumed in various analyses conducted to justify the changes. Risk-informed changes are screened commensurate with their safety importance to determine if the changes require monitoring.

The NRC staff reviewed the resolution of COL Information Item 18.14-1 relating to human performance monitoring included under Section 18.14 of the BLN COL FSAR, Revision 1.

The BLN COL FSAR describes the human performance monitoring program found in NUREG-0711. It also states:

> *The human performance monitoring process for risk-informed changes is integrated into the corrective action program, training program and other programs as appropriate. Identified human performance conditions/issues are evaluated for human factors engineering applicability.*

Criterion 5 of NUREG-0711 states:

> *As part of the monitoring program, it is important that provisions for specific cause determinations, trending of performance degradation and failures, and corrective actions be included. The cause determination should identify the cause of the failure or degraded performance to the extent that corrective action can be identified that would preclude the problem or provide adequate assurance that it is anticipated prior to becoming a safety concern.*

The applicant's use of cause investigation:

- *Identifies the cause of the failure or degraded performance to the extent that corrective action can be taken consistent with the corrective action program requirements.*

- *Addresses failure significance, which includes the circumstances surrounding the failure or degraded performance, the characteristics of the failure, and whether the failure is isolated or has generic or common cause implications.*

- *Identifies and establishes corrective actions necessary to preclude the recurrence of unacceptable failures or degraded performance in the case of a significant condition adverse to quality.*

The staff has determined that the information included in Section 18.14 of the BLN COL FSAR is consistent with criteria found in NUREG-0711 and is sufficient for the staff to consider COL Information Item 18.14-1 closed.

18.14.5 Post Combined License Activities

There are no post-COL activities related to this section.

18.14.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to human performance monitoring, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and meets the acceptance criteria defined in NUREG-0711. The staff based its conclusion on the following:

- STD COL 18.14-1, addressing human performance monitoring after the plant is placed in operation, outlines a structured approach for accomplishing this monitoring.

19.0 PROBABILISTIC RISK ASSESSMENT (RELATED TO RG 1.206, SECTION C.III.1, CHAPTER 19, C.I.19, "PROBABILISTIC RISK ASSESSMENT AND SEVERE ACCIDENT EVALUATION")

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, certifications, and approvals for nuclear power plants," Subpart C, Section 52.79, "Contents of applications; technical information in final safety analysis report," requires applicants to submit a description of the plant-specific probabilistic risk assessment (PRA) and its results. The PRA provides an evaluation of the risk of core damage and release of radioactive material associated with both internal and external events that can occur during plant operation at power or while shutdown.

Appendix 19A to this safety evaluation (SE) section evaluates the measures identified by the applicant needed to comply with requirements to address loss of large areas (LOLAs) of the plant due to explosions or fires from a beyond-design-basis event (BDBE). These requirements are in 10 CFR 50.54(hh)(2) and 10 CFR 52.80(d). It should be noted that the attachment to Appendix 19A (Attachment A), as well as some documents referenced in Appendix 19A, include security-related or safeguards information. Therefore, Attachment A to Appendix 19A and the references that include security-related or safeguards information are withheld from the public in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding."

19.1–19.40, 19.42–19.54, 19.56–19.57, and Appendices 19A, 19B, 19C, and 19D, Probabilistic Risk Assessment

The Levy Nuclear Plant (LNP) combined license (COL) final safety analysis report (FSAR), Revision 9, incorporates by reference, with no departures or supplements, Sections 19.1 through 19.40, 19.42 through 19.54, 19.56, 19.57, and Appendices 19A, 19B, 19C, and 19D of the AP1000 Design Control Document (DCD) Revision 19:

19.1, "Introduction"
19.2, "Internal Initiating Events"
19.3, "Modeling of Special Initiators"
19.4, "Event Tree Models"
19.5, "Support Systems"
19.6, "Success Criteria Analysis"
19.7, "Fault Tree Guidelines"
19.8, "Passive Core Cooling System – Passive Residual Heat Removal"
19.9, "Passive Core Cooling System – Core Makeup Tanks"
19.10, "Passive Core Cooling System – Accumulator"
19.11, "Passive Core Cooling System – Automatic Depressurization System"
19.12, "Passive Core Cooling System – In-containment Refueling Water Storage Tank"
19.13, "Passive Containment Cooling"
19.14, "Main and Startup Feedwater System"
19.15, "Chemical and Volume Control System"
19.16, "Containment Hydrogen Control System"
19.17, "Normal Residual Heat Removal System"
19.18, "Component Cooling Water System"
19.19, "Service Water System"

19.20, “Central Chilled Water System”
19.21, “AC Power System”
19.22, “Class 1E DC and UPS System”
19.23, “Non-Class 1E DC and UPS System”
19.24, “Containment Isolation”
19.25, “Compressed and Instrument Air System”
19.26, “Protection and Safety Monitoring System”
19.27, “Diverse Actuation System”
19.28, “Plant Control System”
19.29, “Common Cause Analysis”
19.30, “Human Reliability Analysis”
19.31, “Other Event Tree Node Probabilities”
19.32, “Data Analysis and Master Data Bank”
19.33, “Fault Tree and Core Damage Quantification”
19.34, “Severe Accident Phenomena Treatment”
19.35, “Containment Event Tree Analysis”
19.36, “Reactor Coolant System Depressurization”
19.37, “Containment Isolation”
19.38, “Reactor Vessel Reflooding”
19.39, “In-Vessel Retention of Molten Core Debris”
19.40, “Passive Containment Cooling”
19.42, “Conditional Containment Failure Probability Distribution”
19.43, “Release Frequency Quantification”
19.44, “MAAP4.0 Code Description and AP1000 Modeling”
19.45, “Fission Product Source Terms”
19.46 Not used
19.47 Not used
19.48 Not used
19.49, “Offsite Dose Evaluation”
19.50, “Importance and Sensitivity Analysis”
19.51, “Uncertainty Analysis”
19.52, Not used
19.53, Not used
19.54, “Low Power and Shutdown PRA Assessment”

19.56, “PRA Internal Flooding Analysis”
19.57, “Internal Fire Analysis”

Appendix 19A, “Thermal Hydraulic Analysis to Support Success Criteria”
Appendix 19B, “Ex-Vessel Severe Accident Phenomena”
Appendix 19C, “Additional Assessment of AP1000 Design Features”
Appendix 19D, “Equipment Survivability Assessment”

The staff of the Nuclear Regulatory Commission (NRC) reviewed the application and checked the referenced DCD to ensure that no issue relating to this section remained for review.[1] The

[1] See Section 1.2.2 for a discussion of the staff’s review related to verification of the scope of information to be included in a COL application that references a design certification (DC).

NRC staff's review confirmed that there are no outstanding issues related to these sections. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," and its supplements.

For the remaining sections of Chapter 19, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 19.0, "Probabilistic Risk Assessment and Severe Accident Evaluation for New Reactors," was the principal source of guidance for the review. NUREG-0800, Section 19.1, "Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," was also used. The acceptability of the risk to public health and safety was determined on the basis of the results and insights derived from the applicant's plant-specific internal events PRA, site-specific assessment of external events, and severe accident evaluations. The staff's evaluation of the remaining sections of Chapter 19 is described below.

19.41 Hydrogen Mixing and Combustion Analysis

In the course of a severe accident, the oxidation of the zirconium and other metals can generate a substantial amount of combustible gas in the reactor vessel. This gas will migrate to the containment. Section 19.41 presents the design features of the AP1000 containment that control the concentration of combustible gases, including hydrogen igniters. Section 19.41 of the LNP COL FSAR, Revision 9, incorporates by reference Section 19.41, "Hydrogen Mixing and Combustion Analysis," of the AP1000 DCD, Revision 19. Section 19.41 of the DCD provides a hydrogen analysis that quantifies the threat to containment integrity with and without hydrogen igniters.

By reference, Section 19.41 of the LNP COL FSAR incorporates Section 19.41 of the AP1000 DCD, "Hydrogen Mixing and Combustion Analysis." It includes an analysis that quantifies the threat of combustible gas to containment integrity, both with and without igniters (which are not safety-related).

In addition, in the LNP COL FSAR, the applicant provided the following:

Departures

- LNP DEP 6.2-1

The applicant provided additional information in Section 19.41 of the LNP COL FSAR about LNP DEP 6.2-1 related to changes to the acceptance criteria applied to a specific Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) design commitment and associated inspection, test, or analysis in Tier 1 Table 2.3.9-3, Item 3 (for control of containment hydrogen concentration for beyond-design-basis accidents) to establish consistency with the current detailed design of the plant. This information, as well as related LNP DEP 6.2-1 information appearing in other chapters of the FSAR, is reviewed in Section 21.4 of this safety evaluation report (SER).

The NRC staff reviewed Section 19.41 of the LNP COL FSAR and confirmed that the combination of the DCD and the COL application is sufficient. The staff's review confirmed that with this departure, the evaluation criteria are still satisfied. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

19.55 Seismic Margin Analysis

19.55.1 Introduction

The NRC staff reviewed Section 19.55 of the LNP COL FSAR, which incorporated Section 19.55 of the DCD with no departures or supplements.

The seismic analysis and design of the AP1000 plant is based on the certified seismic design response spectra (CSDRS) shown in AP1000 DCD Tier 1, Figures 5.0-1 and 5.0-2. These spectra are based on Regulatory Guide (RG) 1.60, "Design Response Spectra for Seismic Design of Nuclear Power Plants," Revision 1, with an increase in the 25-hertz (Hz) region to account for increased high-frequency ground motion at some prospective sites. The CSDRS has its dominant energy content in the frequency range of 2 Hz to 10 Hz. An additional analysis was performed for a hard-rock, high-frequency (HRHF) site with spectra corresponding to those shown in AP1000 DCD Tier 1, Figures 5.0-3 and 5.0-4.

19.55.2 Summary of Application

Section 19.55 of the LNP COL FSAR, Revision 9, incorporates by reference Section 19.55 of the AP1000 DCD, Revision 19.

The Fukushima Near-Term Task Force made several recommendations in SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami." In light of these recommendations, the applicant performed sensitivity studies using the Central and Eastern United States Seismic Source Characterization model (described in NUREG-2115, "Central and Eastern United States Seismic Source Characterization for Nuclear Facilities"). The applicant evaluated the potential seismic hazards at the LNP site and assessed their impact on the site seismic margin analysis (SMA). Section 20.1 of this SER presents the staff's evaluation of the studies. The staff concluded that its findings regarding the acceptability of the SMA remain valid.

AP1000 COL Information Item

- LNP COL 19.59.10-6

In a letter dated February 14, 2011, the applicant proposed LNP COL 19.59.10-6, to supplement the LNP COL FSAR with a new Section 19.55.6.3, "Site-Specific Seismic Margin Analysis." This plant-specific COL item is in response to a new COL Information Item 19.59.10-6 proposed for the AP1000 DCD in a letter from Westinghouse Electric Company (Westinghouse) dated August 23, 2010, regarding confirmation that the SMA documented in the AP1000 DCD section is applicable to the LNP site. Specifically, LNP COL FSAR Section 19.55 describes features of

the site and provides the applicant's basis for concluding that the seismic margin for LNP is adequate.

19.55.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the applicable regulatory requirements for the evaluation of plant-specific information evaluated in SER Section 19.55 are as follows:

- 10 CFR 52.79(a)(46), "The final safety analysis report shall include…at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved…before issuance of a combined license…[a] description of the plant-specific PRA and its results."

- 10 CFR 52.79(d)(1), "If the combined license application references a standard design certification, then the…final safety analysis report need not contain information or analyses submitted to the Commission in connection with the design certification, provided, however, that the final safety analysis report must either include or incorporate by reference the standard design certification final safety analysis report and must contain, in addition to the information and analyses otherwise required, information sufficient to demonstrate that the site characteristics fall within the site parameters specified in the design certification. In addition, the plant-specific PRA information must use the PRA information for the design certification and must be updated to account for site-specific design information and any design changes or departures."

Additional guidance is found in the following documents:

- Interim staff guidance (ISG) in the form of DC/COL-ISG-1, "Interim Staff Guidance on Seismic Issues of High Frequency Ground Motion in Design Certification and Combined License Applications," provides clarifying guidance on implementation of the performance-based approach for determining site-specific ground motion. It also provides guidance on implementation of evaluation methodology to determine the effects of high-frequency ground motion.

- DC/COL-ISG-3, "Probabilistic Risk Assessment Information to Support Design Certification and Combined License Applications," provides clarifying guidance regarding the scope and quality of PRAs being used to support COL applications, and documentation that must be submitted in support of these applications.

  For external events analysis purposes, DC/COL-ISG-3 considers the requirements of 10 CFR 52.79(d)(1) met if the COL applicant compares the site's characteristics to those assumed in the DCD bounding analyses to ensure that the site is enveloped. If the site is enveloped, the COL applicant need not perform further PRA evaluations for these external events. However, the COL applicant should perform site-specific PRA evaluations to address any site-specific hazards for which a bounding analysis was not

performed or that are not enveloped by the bounding analyses to ensure that no vulnerabilities due to siting exist.

- DC/COL-ISG-20, "Implementation of a Probabilistic Risk Assessment-Based Seismic Margin Analysis for New Reactors," provides guidance on plant-specific updates of the DC PRA-based seismic margin evaluation for COL applications.

19.55.4 Technical Evaluation

The NRC staff reviewed Section 19.55 of LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and the information incorporated by reference addresses the required information relating to SMA. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

The staff reviewed the information in the LNP COL FSAR:

AP1000 COL Information Item

- LNP COL 19.59.10-6

The staff's review of the AP1000 PRA-based SMA is described in Section 19.1.5.1 of NUREG-1793 and its supplements. The AP1000 SMA estimated the seismic capacity of the AP1000 plant at which there is high confidence in low probability of failure (HCLPF). This is described as a free-field peak ground acceleration (PGA) expressed in terms of g (the acceleration of gravity). Specifically, in a staff requirements memorandum (SRM) dated July 21, 1993, the Commission approved the following staff recommendation specified in SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs," Section II.N, "Site-Specific Probabilistic Risk Assessments and Analysis of External Events," with a modification:

> PRA insights will be used to support a margins type assessment of seismic events. A PRA based seismic margins analysis will consider sequence level HCLPFs and fragilities for all sequences leading to core damage or containment failures up to approximately one and two thirds the ground motion acceleration of the design-basis SSE [safe-shutdown earthquake].

This has been incorporated in DC/COL-ISG-20. A review-level earthquake (RLE) equal to 0.5 g was established in the AP1000 DCD for the SMA and used to demonstrate a margin over the SSE of 0.3 g.

The NRC staff reviewed the proposed additions to Section 19.55 of the LNP COL FSAR outlined in the applicant's February 14, 2011, letter, and found that the ground motion response spectrum (GMRS) for the LNP site (presented in LNP COL FSAR Figure 2.5.2-296) is bounded by the CSDRS evaluated in the AP1000 DCD. Performance-based surface response spectra were developed and are also bounded by those of the certified design. Other analyses,

including analysis of soil-structure interaction, were performed to confirm that site-specific features did not cause HCLPF values reported in the DCD (seismic capacity) to fall below the values developed for the certified design. The staff finds that using the SMA provided in the DCD is conservative and acceptable for all structures, systems, and components (SSCs) within the scope of the DCD. The applicant proposed changes to the FSAR with these planned changes, tracked as **LNP Confirmatory Item 19.55-1**.

Resolution of LNP Confirmatory Item 19.55-1

The staff confirmed that the proposed changes were incorporated in Revision 3 of the application (Part 2, FSAR and Part 10, ITAAC). Therefore, Confirmatory Item 19.55-1 is resolved.

Seismic HCLPF Capacity for Levy Nuclear Plant

In Request for Additional Information (RAI) 19-75, the staff requested plant-specific supplemental information related to the HCLPF values of the safety-related, roller-compacted concrete bridging basemat and its effect upon the SMA.

In RAI Response 19-75, the applicant supplied the plant-specific HCLPF value for the safety-related, roller-compacted concrete bridging basemat and reported that the structure controls the plant HCLPF. The applicant updated the SMA with plant-specific information in FSAR Revision 4. The staff finds the applicant's evaluation is consistent with the guidance in DC/COL-ISG-20, and therefore acceptable. For all other SSCs, the staff finds that using the SMA provided in the DCD is conservative and acceptable.

19.55.5 Post Combined License Activities

There are no post-COL activities identified in this section.

19.55.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to site-specific features that may affect seismic margins in the LNP COL FSAR. The information provides sufficient basis to conclude that the incorporation of the SMA documented in the AP1000 DCD, supplemented by site-specific information, is acceptable. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and meets the requirements of 10 CFR 52.79(a)(46) and 10 CFR 52.79(d)(1). The staff based its conclusion on the following:

- LNP COL 19.59.10-6, as it relates to SMA, is acceptable based on the guidance in DC/COL-ISG-3 and -20.

19.58 Winds, Floods, and Other External Events

19.58.1 Introduction

Section 19.58 of the LNP COL FSAR discusses risks associated with external events other than earthquakes. The staff used this information to confirm that the total risk represented by core damage frequency (CDF) and large release frequency (LRF) remains acceptably low when accounting for external events.

With respect to external events, the applicant's response to COL Information Item 19.59.10-2 may also affect LNP COL FSAR Section 19.58. Therefore, the staff's evaluation of this COL information item is discussed in Section 19.58.4 below.

19.58.2 Summary of Application

Section 19.58 of the LNP COL FSAR, Revision 9, incorporates by reference Section 19.58 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 19.59.10.5, the applicant provided the following:

AP1000 COL Information Item

- STD COL 19.59.10-2

The applicant provided additional information in STD COL 19.59.10-2 to address COL Information Item 19.59.10-2, dealing with the site-specific PRA for external events.

Although information on external events is provided in a different section of the application, the staff's evaluation of the risk associated with these events is documented here.

In addition, in LNP COL FSAR Section 19.58, the applicant provided the following:

Supplemental Information

- LNP SUP 19.58-1

Table 19.58-201, "External Event Frequencies," documents the site-specific external events evaluation that has been performed for LNP Units 1 and 2. This table provides a general explanation of the evaluation and resultant conclusions and provides a reference to applicable sections of the COL where supporting information is located. The applicant concluded that the site for LNP Units 1 and 2 is bounded by the analysis documented in DCD Section 19.58, "Winds, Floods and Other External Events," and no further evaluations are required at the COL application stage.

19.58.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the applicable regulatory requirements for the evaluation of LNP SUP 19.58-1 are as follows:

- 10 CFR 52.79(a)(46), "The final safety analysis report shall include…at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved…before issuance of a combined license…[a] description of the plant-specific PRA and its results."

- 10 CFR 52.79(d)(1), "If the combined license application references a standard design certification, then the…final safety analysis report need not contain information or analyses submitted to the Commission in connection with the design certification, *provided, however*, that the final safety analysis report must either include or incorporate by reference the standard design certification final safety analysis report and must contain, in addition to the information and analyses otherwise required, information sufficient to demonstrate that the site characteristics fall within the site parameters specified in the design certification. In addition, the plant-specific PRA information must use the PRA information for the design certification and must be updated to account for site-specific design information and any design changes or departures."

Additional guidance is found in the following documents:

- RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," Revision 1, provides guidance on determining whether a PRA used in support of a COL application is of sufficient technical adequacy.

- DC/COL-ISG-3 provides clarifying guidance regarding the scope and quality of PRAs being used to support COL applications, and documentation that must be submitted in support of these applications.

  For external events analysis purposes, DC/COL-ISG-3 states that the staff considers the requirements of 10 CFR 52.79(d)(1) to be met if the COL applicant compares the site's characteristics to those assumed in the DCD generic analyses to ensure that the site is bounded. If so, the COL applicant need not perform further PRA evaluations for these external events. However, the COL applicant should perform site-specific PRA evaluations to address any site-specific hazards for which a bounding analysis was not performed or that the prior analysis does not bound to ensure that no vulnerabilities due to siting exist.

19.58.4 Technical Evaluation

The NRC staff reviewed Section 19.58 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to winds, floods, and other external events. The results of the NRC staff's evaluation of

the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

The staff reviewed the information in the LNP COL FSAR:

AP1000 COL Information Item

- STD COL 19.59.10-2

The NRC staff reviewed STD COL 19.59.10-2 related to COL Information Item 19.59.10-2 included under Section 19.59 of the LNP COL FSAR.

> [The] Combined License applicant will confirm that the High Winds, Floods, and Other External Events analysis documented in Section 19.58 is applicable to the COL site. Further evaluation will be required if the COL site is shown to be outside of the bounds of the High Winds, Floods, and Other External Events analysis documented in Section 19.58.

In the LNP COL FSAR, Revision 2, the applicant provided STD COL 19.59.10-2, which included the following paragraph:

> As discussed in Section 19.58.3 it has been confirmed that the Winds, Floods, and Other External Events analysis documented in DCD Section 19.58 is applicable to the site. The site-specific design has been evaluated and is consistent with the AP1000 PRA assumptions. Therefore, Section 19.58 of the AP1000 DCD is applicable to this design.

Staff Request for Additional Information

Although site-specific information at currently proposed AP1000 sites was considered in performing the generic analyses of DCD Section 19.58, details were not made available to the staff in the initial application. The staff issued an RAI for sufficient information to be able to confirm the basis for concluding that the LNP site was bounded by the generic analysis (RAI 19-1).

Supplemental Information

- LNP SUP 19.58-1

The NRC staff reviewed LNP SUP 19.58-1 related to COL Information Item 19.59.10-2.

In a letter dated July 29, 2009 (ML092120059), the applicant, in response to RAI 19-1, described the methodology used to develop the generic external event analysis and provided additional information on site-specific external event frequency and severity.

Potential external events and hazards were first screened for applicability to the LNP site. For events that were judged applicable, the applicant developed an initiating event frequency and provided this information to Westinghouse for use in the bounding analysis of the generic

AP1000 site. Westinghouse developed a limiting event to bound the severity and frequency of all reported events; a hypothetical site for the generic analysis was characterized by these limiting events.

To address the external events in the scope of the generic analysis, the applicant provided a comparison between the DCD limiting events and site-specific events. Table 1 in the RAI 19-1 response provides an assessment of external event applicability to the LNP site (with a brief justification), as well as the applicant's estimate of event frequency for relevant external events.

The staff independently compared these inputs to the event frequencies assumed in the DCD.

The staff reviewed the data, the applicability justifications, and the basis for event frequency estimations in this table. Events that were bounded by the external events documented in the DCD (no more frequent and no more damaging) required no additional evaluation. Events that are predicted to occur no more than once in ten million years can be screened because they occur so infrequently (frequency less than 1×10^{-7}/year). Events that may occur more frequently but less than once in a million years (frequency less than 1×10^{-6}/year) are assessed to determine if their consequences make a negligible contribution to core damage frequency (change CDF less than 1×10^{-8}/year). Other events, if any, must be explicitly evaluated and included in the plant-specific PRA.

After evaluation of the response to RAI 19-1, a number of questions remained. The staff requested additional information to allow the staff to confirm that the key site-related assumptions in the external events analyses remain valid for the LNP site (RAI 19-74):

- The staff asked the applicant to explain why the initiating event frequency (IEF) of 1.06×10^{-1} identified in the LNP FSAR for Category 1 hurricanes is acceptable, since this value is outside the bounds of the AP1000 DCD analysis (1.0×10^{-1}).

- The staff requested that the applicant explain its basis for concluding that switchyard components will be above the probable maximum precipitation (PMP) flood level when all grading zones are greater than the stated elevation of the switchyard.

- The applicant was asked to provide the basis for the frequency of a probable maximum flood (PMF) on streams and rivers, as well as seismically induced dam failure flooding.

- The applicant was asked to explain why the surge and seiche flooding of 47.98 feet that is associated with a probable maximum hurricane (PMH) is acceptable when the switchyard elevation is 47 feet.

In a letter dated January 14, 2010 (ML100200160), the applicant responded to this RAI with the requested clarification and discussion. In addition, the applicant revised the table that had been submitted in response to RAI 19-1 and proposed to include it in the LNP COL FSAR as Table 19.58-201, "External Event Frequencies," to document the basis for its assessment of risk related to winds, floods, and other external events. This table was subsequently incorporated in

Revision 2 of the LNP FSAR. A summary of the staff's review of each of the external event categories in the table follows.

Winds that would Threaten Safety-Related SSCs (exceed 300 mph)

LNP safety-related SSCs are designed to withstand winds of 300 mph (miles per hour). When the AP1000 was certified, the COL applicant was required to confirm the design assumption that high wind events exceeding 300 mph are extremely rare (in other words, they have a frequency less than 1×10^{-7}/year). Subsequent to certification of the AP1000 design, the staff issued Regulatory Guide 1.76, "Design-Basis Tornado and Tornado Missiles for Nuclear Power Plants," Revision 1. This guide states that for the continental United States, the staff considers the highest tornado wind speed with a frequency as high as 1×10^{-7}/year to be 230 mph. The expected frequency of 300 mph tornadoes is significantly lower. On the basis that the proposed site is in the continental United States, the staff concludes that such events at the LNP site may be screened from further analysis on the basis of negligible frequency.

High Winds—Tornadoes

The applicant is expected to verify that the frequency of each of the six tornado classes at the proposed site is bounded by the frequency assumed in Section 19.58 of the AP1000 DCD.

The applicant found this external event category applicable to the LNP site, and estimated frequencies for tornadoes striking the nine counties around the site. The applicant's estimated frequency for each class of tornado (on the enhanced Fujita scale) is less than what is assumed in Section 19.58 of the AP1000 DCD.

In response to RAI 19-1, the applicant reported that the large structure strike probability from EF0 to EF3 tornadoes at the LNP site is 5.21×10^{-5}/year and below and that since there are no recorded category EF4 or EF5 tornadoes in the region the event frequency was estimated to be the same as for an EF3 tornado. This event was evaluated in FSAR Section 2.3.1.

The staff finds that the method used to calculate tornado frequencies was conservative and, therefore, acceptable. The staff compared these frequencies with those used in the AP1000 DCD. The staff concludes that the risk from tornadoes at the LNP site is bounded by the risk identified in the AP1000 DCD and that no further analysis is required.

High Winds—Hurricanes and Extratropical Cyclones

The applicant is expected to verify that the frequency of each of the 12 high wind categories at the proposed site is bounded by the frequency assumed in Section 19.58 of the AP1000 DCD.

In response to RAI 19-1, the applicant identified this external event category as applicable to LNP site. In response to RAI 19-74, the applicant clarified the basis for the estimated frequency of Category 1 hurricanes and stated that the annual contribution to CDF for high winds and tornadoes calculated for the Levy site is less than the corresponding CDF values in the DCD and thus no site-specific PRA evaluations are required.

Wind events, including extratropical cyclones, were also evaluated in the applicant's COL FSAR Section 2.3.1. The frequency of extratropical cyclone events at the LNP site was documented in Section 19.58. Although the estimated frequency of such storms exceeds that which was assumed in the AP1000 DCD, even the nonsafety-related structures of the plant are designed to withstand winds of significantly higher speeds. As a result, extratropical cyclones make a negligible contribution to risk.

The staff evaluated the method used to calculate hurricane frequencies and finds that it was realistic and acceptable. The staff concludes that the risk from hurricanes at the LNP site is bounded by the risk identified in the AP1000 DCD. In addition, applying the screening criteria documented in the certified design, the staff finds that the consequences of extratropical cyclones present a negligible contribution to risk. For that reason, no further analysis of risk from hurricanes or extratropical cyclones is required.

External Floods

The applicant is expected to verify that the frequency of external flooding at the proposed site is bounded by the frequency assumed in Section 19.58 of the AP1000 DCD.

In response to RAI 19-1, the applicant identified this external event category as applicable to the LNP site. However, in response to RAI 19-74, the applicant provided additional information to justify why external flooding will not have any impact on safety-related structures at the LNP site.

The proposed floor elevation is 51 feet NVAD88. As stated in FSAR Section 2.4, both the maximum water level due to PMP and the surge associated with the probable maximum hurricane are below the plant grade. The potential for flooding from dam failures or seiche effects is not applicable to the LNP site. Other sources considered included the probable maximum tsunami and wind-generated waves; none of these will have any impact on safety-related SSCs.

The conceptual design for the Levy switchyard requires that the maximum flood elevation, as determined by the PMP study, shall be considered during detailed design of Levy switchyard structures to ensure that the PMP flood has no impact upon flood-sensitive switchyard components or the risk-significant SSCs they support. On this basis, the staff agrees that the sensitivity analysis in DCD Tier 2 Section 19.58.2.2 for flooding-induced failure of the switchyard and nonsafety-related structures is bounding for the LNP site.

The staff's evaluation of the applicant's hydrologic analyses is presented in Section 2.4 of this SER. The staff concludes that the applicant has demonstrated that consequential flooding from external sources is so unlikely that it can be screened from further risk analysis.

Transportation and Nearby Facility Accidents—Aviation Accidents

The applicant is expected to demonstrate that it is bounded by Section 19.58 of the AP1000 DCD by limiting impact frequencies to 1.2×10^{-6}/year by small aircraft and 1.0×10^{-7}/year by large commercial aircraft. The bounding analysis for a small aircraft in the AP1000 DCD assumes that the impact would result in a loss of offsite power initiating event with subsequent loss of

nonsafety-related systems. Larger (commercial) aircraft may have the capacity to challenge safety-related SSCs, although some safety-related systems are expected to survive and remain functional.

In response to RAI 19-1, the applicant identified this event category as applicable to the LNP site, and referenced LNP FSAR Section 3.5.1.6, which provides details of aircraft impact analysis. The applicant determined that five airways are routed within 2 miles of the LNP site.

The applicant calculated the frequency of large aircraft impact to be 3.093×10^{-8}/year. This is larger than the frequency evaluated in the DCD, but because the estimated frequency is below the 1.0×10^{-7}/year screening criterion, the staff concludes that no further evaluation is needed.

Transportation and Nearby Facility Accidents—Marine Accidents

In response to RAI 19-1, the applicant found that this event category was not applicable to the LNP site. The applicant referenced LNP FSAR Section 2.2.2.4 and stated that water traffic of the five navigable waterways near the site is limited to pleasure and/or fishing boats.

The staff finds that because there is no commercial shipping or barge traffic on waterways near the site, risk from marine accidents need not be considered for the LNP site.

Transportation and Nearby Facility Accidents—Pipelines (Explosions)

In response to RAI 19-1, the applicant states that there are two natural gas pipelines in the area of the LNP site and cites LNP FSAR Section 2.2.3.2.3. Subsequently, a third pipeline has been installed and is reported in Table 19.58-201. The calculated maximum downwind concentration of natural gas at the site is well below the lower flammability limit of natural gas. On this basis, the applicant determined that explosion hazards due to pipeline accidents can be screened on the basis of an event frequency less than 1.0×10^{-7}.

This event was evaluated in the applicant's COL FSAR Section 2.2.3. The conclusions reached by the staff in reviewing that section also support the finding that explosions related to pipelines with the potential to affect site SSCs will occur with negligible frequency.

Transportation and Nearby Facility Accidents—Explosions

There are no military facilities and there is no rail traffic within 5 miles of the LNP site. Propane gas is stored 3.4 miles away, but not in a quantity that poses a potential hazard to LNP SSCs. The applicant concluded that potential sources of explosions from nearby activities are limited to an explosion in highway transport. The safe standoff distance for an explosive hazard (based on a tank car of trinitrotoluene) is less than the distance from the site boundary to the nearest highway.

The staff's assessment of the hazard from explosions is documented in Chapter 2 of this SER. The staff concludes that the frequency of consequential explosions at the LNP site is negligible. No further evaluation of risk from these accidents is required.

Transportation and Nearby Facility Accidents—Toxic Chemical Release

The applicant is expected to verify that the limiting initiating event frequency of 1×10^{-6}/year is not exceeded for the release of toxic materials toward the plant from any transportation-related source (marine, rail, or truck). Such a release can affect plant and control room habitability. This is not a screening based on frequency alone: it also considers consequence. It is predicated on a very low conditional core damage probability when there is no operator action or no operator action after tripping the reactor.

In response to RAI 19-1, the applicant states that toxic chemical release is not applicable to the LNP site and cites LNP FSAR Section 2.2.3.3. A water treatment plant is located 3 miles from the LNP site but the quantities of toxic materials stored there are too small to affect the plant, even assuming failure of their containers. No other facilities utilize or store toxic chemicals and there is no rail or barge traffic within 5 miles of the LNP site. Transportation of toxic chemicals by truck within this area is unlikely because there is no delivery point within the area. Other roadways, farther from the LNP site, are more suitable for truck traffic.

Hazardous materials stored onsite are not present in sufficient quantity to affect control room habitability if they were to be released. For these reasons, the applicant determined that toxic chemical release is not applicable to the LNP site.

The staff's assessment of the hazard from toxic chemical release is documented in Chapter 2 of this SER. The AP1000 DCD demonstrates that even consequential toxic chemical release is a negligible contributor to risk. The staff concludes that no further evaluation of risk from these accidents is required.

External Fires

The DCD calls for the applicant to "reevaluate the qualitative screening of external fires" and perform a risk assessment if it cannot be demonstrated that the frequency of hazard is less than 1×10^{-7}/year.

External fires are discussed in LNP COL FSAR Section 2.2.3. On the basis of the distance separating the plant from potential external fires and alarms on the detection of smoke at the outside air intake plenum, the applicant concluded that safe operation of the plant is not jeopardized by external fires.

The staff's assessment of the hazard from external fires is documented in Chapter 2 of this SER. The staff concludes that consequential fires external to the site will occur with negligible frequency and no further evaluation of risk from external fire is required.

Summary

On the basis of this additional information, the staff confirmed that the AP1000 DCD external events analysis envelops the reported parameters of the LNP site. The staff concludes that the incorporation of AP1000 DCD Section 19.58 by reference, with plant-specific supplemental information is acceptable. The staff considers RAIs 19-1 and 19-74 to be resolved.

19.58.5 Post Combined License Activities

There are no post-COL activities related to this section.

19.58.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to winds, floods, and other external events, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

The staff concludes that the relevant information presented in STD COL 19.59.10-2 and LNP SUP 19.58.1 is consistent with the requirements of 10 CFR 52.79(a)(46) and 10 CFR 52.79(d)(1) and is, therefore, acceptable.

19.59 PRA Results and Insights

19.59.1 Introduction

This section describes the use of the PRA in the design process. It also provides an overall summary of PRA results, including those from the following analyses:

- full power, internal events PRA (both Level 1 and Level 2, providing information on CDF and LRF)
- shutdown and low power events PRA (both Level 1 and Level 2 PRA, with information on CDF and LRF)
- internal flooding assessment (both Level 1 and Level 2 PRA, with information on CDF and LRF for both full power and shutdown/low power conditions)
- internal fire assessment (both Level 1 and Level 2 PRA, with information on CDF and LRF for both full power and shutdown/low power conditions)
- SMA

In addition, this section discusses key insights from the PRA. It describes those plant features that are important to risk. It also provides information on where the PRA was used to support the certification of the AP1000 design, such as the assessment of design alternatives and scoping of the reliability assurance program.

19.59.2 Summary of Application

Section 19.59 of the LNP COL FSAR, Revision 9, incorporates by reference Section 19.59 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 19.59.10.5, the applicant provided the following:

Departure

- LNP DEP 6.3-1

The applicant provided additional information in Section 19.59 of the LNP COL FSAR about LNP DEP 6.3-1 related to quantifying the duration that the passive residual heat removal system heat exchanger can maintain safe shutdown conditions. This information, as well as related LNP DEP 6.3-1 information appearing in other chapters of the FSAR, is reviewed in Section 21.1 of this SER.

AP1000 COL Information Items

- STD COL 19.59.10-1

The applicant provided additional information in STD COL 19.59.10-1 to address COL Information Item 19.59.10-1. This item will evaluate any differences between the as-built plant and the certified design to confirm that seismic margins remain adequate.

- STD COL 19.59.10-2

The applicant provided additional information in STD COL 19.59.10-2 to address COL Information Item 19.59.10-2. The portion of this item dealing with evaluation of the as-built plant for conformance to the design modeled in the AP1000 PRA was originally identified in Revision 15 of the AP1000 DCD as a COL applicant's responsibility. It was subsequently identified as a COL holder's responsibility.

The portion of COL Information Item 19.59.10-2 dealing with the site-specific PRA for external events remains the responsibility of the COL applicant and is discussed in Section 19.58 of this SER.

- STD COL 19.59.10-3

The applicant provided additional information in STD COL 19.59.10-3 to address COL Information Item 19.59.10-3. This item will evaluate any differences between the as-built plant and the certified design to confirm that there are no significant adverse changes to the internal fire and internal flood analysis results.

- STD COL 19.59.10-4

The applicant provided additional information in STD COL 19.59.10-4 to address COL Information Item 19.59.10-4. The COL applicant states that severe accident management guidance (SAMG) is implemented on a site-specific basis.

- STD COL 19.59.10-5

The applicant provided additional information in STD COL 19.59.10-5 to address COL Information Item 19.59.10-5. This item, thermal lag assessment of the as-built equipment required to mitigate severe accidents, must be completed prior to initial fuel loading (for equipment that has not been tested at severe accident conditions).

- LNP COL 19.59.10-6

In a letter dated February 14, 2011, the applicant proposed to add LNP COL 19.59.10-6 to reflect a revision proposed by Westinghouse in a letter dated August 23, 2010, regarding confirmation that the SMA documented in the AP1000 DCD section is applicable to the LNP site. This COL information item is evaluated in SER Section 19.55.4.

Section 19.59 of the LNP COL FSAR adds Section 19.59.10.6 to include the following:

Supplemental Information

- STD SUP 19.59-1

The applicant provided the following supplemental information, discussing the processes for:

– monitoring PRA inputs and collecting new information

– maintaining and updating the PRA to reflect the as-built, as-operated plant

– considering the cumulative impact of pending changes when applying the PRA

– evaluating the impact of changes on risk-informed decisions

– upgrading the PRA to meet NRC-endorsed consensus standards

– maintaining configuration control of the PRA, including computer codes used to support PRA quantification

– maintaining the PRA documentation current

In addition, the applicant describes where the LNP PRA is expected to provide input to other programs and processes.

License Conditions

- Part 10, License Condition 2

The proposed license condition identifies required actions that cannot be accomplished until a license is granted. It provides milestones for their completion.

- Part 10, License Condition 6

The proposed license condition requires submittal of a schedule to support NRC inspections of operational programs, including those related to implementation of SAMG.

19.59.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793 and its supplements.

In addition, the following regulations apply to Sections 19.59.10.5 and 19.59.10.6 of the LNP COL FSAR:

- 10 CFR 50.71(h)(1), "No later than the scheduled date for initial loading of fuel, each holder of a combined license under Subpart C of 10 CFR Part 52 shall develop a level 1 and a level 2 probabilistic risk assessment (PRA). The PRA must cover those initiating events and modes for which NRC-endorsed consensus standards on PRA exist one year prior to the scheduled date for initial loading of fuel."

- 10 CFR 50.71(h)(2), "Each holder of a combined license shall maintain and upgrade the PRA required by paragraph (h)(1) of this section. The upgraded PRA must cover initiating events and modes of operation contained in NRC-endorsed consensus standards on PRA in effect one year prior to each required upgrade. The PRA must be upgraded every four years until the permanent cessation of operations under 10 CFR 52.110(a) of this chapter."

- 10 CFR 52.79(a)(46), "The final safety analysis report shall include…at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved…before issuance of a combined license:…[a] description of the plant-specific probabilistic risk assessment (PRA) and its results."

- 10 CFR 52.79(a)(38), "The final safety analysis report shall include…at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved…before issuance of a combined license:…a description and analysis of design features for the prevention and mitigation of severe accidents…."

- 10 CFR 52.79(d)(1), "If the combined license application references a standard design certification, then the…final safety analysis report need not contain information or analyses submitted to the Commission in connection with the design certification, *provided, however*, that the final safety analysis report must either include or incorporate by reference the standard design certification final safety analysis report and must contain, in addition to the information and analyses otherwise required, information sufficient to demonstrate that the site characteristics fall within the site parameters specified in the design certification. In addition, the plant-specific PRA information must use the PRA information for the design certification and must be updated to account for site-specific design information and any design changes or departures."

NUREG-0800 provides the following guidance:

- Section 19.0, Section III.1.C provides guidance for reviewing a COL application referencing a DC, with emphasis on documented assumptions and insights from the PRA.

- Section 19.0, Section III.3 provides guidance for reviewing COL action items.

- Section 19.1 provides information regarding the review of the technical adequacy of a design-specific, site-specific PRA.

Additional guidance is found in the following documents:

- RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," Revision 1, provides guidance on determining whether a PRA used in support of a COL application is of sufficient technical adequacy.

- DC/COL-ISG-3 clarifies the staff's expectations for information to be included in the COL application.

19.59.4 Technical Evaluation

The NRC staff reviewed Section 19.59 of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to the PRA results and insights. The results of the NRC staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Section 1.2.3 of this SER provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER for the reference COL application (Vogtle Electric Generating Plant (VEGP) Units 3 and 4) were equally applicable to the LNP Units 1 and 2 COL application, the staff undertook the following reviews:

- The staff compared the VEGP COL FSAR, Revision 5 to the LNP COL FSAR. In performing this comparison, the staff considered changes made to the LNP COL FSAR (and other parts of the COL application, as applicable) resulting from RAIs.

- The staff confirmed that all responses to RAIs identified in the corresponding standard content evaluation were endorsed.

- The staff verified that the site-specific differences were not relevant.

The staff has completed its review and found the evaluation performed for the standard content to be directly applicable to the LNP COL application. This standard content material is identified in this SER by use of italicized, double-indented formatting. Section 1.2.3 of this SER provides an explanation of why the standard content material from the SER for the reference COL application (VEGP) includes evaluation material from the SER for the Bellefonte Nuclear Plant (BLN) Units 3 and 4 COL application.

The following portion of this technical evaluation section is reproduced from Section 19.59.4 of the VEGP SER:

AP1000 COL Information Items

- *STD COL 19.59.10-1*

The NRC staff reviewed STD COL 19.59.10-1, which is related to the seismic margin evaluation found in Section 19.55 of the AP1000 DCD, incorporated by reference into the BLN COL FSAR. RAI 19-1 requested justification of an apparent difference between STD COL 19.59.10-1 and the corresponding information item in the DCD. The applicant revised BLN COL FSAR Section 19.59.10.5 as follows:

> *The requirements to which the equipment is to be purchased are included in the equipment specifications. Specifically, the equipment specifications include:*
>
> 1. *Specific minimum seismic requirements [are] consistent with those used to define the Table 19.55-1 [high confidence, low probability of failure] HCLPF values. This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). The range of frequency response that is required for the equipment with its structural support is defined.*
>
> 2. *Hardware enhancements that were determined in previous test programs and/or analysis programs will be implemented.*

This is consistent with the AP1000 DCD, and is therefore acceptable to the staff. As a result, the staff considers RAI 19-1 to be closed.

STD COL 19.59.10-1 states that this should be completed prior to initial fuel load, rather than at the time of the COL application. The required comparison cannot be performed until completion of fabrication, installation, and construction of SSCs, and the as-built review of the seismic margin evaluation.

The NRC staff concluded in Section 19.1.5.1 of NUREG-1793 that the methodology for calculating the HCLPF values complied with the relevant

regulatory requirements, based on the certified seismic design response spectra (CSDRS). The staff concludes that it is acceptable to complete the final verification of seismic margins when the walkdowns are performed after the plant is built.

- STD COL 19.59.10-2

As noted in SER Section 19.59.2 above, this COL information item has two parts. The first part requires the COL holder to compare the as-built plant to the design used as the basis for the AP1000 PRA and DCD Table 19.59-18 (which was incorporated by reference into Chapter 19 of the applicant's FSAR). The COL holder must update the site-specific PRA to reflect differences if they potentially result in a significant increase in CDF or LRF.

The applicant identified the safety-related, roller-compacted concrete bridging mat as a site-specific structure that controls the plant HCLPF. In a letter dated November 17, 2011, the applicant responded to RAI 19-75, proposing to document this result and related insights pursuant to 10 CFR 52.79(a)(46). The staff's evaluation of the impact of this plant-specific design feature is documented in Section 19.55, "Seismic Margin Analysis." This important risk insight was also documented in Table 19.58-18 and resulted in a site-specific supplement to the scope of the reliability assurance program, evaluated in Section 17.4, "Design Reliability Assurance Program."

Revisions to 10 CFR Part 52, "Licenses, certifications, and approvals for nuclear power plants," and related rules were issued after the initial AP1000 DC, but prior to the submittal of the LNP COL application. Two of them, 10 CFR 52.79(d)(1) and 10 CFR 50.71(h), require that a COL application provide a description of a site-specific PRA, and that this PRA must cover those initiating events and modes for which NRC-endorsed consensus standards on PRA exist one year prior to the scheduled date for initial loading of fuel. Additional guidance was provided in DC/COL-ISG-3, which states, "PRA maintenance should commence at the time of application for both DC and COL applicants. This means that the PRA should be updated to reflect plant modifications if there are changes to the design." DC/COL-ISG-3 also clarifies the staff position on what constitutes a significant change in PRA results.

The staff requested clarification in RAI 19-2 of how the LNP PRA will be updated to account for LNP site-specific information by fuel load. It also requested a definition of a "significant increase."

In response to RAI 19-2, the applicant indicated that the PRA would be updated as described in LNP COL FSAR Section 19.59.10.5. PRA updating will include evaluation of as-built plant differences, departures from the certified design, and a plant-specific review of all the PRA insights and assumptions as documented in AP1000 DCD Table 19.59-18. The applicant revised LNP COL FSAR Section 19.59.10.5 to clarify that any differences found would be evaluated and that the plant-specific PRA model would be modified as necessary to reflect both the plant-specific design and PRA-based insights.

The staff agrees that the applicant's response meets the expectations of 10 CFR 52.79(d)(1) regarding the requirement for a site-specific PRA, as well as the additional guidance described in DC/COL-ISG-3. STD COL 19.59.10-2 now states that this should be completed prior to initial

fuel load, rather than at the time of the COL application. The required updates cannot be finalized until completion of fabrication, installation, and construction.

The NRC staff concluded in Section 19.1.9 of NUREG-1793 that the quality and completeness of the AP1000 PRA are adequate and satisfy the regulatory requirements. The methodology for upgrading and updating the plant-specific PRA described in the LNP COL FSAR satisfies the guidance of RG 1.200 and is, therefore, acceptable to the staff. The staff concludes that it is acceptable to update the plant-specific PRA when walkdowns are performed after the plant is built. This is consistent with the 10 CFR 50.71(h) requirement that the plant-specific PRA reflect the risk profile of the as-built, as-operated plant.

The second portion of this COL information item involves a review of site-specific external events to confirm that they are bounded by the external events addressed in the generic risk assessment for the AP1000 design. The staff's evaluation of this review is documented in Section 19.58 of this SER.

The following portion of this technical evaluation section is reproduced from Section 19.59.4 of the VEGP SER:

- *STD COL 19.59.10-3*

In response to RAI 19-20, the applicant proposed a change to its response to STD COL 19.59.10-3 to the effect that plant-specific internal fire and internal flood analysis will be evaluated and the analysis modified as necessary to account for the plant-specific design, and any design changes or departures from the certified design.

The staff reviewed STD COL 19.59.10-3, which is related to the internal fire and internal flood analyses evaluation included under Sections 19.56 and 19.57 of the AP1000 DCD, incorporated by reference in the BLN COL FSAR.

The NRC staff discussed, in Sections 19.1.5.2 and 19.1.5.3 of NUREG-1793, the methodology for assessing the risk from internal fire and floods, respectively. In Section 19.1.9, the staff concluded that the quality and completeness of the AP1000 PRA are adequate and satisfy the applicable regulatory requirements. Because the as-built configuration cannot be assessed until construction is complete, the staff finds that it is acceptable to update internal fire and flood analyses if the need to do so is identified when walkdowns are performed after the plant is built.

In a letter dated April 15, 2009 (ML091100173), the applicant proposed to revise its response to STD COL 19.59.10-1 through 19.59.10-3 and to revise License Condition 2 to conform to the revised wording of these three STD COL items. The staff identifies incorporation of these changes as Confirmatory Item 19.59-1.

Resolution of Standard Content Confirmatory Item 19.59-1

Confirmatory Item 19.59-1 required the applicant to revise the proposed License Condition 2 (in Part 10 of the application) to reflect the revised wording of STD COL 19.59.10-1 through 19.59.10-3. The NRC staff verified that the proposed License Condition 2 in Part 10 of the application was updated to reflect the above. As a result, Confirmatory Item 19.59-1 is resolved.

The following portion of this technical evaluation section is reproduced from Section 19.59.4 of the BLN SER:

- *STD COL 19.59.10-4*

The AP1000 DCD closed this COL information item with respect to the development of the SAMG. The COL holder will implement the AP1000 SAMG.

For STD COL 19.59.10-4 in Section 19.59.10 of the BLN COL FSAR, the applicant states, "The AP1000 Severe Accident Management Guidance (SAMG) from APP-GW-GLR-070, Reference 1 of DCD Section 19.59, is implemented on a site-specific basis." In Table 1.8-202 of the BLN COL FSAR, the applicant identifies this as a COL holder item. In response to RAI 19-3, the applicant revised its response to STD COL 19.59.10-4 in the BLN COL FSAR. The staff found this response incomplete and issued RAI 19-21.

In a letter dated April 15, 2009 (ML091100173), in response to RAI 19-21, the applicant proposed to revise License Conditions 2 and 6 to conform to the revised FSAR wording. Specifically, the applicant proposed to revise License Condition 2, Item 19.59.10-4 to reflect the fact that the SAMG development had been completed in the AP1000 DCD. In addition, the applicant proposed to revise License Condition 6 (Operational Program Readiness in Part 10 of the BLN COL application) to include a schedule for the implementation of site-specific SAMG, thereby supporting NRC inspections of operational programs in the period between issuance of a COL and authorization to load fuel in accordance with 10 CFR 52.103. This is consistent with the staff position documented in SECY-05-0197, and therefore, acceptable to the staff. The staff identifies the incorporation of these changes as Confirmatory Item 19.59-2.

Resolution of Standard Content Confirmatory Item 19.59-2

Confirmatory Item 19.59-2 required the applicant to revise the proposed License Condition 2 (in Part 10 of the application), item 19.59.10-4, to reflect that the SAMG development was completed in the AP1000 DCD. In addition, the confirmatory item required that the applicant revise the proposed License Condition 6 to [include] *a schedule for the implementation of site-specific SAMG. The NRC staff verified that the proposed License Conditions 2 and 6 in Part 10 of the application were updated to reflect the above. As a result, Confirmatory Item 19.59-2 is resolved.*

The following portion of this technical evaluation section is reproduced from Section 19.59.4 of the BLN SER:

- *STD COL 19.59.10-5*

The AP1000 DCD, Revision 17, changed the wording of COL Information Item 19.59.10-5 to clarify which equipment requires thermal lag assessment. STD COL 19.59.10-5 in Chapter 19 of the BLN COL FSAR, as well as the COL holder item listed in License Condition 2 (Part 10 of the BLN COL application) have been revised to conform with the AP1000 DCD.

The NRC staff concluded, in Section 19.2.3.3.7.3 of NUREG-1793, that the equipment and instrumentation identified as required to mitigate severe accidents meets the guidance of SECY-93-087 and 10 CFR 50.34(f). In addition, the staff required that the COL applicant referencing the AP1000 certified design perform a thermal response assessment of as-built equipment used to mitigate severe accidents. Since the as-built equipment and configuration are not available until after the COL is issued, the staff concludes that it is acceptable to complete thermal lag assessments prior to fuel load.

<u>COL Action Items from Chapter 19 of NUREG-1793</u>

The staff compared COL information items in Chapter 19 of the AP1000 DCD with the COL action items from NUREG-1793. The staff identified differences between them, which resulted in two RAIs:

<u>RAI 19-6</u>

Two items from NUREG-1793 relate to the training of operators to respond to certain conditions during shutdown. The first calls for the COL applicant to train operators to quickly close containment hatches and penetrations in the event of an accident during Modes 5 or 6. This must be completed before boiling begins in the reactor coolant system (RCS).

The BLN COL FSAR cited APP-GW-GLR-040, "Plant Operations, Surveillance, and Maintenance Procedures." This is the template document for AP1000 procedure generation. The applicant also noted that BLN COL FSAR Section 13.2 incorporates by reference NEI 06-13, "Template for an Industry Training Program Description." Sections 1.1.1.1, 1.1.1.2, 1.1.2, and 1.2.1 of this document focus on training for operations during shutdown, including abnormal and emergency operations. Technical Specification 3.6.8 provides direction for maintaining containment closure capability prior to steaming during Modes 5 and 6, and it is expected that operators will be well versed in technical specification requirements.

The staff finds that this is an acceptable way to ensure that operators will be prepared to close containment hatches in the event of an accident during Mode 5 or 6.

The second calls for operator training in the use of the wide range pressurizer level indication to cross-check the safety-related narrow range hot-leg level instruments. This is to avoid inadvertent over-draining of the RCS, particularly during reduced inventory operation. The staff reviewed Table 19.59-18, "AP1000 PRA-Based Risk Insights." Item 62 of the table explicitly states, "It is important to maximize the availability of the non-safety-related wide range pressurizer level indication during RCS draining operations during cold shutdown. Procedures and training must be developed to encompass this item." BLN COL 19.59.10-2 includes verification of every item in this table by the COL holder, prior to fuel load. This is accomplished by comparing each item to the as-built (and as operated) plant.

The staff finds this to be an acceptable way to confirm that operators are adequately trained on the use of wide range pressurizer level indication as a cross-check on the safety-related narrow range hot-leg level instruments. Therefore, RAI 19-6 is closed.

RAI 19-7

The staff sought more specific information about compensatory measures used to maintain adequate internal fire and flooding detection and suppression capability during maintenance activities that may impair these features.

The applicant responded by indicating that compensatory measures for fire protection are addressed in BLN COL FSAR Section 9.5.1.8.1.2, which describes use of a permit system that controls and documents inoperability of fire protection systems and equipment, and establishes requirements to initiate proper notifications and compensatory actions, such as fire watches, when the inoperability of any fire protection system or component, such as detectors or suppression devices, is identified. The staff reviewed the cited section of the BLN COL FSAR, and found that it adequately addresses situations when maintenance activities potentially impair fire detection and suppression equipment.

The applicant also responded that flooding detection and suppression equipment, such as sump level indicators, are identified as specific design features in BLN COL FSAR Sections 3.4 and 9.3.5. The most important ones, containment sump level indicators, are controlled by technical specification limiting conditions for operations (LCOs) with required actions and completion times. In addition, flood control in other places is managed by a floor drain system, which provides level detection, as well as manual or automatic pump down of the sumps, which collect water entering the floor drains. Administrative procedures described in BLN COL FSAR Section 13.5.1 control maintenance activities and provide for equipment control and, if needed, compensatory action when maintenance activities impair flooding control equipment.

The staff reviewed the references provided by the applicant and finds the applicant's responses provide adequate compensatory action; therefore, RAI 19-7 is closed.

Supplemental Information

- *STD SUP 19.59-1*

The applicant provided supplemental information in BLN COL FSAR Section 19.59.10.6, "PRA Configuration Controls." The applicant discusses how the BLN plant-specific PRA is developed and maintained to reflect the as-built and as-operated plant, as well as how it will be used to support other programs.

The applicant committed to upgrade the Level 1 and Level 2 PRA prior to fuel load to cover those initiating events and modes of operation set forth in NRC-endorsed consensus standards on PRA that are in effect one year prior to the scheduled date of the initial fuel load. In addition, upgrades are completed at least once every four years. This is consistent with 10 CFR 50.71(h) and, therefore, acceptable to the staff.

In addition, the applicant committed to monitor various information sources for changes or new information that could affect the model assumptions or quantification. Plant-specific design, procedure, and operational changes are reviewed for risk impact. A screening process determines whether a PRA update should be performed more frequently, and includes consideration of whether the changes affect the PRA insights. If the changes warrant a PRA update, the update is made as soon as practicable consistent with the importance of the change and the applications being used. Otherwise, changes are tracked and incorporated in the next regularly scheduled update. This is consistent with RG 1.200, Revision 1, and therefore acceptable to the staff.

PRA quality assurance (QA) provisions ensure that personnel involved in PRA are qualified, work is reviewed independently, documentation is adequately controlled, and upgrades to the PRA are peer-reviewed. When assumptions, analyses, or information used previously are changed or determined to be in error, potential impacts to the PRA model are tracked. If errors are found in the PRA model, they are tracked and appropriate corrective action governed by procedures is taken. This is consistent with RG 1.200 and, therefore, acceptable to the staff.

The PRA provides input to various programs and processes, such as implementation of the maintenance rule, reactor oversight process, the reliability assurance program, the program for regulatory treatment of non-safety systems, and the motor-operated valve (MOV) program. The staff agrees that a plant-specific, site-specific PRA, based on the generic PRA for the AP1000 and maintained as described in the BLN COL FSAR, is an appropriate model to provide input to each of these risk-informed activities.

19.59.5 Post Combined License Activities

The license condition language in this section has been clarified from previously considered language. In a letter dated March 22, 2016 (ADAMS Accession No. ML16084A099), the applicant did not identify any concerns with the clarified license condition language. The changes do not affect the staff's above analysis of the conditions, and therefore, for the reasons discussed in the technical evaluation section above, the staff finds the following license conditions acceptable:

- License Condition (19-1) – The licensee shall review differences between the as-built plant and the design used as the basis for the AP1000 SMA prior to initial fuel load. The licensee shall perform a verification walkdown to identify differences between the as-built plant and the design. The licensee shall evaluate any differences and shall modify the seismic margin analysis as necessary to account for the plant-specific design and any design changes or departures from the certified design. The licensee shall compare the as-built SSC HCLPFs to those assumed in the AP1000 seismic margin evaluation prior to initial fuel load. The licensee 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.

- License Condition (19-2) – Before initial fuel load, the licensee shall 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. The licensee 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.

- License Condition (19-3) – Before initial fuel load, the licensee shall review differences between the as-built plant and the design used as the basis for the AP1000 internal fire and internal flood analysis. The licensee 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.

- License Condition (19-4) – No later than 12 months after issuance of the COL, the licensee shall submit to the Director of NRO, or the Director's designee, a schedule for implementation of the site-specific severe accident management guidelines. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until this license condition has been fully implemented. The schedule shall identify the implementation of the site-specific severe accident management guidelines (before startup testing).

- License Condition (19-5) – Prior to initial fuel load, the licensee shall 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. This assessment is required only for equipment used for severe accident

mitigation that has not been tested at severe accident conditions. The licensee 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."

19.59.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to PRA results and insights, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements. In addition, LNP DEP 6.3-1, related to quantifying the duration that the passive residual heat removal system heat exchanger can maintain safe shutdown conditions, is reviewed and found acceptable by the staff in Section 21.1 of this SER.

The staff concludes that the relevant information presented in Section 19.59 of the LNP COL FSAR is consistent with the requirements of 10 CFR 52.79(a)(46) and 10 CFR 52.79(d)(1) and is, therefore, acceptable.

Appendix 19E Shutdown Evaluation

Appendix 19E presents the design features of the active systems and passive safety-related systems that address the issues of shutdown risk and shutdown safety. It also evaluates the design features with respect to their ability to reduce or mitigate the consequences of events that can occur during shutdown, including discussions of the following:

- Systems designed to operate during shutdown
- Shutdown operations (including maintenance insights, risk management, and Emergency Response Guidelines (ERGs))
- Safety analyses and evaluations for shutdown operations
- Chapter 16, "Technical Specifications"
- Shutdown risk evaluations (including shutdown PRA results and fire/flood risk)
- Consistency with the guidance in NUREG-1449

Appendix 19E of the LNP COL FSAR, Revision 9, incorporates by reference Appendix 19E, "Shutdown Evaluation," of the AP1000 DCD, Revision 19. Appendix 19E of the DCD provides a shutdown evaluation and includes Sections 19E.2.3, "Passive Core Cooling System," 19E.4.3, "Decrease in Heat Removal by the Secondary System," and 19E.4.10.2, "Shutdown Temperature Evaluation."

In addition, in the LNP COL FSAR, the applicant provided the following:

Departures

- LNP DEP 3.2-1 and LNP DEP 6.3-1

The applicant provided additional information in Appendix 19E of the LNP COL FSAR about LNP DEP 3.2-1 and LNP DEP 6.3-1 related to design modifications to the condensate return portion of the Passive Core Cooling System and quantifying the duration that the passive residual heat removal heat exchanger can maintain safe shutdown conditions, respectively. This information, as well as related LNP DEP 3.2-1 and LNP DEP 6.3-1 information appearing in other chapters of the FSAR, is reviewed in Section 21.1 of this SER.

- LNP DEP 7.3-1

The applicant provided additional information in Appendix 19E of the LNP COL FSAR about LNP DEP 7.3-1 related to required design changes for the PMS source range neutron flux doubling logic to comply with the requirements of IEEE Std. 603-1991, Clause 6.6. This information, as well as related LNP DEP 7.3-1 information appearing in other chapters of the FSAR, is reviewed in Section 21.5 of this SER.

The NRC staff reviewed Appendix 19E of the LNP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this section. The NRC staff's review confirmed that the applicant addressed the required information to satisfy the evaluation criteria. There is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

Appendix 19F Malevolent Aircraft Impact

Appendix 19 F of the LNP FSAR addresses the requirements related to 10 CFR 50.150, "Malevolent Aircraft Impact." In FSAR Appendix 19F, the applicant incorporated by reference Appendix 19F of the AP1000 DCD, Revision 19.

In 2016, the staff concluded an inspection of the Westinghouse Electric Company, LLC, to examine recent design changes and the resolutions of the 2010 notice of violations with respect to 10 CFR 50.150 (ADAMS Accession No. ML102980583). The April 19, 2016 inspection report identified two issues with the existing AP1000 aircraft impact assessment (AIA) and the AP1000 DCD (ADAMS Accession No. ML16099A049).

The first issue involved the crediting of the Auxiliary Building in the AIA as a key design feature for protecting the integrity of the spent fuel pool and for protecting from physical damage the equipment needed to maintain core cooling. However, only the spent fuel pool integrity credit was translated into Appendix 19F of the AP1000 DCD incorporated by reference by the Levy COL applicant. Since the AP1000 DCD was missing the information about the Auxiliary Building credit to protect core cooling equipment from physical damage, the Levy COL

application also omits this citation of the Auxiliary Building as a key design feature relied upon to ensure core cooling capability.

The second issue involved the fire damage spread in certain plant areas not following the methodology in NEI 07-13, “Methodology for Performing Aircraft Impact Assessments for New Plant Designs,” Revision 7. Fire protection features with specific ratings cited in the NEI 07-13 guidance had not been incorporated into Appendix 19F or Appendix 9A of the AP1000 DCD, and thus not incorporated into the Levy COL application.

At the conclusion of the inspection, the staff found the revised AIA acceptable, including the addition of specific pressure-rated fire doors.

To address and capture the missing information identified in the April 19, 2016, inspection report, the staff proposes the following license condition. This license condition would allow the staff to conclude that the Levy Units 1 and 2 would be constructed and operate in compliance with the requirements of 10 CFR 50.150:

- License Condition (19-6) – 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:

  a) 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).

  b) 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 50.150 (a)(1). The DCD figures listed below are to be revised:
     1. Figure 1.2-7 - Nuclear Island General Arrangement Plan at Elevation 107'-2" & 111'-0"
     2. Figure 1.2-10 - Nuclear Island General Arrangement Plan at El. 135'-3"
     3. Figure 9A-1 (Sheet 5 of 16) - Nuclear Island Fire Areas Plan at Elevation 100'-0" & 107'-2"
     4. Figure 9A-1 (Sheet 7 of 16) - Nuclear Island Fire Area Plan at Elevation 135'-3"
     5. Figure 12.3-1 (Sheet 6 of 16) - Radiation Zones, Normal Operations/Shutdown Nuclear Island, Elevation 100'-0" & 107'-2"
     6. Figure 12.3-1 (Sheet 8 of 16) - Radiation Zones, Normal Operations/Shutdown Nuclear Island, Elevation 135'-3"
     7. Figure 12.3-2 (Sheet 6 of 15) - Radiation Zones, Post-Accident Nuclear Island, Elevation 100'-0" & 107'-2"
     8. Figure 12.3-2 (Sheet 8 of 15) - Radiation Zones, Post-Accident Nuclear Island, Elevation 135'-3"
     9. Figure 12.3-3 (Sheet 6 of 16) - Radiological Access Controls, Normal Operations/Shutdown Nuclear Island, Elevation 100'-0" & 107'-2"
     10. Figure 12.3-3 (Sheet 8 of 16) - Radiological Access Controls, Normal Operations/Shutdown Nuclear Island, Elevation 135'-3"

The license condition part (a) requires the applicant to include, as an update to the applicant's UFSAR Appendix 19F, the Auxiliary Building as a structure to protect core cooling equipment from structural physical damage in addition to its role of protecting the spent fuel pool integrity as analyzed in the aircraft impact assessment. Therefore, the staff finds that with the incorporation of this change, the applicant meets the requirements of 10 CFR 50.150(b)(2) which require applicants to describe in their FSAR how each key design feature meets the acceptance criteria credited in 10 CFR 50.150(a) because UFSAR Appendix 19F will reflect that the Auxiliary Building is credited to protect from physical damage the core cooling equipment in the AIA.

The license condition part (b) requires the applicant to incorporate, as an update to the applicant's UFSAR, those design changes contained in the identified figures to be revised, and within Westinghouse's Design Change Proposal APP-GW-GEE-2450, "Relocation of AIA Blast Doors and Addition of Shielding Doors to Annulus Personnel Access Portals," Revision 0. Specifically, those changes which address, in part, the specific 3-hour fire rated door additions and their proper pressure ratings. The staff reviewed these proposed changes during the Inspection 99900404/2015-203 and found them acceptable in accordance with the guidance in NEI 07-13, Revision 7. Therefore, the staff finds that with the incorporation of these changes, the applicant meets the requirements of 10 CFR 50.150(b)(1), which require the applicant to identify and describe in the FSAR those key design features required to satisfy 10 CFR 50.150(a)(1), because the revised figures will identify and describe the added key design features (i.e., fire doors).

APPENDIX 19.A LOSS OF LARGE AREAS OF THE PLANT DUE TO EXPLOSIONS OR FIRES

19.A.1 Introduction

In a letter dated July 7, 2009, as revised by a submission dated March 8, 2011, the applicant submitted the Loss of Large Areas of the Plant Due to Explosions or Fire Mitigative Strategies Description and Plans (MSD) for Levy Nuclear Plant (LNP) Units 1 and 2 to the U.S. Nuclear Regulatory Commission (NRC).

In the submittal, the applicant describes how the requirements to address loss of large areas (LOLAs) of the plant due to explosions or fires from a beyond-design-basis event (BDBE) are met. These requirements are in Title 10 of the *Code of Federal Regulations* (10 CFR) 52.80(d) and 10 CFR 50.54(hh)(2). It should be noted that the attachment to this safety evaluation report (SER) section (Attachment A), as well as some documents referenced in this SER section, include security-related or safeguards information, and are not publicly available.

The provisions of 10 CFR 52.80(d) require an applicant for a combined operating license (COL) to submit a description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool (SFP) cooling capabilities under the circumstances associated with the LOLAs of the plant due to explosions or fire as required by 10 CFR 50.54(hh)(2).

The provisions of 10 CFR 50.54(hh)(2) require licensees to develop and implement guidance and strategies for addressing the LOLAs of the plant due to explosions or fires from a BDBE. Specifically, guidance and strategies are intended to maintain or restore core cooling, containment, and SFP cooling capabilities including:

- fire fighting
- operations to mitigate fuel damage
- actions to minimize radiological release

19.A.2 Summary of Application

In a letter dated July 7, 2009, the applicant for the LNP COL submitted its “Loss of Large Areas of the Plant Due to Explosions or Fire – Mitigative Strategies Description and Plans.” The applicant will incorporate the full, non-redacted version of the MSD, including any applicable changes identified in response to NRC requests for additional information (RAIs), in a future revision to Part 9 of the LNP COL application. The redacted version of this MSD will be incorporated into a future revision to Part 11 of the LNP COL application. The applicant stated that the LOLA mitigative strategies, including implementation of operational and programmatic aspects of responding to LOLA events, would be implemented prior to initial fuel load.

License Conditions

- Part 10, License Condition 6

The applicant proposed a license condition in Part 10 of the LNP COL application to provide a schedule to support the NRC's inspection of operation programs including the programmatic elements of responding to an event associated with LOLAs of the plant due to explosions or fire, prior to initial fuel load.

19.A.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," and its supplements.

The applicable regulatory requirements for LOLAs of the plant due to explosions or fires are as follows:

- 10 CFR 50.54(hh)(2)
- 10 CFR 52.80(d)

The applicable regulatory guidance include Interim Staff Guidance (ISG) DC/COL-ISG-016, "Compliance with 10 CFR 50.54(hh)(2) and 10 CFR 52.80(d) Loss of Large Areas of the Plant due to Explosions or Fires from a Beyond-Design-Basis Event" (not publically available), which provides an acceptable means of meeting the requirements of 10 CFR 50.54(hh)(2) and 10 CFR 52.80(d). The ISG-016 references the February 25, 2005, guidance letter (not publically available) to operating reactor licensees for Phase 1 and the Nuclear Energy Institute (NEI) document NEI 06-12, "B.5.b Phase 2 & 3 Submittal Guideline," Revision 3, for Phases 2 and 3 (not publically available). The DC/COL-ISG-016 takes exception to a few areas of NEI 06-12 as it applies to new reactors, and provides additional clarification and enhancement of NEI 06-12 and the staff's guidance letter issued February 25, 2005, based on NRC inspections of operating reactor implementation. The DC/COL-ISG-016 has two attachments: Attachment 1 is titled, "Supplementary Guidance for Implementing Mitigation Strategies," and Attachment 2 is titled, "Experience Gained from Implementation of Temporary Instruction 2515/171 at Currently Licensed Power Reactor Sites and Related Staff Positions."

19.A.4 Technical Evaluation

The staff reviewed the applicant's submittal consistent with the requirements of 10 CFR 52.80(d) and 10 CFR 50.54(hh)(2). The staff also used the guidance in DC/COL-ISG-016 to perform its review. The DC/COL-ISG-016 references the February 25, 2005, guidance letter for Phase 1, and NEI 06-12 for Phases 2 and 3. A discussion of the staff's technical evaluation of the LNP Units 1 and 2 submittal is found in Attachment A to Appendix 19.A.

The LNP COL applicant provided the LOLA event evaluation via a three-phased approach similar to existing plants and consistent with the NEI 06-12 guidance, Phases 1, 2, and 3. The applicant's MSD, dated July 7, 2009, was written at the programmatic level for licensing approval, and the implementation details and documentation will be made available for

inspection by the NRC prior to initial fuel load. In response to the NRC staff's RAIs, the applicant submitted additional information to clarify the MSD. The applicant's responses to these RAIs are evaluated by the NRC staff in Attachment A to this SER section.

In its submittal of the MSD, the applicant provided a Mitigative Strategies Table (MST), which follows the template guidance in Appendix D to NEI 06-12. The MST addresses various areas and issues pertinent to LOLAs and describes commitments, including completion dates, for areas that are best resolved closer to the completion of building LNP Units 1 and 2. All commitments made in the submittal will be implemented prior to the initial fuel load of the units.

The MST addresses the three phases considered in NEI 06-12. The phases as described in the guidance documents can be mapped to the regulatory requirements and are as follows:

- Phase 1 – Fire Fighting Response Strategy
- Phase 2 – Spent Fuel Pool Cooling
- Phase 3 – Reactor Core Cooling and Fission Product Release Mitigation

Phases 1, 2, and 3 of NEI 06-12 are similar to the three areas included as part of the requirements in 10 CFR 50.54(hh)(2): fire fighting, operations to mitigate fuel damage, and actions to minimize radiological release. However, the three phases are categorized differently. In 10 CFR 50.54(hh)(2), the category of operations to mitigate fuel damage includes both the reactor core and the SFP, and the category of actions to minimize radiological release is separate. In NEI 06-12, SFP and reactor core cooling are found in separate phases, and reactor core cooling and fission product release mitigation are combined. Despite the change in the categorization of the phases in NEI 06-12 and the areas of the regulatory requirements, the staff finds all of the necessary information is included in the submittal.

The guidance for Phases 1, 2, and 3 suggests development of certain strategies or processes to mitigate the consequences of a LOLA event. The applicant addressed all of these suggested strategies or processes. In evaluating each plant-specific mitigating strategy against its functional objective[1], the staff weighed whether the strategy reasonably can be expected to successfully provide SFP cooling, or maintain or restore the key safety functions necessary to protect the reactor core and containment. The staff's review considered the expected effectiveness of strategies and the ease and timeliness of strategy implementation.

While some strategies needed to meet 10 CFR 50.54(hh)(2) can be developed and implemented in the near future, some strategies and planning efforts cannot be effectively determined or implemented until the plant is further along in construction. To identify such commitments for future action, the applicant documented areas that would be more appropriately completed prior to the initial fuel load. The staff reviewed the commitments made by the applicant in its submittal and is satisfied that the timing of all procedural or strategy development was appropriately scheduled prior to the initial fuel load.

[1] As used here, the functional objective is the basic description of the capabilities of the conceptual strategy(s) as proposed for Phase 2 and 3 by NEI and accepted by the NRC.

The MSD has been reviewed by the NRC staff for content using DC/COL-ISG-016, and found to include all strategies considered essential for such a program, and is acceptable. The staff finds that the regulatory requirements of 10 CFR 52.80(d) and 10 CFR 50.54(hh)(2) are met.

The NRC staff has identified as LNP **Confirmatory Item 19.A-1** the revisions to Parts 9 and 11 of the LNP COL application to include the MSD proposed by the applicant in its July 7, 2009, letter, as modified in its August 3, 2010 revised COL application, and further modified in a letter dated March 7, 2011. The specific modifications to the MSD are discussed in detail in Attachment A to Appendix 19.A of this SER. LNP Confirmatory Item 19.A-1 is now closed as discussed below.

Resolution of LNP Confirmatory Item 19.A-1

LNP Confirmatory Item 19.A-1 is an applicant commitment to revise its MSD under Parts 9 and 11 to its COL application to incorporate the described changes. The staff verified that the MSD under Parts 9 and 11 of the LNP COL application was appropriately revised. As a result, LNP Confirmatory Item 19.A-1 is now closed.

License Conditions

- Part 10, License Condition 6

In RAI 19-95, the staff asked Vogtle Electric Generating Plant (VEGP) to provide a draft license condition to be added to Part 10 of the VEGP Units 3 and 4 COL application related to implementation of mitigative strategies and to submitting schedules to support planning for and conduct of NRC inspections. In its response dated May 24, 2010, VEGP provided a license condition in Part 10 of the VEGP COL application to provide a schedule to support the NRC's inspection of operational programs, including the programmatic elements of responding to an event associated with LOLAs of the plant due to explosions or fire, prior to initial fuel load. Although this program is not identified as an operational program in SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," the proposed license condition is consistent with the policy established in SECY-05-0197 for operational programs in general, and is acceptable. LNP endorsed this response as standard material in a letter dated September 23, 2010. Thus, this RAI is closed.

- Managing MSD Commitments

In RAI 19-96, the staff asked VEGP to describe its plans for managing changes to the commitments included in the MSD. In its response dated May 24, 2010, VEGP included a revision to the MSD that states that commitments in the MSD will be captured in the licensee's commitment management program and managed in accordance with the guidance in NEI 99-04, Revision 0, "Guidelines for Managing NRC Commitment Changes," July 1999. This is similar to the approach followed by the operating fleet licensees commitments made under Section B.5.b of the 2002 Interim Compensatory Measures. In its September 23, 2010 letter, LNP endorsed this response as standard material.

The NRC staff reviewed specific commitments in the MSD and used these commitments as the basis for the staff's safety conclusion. The staff finds that a commitment management program conforming to the guidance in NEI 99-04, Revision 0, is appropriate for managing the commitments in the MSD. The staff then proposed that a license condition be included requiring the licensee to use a commitment management program, which conforms to the guidance in NEI 99-04, Revision 0. Subsequently, the staff decided that the most appropriate way to handle the commitments and maintenance of the MSD was to ensure that the licensee maintains the guidance and strategies developed in accordance with 10 CFR 50.54(hh)(2). This language was included in the staff proposed License Condition 19.A-1. Thus, this RAI is closed.

19.A.5 Post Combined License Activities

The license condition language in this section has been clarified from previously considered language. In a letter dated March 22, 2016 (ADAMS Accession No. ML16084A099), the applicant did not identify any concerns with the clarified license condition language. The changes do not affect the staff's above analysis of the conditions, and therefore, for the reasons discussed in the technical evaluation section above, the staff finds the following license condition acceptable:

- License Condition (19.A-1) – No later than 12 months after issuance of the COL, the licensee shall submit to the Director of NRO, or the Director's designee, a schedule for implementation of 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. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until each license condition has been fully implemented. The schedule shall identify the completion of or implementation of 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).

19.A.6 Conclusion

The NRC staff reviewed the information provided by the applicant under 10 CFR 52.80(d). The staff concludes that the applicant has adequately followed the guidance of DC/COL-ISG-016; NEI 06-12; and the February 25, 2005, guidance letter. The staff finds that the applicant provided sufficient information at the COL application stage, including commitments made in the LNP COL application, to meet the requirements of 10 CFR 52.80(d) and to provide reasonable assurance that the requirements in 10 CFR 50.54(hh)(2) will be met prior to the initial fuel load of LNP Units 1 and 2, respectively.

20.0 REQUIREMENTS RESULTING FROM FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATIONS

This chapter addresses the requirements resulting from the Fukushima Near-Term Task Force (NTTF) recommendations that are applicable to the Levy Nuclear Plant (LNP) Units 1 and 2 Combined License (COL). The applicable recommendations address four topics: a reevaluation of the seismic hazard (related to Recommendation 2.1), mitigation strategies for beyond-design-basis external events (related to Recommendation 4.2), spent fuel pool (SFP) instrumentation (related to Recommendation 7.1), and emergency preparedness staffing and communications (related to Recommendation 9.3).

Background

In response to the events at Fukushima resulting from the March 11, 2011, Great Tohoku earthquake and tsunami in Japan, the U.S. Nuclear Regulatory Commission (NRC) established the NTTF to conduct a systematic and methodical review of NRC processes and regulations to determine whether the agency should make additional improvements to its regulatory system and to make recommendations to the Commission for policy direction. In July 2011, the NTTF issued a 90-day report, SECY-11-0093 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11186A950), "Near Term Report and Recommendations for Agency Actions Following the Events in Japan," identifying 12 recommendations. On September 9, 2011, in SECY-11-0124, "Recommended Actions to Be Taken Without Delay From NTTF Report," (ADAMS Accession No. ML11245A144) the staff provided to the Commission for its consideration NTTF recommendations that can and, in the staff's judgment, should be initiated, in part or in whole, without delay. In SECY-11-0124 the staff identified and concluded that the following subset of actions had the greatest potential for safety improvement in the near-term:

1. Recommendation 2.1: Seismic and Flood Hazard Reevaluations
2. Recommendation 2.3: Seismic and Flood Walkdowns
3. Recommendation 4.1: Station Blackout Regulatory Actions
4. Recommendation 4.2: Equipment covered under Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(hh)(2)
5. Recommendation 5.1: Reliable Hardened Vents for Mark I Containments
6. Recommendation 8: Strengthening and Integration of Emergency Operating Procedures, Severe Accidents Management Guidelines, and Extensive Damage Mitigation Guidelines
7. Recommendation 9.3: Emergency Preparedness Regulatory Actions (staffing and communications).

On October 3, 2011, in SECY-11-0137, "Prioritization of Recommended Actions to Be Taken in Response to Fukushima Lessons Learned," (ADAMS Accession No. ML11272A203) the staff identified two actions in addition to the actions discussed in SECY-11-0124 which had the greatest potential for safety improvement in the near-term. The additional actions are:

1. Inclusion of Mark II containments in the staff's recommendation for reliable hardened vents associated with NTTF Recommendation 5.1

2. The implementation of SFP instrumentation proposed in Recommendation 7.1

The staff also prioritized the NTTF recommendations into Tier 1, Tier 2, and Tier 3, where the recommendations in Tier 1 represent those that the staff determined should be started without unnecessary delay, while recommendations in Tier 2 are those that could not be initiated in the near term, and recommendations in Tier 3 require further study to support regulatory action.

On February 17, 2012, in SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," (ADAMS Accession No. ML12039A103) the staff provided the Commission with proposed orders and requests for information to be issued to all power reactor licensees and holders of construction permits.

On March 9, 2012, the Commission then approved issuance of the proposed orders with some modifications in the staff requirements memorandum (SRM) to SECY-12-0025. As set forth in the Orders in SRM-SECY-12-0025, additional requirements are needed to provide adequate protection to public health and safety or to significantly enhance the protection of public health and safety. In accordance with its statutory authority under Section 161 of the Atomic Energy Act of 1954, as amended (the Act), the Commission may impose these requirements.

On March 12, 2012, the NRC issued Orders EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" and EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation" to the appropriate licensees and permit holders (ADAMS Accession Nos. ML12054A679 and ML12054A735).

The staff also issued the request for information pursuant to 50.54(f) regarding Recommendations 2.1, 2.3 and 9.3, as described in SECY-12-0025, to the appropriate licensees and permit holders in letters dated March 12, 2012 (ADAMS Accession No. ML12053A340).

The following Tier 1 recommendations in SECY-11-0137 as addressed in SECY-12-0025 were considered in determining those that are applicable to the LNP COL review:

1. Recommendation 2.1: Seismic and Flood Hazard Reevaluations

2. Recommendation 2.3: Seismic and Flood Walkdowns

3. Recommendation 4.1: Station Blackout Regulatory Actions

4. Recommendation 4.2: Equipment covered under 10 CFR 50.54(hh)(2)

5. Recommendation 5.1: Reliable Hardened Vents for Mark I and Mark II Containments

6. Recommendation 7.1: Spent Fuel Pool Instrumentation

7. Recommendation 8: Strengthening and Integration of Emergency Operating Procedures, Severe Accidents Management Guidelines, and Extensive Damage Mitigation Guidelines

8. Recommendation 9.3: Emergency Preparedness Regulatory Actions (staffing and communications)

Staff determined that the following four recommendations were applicable and should be addressed by the LNP COL applicant:1

1. Recommendation 2.1: Seismic reevaluations - Order licensees to reevaluate the seismic hazards at their sites against current NRC requirements and guidance, and if necessary, update the design basis and structures, systems, and components important to safety to protect against the updated hazards.

2. Recommendation 4.2: Equipment covered under 10 CFR 50.54(hh)(2) - Order licensees to provide reasonable protection for equipment currently provided pursuant to 10 CFR 50.54(hh)(2) from the effects of design-basis external events and to add equipment as needed to address multiunit events while other requirements are being revised and implemented.

3. Recommendation 7.1: Spent fuel pool instrumentation - Order licensees to provide reliable spent fuel pool level instrumentation.

4. Recommendation 9.3: Emergency preparedness regulatory actions (staffing and communications) - Order licensees to do the following until rulemaking is complete:

[1] The applicant, Duke Energy Florida, LLC., was formerly identified as Duke Energy Florida, Inc. and Progress Energy Florida, Inc. In a letter dated April 15, 2013, Progress Energy Florida notified the NRC that its name was changing to Duke Energy Florida, Inc. effective April 29, 2013. The name changes and a 2012 corporate merger between Duke Energy and Progress Energy are described in Chapter 1 of the SER. Because a portion of the review described in this chapter was completed prior to the name change, the NRC staff did not change references to "Progress Energy Florida," or "PEF," to "Duke Energy Florida," or "DEF."

- Determine and implement the required staff to fill all necessary positions for response to a multi-unit event.

- Provide a means to power communications equipment needed to communicate onsite (e.g., radios for response teams and between facilities) and offsite (e.g., cellular telephones and satellite telephones) during a prolonged station blackout.

The staff determined that the remaining Tier 1 recommendations did not need to be further considered in the LNP COL review. The applicant evaluated the flood hazard using the current guidance and methodologies, and staff has, therefore, determined that the flood reevaluation portion of Recommendation 2.1 has already been addressed. Therefore, there are no additional requirements to address Recommendation 2.1 for flooding reevaluation applicable for the LNP COL application. Additionally, the staff determined that Recommendation 2.3 was not applicable to the LNP COL because the plant is not yet constructed, and Recommendation 5.1 was not applicable because it applied to boiling water reactor (BWR) type plant designs with Mark I and Mark II Containments. Recommendations 4.1 and 8 did not need to be further considered because SECY-11-0137 and its associated SRM direct that regulatory action associated with them be initiated through rulemaking.

In SECY-12-0025, the staff stated that it would request all COL applicants to provide the information required by the orders and request for information letters through the review process. Accordingly, for the LNP COL application, the staff issued request for additional information (RAI) Letter No. 108 (ADAMS Accession No. ML120550146), dated March 15, 2012, related to Implementation of Fukushima Near-Term Task Force Recommendations pertaining to seismic hazard reevaluation, mitigation strategies for beyond-design-basis external events, spent fuel pool instrumentation, and emergency preparedness based on Recommendations 2.1, 4.2, 7.1, and 9.3, as modified by SRM-SECY-12-0025. The following sections of this chapter present the staff's safety evaluation related to these areas.

20.1 Recommendation 2.1, Seismic Hazard Reevaluation

20.1.1 Introduction

SECY-12-0025, Enclosure 7, Attachment 1 to Seismic Enclosure 1 (ADAMS Accession No. ML12039A103), related to seismic hazard reevaluation, specifies the use of NUREG-2115, "Central and Eastern United States Seismic Source Characterization for Nuclear Facilities," in a site probabilistic seismic hazard analysis (PSHA) and describes an updated cumulative absolute velocity (CAV) filter methodology. The NRC staff issued NUREG-2115 in January 2012 as a replacement to the Electric Power Research Institute-Seismic Owners Group (EPRI-SOG) (EPRI 1986, 1989) and the Lawrence Livermore National Laboratory (LLNL) (Bernreuter et al., 1989) seismic source models for the central and eastern United States (CEUS). NUREG-2115 describes the implementation of a Senior Seismic Hazard Analysis Committee (SSHAC) Level 3 assessment process for developing the new regional seismic source characterization (SSC) model for the CEUS. Consistent with SECY-12-0025, as well as the need to consider the latest available information in the PSHA for the LNP site, the NRC staff requested that the applicant evaluate the seismic hazards at the LNP site against current NRC requirements and guidance.

Safety Evaluation Report (SER) Section 20.1 provides the staff's evaluation of the seismic hazards at the LNP site, performed in accordance with SECY-12-0025. The information discussed in SER Section 20.1 supports the staff's evaluation in SER Sections 2.5.2 "Vibratory Ground Motion," 2.5.4 "Stability of Subsurface Materials and Foundations," 3.7 "Seismic Design," and 19.55.6.3 "Site-Specific Seismic Margin Analysis."

20.1.1.1 Summary of CEUS SSC Model

In this section, the staff summarizes the CEUS SSC model, which the applicant used for its seismic hazard reevaluation in response to RAI Letter No. 108 (ADAMS Accession No. ML120550146). This summary focuses on the parts of the CEUS SSC model that are applicable to the LNP site seismic hazard and provides background and a framework for the staff's technical evaluation of the applicant's seismic hazard reevaluation in SER Section 20.1.4. The specific deviations taken by the applicant during model implementation from the as-is model published in NUREG-2115 are described and evaluated in SER Section 20.1.4.

On January 31, 2012, the NRC, U.S. Department of Energy (DOE), and EPRI issued a new SSC model and report for use in seismic hazard assessments for nuclear facilities in the CEUS. This cooperative project replaces seismic source models developed in the 1980s by the EPRI-SOG (EPRI 1986, 1989) and the LLNL (Bernreuter et al., 1989).

The new model addresses the need for an up-to-date regional SSC model for the CEUS that includes: (1) a full assessment and incorporation of uncertainties, (2) a range of diverse technical interpretations from the informed scientific community, (3) an up-to-date earthquake database, (4) proper and appropriate documentation, and (5) comprehensive, participatory peer review. The cooperative project for this new model was conducted using processes described in the SSHAC guidance NUREG/CR-6372, "Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts." The model was developed using a SSHAC Level 3 assessment process, with the goal of representing the center, body, and range of technically defensible interpretations of the available data, models, and methods.

The CEUS SSC model is a new seismic source model for the CEUS, the broad region of the United States east of the Rocky Mountains. The CEUS SSC study region is shown in SER Figure 20.1-1. The CEUS SSC Project resulted in products and methodological improvements that have value for future users as follows: (1) data evaluation and data summary tables that identify all the data considered by the project team and that indicate the team's views of the quality of the data and degree of reliance placed on any given data set, (2) database of geologic, geophysical, and seismological data, (3) earthquake catalog with uniform moment magnitudes (M), (4) updated paleoseismicity data and guidance, and (5) recommendations for future applications of the SSC model. For purposes of demonstrating the CEUS SSC model, the project also included sample calculations at the seven sites identified in SER Figure 20.1-1.

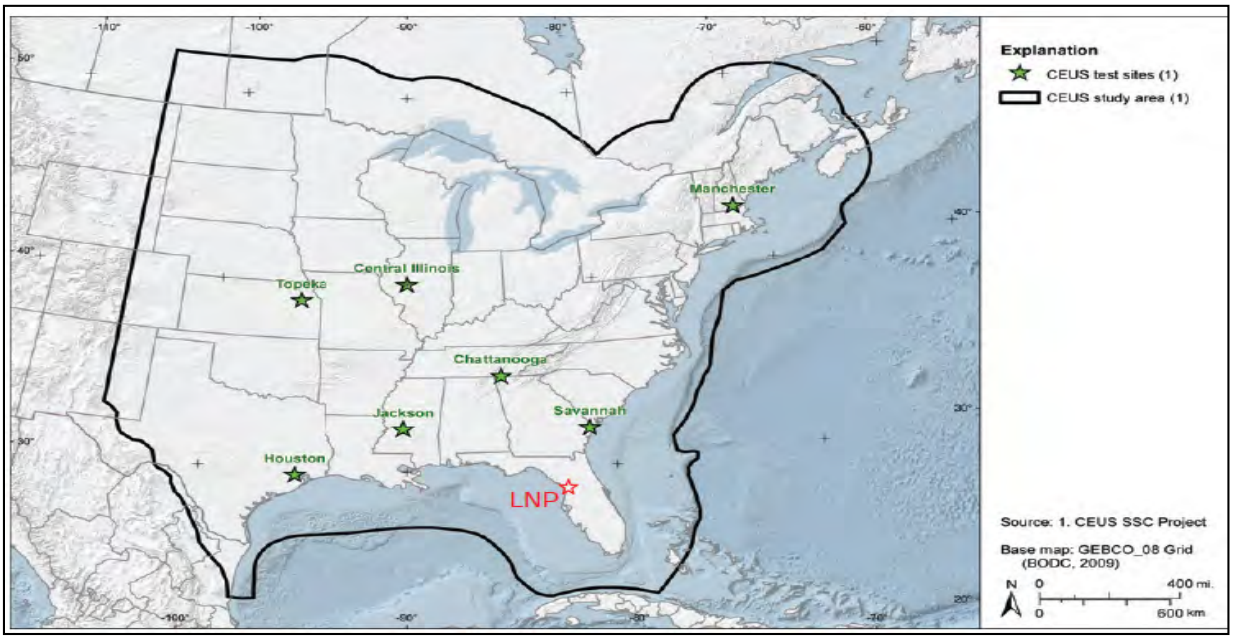

Figure 20.1-1. CEUS SSC Model Study Region (black line), the Location of the Seven Test Sites (green stars), and the LNP Site (red star)
(FSAR Figure 2.5.2-324 and NUREG-2115 Figure 8.1-1)

The EPRI-SOG model was used by the applicant in its final safety analysis report (FSAR) evaluation of vibratory ground motion in FSAR Section 2.5.2. In accordance with Regulatory Guide (RG) 1.208, "A Performance-Based Approach To Define the Site-Specific Earthquake Ground Motion," recent licensing applications for nuclear facilities submitted to the NRC—including the LNP application—used the EPRI-SOG model as a starting point and updated the model, as appropriate, on a site-specific basis for the application's PSHA. While the applicants updated the EPRI-SOG model on a site-specific basis, the NRC has not conducted a systematic update of the full model in over 20 years. The project to develop the CEUS SSC model created an up-to-date CEUS seismic hazard model that took into account data used to develop the previous two models, new data and information developed in the interim years, and other information and hazard analyses that were developed as part of licensing actions for proposed and existing nuclear power facilities. Lastly, the CEUS SSC model contains updated methods for evaluating the data and quantifying uncertainties within the PSHA model. Because the LNP applicant submitted its COL application to the NRC for review in July 2008, before the CEUS SSC model was published in NUREG-2115 in January 2012, the applicant used the EPRI-SOG model in its initial application and later updated the application to include a sensitivity evaluation of the seismic hazard at the LNP site using the newer CEUS SSC model.

The CEUS SSC model consists of three models of seismic sources – the Mmax zones model, the seismotectonic zones model, and the repeated large magnitude earthquake (RLME) sources model. First, the CEUS SSC model characterizes the CEUS study area using two conceptual source models that assess the spatial and temporal distribution of future seismicity. These are the Mmax zones model and the seismotectonic zones model, which represent the

background or distributed seismicity in the CEUS using two different approaches of characterizing future earthquakes.

The Mmax zones model is based on average or "default" characteristics that are representative of large areas of the CEUS or the entire study area, such that Mmax zones cover large areas and are based on historical seismicity and broad-scale geologic and tectonic data.

The seismotectonic zones model includes information that allows for an assessment of spatial variations of future earthquake characteristics at a finer scale than the Mmax zones model. The seismotectonic zones model uses historical seismicity and regional-scale geologic and tectonic data to characterize seismic sources zones.

Finally, the RLME sources model is the third type of seismic source. The RLME sources model is not based on distributed seismicity in an areal source like the Mmax and seismotectonic zones models, but mainly on earthquake recurrence paleoseismic data and, as its name suggests, it represents the sources on which repeated large magnitude earthquakes occur.

SER Figure 20.1-2 shows where the three types of source zones appear on the CEUS SSC model master logic tree. As described in NUREG-2115, the RLME sources are characterized by the historical and paleoseismic records and are defined as having experienced two or more earthquakes having a moment magnitude of at least M 6.5. The geographic locations of the RLME sources are shown on SER Figure 20.1-3.

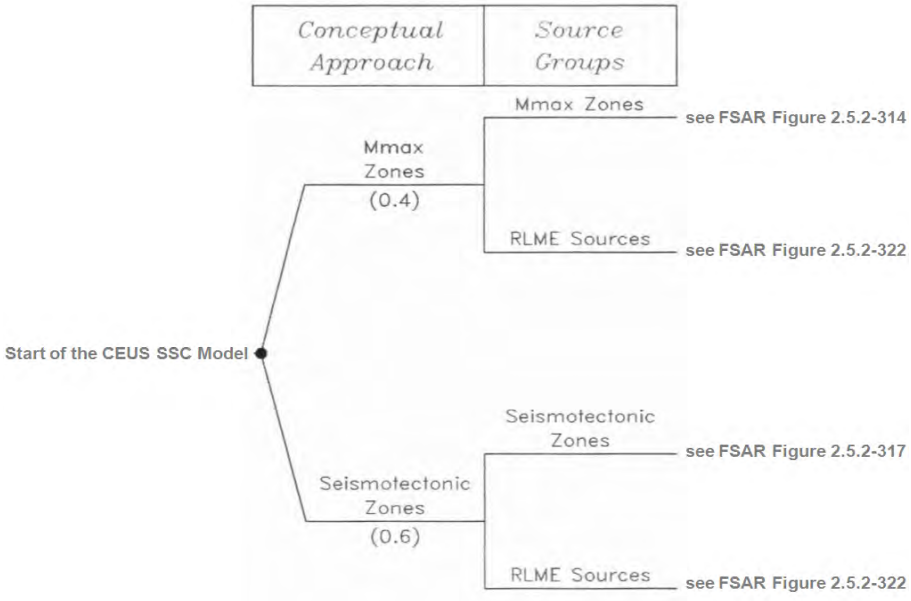

Figure 20.1-2. CEUS SSC Master Logic Tree Showing the Mmax Zones, Seismotectonic Zones, and RLME Sources Models for Assessing the Spatial and Temporal Characteristics of Future Earthquake Sources in the CEUS

The logic tree continues to the right and the continuations are shown in the listed FSAR figures. (Modified from FSAR Figure 2.5.2-312 and NUREG-2115 Figure 4.2.1-1)

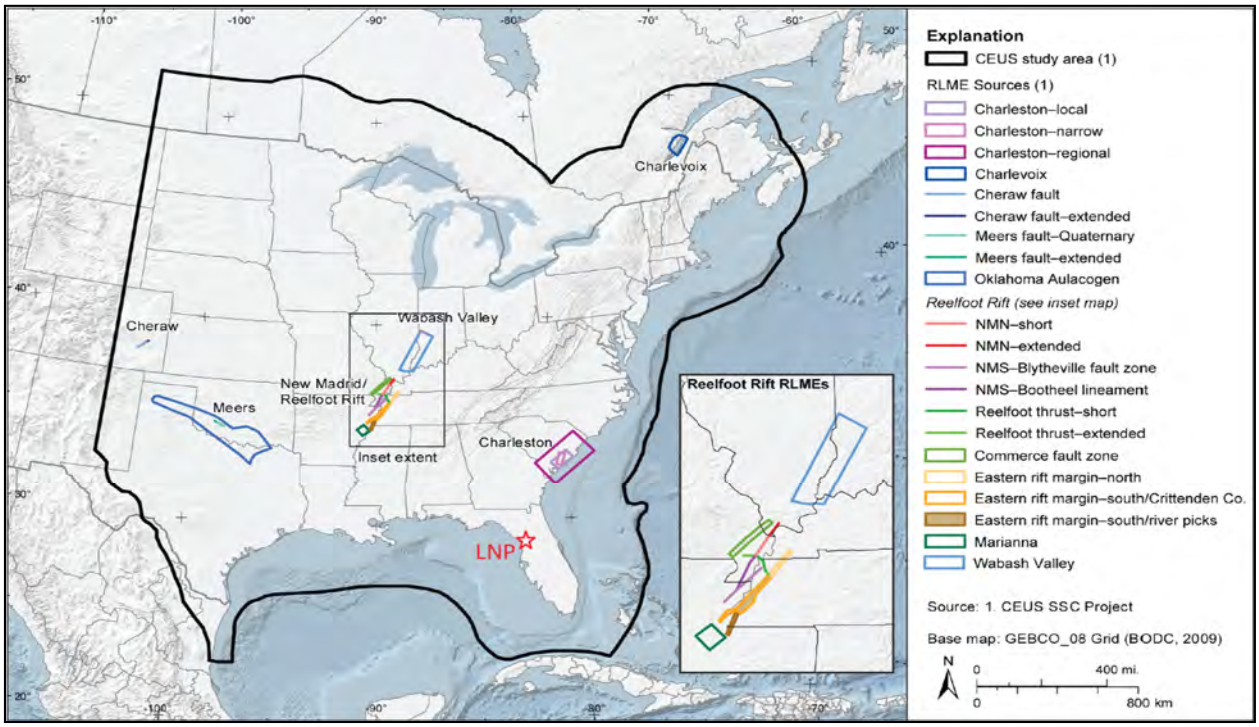

Figure 20.1-3. CEUS SSC Model Study Region (black line), RLME Sources (multicolored lines and polygons), and the Location of the LNP Site (red star)
(FSAR Figure 2.5.2-313 and NUREG-2115 Figure 4.2.2-2)

Each seismic source in the Mmax zones, seismotectonic zones, and RLME sources models is defined by a source geometry, a set of maximum magnitude (Mmax) distributions, a set of recurrence parameters (rate and *b*-values) or methods, and uncertainties. These source characteristics explain where earthquakes may occur, how large the events may be, how often they are expected, and how uncertain those characterizations are, respectively. There are five alternate sources characterized as Mmax zones, 17 sources characterized as seismotectonic zones, and 10 RLME sources. Each of the seismic source zones can have multiple alternative characterizations (geometries, Mmax distributions, recurrence parameters), so the CEUS SSC logic tree weights each source and each alternative, as determined through the SSHAC Level 3 process, and combines them to create the whole model. New to the CEUS SSC model is the use of M as the input magnitude unit, while the EPRI-SOG model used body-wave magnitude (m_b) as its input unit. Additionally, each CEUS SSC areal source has recurrence parameters specified in cells of 0.25-degree longitude by 0.25-degree latitude or 0.5-degree longitude by 0.5-degree latitude. The EPRI-SOG model used 1-degree longitude by 1-degree latitude cells. The smaller cell sized used in the CEUS SSC model achieves higher resolution, especially important for more active regions.

For the Mmax zones model, the CEUS SSC logic tree for the Mmax zones is shown in FSAR Figure 2.5.2-314 and four source geometries are shown in FSAR Figures 2.5.2-315 and 2.5.2-316, while the fifth Mmax zone covers the entire CEUS study region (SER Figures 20.1-1 and -3). The LNP site is located in the “Mesozoic and younger extended

prior" (MESE) Mmax source zones, where MESE-N and MESE-W distinguish between narrow (N) and wide (W) geometry interpretations.

For the seismotectonic zones model, the CEUS SSC logic tree for the seismotectonic zones is shown in FSAR Figure 2.5.2-317, and the sources geometries are shown in FSAR Figures 2.5.2-318 through 2.5.2-321. The LNP site is located in the "extended continental crust-Gulf Coast" (ECC-GC) seismotectonic source zone.

For the RLME model, the CEUS SSC logic tree for the Charleston RLME source is shown in FSAR Figure 2.5.2-322. The Charleston RLME source is the closest RLME source to the LNP site. Each of the 10 RLME sources (SER Figure 20.1-3) has a logic tree defining the uncertainty in its characterization. The characterization of the Charleston RLME source in the CEUS SSC model is similar to the updated Charleston seismic source (UCSS) (SNC, 2006 and 2007) used by the applicant in FSAR Section 2.5.2.4 and discussed by the staff in SER Section 2.5.2.2 and evaluated in 2.5.2.4. FSAR Figure 2.5.2-323 compares the source geometries of the UCSS with the CEUS SSC Charleston RLME source. Comparison of FSAR Figures 2.5.2-214 and 2.5.2-322 shows that the Mmax distributions are the same in the two models and the recurrence frequency of large earthquakes is also very similar for the two models, being approximately $1.8x10^{-3}$ earthquakes per year.

20.1.1.2 Summary of Cumulative Absolute Velocity Filter Application

In calculations of vibratory ground motion consistent with RG 1.208, applicants can implement the EPRI CAV model (EPRI, 2006) in PSHA calculations. The method is described in RG 1.208 and is based on the probability that earthquakes of a given magnitude can produce damaging ground motions, where the damaging ground motion is defined as CAV exceeding 0.16 g second. The EPRI (2006) model requires exceedance of 0.16 g second level ground motion for the application of the CAV filter, and does not limit earthquake magnitude level. Results of testing the EPRI CAV model indicate that earthquakes of moment magnitude (M) less than 5 have little probability of producing ground motions greater than 0.16 g second. The EPRI (2006) methodology is to perform the hazard integration using a minimum magnitude of M 4.0 and the earthquake recurrence parameters developed for magnitude M 4.0 and larger earthquakes. The guidance in SECY-12-0025 Enclosure 7, Attachment 1, to Seismic Enclosure 1 (ADAMS Accession No. ML12039A188) updated the use of the CAV filter. The updated CAV filter described in SECY-12-0025 for use with the CEUS SSC model limits the CAV filter application not only to 0.16 g second and higher level of ground motion, but also to only magnitudes less than M 5.5. This additional earthquake magnitude requirement affects the integral hazard calculations and may result in a non-negligible increase of the ground motion response spectra (GMRS), which makes the GMRS more conservative.

20.1.2 Summary of Application

The applicant provided information to evaluate the seismic hazard at its site against current NRC requirements and guidance. The information was provided in a response to RAI Letter No. 108 (ADAMS Accession No. ML120550146), which requested, among other things, that the applicant evaluate the seismic hazard at its site against current NRC requirements and guidance as described in SECY-12-0025 Enclosure 7, Attachment 1 to Seismic Enclosure 1 (ADAMS Accession No. ML12039A188), and, if necessary, update the design basis and

structures, systems, and components important to safety to protect against the updated hazards. The applicant responded to RAI Letter No. 108 in Progress Energy Letter NPD-NRC-2012-029 (ADAMS Accession No. ML122230155), dated August 1, 2012. The applicant's response proposed to incorporate changes into the following FSAR Sections:

- 2.5.2.7, "Sensitivity Evaluations for CEUS SSC" (LNP COL 2.5-2)
- 2.5.4.8.7, "Liquefaction Potential Evaluations for CEUS SSC" (LNP COL 2.5-9)
- 3.7.2.4.1.7, "Sensitivity Evaluations for Regulatory Guide 1.60 Spectra FIRS" (LNP SUP 3.7-3 and LNP SUP 3.7-6)
- 3.7.2.8.4, "Median Centered Adjacent Building Relative Displacements for 10^{-5} UHRS" (LNP SUP 3.7-5)
- 19.55.6.3, "Site-Specific Seismic Margin Analysis" (LNP COL 19.59.10-6)

The applicant subsequently incorporated the proposed changes into Revision 5 of the LNP COL FSAR. The applicant supplemented its response with clarifying information in two additional letters dated October 15 and October 31, 2012 (ADAMS Accession Nos. ML12291A857 and ML12313A163).

20.1.3 Regulatory Basis

The applicable regulatory requirements for seismic hazard reevaluation are established and described in the following:

- 10 CFR 100.23, "Geologic and Seismic Siting Criteria," with respect to obtaining geologic and seismic information necessary to determine site suitability and to ascertain that any new information derived from site-specific investigations does not impact the ground motion response spectra derived by a probabilistic seismic hazard analysis.
- 10 CFR 52.79 (a)(1)(iii), "Contents of Applications; Technical Information in Final Safety Analysis Report," (specifically 10 CFR 52.79 (a)(1)(iii)) as it relates to consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area and with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated.
- 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criterion (GDC) 2, "Design Bases for Protection against Natural Phenomena," which requires, in part, that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena, such as earthquakes, without loss of capability to perform their safety functions.

- Public Law 112-74, "Consolidated Appropriations Act, 2012," Section 402, states that the NRC shall require reactor licensees to reevaluate the seismic hazards at their sites against current applicable Commission requirements and guidance for such licenses as expeditiously as possible. It also requires each licensee to confirm to the Commission that the design basis for each reactor meets the requirements of its license, as well as current applicable Commission requirements and guidance for such license. The Conference Report for PL 112-74 directs the Commission to implement Fukushima recommendation 2.1 consistent with, or more expeditiously than, the "schedules and milestones" proposed by NRC staff on October 3, 2011 in SECY-11-0037, "Prioritization of Recommended Actions to be Taken in Response to Fukushima Lessons Learned."

In addition, the geologic and seismic characteristics should be consistent with appropriate sections from the following guidance:

- NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 2.5.2, "Vibratory Ground Motion," Revision 4

- RG 1.60, "Design Response Spectra for Seismic Design of Nuclear Power Plants," Revision 1

- RG 1.132, "Site Investigations for Foundations of Nuclear Power Plants," Revision 2

- RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)"

- RG 1.208, "A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion"

- RG 1.198, "Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites"

- DC/COL ISG-017, "Interim Staff Guidance on Ensuring Hazard-Consistent Seismic Input for Site Response and Soil Structure Interaction Analyses"

- DC/COL ISG-020, "Seismic Margin Analysis for New Reactors Based on Probabilistic Risk Assessment"

- SECY-12-0025 states, in part, that the staff will also request all COL applicants to provide the information required by the specified orders and request for information letters described in this paper, as applicable, through the review process. Enclosure 7 to SECY-12-0025 contains a request for information letter addressing the NTTF Recommendation 2.1 seismic reevaluation, and Enclosure 7, Attachment 1 to Seismic Enclosure 1, describes an acceptable process for developing the information requested.

20.1.4 Technical Evaluation of LNP CEUS SSC Model Sensitivity Evaluation

This SER section provides the staff's evaluation of the applicant's responses to RAI Letter No. 108 (ADAMS Accession No. ML120550146) as they relate to the applicant's evaluation of the seismic hazard at its site against current NRC requirements and guidance as described in SECY-12-0025 Enclosure 7, Attachment 1 to Seismic Enclosure 1 (ADAMS Accession No. ML12039A188). To address the guidance described in SECY-12-0025, the applicant evaluated potential seismic hazards at the LNP site using the CEUS SSC model (NUREG-2115) and applying the CAV filter as described in the SECY, and then performed a sensitivity study comparing the results with those the applicant previously produced using the EPRI-SOG model.

During the applicant's development of its RAI response, the staff conducted a site audit to review calculation packages, interact with the applicant regarding the sensitivity evaluation conducted for the LNP COL application, and to review the applicant's quality assurance documents related to the seismic hazard calculation software. The staff conducted the audit at the Progress Energy Florida offices in Raleigh, NC, on June 18, 19, and 20, 2012, and the audit concluded with a public meeting. The audit summary is available in ADAMS Accession No. ML12235A301.

20.1.4.1 Implementation of the CEUS SSC Model for the LNP Site

The applicant performed hazard calculations using the CEUS SSC model that included contributions from all distributed seismicity source zones that extend within 1,000 kilometers (km) (621 miles (mi)) of the LNP site. Specifically, the applicant included all five Mmax source zones and 12 of the 17 seismotectonic source zones in its calculations of the CEUS SSC hazard at LNP site. The seismotectonic source zones included by the applicant in the hazard calculation were AHEX, GHEX, ECC-AM, ECC-GC, MIDC (-A, -B, -C, and -D), PEZ (-N and -W), RR, and RR-RCG. These sources can be seen in FSAR Figures 2.5.2-318 through -321.

Regarding the RLME sources, the applicant used the Charleston sources and the Reelfoot Rift–New Madrid Fault System (NMFS) fault sources in its hazard calculations. The Charleston RLME source specified in NUREG-2115 contains three alternative source geometries: a local, narrow, and regional source. NUREG-2115 describes the Charleston RLME regional source as being modeled with two alternative fault rupture orientations: (1) fault ruptures are parallel to the long axis of the source (northeast) with a weight of 0.80, and (2) fault ruptures are parallel to the short axis of the source (northwest) with a weight of 0.20. In a letter dated October 15, 2012 (ADAMS Accession No. ML12291A857), the applicant described how calculations for the LNP site were performed using only the northeast orientation for the Charleston RLME regional source with a weight of 1.0. The applicant stated that it performed the calculations in this manner because in NUREG-2115 the hazard at the Savannah test site showed only small sensitivity to the orientation of ruptures in the regional source geometry and the use of only the northeast-southwest orientations is more conservative, producing a higher hazard.

NUREG-2115 includes the results of a sensitivity analysis showing that, at a 10^{-5} annual exceedance frequency when both fault rupture orientations are modeled, the percent difference between the weighted mean average hazard and the northeast orientation is less than

5 percent, indicating that mean hazard at Savannah is not significantly affected by having two alternative rupture orientations for the Charleston regional source. SER Figure 20.1-4 shows the difference in hazard between modeling of the two alternative fault rupture orientations. Because the difference between the hazard using the two orientations is not large and the northeast orientated fault ruptures are weighted 0.80 in this source's final hazard results, the northeast orientated fault ruptures dominate the weighted mean average hazard at the Savannah test site. Therefore use of only the northeast orientated fault ruptures would result in hazard calculations within 5 percent of using both fault rupture orientations.

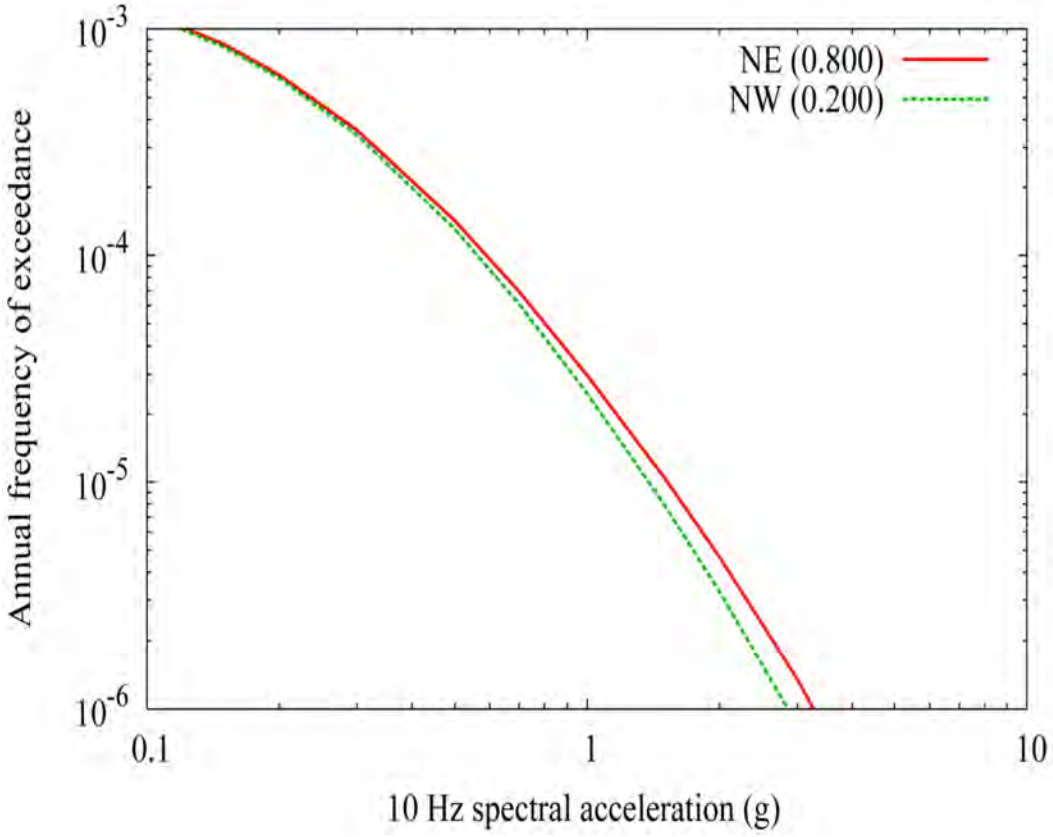

Figure 20.1-4. CEUS SSC Model Charleston RLME Sensitivity to Rupture Orientation at the Savannah Test Site at 1 Hz (top) and 10 Hz (bottom)
(NUREG-2115 Figures 9.3-1 and -2)

The applicant performed sensitivity calculations for the LNP site using a model with northeast ruptures weighted 0.8 and northwest ruptures weighted 0.2 for the Charleston regional source geometry. The applicant's sensitivity calculations showed that hazards for the 10^{-4} and 10^{-5} annual exceedance frequencies at 1 Hz spectral accelerations are approximately 0.04 percent lower than those presented in FSAR Figure 2.5.2-340. The applicant stated that it chose to run the sensitivity calculations at 1 Hz because, for the LNP site, the hazard at this spectral frequency is dominated by the contributions from the Charleston RLME source. Therefore, 1 Hz would be the best frequency at which to perform the sensitivity calculations because the effect

of the differences in Charleston RLME source geometries also would be dominant in the hazard calculation.

Regarding the Reelfoot Rift–NMFS fault sources, the applicant did not use the other Reelfoot Rift RLME sources, such as the Eastern rift margin (ERM) sources, Commerce fault zone, Marianna, or the Wabash Valley source. The applicant chose not to use these sources because of their low contribution to the hazard at the CEUS SSC Chattanooga test site, as shown in SER Figure 20.1-5, and because the LNP site is located even farther from those sources than the Chattanooga site is.

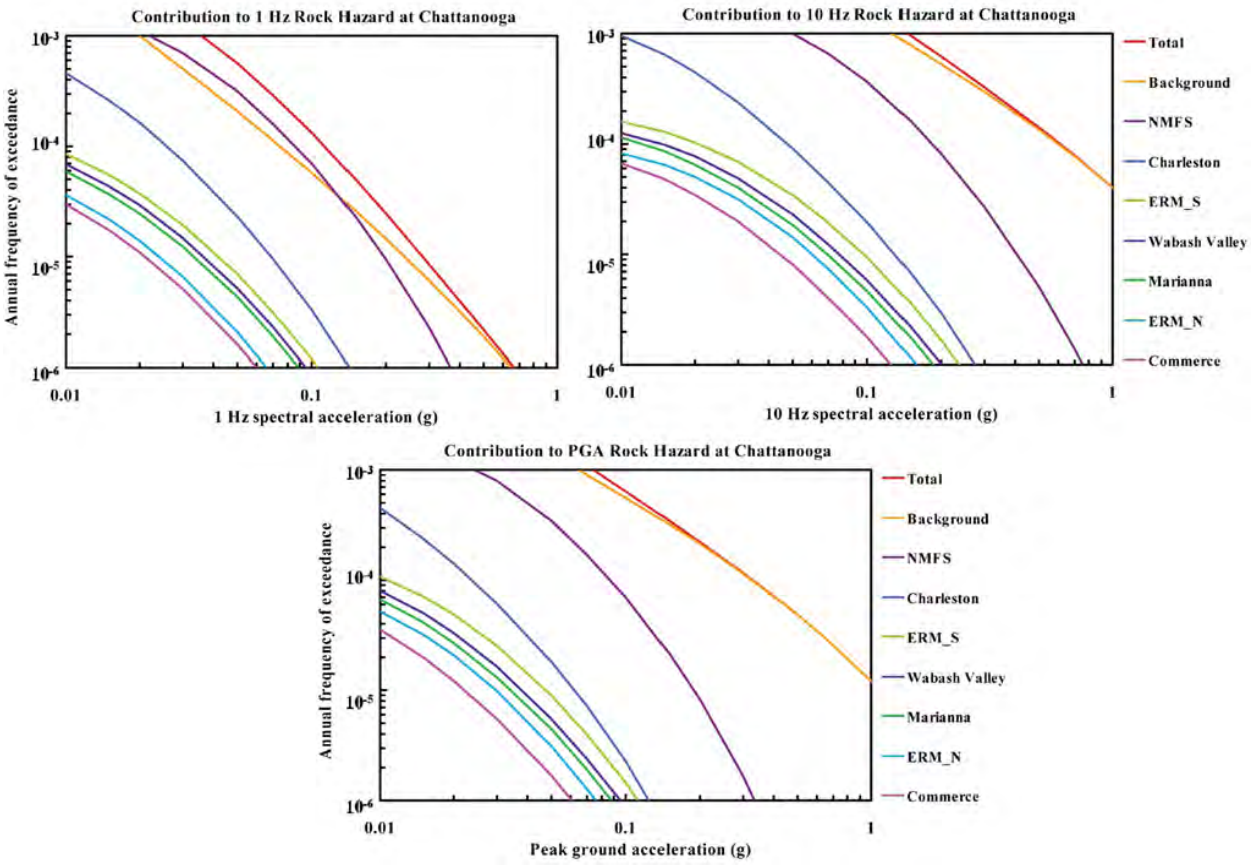

Figure 20.1-5. CEUS SSC Model Chattanooga Test Site Mean Rock Hazard at 1 Hz, 10 Hz, and Peak Ground Acceleration (PGA) (100 Hz) for the Total Hazard and the Contribution by RLME Sources and Background.
(NUREG-2115 Figure 8.2-2d, -2e, and -2f)

NUREG-2115 describes how the equation for the fault rupture area and seismic moment from Somerville et al. (2001), combined with the relationship between moment magnitude and seismic moment from Hanks and Kanamori (1979), should be used in the CEUS to estimate fault rupture area from moment magnitude consistent with the magnitude scale used in modern ground motion prediction equations for CEUS earthquakes. NUREG-2115 describes the

combination of the Somerville et al. (2001) and the Hanks and Kanamori (1979) equations as NUREG-2115 Equation H-1:

$$\log_{10}A = M - 4.366 \qquad \text{Equation 20.1-1}$$

However, this equation is slightly incorrect since combining the fault rupture area and seismic moment equations from Somerville et al. (2001) Table 4 and Hanks and Kanamori (1979) yields this result:

$$\log_{10}A = M - 4.35 \qquad \text{Equation 20.1-2}$$

In both equations, A represents the fault rupture area and M is moment magnitude. The applicant described in a supplement to its response to RAI Letter No. 108 (ADAMS Accession No. ML12313A163) that it used the equation published in NUREG-2115 (SER Equation 20.1-1). However, the applicant performed sensitivity calculations to determine the effect of using the NUREG-2115 Equation H-1 (SER Equation 20.1-1) as compared to using SER Equation 20.1-2 for calculation of spectral accelerations on hard rock. The applicant stated that using SER Equation 20.1-2 produces a fault rupture area for a given magnitude that is approximately 4 percent greater than the corresponding value calculated using NUREG-2115 Equation H-1 (SER Equation 20.1-1). The applicant's calculations for all seven structural frequencies provided in the EPRI ground motion model (0.5, 1.0, 2.5, 5, 10, 25 and 100 Hz) showed that, for annual exceedance frequencies of 10^{-4} and 10^{-5}, spectral accelerations differ by less than 0.2 percent. The applicant concluded that the difference between using NUREG-2115 Equation H-1 (SER Equation 20.1-1) versus SER Equation 20.1-2 has negligible effect on the total rock hazard calculations. For the distributed sources, such as the seismotectonic and Mmax zones, the applicant used the epicentral distance adjustments from EPRI (2004), which models the effect of earthquake ruptures using point sources rather than an extended rupture area and is also based on the Somerville et al. (2001) formula. Based on the applicant's use of the epicentral distance adjustments from EPRI (2004), the applicant used the NUREG-2115 Equation H-1 (SER Equation 20.1-1) equation only when modeling the areal RLME sources, of which Charleston is dominating at the LNP site. Therefore, the applicant's sensitivity study results, which show spectral acceleration percent differences of less than 0.2 percent, demonstrate the negligible difference between using SER Equations 20.1-1 and -2 when modeling the areal RLME sources (e.g., Charleston).

The staff evaluated the applicant's implementation of the CEUS SSC model for the LNP site. RG 1.208 guides applicants to investigate seismic sources within multiple areas, the largest area being described by a radius of 320 km (200 mi) around the site, defined as the site region. Recent COL and ESP applications submitted to the NRC have included seismic sources that reach within the site region in the seismic hazard calculations, in addition to large magnitude sources that lay beyond the 320 km (200 mi) radius, which is consistent with guidance in RG 1.208. Thus, the staff considers the LNP applicant's use of a 1,000 km (621 mi) inclusion zone as appropriate and conservative for use in the applicant's sensitivity evaluation of the CEUS SSC model.

The staff considers the applicant's inclusion of the RLME sources of Charleston and Reelfoot Rift–NMFS fault sources and the exclusion of other RLME sources to be appropriate for the

LNP site hazard calculations using the CEUS SSC model. As shown in SER Figure 20.1-2, the Charleston and Reelfoot Rift RLMEs are the closest RLME sources to the LNP site, and both lie beyond the LNP Site Region. The applicant's sensitivity study showed a 0.04 percent change in the CEUS SSC uniform hazard response spectra (UHRS) because of the Charleston RLME sensitivity to rupture orientation at the LNP site. The NUREG-2115 sensitivity calculations showed a less than 5 percent difference in hazard at the Savannah site because of the Charleston RLME sensitivity to rupture orientation. Given these findings, the staff concludes that the applicant's use of only the northeast orientation for the Charleston RLME regional source with a weight of 1.0 adequately characterizes the hazard from the Charleston RLME regional source at the LNP site.

Regarding the applicant's use of the Reelfoot Rift RLMEs, the applicant stated that the hazard contribution at the Chattanooga test site from the Reelfoot Rift RLMEs is minimal from any source that is not the Reelfoot Rift–NMFS fault sources. Thus, since the LNP site is even farther from the Reelfoot Rift RLME sources than the Chattanooga test site is, the effect on hazard at the LNP site would be even less. Therefore, the applicant only included the Reelfoot Rift–NMFS fault sources in its hazard evaluation. The staff agrees with this logic. SER Figure 20.1-5 shows that the Reelfoot Rift–NMFS fault sources are large contributors to the total hazard, while the other Reelfoot Rift RLME sources are not. The figure also shows that the LNP site is located approximately 708 km (440 mi) farther southeast from the Reelfoot Rift RLME sources than the Chattanooga site.

The staff evaluated the applicant's analysis of the use of NUREG-2115 Equation H-1 (SER Equation 20.1-1) instead of SER Equation 20.1-2 as a method to model seismic sources (ADAMS Accession No. ML12313A163). Based on the applicant's sensitivity calculations showing that the differences in using the two equations is less than 0.2 percent, the staff concludes that it produces negligible effect on the applicant's rock hazard calculations. Additionally, the applicant's use of the EPRI (2004) point source approximation is acceptable to the staff for the LNP site. A sensitivity study was performed in NUREG-2115 to determine the influence of modeling distributed seismicity sources using the fault rupture model versus modeling the sources using the point source approximation in EPRI (2004). In the study, the effect of the seismotectonic zone Midcontinent A (MIDC-A) using the two methodologies was modeled at the Central Illinois test site for 1 and 10 Hz. The seismic hazard calculations using the two methodologies produced less than 10 percent difference. This analysis is applicable to the LNP site because the MIDC-A source has a similar Mmax distribution to the ECC-GC source in which the LNP site is located. Because the applicant's sensitivity study showed negligible effect of the NUREG-2115 Equation H-1 and the NUREG-2115 sensitivity study showed negligible effect of using the EPRI (2004) point source approximation, the staff concludes that the applicant's modeling of the effects of the RLME, seismotectonic, and Mmax distributed seismic sources is acceptable.

The applicant performed the hazard calculations using ground motion prediction equations as described in EPRI (2004, 2006). The applicant used these equations consistent with the use for the EPRI-SOG hazard model results as described in FSAR Section 2.5.2.4.4. Since the applicant used the equations in the same manner it previously did for the EPRI-SOG hazard model, the staff considers it appropriate for use in the applicant's sensitivity evaluation of the CEUS SSC model.

20.1.4.2 Verification of CEUS SSC Model Implementation

As described in SER Section 20.1.1.1 and shown in SER Figure 20.1-1, NUREG-2115 documented the use of the CEUS SSC model at seven test sites. In FSAR Section 2.5.2.7.2, the applicant described its independent calculation of hazard at these seven sites. The applicant performed this calculation to demonstrate its adequate implementation of the CEUS SSC model. The applicant stated that it closely matched the test sites' mean and fractile hazard curves, as shown in FSAR Figures 2.5.2-325 through -331. The applicant then used the mean hazard curves to calculate the ground motion levels with annual frequencies of exceedance of 10^{-4}, 10^{-5}, and 10^{-6}, as listed in FSAR Table 2.5.2-232. The applicant stated that the differences in ground motion values are generally less than 5 percent and that these differences are not considered significant. The applicant then concluded that its implementation of the CEUS SSC model is adequate for use in computing hazard at the LNP site.

As shown in SER Figure 20.1-1, the Savannah site is the closest CEUS SSC test site to the LNP site. Second, the Chattanooga site is comparable to the LNP site because the Chattanooga site is located at a similar distance from the Charleston RLME source as the LNP site. The Chattanooga site is approximately 547 km (340 mi) from the Charleston RLME source, and the LNP site is located at a distance of approximately 482 km (300 mi). The staff considers the Savannah and Chattanooga sites to be the test sites applicable to the LNP site. Consistent with the applicant's analysis, the percent difference between the applicant's calculation and that of NUREG-2115 spectral acceleration values calculated at the Chattanooga site show less than a 3 percent difference at annual frequencies of exceedance of 10^{-4}, 10^{-5}, and 10^{-6} at 1 Hz, 10 Hz, and peak ground acceleration (PGA). The staff does not consider this to be a significant difference in ground motion values. SER Figure 20.1-6 shows the applicant's closely matched calculation to the Chattanooga test site mean and fractile hazard curves.

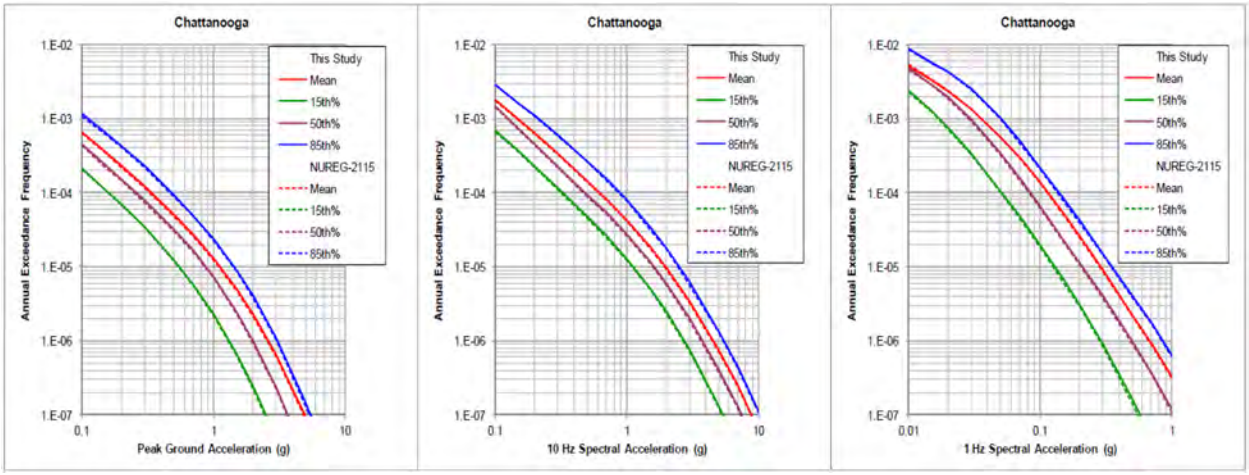

Figure 20.1-6. Comparison of Mean and Fractile Hazard at the Chattanooga Site Computed by the Applicant ("This Study") and Reported in NUREG-2115
(FSAR Figure 2.5.2-326)

The percent differences at the Savannah site, however, are larger and range between 5.3 and 13.1 percent. SER Figure 20.1-7 shows the results graphically. These percent differences are the only values that rise above the applicant's generalized assessment of "values are generally less than 5 percent". The applicant attributes the differences to implementation details of modeling the large-magnitude rupture locations for sites near the Charleston RLME sources, where the Savannah site is located 128 km (80 mi) southwest of the Charleston RLME sources. As described in SER Section 2.5.2.7.2.6, the applicant tested two implementation methods for modeling the Charleston RLME at the Savannah test site: (1) A series of closely spaced pseudo faults parallel to the northeast orientation of the zone and earthquake ruptures were modeled as occurring uniformly along these faults, and (2) the source zone was filled with a grid of uniformly spaced points and at each point magnitude-dependent ruptures were placed with the specified northeast orientation with a random location on the grid point.

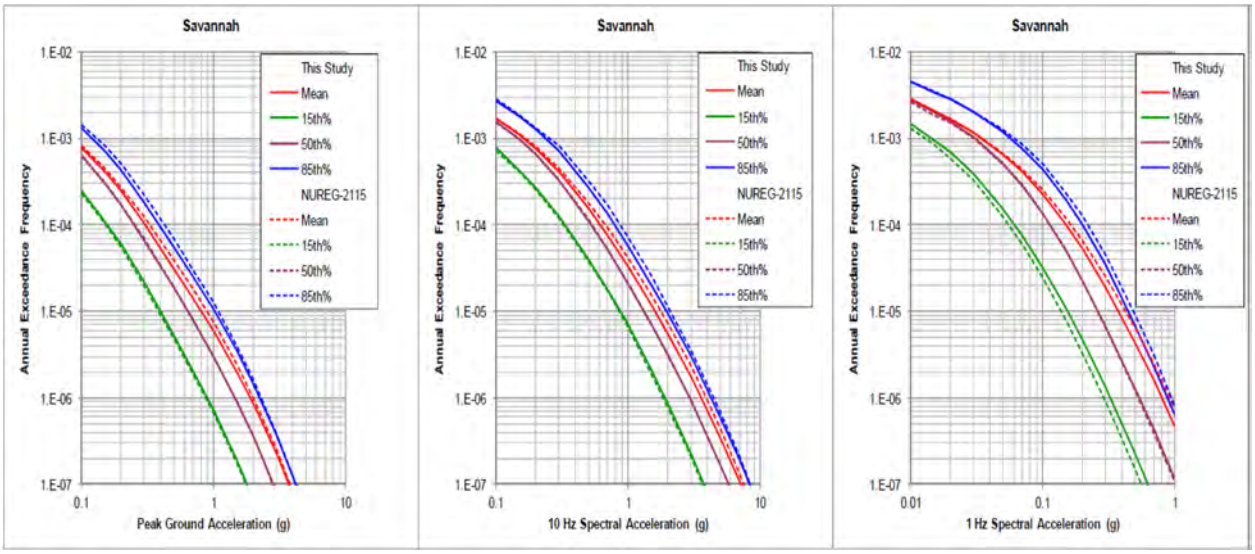

Figure 20.1-7. Comparison of Mean and Fractile Hazard at the Savannah Site Computed by the Applicant ("This Study") and Reported in NUREG-2115
(FSAR Figure 2.5.2-330)

According to the applicant, when method (1) was compared with method (2), the effect of using method (2) was that the model increased the probability of rupture locations near the boundary. This alternative process, method (2), produced acceptable results in comparison with those presented in NUREG-2115 using method (1). In a letter dated October 15, 2012 (ADAMS Accession No. ML12291A857), the applicant stated it used implementation method (1) in its hazard calculations for the LNP site. From testing the two implementation methods, the applicant concluded that the differences in modeling the Charleston RLME source have minimal impact on the computation of the mean hazard at larger distances, such as at the LNP site, as evidenced by the applicant's ability to reproduce the hazard at the Chattanooga test site

The staff reviewed the applicant's implementation of the NUREG-2115's CEUS SSC model. The staff considers the less than 5 percent differences in spectral acceleration values for the Chattanooga test site to be well within the precision of any PSHA calculations. The staff

considers the applicant's tests of multiple implementation methods for the Charleston RLME source as a thorough investigation of the realization of that source model at the Savannah test site. The percent differences in spectral acceleration values ranging between 5.3 and 13.1 percent calculated at the Savannah test site are still within the accuracy of PSHA modeling. Additionally, since the Chattanooga test site lies at a similar distance from the Charleston source as the LNP site, the staff concludes that at those distances the applicant's calculations are consistent with the calculations detailed in NUREG-2115. Therefore, since the applicant used the same input parameters as described and used in NUREG-2115 and the applicant's model results are within the precision expected for the model, the staff considers the applicant's comparison results at the Chattanooga and Savannah test sites to be adequate. Finally, since both the comparison results at the Chattanooga and Savannah test sites are found to be adequate to the staff, and the other five test site comparisons show similar low percent differences, the staff considers the applicant's modeling and comparison of hazard at all seven test sites to be an acceptable demonstration that the applicant has adequately implemented the calculation of seismic hazard using the CEUS SSC model. Lastly, during the staff's audit of the applicant's quality assurance documents related to the seismic hazard calculation software, the staff verified the findings through documentation of the software development process.

20.1.4.3 Uniform Hazard Response Spectra and Deaggregation Results

To calculate the CEUS SSC hard rock UHRS, the applicant compiled the mean seismic hazard curves calculated for the LNP site. Consistent with the applicant's EPRI-SOG hazard calculations, the applicant used the CEUS SSC model to calculate hazard at seven spectral frequencies: 0.5, 1, 2.5, 5, 10, 25 Hz, and PGA. SER Figure 20.1-8 shows the applicant's calculation of mean total hazard from the EPRI-SOG and CEUS SSC models at 10 Hz and 1 Hz and the contribution to hazard at those frequencies of the three main source contributors: distributed seismicity sources, the Charleston sources, and the Reelfoot Rift–NMFS fault sources. This data allowed the applicant to isolate the cause of the differences in mean total hazard and to analyze which source type could be attributed to that difference.

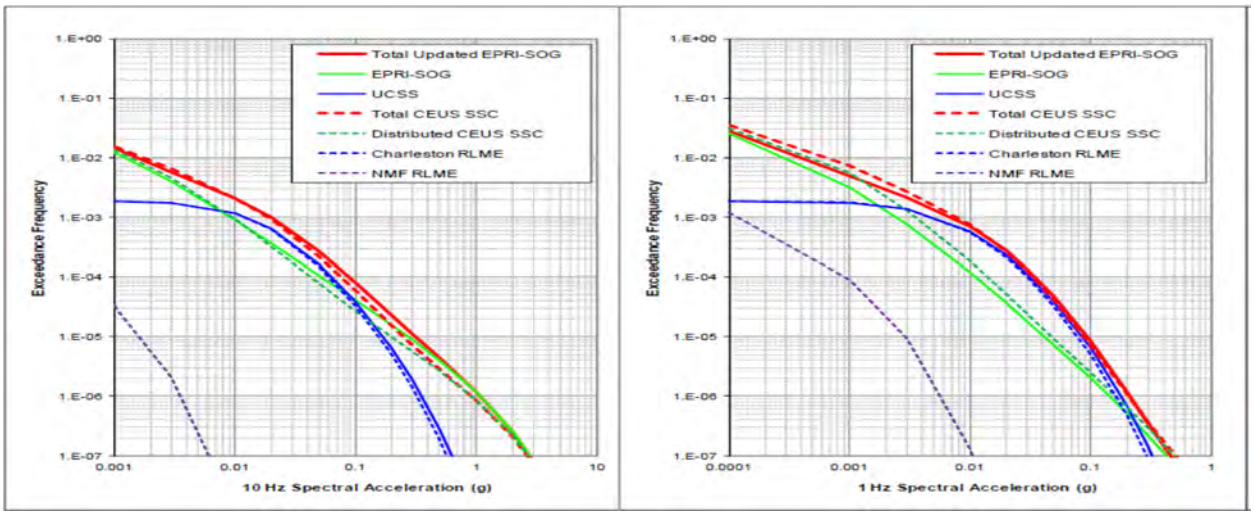

Figure 20.1-8. Contribution of the Different Source Types to the Total Mean Hazard (red) at the LNP Site for 10 Hz (left) and 1 Hz (right) – Distributed Sources (green), Charleston Sources (blue), and Reelfoot Rift–NMFS Fault Sources (purple)
(FSAR Figure 2.5.2-339)

The applicant found that the largest differences between hazards were caused by the distributed seismicity sources, the green lines in SER Figure 20.1-8. For 10 Hz, the hazard determined using the CEUS SSC model is slightly lower than that from the updated EPRI-SOG sources, and for 1 Hz, the hazard determined using the CEUS SSC model is slightly higher than that from the updated EPRI-SOG sources. The applicant attributed the differences at 10 Hz to the CEUS SSC model's lower prediction of seismicity rates in the region around the LNP site. The applicant attributed the differences at 1 Hz to the larger Mmax values for distributed seismicity sources in the CEUS SSC model compared to those for the updated EPRI-SOG model.

SER Figure 20.1-9 shows the applicant's hard rock UHRS. The UHRS based on the CEUS SSC model are lower than those based on the updated EPRI-SOG model at spectral frequencies greater than 2.5 Hz and higher at low frequencies for the 10^{-3} mean annual exceedance frequency. However, the EPRI-SOG UHRS for the 10^{-4} and 10^{-5} mean annual exceedance frequencies, which are used to calculate the GMRS, are higher than those from the CEUS SSC at all frequencies shown.

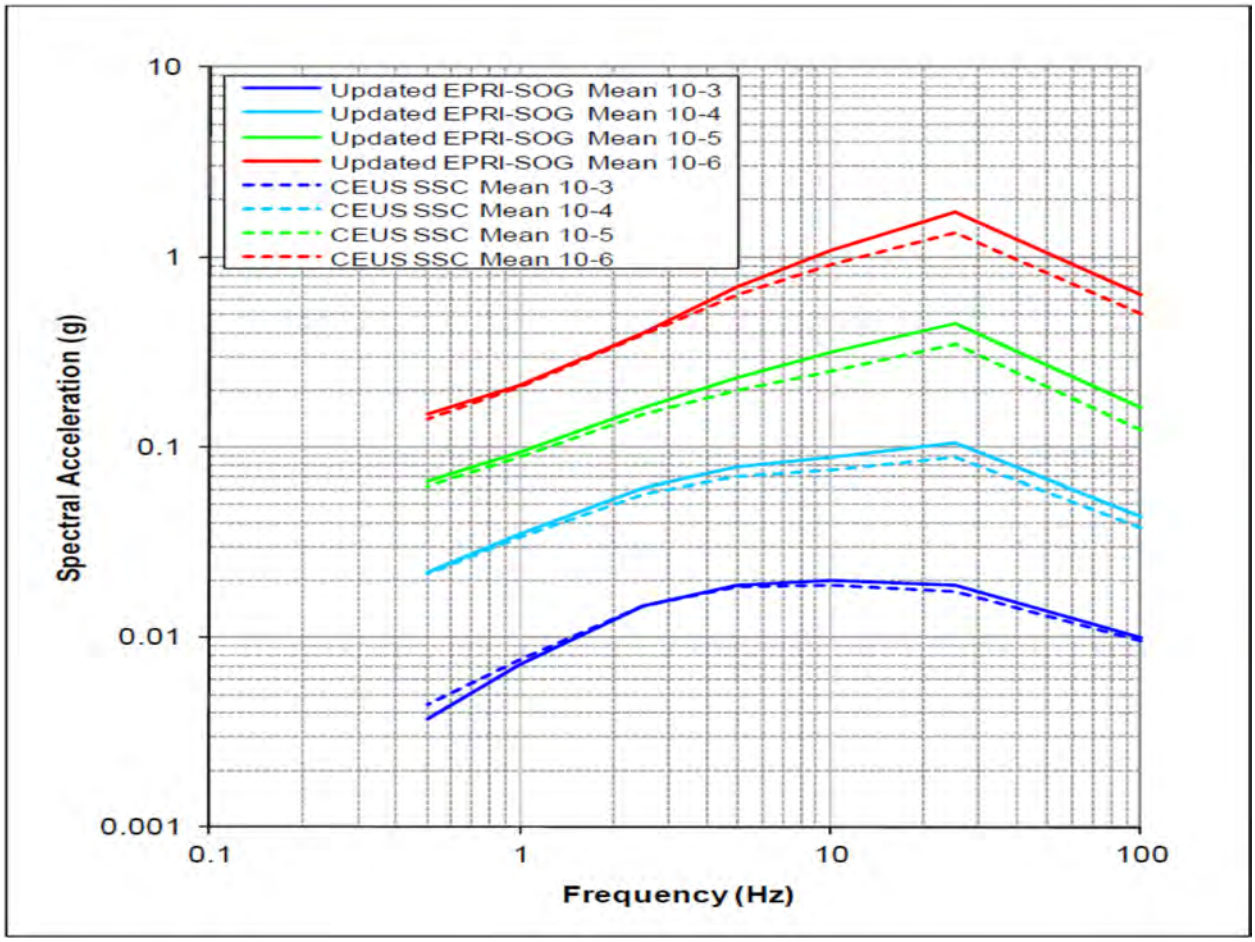

Figure 20.1-9. Comparison of Hard Rock UHRS Based on Updated EPRI-SOG and CEUS SSC models
(FSAR Figure 2.5.2-340)

Following calculation of the UHRS, the applicant deaggregated the spectra consistent with RG 1.208 to determine the controlling earthquakes. FSAR Figures 2.5.2-341, -343, and -344 show the deaggregation results for mean annual exceedance frequencies of 10^{-3}, 10^{-5}, and 10^{-6}, respectively. SER Figure 20.1-10 shows the deaggregation results for the 10^{-4} mean annual exceedance frequency using the CEUS SSC model compared to those using the EPRI-SOG model. The applicant demonstrated that the deaggregation results are similar to those for the updated EPRI-SOG hazard results, as seen in SER Figure 20.1-10.

The staff also conducted an independent confirmatory analysis of the hard rock hazard and UHRS at the LNP site. The staff calculated the hazard using the CEUS SSC model (NUREG-2115) for distances up to 750 km (469 mi) for distributed seismicity sources and 1,000 km (621 mi) for RLME sources. In its confirmatory analysis, the staff used the EPRI 2004-2006 ground motion attenuation model (same as the applicant). The staff's calculations of the 10^{-4} and 10^{-5} UHRS are enveloped by the applicant's calculations. Because the UHRS

results and the total hard rock hazard curves developed by the staff are in good agreement with those developed by the applicant, the staff finds the applicant's PSHA acceptable.

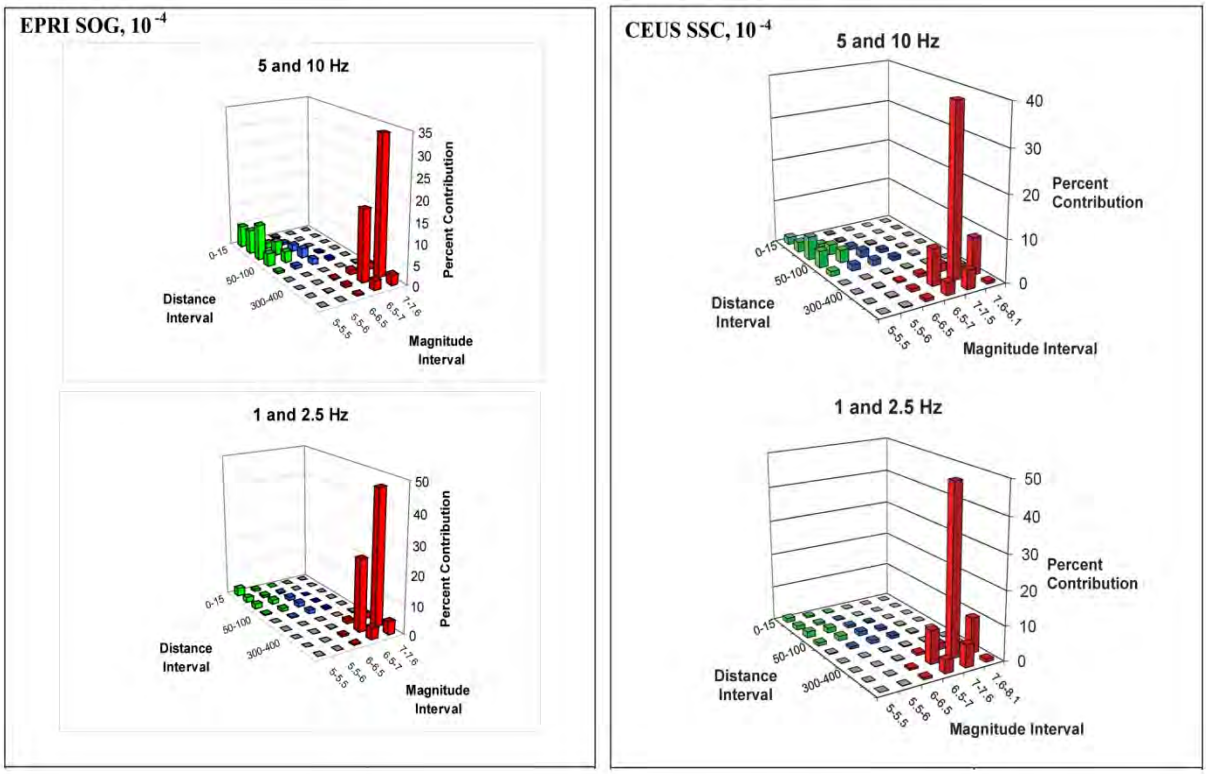

Figure 20.1-10. Comparison of 10^{-4} Deaggregation Results from EPRI SOG (left) and CEUS SSC (right) Models
(FSAR Figures 2.5.2-240 and 2.5.2-342)

The staff evaluated the applicant's determination of the hard rock UHRS and deaggregation results. Since the applicant used a method to determine the UHRS that was consistent with the calculation in FSAR Section 2.5.2.4 and guidance in RG 1.208, the staff concludes that the applicant properly calculated its hard rock UHRS. Finally, the comparison of the deaggregation results (SER Figure 20.1-10) shows that, as expected, the earthquakes controlling the spectra are similar when using either seismic source model.

20.1.4.4 Ground Motion Response Spectra and Updated Cumulative Absolute Velocity Filter

Following the calculation of the hard rock UHRS, the applicant calculated the GMRS using a CAV filter and the CEUS SSC model. The applicant then compared its CEUS SSC GMRS to its previous GMRS that were determined using the updated EPRI-SOG model, as described in FSAR Section 2.5.2.6. For calculation of the CEUS SSC GMRS, the applicant used the same seismic source inputs it used for calculation of the UHRS. Additionally, to calculate the CEUS SSC GMRS, the applicant used the same amplification functions it developed in FSAR Section 2.5.2.5 for use with the EPRI-SOG hazard results. The applicant did not recalculate the

amplification functions based on the similarity of the UHRS deaggregation results of the CEUS SSC and EPRI-SOG models (SER Figure 20.1-10).

Following the guidance in SECY-12-0025 Enclosure 7, Attachment 1, to Seismic Enclosure 1 (ADAMS Accession No. ML12039A188), the applicant updated its use of the CAV filter from what it used with the updated EPRI-SOG model. For use with the EPRI-SOG model, the applicant implemented the CAV filter described in EPRI (2006). Using the EPRI (2006) methodology, the applicant performed the hazard integration using a minimum magnitude of M 4.0 and the earthquake recurrence parameters developed for magnitude M 4.0 and larger earthquakes. Using the updated CAV filter with the CEUS SSC model, as described in SECY-12-0025, the applicant limited the CAV filter application to magnitudes less than M 5.5. The applicant's calculation of ground motions at the 10^{-4} annual exceedance frequency are zero when it used the EPRI-SOG model and EPRI (2006) CAV methodology. Using the CEUS SSC model and updated CAV methodology from SECY-12-0025, the ground motions at the 10^{-4} annual exceedance frequency are not equal to zero. The applicant also saw an effect at the 10^{-5} annual exceedance frequency, but the difference is not as large. The FSAR Figure 2.5.2-352 shows the results at the 10^{-4}, 10^{-5}, and 10^{-6} annual exceedance frequencies at the GMRS elevation. The 10^{-4} and 10^{-5} UHRS based on the CEUS SSC model using modified CAV are higher than those using the updated EPRI-SOG model with full CAV. The applicant stated that the higher motions are primarily caused by the modification to the CAV methodology. For the 10^{-6} UHRS, the results based on the CEUS SSC model using modified CAV and those using the updated EPRI-SOG model with full CAV are similar for frequencies of 5 Hz and less and lower at higher spectral frequencies. The lower UHRS amplitudes at spectral frequencies above 5 Hz are due to the difference in the rock hazard between the two models.

SER Figure 20.1-11 shows the applicant's GMRS, which was calculated using the CEUS SSC model, the updated CAV methodology, and the previously determined site amplification functions. The applicant determined the GMRS from the UHRS using relationships described in RG 1.208. RG 1.208 guides applicants to calculate the GMRS using the following relationship:

$$GMRS = UHRS * DF \qquad \text{Equation 20.1-3}$$

where

$UHRS$ = Mean 10^{-4} UHRS
$DF = \max \{1.0, 0.6 (A_R)^{0.8}\}$
$A_R = 10^{-5}UHRS / 10^{-4}UHRS$

The resulting horizontal GMRS is a combination of the site-specific spectra at the GMRS elevation at 10^{-4} and 10^{-5} annual exceedance frequencies. RG 1.208 alternatively states that if A_R is greater than 4.2, then the applicant should determine the GMRS using 45 percent of the site-specific spectra for the 10^{-5} annual exceedance frequency. For the LNP application, the applicant used both GMRS calculation methods and took the horizontal GMRS to be equal to an envelope of the two spectra. The applicant's determination of both horizontal GMRS spectra is shown in FSAR Figure 2.5.2-354. FSAR Table 2.5.2-234 lists the resulting GMRS. To determine the vertical GMRS, the applicant used the vertical to horizontal (V/H) spectral ratios described in FSAR Section 2.5.2.6.4, which were used for the EPRI-SOG calculations as well.

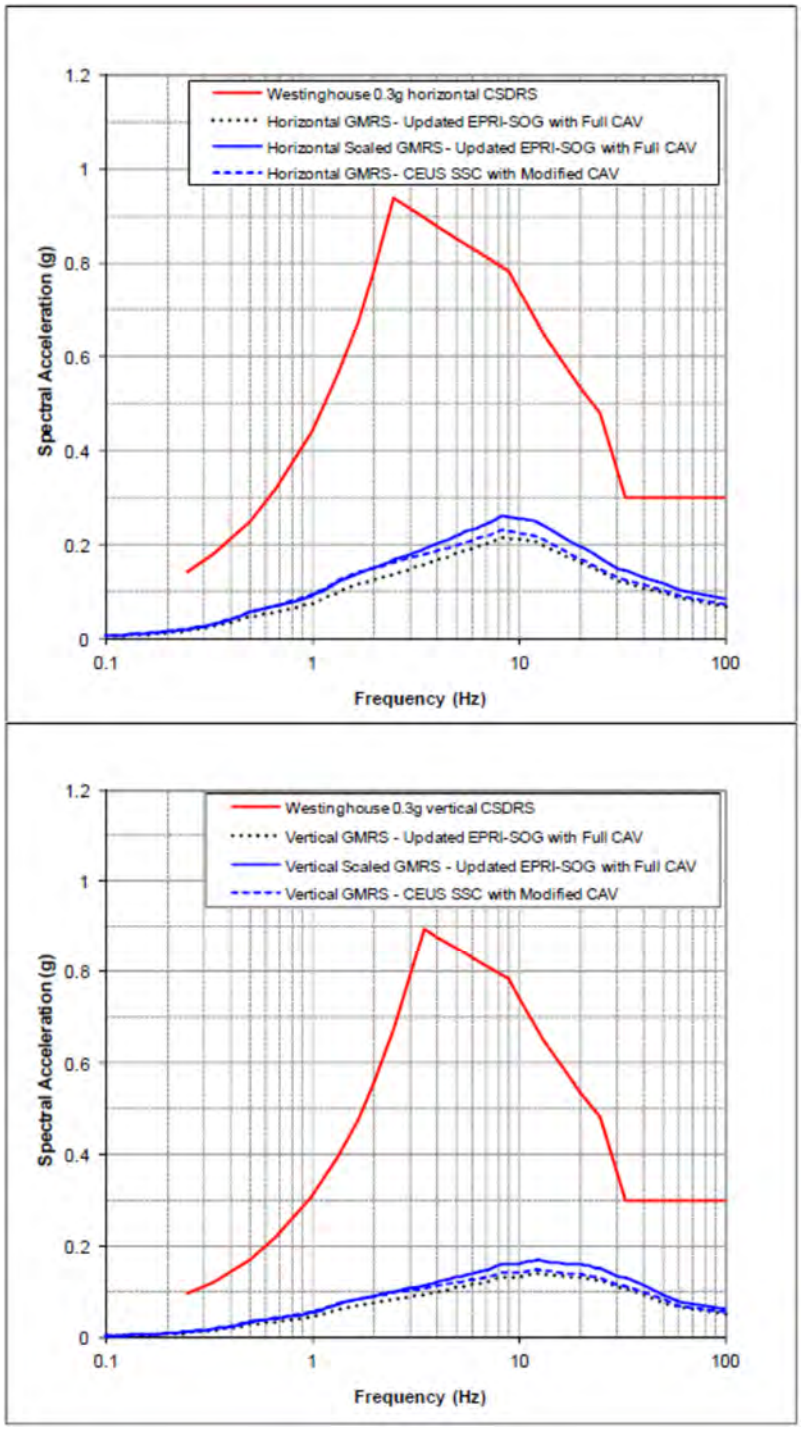

Figure 20.1-11. Comparison of GMRS Based on Updated EPRI-SOG and CEUS SSC Models.
(FSAR Figure 2.5.2-355)

In SER Figure 20.1-11, the horizontal and vertical GMRS using the CEUS SSC model is compared to the GMRS using the updated EPRI-SOG model and the AP1000 certified seismic design response spectra (CSDRS). The applicant presented percent differences between the GMRS in FSAR Table 2.5.2-234. The GMRS based on the CEUS SSC model is enveloped by the GMRS based on the updated EPRI-SOG model, except for frequencies between 0.2 and 2 Hz where the CEUS SSC-based GMRS is up to 4 percent higher. However, the GMRS calculated using the CEUS SSC approach combined with the updated CAV filter methodology resulted in higher amplitudes of response spectra than calculations based on the EPRI-SOG approach combined with the original CAV filter application presented in the LNP COL revisions 1 through 4. To address this issue, the applicant revised the original GMRS calculations presented in LNP COL revisions 1 through 4 by applying a 1.212 scaling factor to the original GMRS. This scaled GMRS is presented in Section 2.5.2.6 of FSAR Revision 5 in the LNP COL application and is described in SER Section 2.5.2.6. The 1.212 scaling factor is consistent with the scaling factor applied to the foundation input response spectra (FIRS) in compliance with the 10 CFR Part 50, Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants," requirement that the horizontal component of the FIRS in the free-field at the foundation level of the structure be an appropriate response spectrum with a minimum PGA of 0.1g.

The staff reviewed the applicant's calculation of the GMRS. Based on the similarity of the spectral shapes of the UHRS calculations using the CEUS SSC model and the updated EPRI-SOG model (SER Figure 20.1-9) and the similarity of the UHRS deaggregation results (SER Figure 20.1-10), the staff concludes that it is not necessary for the applicant to recalculate the LNP site amplification functions. The staff also concludes that the previously developed site amplification functions are appropriate for use with the CEUS SSC calculations.

Because the applicant followed staff guidance on updating the implementation of the CAV filter, and the results are consistent with the staff's expectation of an increase in ground motion caused by the changes in CAV methodology, the staff concludes that the applicant adequately calculated the GMRS regarding the implementation of CAV. Since the applicant calculated the horizontal GMRS consistent with RG 1.208 and took the maximum result from the two methods described in RG 1.208, the staff concludes that the applicant calculated the horizontal GMRS using the CEUS SSC model correctly and conservatively. The staff concludes that the applicant correctly calculated the vertical GMRS using the methods consistent with RG 1.208. The staff does not consider the approximately 4 percent difference between 0.2 to 2 Hz of the CEUS SSC GMRS to the updated EPRI-SOG GMRS to be a significant difference. The staff considers a 4 percent difference to be well within the accuracy of the PSHA and site response analyses. The applicant chose to scale its GMRS based on the updated EPRI-SOG model by a factor of 1.212. As a result, the CEUS SSC GMRS is mainly below the updated EPRI-SOG GMRS described in FSAR Section 2.5.2.6. Finally, since the applicant scaled up the GMRS, the staff concludes that a further update to the LNP site-specific GMRS is not needed and that the GMRS calculated using the updated EPRI-SOG model in FSAR Section 2.5.2.6 adequately characterizes the ground motion at the LNP site.

20.1.4.5 CEUS SSC Liquefaction Potential Evaluation

To evaluate the seismic hazard at the LNP site against the new hazard calculation requested by NRC RAI Letter 108, the applicant provided a liquefaction potential assessment using CEUS SSC in its FSAR Section 2.5.4.8.7. Because the soil under the nuclear island will be excavated and backfilled with roller-compacted concrete (RCC), the applicant only performed the LNP site-specific liquefaction analysis for soil beyond the nuclear island perimeter. Regarding the liquefaction potential of soils under the adjacent annex, turbine, and radwaste buildings, the applicant stated that for the ground motion PGA at finished grade elevation (+51 ft. NAVD88) for the performance based surface response spectra (PBSRS) soil profile computed without CAV and using the CEUS SSC model is 0.091g. This value is less than the corresponding 0.118g PGA computed without CAV and using the updated EPRI-SOG model. Therefore, the applicant concluded that the liquefaction evaluations based on the updated EPRI-SOG LNP ground motions bound those from the CEUS SSC ground motions.

The staff reviewed FSAR Section 2.5.4.8.7, associated FSAR Sections 2.5.2 and 2.5.4, and the applicant's response to NRC RAI Letter No. 108 (ADAMS Accession No. ML122230155). The staff noted that the soil profiles used to develop the PBSRS were based on the statistics of the iterated soil properties for the randomized site profiles. Earthquake-induced cyclic stresses in the soil column were based on ground motions computed for the PBSRS profile using the updated EPRI-SOG model. The staff also checked the corresponding PGAs at the GMRS elevation (elevation +36 ft. NAVD88) and at the base of the excavation (elevation -24 ft. NAVD88) to confirm that the PGA values from the updated EPRI-SOG source model at these elevations also envelop the PGA values from the CEUS SSC model. The staff verified that PGA values computed from the updated EPRI-SOG source model are 0.092g and 0.071g at the GMRS elevation and the base of the excavation, respectively, which are greater than the PGA values of 0.070g and 0.054g calculated by the CEUS SSC model at the same elevations.

RG 1.198, "Procedures and Criteria for Accessing Seismic Soil Liquefaction at Nuclear Power Sites," provides guidance on assessing soil liquefaction potential under seismic loading at nuclear power plant sites. Soil liquefaction potential can be expressed in terms of a factor of safety (FS) against the occurrence of liquefaction as:

$$FS=CRR/CSR \qquad \text{Equation 20.1-4}$$

where CRR (cyclic resistance ratio) is the available soil resistance to liquefaction, expressed in terms of the cyclic stress required to cause liquefaction, and CSR (cyclic stress ratio) is the cyclic stress generated by the design earthquake.

The staff notes that RG 1.198 endorses the Seed & Idriss/Yond procedure to evaluate soil liquefaction potential. From this method, CSR is proportional to the horizontal PGA at the ground surface that is generated by the earthquake, the ratio of total stress to effective vertical overburden stress, and a stress reduction coefficient depending on its depth below the ground surface. From this calculation it can be deduced that FS is inversely proportional to the horizontal PGA generated by the earthquake. The staff concludes that a higher PGA will result in a lower FS, which is also in agreement with general engineering principles.

Since the PGA values computed from the updated EPRI-SOG source model are greater than the PGA values calculated by the CEUS SSC model at the finished grade, the staff reasonably

concludes that the evaluation of liquefaction susceptibility of soils under the adjacent annex, turbine, and radwaste buildings using the updated EPRI-SOG source model is more conservative in comparison with the evaluation using the CEUS SSC model for this LNP site-specific case. Therefore, detailed reanalysis of the soil liquefaction potential is not necessary for the ground motions using the CEUS SSC model. The detailed technical evaluation of the soil liquefaction potential of soils under the adjacent annex, turbine, and radwaste buildings based on the ground motions using the updated EPRI-SOG model is documented in SER Section 2.5.4.8.

Based upon its review of LNP FSAR Section 2.5.4.8, the staff concludes that the applicant analyzed the liquefaction potential following the guidance of RG 1.198. The staff reviewed the applicant's analysis of PGA values from ground motions estimated by both the updated EPRI-SOG model and the CEUS SSC model, and it confirmed that the horizontal PGA values at the finished grade, ground surface, and excavation elevation computed using the updated EPRI-SOG model are higher than that by the CEUS SSC model, which leads the staff to conclude that the applicant has correctly and conservatively evaluated earthquake-induced cyclic stresses within soils in its liquefaction potential analysis. The staff concludes that the liquefaction evaluations based on the updated EPRI-SOG LNP ground motions bound those from the CEUS SSC ground motions.

20.1.4.6 Structural Seismic Evaluation

In Letter NPD-NRC-2012-029 (ADAMS Accession No. ML122230155), dated August 1, 2012, the applicant provided a response to NRC RAI Letter No. 108. The staff reviewed the applicant's response to evaluate the impact on the safety conclusions described in SER Sections 3.7 and 3.8. For determining the adequacy of the RAI response, the staff considered the applicant's ground motion sensitivity evaluations and their effect on: (1) the nuclear island floor response spectra (FRS), (2) the RCC bridging mat design, and (3) the seismic interaction between the seismic Category I and the adjacent seismic Category II structures.

During the review, the staff applied the guidance of Standard Review Plan (SRP) Sections 3.7 and 3.8, as well as relevant regulatory guides, with references to related industry standards. The staff's technical evaluation is summarized below.

20.1.4.6.1 EPRI-SOG FIRS

The FIRS for the AP1000 standard plant satisfy the applicable regulatory requirements. Appendix S to 10 CFR Part 50 requires that the horizontal component of the FIRS in the free-field at the foundation level of the structure be an appropriate response spectrum with a minimum PGA of 0.1g. SRP Section 3.7 and Interim Staff Guidance (ISG) DC/COL ISG-017, "Interim Staff Guidance on Ensuring Hazard-Consistent Seismic Input for Site Response and Soil Structure Interaction Analyses," provide implementation guidance for satisfying the minimum FIRS requirement.

LNP FSAR Section 3.7.1.1.2, "Foundation Input Response Spectra," describes the development of the LNP site-specific FIRS. This section states that the nuclear island is supported on 10.7 m (35 ft) of RCC over rock formations as described in LNP FSAR Section 2.5.4.5. This FSAR section also states that the FIRS, developed using the updated EPRI-SOG model, were

developed at elevation -7.3 m (-24 ft) and 3.4 m (11 ft) corresponding to the bottom of the bridging mat and basemat foundation elevations, respectively. The basemat foundation FIRS at elevation 3.4 m (11 ft) were amplified (or scaled) to 0.1g PGA for the purpose of meeting the minimum spectrum regulatory requirement. The scaled FIRS at elevations -7.3 m (-24 ft) and 3.4 m (11 ft) are shown on LNP FSAR Figures 3.7-201 and 3.7-205, respectively.

The applicant used the LNP PBSRS to compute the maximum relative displacements of the annex, turbine, and radwaste buildings' drilled shaft foundations and to evaluate the site-specific seismic interaction of these buildings with respect to the nuclear island. LNP FSAR Section 2.5.2.6 describes the development of the PBSRS at the design-grade elevation of 15.5 m (51 ft).

The staff's review found the LNP site-specific FIRS and PBSRS, based on the updated EPRI-SOG model, to be acceptable on the basis that they were performance-based, broad-banded, and anchored to 0.1g PGA. The staff's evaluation of the site-specific LNP FIRS and PBSRS is described in Section 3.7.1 of this SER.

20.1.4.6.2 EPRI-SOG versus CEUS SSC FIRS

In response to NRC RAI Letter No. 108, the applicant compared the FIRS developed using the EPRI-SOG and the CEUS SSC models. The applicant concluded that the site-specific FIRS developed from the updated EPRI-SOG model and scaled to 0.1g PGA envelop the CEUS SSC FIRS. Based on these results, the applicant concluded that the results of the soil-structure interaction analysis presented in Subsections 3.7.2.4 of the LNP FSAR are valid for the LNP site ground motion based on the CEUS SSC model.

The staff reviewed the applicant's FIRS comparisons, shown in LNP FSAR Figure 2.5.2-358 and finds that the CEUS SSC horizontal and vertical FIRS are enveloped by the EPRI-SOG FIRS scaled to meet 10 CFR Part 50, Appendix S, requirements.

The staff also performed a review of the applicant's PBSRS comparisons of surface motions developed using the EPRI-SOG and CEUS SSC models, shown in LNP FSAR Figure 2.5.2-357. The comparison indicated that the PBSRS developed using the scaled EPRI-SOG model envelop the PBSRS developed using the CEUS SSC model. The staff also compared the LNP site-specific FIRS and PBSRS to the AP1000 certified seismic design response spectra (CSDRS) and notes that a significant margin exists to the standard plant CSDRS. On this basis, the staff concludes that the applicant's site-specific soil-structure interaction analysis, reviewed in Section 3.7.2 of this SER, remains valid.

20.1.4.6.3 Consideration of RG 1.60 Minimum FIRS

For the purpose of addressing the latest NRC regulatory guidance (i.e., DC/COL ISG-017, "Interim Staff Guidance on Ensuring Hazard-Consistent Seismic Input for Site Response and Soil Structure Interaction Analyses"), the applicant considered a minimum FIRS at the plant foundation level consistent with the RG 1.60, "Design Response Spectra for Seismic Design of Nuclear Power Plants," spectral shape with a peak ground acceleration of 0.1 g. The staff notes that a response spectrum having the characteristics of a broad-banded RG 1.60 spectrum shape has increased energy in the low-frequency range (<10 Hz), which is of importance in

structural design. The applicant performed a sensitivity study to assess the differences in the FRS at the six key locations using the RG 1.60 FIRS and the scaled site-specific FIRS and compared them to the AP1000 CSDRS FRS. In LNP FSAR Section 3.7.2.4.1.7, the applicant described the approach for assessing the differences between the FRS based on the site-specific FIRS and the RG 1.60 FIRS.

The applicant did not perform a separate soil-structure interaction analysis using the RG 1.60 FIRS as input, but instead scaled the FRS results by appropriate scale factors derived by comparing the ratio of the RG 1.60 FIRS to the site-specific FIRS. LNP FSAR Tables 3.7-203 and 3.7-204 provide a comparison of the horizontal and vertical ratios of the RG 1.60 FIRS to the site-specific FIRS as a function of frequency (1-100 Hz). The applicant scaled the FRS at the six key locations and presented the results in LNP FSAR Table 3.7-205. The scaling was performed for the FRS dominant structural frequencies and considered horizontal and vertical responses (i.e., X, Y, and Z directions). The applicant concluded that despite increases in amplitude for the RG 1.60 FRS, there is additional margin with respect to the AP1000 CSDRS FRS.

The staff reviewed the comparison of the LNP horizontal and vertical site-specific FIRS and the RG 1.60 FIRS presented in LNP FSAR Tables 3.7-203 and 3.7-204, respectively, and finds that the RG 1.60 FIRS exceeds the site-specific FIRS in the frequency range below approximately 6 Hz in the horizontal direction. The maximum exceedance is a factor of approximately 1.60 in the 2.5 Hz range.

The staff reviewed the FRS comparisons in LNP FSAR Table 3.7-205 for predominate frequencies and noted that the maximum exceedance was a factor of 1.43 at three key locations (nodes 1761-X, 2675-Y, and 3329-Y). The predominant frequency for all three locations (in the respective directions) is 3 Hz. The staff compared the LNP FRS at these locations and found the margin to the AP1000 CSDRS FRS to be greater than the factor of 1.43. Based on the information above, the staff concludes that although the RG 1.60 FIRS exceed the site-specific FIRS in the low-frequency range, the corresponding LNP FRS remain enveloped by the AP1000 standard design FRS. On this basis, the staff finds the conclusions regarding the applicant's site-specific analysis, described in Section 3.7.2 of this SER, remain valid. The applicant's consideration of the minimum RG 1.60 FIRS on the RCC bridging mat design and seismic interaction effects are discussed below.

20.1.4.6.4 RCC Bridging Mat Design

The RCC bridging mat is a site-specific seismic Category I structure. The purposes of the RCC bridging mat are to replace the weakly cemented, undifferentiated Tertiary sediments that are present above elevation -7.3 m (-24 ft.) NAVD88, thereby creating a uniform subsurface with increased bearing capacity, and to bridge conservatively postulated karst features. In LNP FSAR Section 3.7.2.4, the applicant stated that the RCC bridging mat is designed for the soft rock site condition considered in the AP1000 standard design. The seismic demands are based on the AP1000 CSDRS, with a PGA of 0.3 g, not on the LNP site-specific demands. Staff evaluation of the RCC bridging mat design is described in Section 3.8 of this SER.

In LNP FSAR Section 3.7.2.4.1.7, the applicant described the approach for assessing the impact of the RG 1.60 minimum spectrum on the RCC bridge mat. The applicant stated that the

conceptual design of the RCC bridging mat is based on a bearing pressure of 8.9 kips per square foot (ksf) for static loading and 24.0 ksf for dynamic loading. In addition, a base shear load of 136,000 kips based on the AP1000 generic analyses was applied at the top of the RCC bridging mat. The static bearing pressure is based on design control document (DCD) Revision 19 Tier 1 Table 5.0.1. The dynamic bearing pressure is the maximum subgrade pressure at the AP1000 basemat that results from the generic AP1000 analysis for soft rock sites. The applicant concluded that because the AP1000 generic site analyses are based on the CSDRS with a 0.3 g PGA, which impose greater seismic demands than the RG 1.60 FIRS with a 0.1 g PGA, the design of the RCC bridging mat is conservative.

The staff compared the LNP FIRS to the AP1000 CSDRS and finds significant margin (more than a factor of 2) between the LNP FIRS and the CSDRS. Accordingly, the staff finds the seismic demands used for the RCC bridging mat design to be conservative for the LNP site and to satisfy the requirements of Appendix S to 10 CFR Part 50. On this basis, the staff finds that the conclusions regarding the RCC bridge mat design, described in Section 3.8 of this SER, remain valid.

20.1.4.6.5 Seismic Category I and Category II Interactions

For the LNP site, the seismic Category II and nonseismic structures adjacent to the nuclear island are supported on drilled shaft foundations. LNP FSAR Section 3.7.2.8 describes the applicant's evaluation of seismic interaction between the nuclear island and adjacent buildings. The LNP PBSRS were used to compute the maximum relative displacements of the annex, turbine, and radwaste buildings' drilled shaft foundations and to evaluate the seismic interaction. The maximum relative displacement calculation included the drilled shaft supported foundation mat displacements, drilled shaft interaction effects, additional displacements caused by soil column displacements, and the nuclear island (NI) displacement at design grade. The staff's evaluation of the seismic interaction between the Category II structures, the nonseismic structures, and the nuclear island is described in Section 3.7 of this SER.

In LNP FSAR Section 3.7.2.8, the applicant assessed the effect of the RG 1.60 FIRS (applied at the surface) on the relative displacements between the seismic Category II structures and the nuclear island. The applicant's analysis showed that the computed maximum displacements between the nuclear island and the adjacent structures were all greater for the site-specific PBSRS. LNP FSAR Table 3.7-206 indicates that the maximum relative displacement is 1.8 cm (0.7 in) and occurs between the seismic Category II portion of the annex building and the nuclear island. The applicant concluded that the maximum relative displacement of 1.8 cm (0.7 in) is less than the design gap of 5.0 cm (2 in) provided in the AP1000 standard plant design.

The staff reviewed the applicant's analysis results provided in LNP FSAR Table 3.7-206 and finds the maximum relative displacements to be less than the AP1000 design gap described in DCD Section 3.8. The staff finds that the information provided by the applicant is sufficient to demonstrate that the seismic gaps, provided in the standard design, are adequate to prevent interaction between the NI and the adjacent structures at the LNP site. On this basis, the staff finds that the conclusions regarding seismic interaction of seismic Category I and non-Category I structures, described in Section 3.8 of this SER, remain valid.

20.1.4.6.6 Conclusions of Structural Seismic Evaluation

The NRC staff has reviewed the applicant's response to NRC RAI Letter No. 108, dated August 1, 2012. Based on the staff's technical evaluation, the staff concludes that:

1. The LNP site-specific soil-structure interaction analysis results are conservatively bounded by the standard plant analysis results and are not affected by the ground motion developed using the CEUS SSC model.

2. The sensitivity study performed for the LNP FRS, which considers a RG 1.60 minimum spectrum, demonstrates that the LNP FRS remain bounded by the CSDRS FRS.

3. The sensitivity study performed by the applicant demonstrates that there is no effect on the analysis results for the site-specific structural features of the LNP plant, including the RCC bridging mat under the nuclear island, the drilled shaft foundation supporting the buildings adjacent to the nuclear island, and the potential seismic interaction between the nuclear island and the adjacent structures.

4. For the seismic Category 1 buildings, the site-specific features such as the RCC bridging mat are designed to support seismic demands consistent with the AP1000 certified design demands, which exceed the site-specific demands at the LNP site with a substantial margin. For the non-seismic Category 1 structures, the site-specific features such as the drilled shaft foundations are designed to support seismic demands consistent with the site-specific demands at the LNP site.

20.1.4.7 Site-Specific Seismic Margins Analysis

20.1.4.7.1 AP1000 Design Seismic Margin

The applicant's evaluation of seismic margin for the LNP site is described in FSAR Section 19.55, "Seismic Margin Analysis." The NRC staff reviewed LNP COL FSAR Section 19.55, which incorporated Section 19.55 of the DCD with no departures or supplements.

The staff review found that the GMRS for the LNP site (presented in LNP COL FSAR Figure 2.5.2-296) are bounded by the CSDRS evaluated in the AP1000 DCD. The PBSRS were developed and are also bounded by those of the certified design. The applicant performed other analyses, including analysis of soil-structure interaction, to confirm that site-specific features did not cause the high confidence in low probability of failure (HCLPF) values reported in the DCD (seismic capacity) to fall below the values developed for the certified design. The staff finds that using the seismic margins analysis (SMA) provided in the DCD is conservative and acceptable for all structures, systems, and components within the scope of the DCD.

The applicant also provided supplemental information on the HCLPF value of the seismic Category I, RCC bridging mat and its effect upon the SMA. The staff found the applicant's evaluation to be consistent with the guidance in DC/COL-ISG-20, and therefore acceptable. The staff's evaluation of the structures, systems, and components within the scope of the DCD and seismic Category I RCC bridge mat is described in Section 19.55 of this SER.

20.1.4.7.2 Fukushima RAI

On March 15, 2012, the staff issued NRC Letter No. 108 requesting additional information concerning the implementation of the Fukushima Near-Term Task Force recommendations, including Recommendation 2.1 regarding reevaluation of seismic hazards. The RAI requested the applicant to evaluate its plant-specific seismic hazards against the current NRC requirements and guidance and, if necessary, update the design basis and structures, systems, and components important to safety to protect against the updated hazards.

In response to RAI Letter No. 108, the applicant compared the FIRS developed using the EPRI-SOG and CEUS SSC methods. The applicant concluded that the site-specific FIRS developed using the EPRI-SOG method and scaled to 0.1 g PGA envelop the FIRS developed using the CEUS SSC method. Based on these results, the applicant concluded that the findings pertaining to seismic margin analysis for the standard plant components, site liquefaction potential, adjacent buildings seismic interaction with the nuclear island, and the RCC bridging mat capacity for the CEUS SCC methodology ground motions are bounded by that for the EPRI-SOG methodology.

The staff performed a review of the applicant's RAI response to assess the impact on the conclusions pertaining to the seismic margin of seismic Category I structures described in Section 19.55 of this SER. The staff also addressed two seismic margin areas that are not addressed in Section 19.55 of this SER; namely site-specific differential displacement of seismic Category II and nonseismic structures and liquefaction potential.

20.1.4.8 Seismic Category I Structures

For the LNP site, the seismic Category I structures are the AP1000 nuclear island and the RCC bridging mat. The purposes of the RCC bridging mat are to replace the weakly cemented, undifferentiated Tertiary sediments that are present above elevation -7.3 m (-24 ft.) NAVD88, thereby creating a uniform subsurface with increased bearing capacity, and to bridge conservatively postulated karst features. In LNP FSAR Section 3.7.2.4, the applicant describes that the RCC bridging mat is designed for the soft rock site considered in the standard design and that the seismic demands are based on the AP1000 CSDRS. Section 3.8 of this SER describes the staff's evaluation of the RCC bridging mat design.

The staff performed a review of the applicant's FIRS comparisons, shown in LNP FSAR Figure 2.5.2-358, and finds that the horizontal and vertical FIRS developed from the CEUS SSC method are enveloped by the FIRS developed from the EPRI-SOG method and scaled to 0.1 g PGA for the full range of frequencies (0.1 to 100 Hz).

The staff also reviewed the applicant's comparisons of GMRS and PBSRS to the AP1000 CSDRS as depicted in LNP FSAR Figures 2.5.2-355 and 2.5.2-357. The staff concludes that the CSDRS demands envelop both the LNP GMRS and PBSRS at all frequencies. On this basis, the staff finds that the conclusions remain valid regarding the LNP seismic margin analysis of seismic Category I structures (as described in Section 19.55 of this SER).

20.1.4.8.1 Seismic Category II and Nonseismic Structures

For the LNP site, the seismic Category II and nonseismic structures adjacent to the nuclear island are supported on drilled-shaft-supported mat foundations. The PBSRS are used to compute the maximum relative displacements of the annex, turbine, and radwaste building foundations and to evaluate the site-specific seismic interaction of these buildings with respect to the nuclear island. LNP FSAR Section 3.7.2.8.4 describes the applicant's analysis of relative building displacements. The applicant's approach involved using input ground motion based on UHRS corresponding to a return period of 1×10^5 years (10^{-5} UHRS).

Based on this input ground motion, the applicant concluded that the maximum relative displacement between the nuclear island and the annex, turbine, and radwaste building foundations was less than 2.54 cm (1 in). The applicant concluded this difference to be less than the design gap of 5.08 cm (2.0 in) specified in DCD Section 3.8.5.

The staff based its review of the applicant's seismic margin assessment of the LNP seismic Category II and nonseismic structures on guidance in DC/COL-ISG-20. DC/COL-ISG-20 states that the plant-specific plant-level HCLPF should be demonstrated to be equal to or greater than 1.67 times the site-specific GMRS (or 1.67 times the site-specific PBSRS in the case of a surface founded structure).

The staff reviewed LNP FSAR Figure 3.7-229, which compares the horizontal 10^{-5} UHRS based on the EPRI-SOG model and LNP PBSRS (multiplied by a factor of 1.67), and found the 10^{-5} UHRS ground motion to envelop the LNP PBSRS in accordance with ISG/COL-ISG-20.

The staff finds the maximum displacement (less than 2.54 cm or 1 in) of the annex, turbine, and radwaste buildings relative to the nuclear island to be less than the AP1000 DCD design gap (5.08 cm or 2.0 in) described in DCD Section 3.8.5. Accordingly, the staff finds that the information provided by the applicant is sufficient to demonstrate that the seismic gaps are adequate to prevent interaction between the nuclear island and the adjacent structures under beyond-design-basis loading. Based on the above, the staff finds the applicant's evaluation of seismic margin of seismic Category II structures to be consistent with the guidance in DC/COL-ISG-20, and therefore acceptable.

20.1.4.8.2 Liquefaction

LNP FSAR Sections 2.5.4.8.4 and 2.5.4.8.5, respectively, describe the LNP site-specific analysis of earthquake-induced cyclic stress within soils considered for liquefaction evaluation computed by the SHAKE program based on the 60 randomized soil profiles used to develop the PBSRS. The staff found the evaluation of liquefaction potential to be consistent with RG 1.198, "Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites," and SRP Section 2.5.4, "Stability of Subsurface Materials and Foundations," and therefore acceptable. The staff's evaluation of these FSAR Sections is described in Section 2.5.4.4.8 of this SER.

DC/COL-ISG-20, "Seismic Margin Analysis for New Reactors Based on Probabilistic Risk Assessment," states that the seismic margin analysis should consider site-specific effects such as soil liquefaction. Soil liquefaction is defined as a fluid-induced loss of soil strength with two

typical failure modes: (1) flow failure, in which the shear strength of the soil drops below the level needed to maintain stability, and (2) cyclic mobility failure (lateral spread). Either failure mode can lead to excessive strains and displacement that could result in unacceptable performance of supported structures, systems, and components.

For the purpose of seismic margins analysis, the applicant also assessed liquefaction potential for ground motions in excess of the site responses corresponding to the GMRS and PBSRS. In LNP FSAR Section 2.5.4.8.7, the applicant stated that the analysis of liquefaction potential of soils under the annex, turbine, and radwaste buildings is based on ground motions consistent with EPRI-SOG 10^{-5} UHRS. The updated EPRI-SOG plant finished grade 10^{-5} UHRS envelops both 1.67 x GMRS and 1.67 x PBSRS developed using the CEUS SSC methodology and modified CAV filter.

The staff reviewed LNP FSAR Figures 3.7-228 and 3.7-229, which compare the LNP horizontal 10^{-5} UHRS with the LNP GMRS multiplied by a factor of 1.67 and the LNP PBSRS multiplied by a factor of 1.67, respectively. This review found the 10^{-5} UHRS ground motion to envelop the LNP 1.67 x GMRS and 1.67 x PBSRS with margin. Based on this finding, the NRC staff concludes that the applicant's assumed ground motion for seismic margin considerations is conservative.

In LNP FSAR Section 2.5.4.8.6, the applicant described sensitivity analysis of the median centered liquefaction potential for 10^{-5} UHRS performed to assess whether the liquefiable zones under LNP 1 and 2 footprints are confined to the northwest corner of the LNP Unit 2 turbine building and in isolated pockets under the remaining LNP Units 1 and 2 footprints. The applicant's method and design parameters were the same as those used for design-basis liquefaction analysis. LNP FSAR Tables 2.5.4.8-203A and 2.5.4.8-203B present the results of the assessment and indicate where liquefaction is postulated. The applicant concluded that the analysis results based on median centered liquefaction potential for updated EPRI-SOG 10^{-5} UHRS are the same as those for the design-basis liquefaction analysis.

The staff based its review of the applicant's median centered liquefaction evaluation for 10^{-5} UHRS on guidance in DC/COL-ISG-20 and RG 1.198. The staff compared the liquefaction analysis results for 10^{-5} UHRS for LNP Units 1 and 2 presented in LNP FSAR Tables 2.5.4.8-203A and 2.5.4.8-203B with the results for design basis for LNP Units 1 and 2 presented in LNP FSAR Tables 2.5.4.8-202A and 2.5.4.8-202B. The staff confirmed that the locations and elevations of hypothesized liquefaction (computed factors of safety against liquefaction, FS $\leq$1.0 for 10^{-5} UHRS sensitivity analysis and FS $\leq$1.1 for design basis) are almost identical. The NRC staff, therefore, concurs that liquefiable zones under the LNP Units 1 and 2 footprints are confined to the northwest corner of the LNP Unit 2 turbine building and in isolated random pockets under the remaining LNP Units 1 and 2 footprints. The staff notes that LNP FSAR Section 2.5.4.8.5 describes design features intended to mitigate the effects of liquefaction below the turbine building. The applicant stated that for the area under the Annex, Turbine, and Radwaste building footprint, in situ soil will be replaced or improved to a depth of approximately 2.1 m (7 ft.) below existing grade (elevation 12.8 m [42 ft.] NAVD88). The plant design grade will be established at elevation 15.5 m (51 ft.) NAVD88 by placing engineered fill above the improved / replaced in situ material. In addition, the earthwork design incorporates horizontal and vertical drains to relieve pore pressure. The staff also notes that the northwest corner of

LNP Unit 2 turbine building is opposite the end of the building with the seismic Category II bay. As such, the effects of localized liquefaction do not affect the analysis of seismic interaction.

Based on the above review, the staff finds the applicant's liquefaction analysis methodology and design parameters to be consistent with ISG-20 and RG 1.198, and therefore acceptable.

20.1.4.8.3. Conclusions for Site-Specific Seismic Margin Evaluation

The NRC staff has reviewed the applicant's response to NRC Letter No. 108 dated August 1, 2012. Based on the staff's technical evaluation of the response, the staff concludes that:

1. The findings regarding the LNP seismic margin analysis of the seismic Category I AP1000 nuclear island structures and the RCC bridging mat, as described in Section 19.55 of this SER, remain valid.

2. The applicant's seismic margin analysis of LNP seismic Category II and nonseismic structures is consistent with the guidance in DC/COL-ISG-20, and therefore is acceptable.

3. The applicant's evaluation of beyond-design-basis liquefaction potential is consistent with the guidance in DC/COL-ISG-20 and RG 1.198, and therefore is acceptable.

20.1.4.8.4 Conclusions on CEUS SSC Sensitivity Evaluation

The NRC staff has reviewed the applicant's response to RAI Letter No. 108 (ADAMS Accession No. ML120550146). Based on the staff's technical evaluation, the staff concludes that:

1. The applicant demonstrated the ability to perform accurate hard rock seismic hazard calculations using the CEUS SSC model by comparing and matching the results of hazard analysis at the seven test site locations described in NUREG-2115.

2. The applicant accurately calculated the LNP site-specific UHRS, GMRS, FIRS, and PBSRS using the CEUS SSC model and, where applicable, implemented the updated CAV filter methodology, as recommended in SECY-12-0025 Enclosure 7, Attachment 1, to Seismic Enclosure 1 (ADAMS Accession No. ML12039A188).

3. The LNP site-specific UHRS, GMRS, FIRS, and PBSRS based on the use of CEUS SSC model are either bounded by those respective spectra calculated by the applicant using the updated EPRI-SOG model, or are within a range of percentage error expected for those calculations. Therefore, it is not necessary for the applicant to update the UHRS, GMRS, FIRS, and PBSRS calculated using the updated EPRI-SOG model.

4. The applicant performed liquefaction potential analysis based on the CEUS SSC ground motion estimates and demonstrated that they are bounded by the EPRI-SOG ground motion estimates. Therefore, the NRC staff concludes that the liquefaction evaluations

in FSAR Section 2.5.4.8 correctly and conservatively estimate earthquake-induced liquefaction potential.

5. The updated site-specific FIRS have no impact on the results and conclusions of the structural seismic evaluations performed by the applicant to demonstrate the adequacy of the AP1000 standard plant at the LNP site. Consequently, the NRC staff concludes that there is reasonable assurance that the requirements of 10 CFR Part 50, Appendix A, GDC 2; 10 CFR Part 50, Appendix S; and 10 CFR Part 52, Appendix D, Section VIII B6, continue to be satisfied.

6. The updated site-specific FIRS have no effect on the results and conclusions of seismic margins evaluations performed by the applicant to demonstrate the adequacy of the AP1000 standard plant at the LNP site. Consequently, the NRC staff concludes that there is reasonable assurance that the requirements, as described in Section 19.55.3 of this SER, continue to be satisfied.

20.1.5 Post Combined License Activities

There are no post COL activities related to this section.

20.1.6 Conclusion

The NRC staff reviewed the information submitted by the applicant in response to SECY-12-0025 regarding seismic hazard reevaluation. The staff confirmed that the applicant has addressed the required information and has adequately evaluated the seismic hazards at the LNP COL site against current NRC requirements and guidance – 10 CFR 100.23; 10 CFR 52.79 (a)(1)(iii); 10 CFR Part 50, Appendix A, GDC 2; Public Law 112-74, Section 402; 10 CFR Part 50, Appendix S; 10 CFR Part 52, Appendix D, Section VIII B.6; NUREG-0800, RGs 1.60, 1.132, 1.198, 1.206, 1.208; DC/COL ISG-017; and DC/COL ISG-020.

20.2 Mitigation Strategies for Beyond-Design-Basis External Events (Based on Recommendation 4.2)

20.2.1 Introduction

NRC Commission Paper SECY-12-0025 states that the NRC staff will request all COL applicants to provide the information required by the orders and request for information letters described in SECY-12-0025, as applicable, through the review process. For mitigation strategies for beyond-design-basis external events, SECY-12-0025 outlined a three-phase approach for mitigating beyond-design-basis external events. The initial phase involves the use of installed equipment and resources to maintain or restore core cooling, containment, and SFP cooling without alternating current (ac) power. The transition phase involves providing sufficient, portable, onsite equipment and consumables to maintain or restore these functions until they can be accomplished with resources brought from offsite. The final phase involves obtaining sufficient offsite resources to sustain those functions indefinitely.

SECY-12-0025 notes that the AP1000 standard design (which is incorporated by reference in the LNP COL application) includes passive design features that provide core cooling, containment, and SFP cooling capabilities for 72 hours, without reliance on ac power. The AP1000 design also includes equipment to maintain required safety functions in the long term (beyond 72 hours to 7 days). As such, provisions related to the final phase must be addressed.

NRC Interim Staff Guidance (ISG) JLD-ISG-2012-01, Revision 0 (ADAMS Accession No. ML12229A174), "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," endorses with clarifications, the methodologies described in the industry guidance document, Nuclear Energy Institute (NEI) 12-06 (ADAMS Accession No. ML12242A378), "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0. JLD-ISG-2012-01 describes an acceptable approach for developing mitigation strategies for beyond-design-basis external events at nuclear power plants based on the guidance in NEI 12-06.

20.2.2 Summary of Application

The LNP Final Safety Analysis Report (FSAR) provides information on systems used to establish and sustain core cooling, containment, and SFP cooling capabilities for the LNP. For example, Section 6.3, "Passive Core Cooling System," of the FSAR discusses the passive core cooling system (PXS), which provides emergency core cooling following postulated design-basis events, and incorporates by reference Section 6.3 of the AP1000 DCD Tier 2 with identified departures and supplements. FSAR Section 6.2, "Containment Systems," and Section 9.1, "Fuel Storage and Handling," address containment systems and fuel storage and handling systems, respectively, and incorporate by reference Section 6.2.2, "Passive Containment Cooling System," and Section 9.1.3, "Spent Fuel Pool Cooling System," of the AP1000 DCD Tier 2.

In SECY-12-0025, the NRC staff indicated its intent to review information provided by COL applicants to describe their mitigation strategies for beyond-design-basis external events. In light of SECY-12-0025, the staff issued RAI Letter No. 108, dated March 15, 2012, to request information regarding the LNP mitigation strategies to sustain core cooling, containment, and SFP cooling capabilities functions indefinitely.

The applicant provided an initial response to the RAI in a letter dated September 27, 2012 (ADAMS Accession No. ML12272A318). In its initial response, the LNP COL applicant proposed a license condition related to mitigation strategies for beyond-design-basis conditions resulting from an extended loss of ac power and loss of access to the normal heat sink (referred to below as an ELAP event). Subsequent to that response, the applicant provided the NRC staff with the general mitigation strategy that will be used by LNP, including the strategies for initial (0 to 72 hours) mitigation, in a letter dated April 22, 2015 (ADAMS Accession No. ML15114A359). The letter, which was Supplement 9 to the LNP response to RAI Letter No. 108, provided the staff with a Westinghouse report (designated as APP-GW-GLR-171,

"AP1000 Flex Integrated Plan," for the publicly available version) that included a description of the mitigating strategies for beyond-design-basis external events that will be applied at LNP.

In Item 12, "Fukushima Response Actions," of Part 10, "Proposed License Conditions (including inspection, test, analysis, and acceptance criteria (ITAAC))," of the LNP COL application, the applicant proposed a license condition related to this subject.

20.2.3 Regulatory Basis

The requirements and guidance for mitigation strategies for beyond-design-basis external events are established or described in the following:

- Atomic Energy Act of 1954, as amended, § 161, authorizes the Commission to regulate the utilization of special nuclear material in a manner that is protective of public health and in accord with the common defense and security.

- 10 CFR 52.97(a)(1), which authorizes the Commission to issue a COL if it finds, among other things, that issuance of the license will not be inimical to the health and safety of the public. This regulation applies here because the Commission found in Order EA-12-049 that it is necessary for power reactor licensees to develop, implement and maintain guidance and strategies to restore or maintain core cooling, containment, and SFP cooling capabilities in the event of a beyond-design-basis external event in order to ensure adequate protection of the public health and safety.

- SRM-SECY-12-0025, "Staff Requirements – SECY-12-0025 – Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," dated March 9, 2012, approves issuance of orders for beyond-design-basis external events, as necessary for ensuring continued adequate protection under the 10 CFR 50.109(a)(4)(ii) exception to the Backfit Rule.

- JLD-ISG-2012-01, Revision 0, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," issued August 29, 2012, endorses NEI 12-06, Revision 0, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide" (issued August 21, 2012), with exceptions/clarifications.

- Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012. Although Order EA-12-049 does not apply to LNP Units 1 and 2, the staff followed the current NRC and industry guidance for establishing mitigation strategies for beyond-design-basis external events at AP1000 reactors in evaluating the equipment used as part of the mitigation strategy for LNP Units 1 and 2.

20.2.4 Technical Evaluation

The NRC staff reviewed the information submitted by the LNP COL applicant regarding its proposed mitigation strategies for beyond-design-basis conditions resulting from an ELAP event. To assess whether the proposed mitigation strategies provided an acceptable approach, the staff applied JLD-ISG-2012-01, Revision 0, which endorses, with clarifications, the methodologies described in industry guidance document NEI 12-06, Revision 0. Appendix F, "Guidance for AP1000 Design," to NEI 12-06 outlines the process to be used by AP1000 COL licensees and applicants to define and implement the mitigation strategies for beyond-design-basis conditions resulting from an ELAP event.

In Section 7.0, "Guidance for AP1000 Design," of JLD-ISG-2012-01, the NRC staff states that the guidance in Appendix F of NEI 12-06 provides an acceptable means to meet the requirements of Order EA-12-049 or license conditions imposing similar requirements for the AP1000 reactor design. Appendix F to NEI 12-06 specifies that the underlying strategies for coping with ELAP events for AP1000 plants involve a three-phase approach as follows:

1. Initial coping through installed plant equipment without ac power or makeup to the ultimate heat sink. From 0 to 72 hours, the certified AP1000 design includes passive systems that provide core cooling, containment, and SFP cooling.

2. Following the 72-hour passive system coping time, support is necessary to continue passive system cooling. From 3 to 7 days, this support can be provided by installed plant ancillary equipment or by offsite equipment installed to connections provided in the AP1000 design.

3. To extend the passive system cooling time beyond 7 days to an indefinite time, offsite assistance is necessary, such as the delivery of diesel fuel oil. Appendix F includes provisions related to the qualification and use of equipment intended to mitigate an ELAP event.

As mentioned in Appendix F to NEI 12-06, APP-GW-GLR-171, referenced above, indicates that core cooling, containment, and SFP cooling is provided for the initial time period of 0 to 72 hours through installed, safety-related plant equipment that is part of the certified design. These systems do not rely on ac power or on access to any external water sources, because the containment vessel and the passive containment cooling system serve as the safety-related ultimate heat sink. The NRC staff reviewed and found acceptable the site-specific functional design, qualification, and inservice testing program descriptions for this safety-related equipment for LNP Units 1 and 2 as discussed in the applicable sections of this report.

Following the initial 72-hour coping period, APP-GW-GLR-171 indicates that support is necessary to continue passive system cooling, and this support can be provided by installed ancillary equipment or by offsite equipment interfacing with installed plant connections. For example, additional inventory for the passive containment cooling system (PCS) and SFP can be supplied from the onsite passive containment cooling ancillary water storage tank (PCCAWST) using the onsite PCS recirculation pumps, powered using the onsite ancillary diesel generators or offsite replacement generators. The installed ancillary equipment and stored cooling water are capable of supporting passive system cooling from 3 days after the

event to 7 days after the event. Beyond this time period, the report indicates that offsite assistance and resources are needed. For indefinite coping after 7 days, an offsite pump (PCCAWST makeup pump) and appropriate connection materials to refill the PCCAWST from the closest water source will be provided. In the event that the PCS recirculation pumps are unavailable, a second self-powered, offsite pump (PCS/SFP makeup pump) and appropriate connection materials will be available.

APP-GW-GLR-171 also includes several additional provisions related to the qualification and use of commercially procured equipment that will be used 72 hours after an ELAP event:

- Programmatic controls for this equipment include quality attributes, equipment design, equipment storage, procedure guidance, maintenance, testing, training, staffing, and configuration control.

- The quality assurance (QA) provisions in AP1000 DCD Tier 2, Table 17-1, "Quality Assurance Program Requirements for Systems, Structures, and Components Important to Investment Protection," will be applied to this AP1000 FLEX equipment.

- The graded approach to availability and testing as shown in AP1000 DCD Tier 2, Section 16.3, "Investment Protection," will be applied to the FLEX equipment.

- The design and maintenance of the FLEX equipment will be in accordance with Section 11.2, "Equipment Design," and Section 11.5, "Maintenance and Testing," respectively, of NEI 12-06.

- AP1000 DCD Tier 2, Section 1.9.5.4, "Additional Licensing Issue – Post-72 Hour Support Actions," describes procedures that address actions that would be necessary 72 hours subsequent to an ELAP event to maintain core, containment, and SFP cooling for an indefinite period of time.

The NRC staff reviewed the applicable sections of the LNP FSAR, along with their respective AP1000 DCD sections, the final safety evaluation report (FSER) for the AP1000 design certification, and other sections of this report to verify the above information. For example, Table 8.1-201, "Site-Specific Guidelines for Electric Power Systems," in the LNP FSAR indicates that station blackout is addressed as a design issue in the AP1000 DCD. The staff reviewed station blackout as part of its review of Chapter 8 of the AP1000 DCD Tier 2. Section 8.5.2.1, "Station Blackout," of the AP1000 FSER states that the AP1000 safety-related passive systems automatically establish and maintain safe-shutdown conditions for the plant following design-basis events, including the loss of ac power sources, and the passive systems can maintain these safe-shutdown conditions after design-basis events for 72 hours, without operator action, following a loss of both onsite and offsite ac power sources. The staff reviewed the applicability of this FSER conclusion to LNP.

Section 8.3.2, "Direct Current Power and Uninterruptible Power Systems" of the AP1000 FSER, Supplement 2, states that Class 1E batteries will be sized adequately to perform their safety functions as designed and that ITAAC verifying that the batteries are adequately designed are identified in AP1000 DCD Tier 1, Table 2.6.3-3. APP-GW-GLR-171 discusses the connections

for the onsite ancillary diesel generators and the offsite portable generators. Electrical isolation between safety related power systems and power sources utilized in Phase 3 is addressed in APP-GW-GLR-171, which states that voltage regulating transformers are the connection point for the offsite portable generators. Section 8.3.2, "Direct Current Systems" of this document discusses how the voltage regulating transformer in combination with fuses and/or breakers will interrupt the input or output (ac) current under faulted conditions to achieve electrical isolation. As part of the license condition, part (c), as set forth in Section 20.2.5 of this SER, the capacity of the offsite portable generators will be assessed by DEF to ensure they are capable of providing power to the necessary loads described in AP1000 DCD Tier 2 Table 8.3.1-4, "Post-72 hours nominal load requirements." Section 9.5.3 of this document addresses plant lighting systems, specifically emergency lighting which provides illumination in areas where emergency operations are performed.

Emergency core cooling for the LNP is accomplished using the AP1000 PXS, which is described in Section 6.3 of the AP1000 DCD Tier 2. The LNP FSAR specifies that Section 6.3 of the AP1000 DCD Tier 2 was incorporated by reference with identified departures. The staff reviewed LNP FSAR Section 6.3, and found that the departures have no impact on the capability of the PXS to establish and maintain safe-shutdown conditions for 72 hours following a loss of both onsite and offsite ac power sources. Therefore, core cooling for the initial phase (0 to 72 hours) of mitigation for LNP will be accomplished by its safety-related PXS, per the LNP licensing basis.

The mitigation of a station blackout, as required by 10 CFR 50.63, addresses the capability of a nuclear power plant to provide adequate core cooling during a loss of ac power. In addition to core cooling, the recommendations for mitigation strategies for beyond-design-basis external events also address containment function, and SFP cooling.

The control of containment pressure and temperature for LNP is accomplished using the AP1000 PCS, which is described in Section 6.2.2, "Passive Containment Cooling System," of the AP1000 DCD Tier 2. In its review of the LNP FSAR, the staff found, with the exception of a departure related to the containment leak rate test program, that Section 6.2.2 of the AP1000 DCD Tier 2 was incorporated by reference into the LNP FSAR. In Section 6.2.2 of the AP1000 FSER, the staff stated the principal design basis for the PCS is to maintain the containment internal pressure below the design value for 3 days following a design-basis accident. The staff review, as documented in Section 6.2.1.1, "Containment Pressure and Temperature Response to High-Energy Line Breaks," of the AP1000 FSER, found that the PCS met its design objectives. Therefore, the containment function for the initial phase of (0 to 72 hours) mitigation for LNP will be accomplished by its safety-related PCS per the LNP licensing basis.

The SFP cooling function for the LNP is accomplished by maintaining sufficient water inventory in the SFP to keep the fuel covered and, therefore, provide the necessary cooling in the event of an extended loss of SFP cooling due to the loss of ac power. In Section 9.1.3.2.3, "Increase in Number of Spent Fuel Storage Locations," in Supplement 2 of the AP1000 FSER, the staff concluded that the SFP will maintain water coverage above the spent fuel assemblies for at least 72 hours following a loss of nonsafety-related SFP cooling, using only safety-related makeup water. Therefore, initial phase mitigation is accomplished through passive means. However, as indicated in Note 9 in the DCD Tier 2 Table 9.1-4, "Station Blackout/Seismic Event

Times," for the most limiting scenario (full core offload) operator action must occur at approximately 18 hours after the event. In Attachment 1, "Sequence of Events Timeline," to the AP1000 FLEX integrated plan, this action has been identified and the appropriate procedure cited to assure the task is performed. Hence, SFP cooling for the initial phase (0 to 72 hours) of mitigation for LNP will be accomplished by passive cooling of the SFP in accordance with the LNP licensing basis.

The NRC staff has reviewed the mitigation strategies for beyond-design-basis external events for LNP based on the information provided by the LNP COL applicant, including referenced mitigation guidance for beyond-design-basis external events applicable to AP1000 reactors. The staff finds that the LNP COL applicant has provided or referenced information to describe its mitigation strategies for beyond-design-basis external events in an acceptable manner. The staff recognizes that full implementation of the mitigation strategies for beyond-design-basis external events at AP1000 reactors cannot be established until after licensing (e.g., during procedure development). The staff prepared a license condition for implementation of the mitigation strategies for beyond-design-basis external events at LNP Units 1 and 2, based on the applicant's proposed license condition with specific enhancements to provide consistency with current NRC staff expectations. Completion of the activities associated with the license condition, including lessons learned from initial AP1000 implementation, can be verified through NRC inspection activities.

20.2.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff proposes to include the following license condition related to the mitigation strategies program:

> License Condition (20-1) – Mitigation Strategies for Beyond-Design-Basis External Events:
>
> a. The Licensee 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).
>
> b. 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).
>
> c. 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.

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

   1. Procedures;

   2. Training;

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

   4. 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.

e. The training required by condition d.2 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.

f. 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 condition a. 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 conditions b and c continue to be satisfied and the Licensee documents the evaluation in an auditable form.

20.2.6 Conclusion

The NRC staff reviewed the mitigating strategies for LNP to provide assurance of core cooling, containment, and SFP cooling capabilities in the event of a beyond-design-basis external event resulting in an ELAP event. The staff finds that the approach for mitigating beyond-design-basis external events to be used at LNP is consistent with NRC Order EA-12-049 and both general and AP1000-specific NRC guidance (including NEI 12-06, Appendix F, as endorsed by the NRC staff). Therefore, the staff concludes that the mitigating strategies for beyond-design-basis external events described for LNP are acceptable. The staff will impose a license condition as discussed in this SER section to verify the implementation of the mitigation strategies for beyond-design-basis external events at LNP Units 1 and 2 as described in the specified documentation.

20.3 Reliable Spent Fuel Pool Instrumentation (Based on Recommendation 7.1)

20.3.1 Introduction

During the events in Fukushima, responders were without reliable instrumentation to determine the water level in the spent fuel pool (SFP). This caused concerns that the pool may have boiled dry, resulting in fuel damage, and highlighted the need for reliable SFP instrumentation. The SFP level instrumentation at United States (U.S.) nuclear power plants is typically narrow range and, therefore, only capable of monitoring normal and slightly off-normal conditions. Although the likelihood of a catastrophic event affecting nuclear power plants and the associated SFPs in the U.S. remains very low, beyond-design-basis external events could challenge the ability of existing spent fuel pool instrumentation in providing emergency responders with reliable information on the condition of SFPs. Reliable and available indication is essential to ensure plant personnel can effectively prioritize emergency actions.

SECY-12-0025, Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami" states that the staff will request all combined license (COL) applicants to provide the information required by the orders and request for information letters described in SECY-12-0025, as applicable, through the review process. With regard to Recommendation 7.1 for reliable spent fuel pool instrumentation, SECY-12-0025 notes that the AP1000 standard design includes two permanently fixed safety related level instruments with the capability for a third instrument connection.

JLD-ISG-2012-03, Revision 0, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation," (ADAMS Accession No. ML12221A339), endorses with exceptions and clarifications the methodologies described in the industry guidance document, NEI 12-02, Revision 1, "Industry Guidance for Compliance with Nuclear Regulatory Commission (NRC) Order EA-12-051, To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," (ADAMS Accession No. ML122400399) and provides an acceptable approach for satisfying the applicable requirements.

20.3.2 Summary of Application

The NRC issued RAI Letter No. 108 dated March 15, 2012, concerning spent fuel pool instrumentation. The applicant responded to the staff's RAI in letters dated April 25, June 19, August 1, September 27, October 15, and October 31, 2012, and January 18 (ADAMS Accession No. ML130230378), April 5, and May 13, 2013. As part of the RAI response, the applicant submitted a Westinghouse report, APP-SFS-M3R-004, "Response to NRC Orders EA-12-051 and EA-12-063 and Background Information for Future Licensees on AP1000 Spent Fuel Instrumentation." The RAI responses also proposed adding supplemental information to the final safety analysis report (FSAR) and proposed a license condition.

Supplemental Information

- LNP SUP 9.1-1

The applicant provided supplemental information LNP SUP 9.1-1 addressing spent fuel pool instrumentation in FSAR Section 9.1.3.7.

License Condition

- Part 10, License Condition 12.B

The applicant proposed a license condition related to personnel training for reliable spent fuel pool level instrumentation to Part 10 of the COL application.

20.3.3 Regulatory Basis and Guidance

The requirements and guidance for reliable spent fuel pool instrumentation are established or described in the following:

- SRM-SECY-12-0025, "Staff Requirements – SECY-12-0025 – Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," dated March 9, 2012, approves issuance of orders for reliable spent fuel pool instrumentation under an administrative exemption to the Backfit Rule and the issue finality requirements in 10 CFR 52.63 and 10 CFR Part 52, Appendix D, Paragraph VIII.

- Atomic Energy Act of 1954, as amended, (the Act), § 161, authorizes the Commission to regulate the utilization of special nuclear material in a manner that is protective of public health and in accord with the common defense and security.

- JLD-ISG-2012-03, Revision 0, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation," issued August 29, 2012, endorses NEI 12-02, Revision 1, "Industry Guidance for Compliance with NRC Order EA-12-051, To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," with exceptions and clarifications.

20.3.4 Technical Evaluation

In light of the SECY-12-0025, the staff issued RAI Letter No. 108 requesting additional information in relation to the lessons learned from the Great Tohoku Earthquake and Tsunami. In RAI Letter No. 108, Question 1.5-1, third bullet, the staff requested the applicant to:

- Provide sufficient reliable instrumentation, able to withstand design-basis natural phenomena, to monitor key spent fuel pool parameters (i.e., water level, temperature, and area radiation levels) from the control room (detailed Recommendation 7.1 - Enclosure 6 of SECY-12-0025).

Out of these parameters, the most indicative of SFP conditions is the water level. The radiation monitors are used to confirm the integrity of the stored fuel, but cannot be used to determine how much time remains before the fuel integrity is compromised. The SFP water temperature can be used to monitor SFP water temperature from normal range up to boiling temperature. After the SFP water reaches the boiling point it will remain constant while the pool boils dry, therefore, water temperature cannot be used to determine how much time remains before the fuel integrity is compromised. SFP water level is the most useful parameter to indicate SFP condition. The water stored in the pool provides spent fuel cooling and radiation shielding for the operators on the SFP deck. Therefore, the SFP water level can be used to determine how much time remains before the fuel integrity is compromised.

In Commission Order EA-12-051, the Commission describes the key parameters used to determine that a level instrument is to be considered reliable. NEI 12-02, Appendix A4, "AP1000 Spent Fuel Pool Instrumentation Guidance," provides an AP1000-specific acceptable approach for satisfying the applicable requirements. In order to address the staff's RAI, the applicant submitted a series of letters that discussed how the Levy SFP level instrument is designed to be reliable, following the guidance provided in NEI 12-02, Appendix A4, and the applicant added supplemental information LNP SUP 9.1-1 to Section 9.1.3.7 of the FSAR.

Arrangement:

Commission Order EA-12-051, Attachment 2, Section 1.1 states that the spent fuel pool level instrument channels shall be arranged in a manner that provides reasonable protection of the level indication function against missiles that may result from damage to the structure over the spent fuel pool. This protection may be provided by locating the safety-related instruments to maintain instrument channel separation within the spent fuel pool area, and to utilize inherent shielding from missiles provided by existing recesses and corners in the spent fuel pool structure.

The applicant's response states that the AP1000 design has three safety-related SFP level instrument channels (AP1000 DCD Revision 19, Table 7.5-1 (Sheet 7 of 12)). All three channels and associated instrument tubing lines are located below the fuel handling area operating deck and the cask washdown pit as stated in the supplemental information LNP SUP 9.1-1 added to LNP FSAR Section 9.1.3.7. This location provides level indication function protection from missiles that may result from damage to the structure over the spent fuel pool. In addition, the SFP level instruments associated with protection and safety monitoring system (PMS) Divisions A and C are physically separated from the SFP instrument associated with PMS Division B as stated in the supplemental information added to the LNP FSAR Section 9.1.3.7.

The staff evaluated the instrument description provided in the DCD and the proposed supplemental information added to LNP FSAR Section 9.1.3.7 and determined that the SFP level instrument will be arranged in a manner that provides reasonable protection against missiles, and therefore, the staff concludes that these features are in conformance with Commission Order EA-12-051, and the guidance provided by JLD-ISG-2012-03.

Qualification:

Commission Order EA-12-051, Attachment 2, Section 1.2 states that the level instrument channels shall be reliable at temperature, humidity, and radiation levels consistent with the spent fuel pool water at saturation conditions for an extended period.

The applicant's response states that the three safety-related SFP level instruments are seismically qualified and are located below the fuel handling area operating deck (AP1000 DCD Revision 19, Section 9.1.3.4.3.4 and Table 7.5-1 (Sheet 7 of 12)).[2] The environment in these areas is mild with respect to safety-related equipment qualification and affords access for post-accident actions. Even though they are not directly exposed to SFP boiling, the instruments are qualified to function at the conditions (temperature, humidity, and radiation) that could be seen where these instruments are located. This provides assurance that the SFP level transmitters exposed to these environmental conditions will remain available and functional for an extended period.

The staff reviewed the applicant's response and concludes that since the SFP level transmitters are not located on the pool area, they are not required to be designed to handle the pool area conditions. However, they must be designed to remain operational under the worst expected conditions for the area in which they are located. The AP1000 DCD does state that the instruments are designed to remain functional at the expected local conditions; therefore, the staff concludes that these features are in conformance with Commission Order EA-12-051, and the guidance provided by JLD-ISG-2012-03.

Power Sources:

Commission Order EA-12-051, Attachment 2, Section 1.3 states that the instrumentation channels shall provide for power connections from sources independent of the plant ac and direct current (dc) power distribution systems, such as portable generators or replaceable batteries. Power supply designs should provide for quick and accessible connection of sources independent of the plant ac and dc power distribution systems. Onsite generators used as an alternate power source and replaceable batteries used for instrument channel power shall have sufficient capacity to maintain the level indication function until offsite resource availability is reasonably assured.

The applicant's response states that the AP1000 SFP level instruments are provided with Class 1E DC power supply for at least 72 hours of post-accident monitoring. One of these safety-related instruments is powered through PMS Division A which contains a 24-hour battery supply. The safety-related SFP level instrument PMS divisions are described in the supplemental information (LNP SUP 9.1-1) added to the LNP FSAR Section 9.1.3.7. A description of the AP1000 Class 1E DC and UPS system is contained in AP1000 DCD Revision 19, Section 8.3.2.1.1. Beyond the initial 72 hours, instrument power can be supplied by the use of onsite permanently installed ancillary diesel generators or offsite portable generators with quick and accessible connection points. Permanently installed onsite ancillary diesel generators are capable of providing power for Class 1E post-accident monitoring

[2] The RAI responses for this topic discuss a departure from the AP1000 DCD related to environmental zones for the level instruments. The departure is evaluated in FSER section 3.11.4

including SFP level instrumentation. This capability is described in Westinghouse AP1000 DCD Revision 19, Section 8.3.1.1.1. As described in Westinghouse AP1000 DCD Revision 19, Section 1.9.5.4, offsite portable generators are capable of being connected to distribution panels or to a safety-related connection.

As discussed in the applicant's response and as described in the AP1000 DCD, the safety related power distribution system has the capability of using portable generators to power safety related distribution panels, which power the level instruments. These panels are Seismic Category I and designed to remain operational following a safe shutdown earthquake. Based on the system description, the staff concludes that these design features are in conformance with Commission Order EA-12-051, and the guidance provided by JLD-ISG-2012-03.

Accuracy:

Commission Order EA-12-051, Attachment 2, Section 1.4 states that the instrument shall maintain its designed accuracy following a power interruption or change in power source without recalibration.

The applicant's response states that the measured range of the SFP level by the safety-related instruments is from the top of the SFP to the top of the fuel racks, the level instruments are calibrated at a reference temperature suitable for normal SFP operation and will read conservatively at elevated temperatures, including during boiling conditions. These instruments are calibrated on a regular basis and their accuracy is not affected by power interruptions. All these design features are described in the supplemental information (LNP SUP 9.1-1) added to LNP FSAR Section 9.1.3.7.

Based on the system description provided above, the staff concludes that these design features are in conformance with Commission Order EA-12-051, and the guidance provided by JLD-ISG-2012-03.

Display:

Commission Order EA-12-051, Attachment 2, Section 1.5 states that the display shall provide on-demand or continuous indication of spent fuel pool water level.

The applicant's response states that the safety-related SFP level sensors provide continuous indication of the SFP level to the main control room (MCR) as well as the Remote Shutdown Workstation (RSW) and are included in the Qualified Data Processing System (QDPS) PMS display as indicated in Westinghouse AP1000 DCD Revision 19, Table 7.5-1 (Sheet 7 of 12). Safety-related instrumentation gives an alarm in the MCR when the water level in the SFP reaches the low-low-level setpoint as stated in AP1000 DCD Revision 19, Section 9.1.3.7.D.

Based on the system description provided above, the staff concludes that these design features are in conformance with Commission Order EA-12-051, and the guidance provided by JLD-ISG-2012-03.

License Condition

Commission Order EA-12-051, Attachment 2, Section 2 states that the spent fuel pool instrumentation shall be maintained available and reliable through appropriate development and implementation of a training program. Personnel shall be trained in the use and the provision of alternate power to the safety-related level instrument channels.

The applicant's COLA Part 10 includes License Condition 12.B, which requires the development and implementation of a training program in accordance with the guidance contained in JLD-ISG-2012-03.

The applicant's proposed license condition states:

> B. RELIABLE SPENT FUEL POOL LEVEL INSTRUMENTATION
>
> Prior to initial fuel load, DEF shall fully implement the following requirements for spent fuel pool level indication 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 insure 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.

The proposed license condition is consistent with the guidance provided in JLD-ISG-2012-03, and is intended to ensure that the operators will be properly trained in the adequate equipment maintenance procedures and the proper operational procedures in order to establish the necessary alternate power connections. Based on this, the staff concludes that the proposed license condition is acceptable because the development and implementation of a training program is consistent with Commission Order EA-12-051 and the guidance provided by JLD-ISG-2012-03.

20.3.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff proposes to include the following license condition related to development and implementation of a training program:

- License Condition (20-2) – Prior to initial fuel load, the Licensee shall 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.

20.3.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to SFP instrument reliability, and there is no outstanding information expected to be addressed in the LNP COL FSAR.

The staff evaluated the applicant's and the AP1000 design description of the SFP water level instrument and determined that the instruments are in accordance with the guidance provided in JLD-ISG-2012-03. Therefore, the staff concludes that the applicant's SFP level instruments are considered reliable, able to withstand design-basis natural phenomena and monitor key spent fuel pool level parameters as described in Commission Order EA-12-051. In addition, the staff concludes that the information presented in the LNP COL FSAR is acceptable because it conforms to the guidance provided in JLD-ISG-2012-03. The staff based its conclusions on the following:

- LNP SUP 9.1-1 is acceptable because, when combined with the information in Table 7.5-1 and Sections 8.3.1.1.1 and 9.1.3.7.D of the AP1000 DCD, it includes provisions for SFP instrumentation arrangement, qualification, power sources, accuracy and display that are consistent with the requirements described in SECY-12-0025 and Commission Order EA-12-051.

- The proposed license condition is acceptable because it provides that, prior to fuel load, the licensee will have in place procedures for the proper maintenance of the level instruments and for the connection and use of an alternate power source in order to power the level instruments.

20.4 Emergency Preparedness (Based on Recommendation 9.3)

20.4.1 Introduction

The accident at Fukushima reinforced the need for effective emergency preparedness, the objective of which is to ensure the capability exists for a licensee (or COL applicant) to implement measures that mitigate the consequences of a radiological emergency and provide for protective actions of the public. The accident at Fukushima highlighted the need to determine and implement the required staff to fill all necessary positions of the emergency organization responding to a multi-unit event with impeded access to the site. Additionally, there is a need to ensure that the communication equipment relied on has adequate power to coordinate the response to an event during an extended loss of ac power.

20.4.2 Summary of Application

In Revision 9 of the LNP Units 1 and 2 COL application, Part 10, the applicant proposed a license condition related to emergency preparedness communications and staffing. The staff's discussion is located in the Technical Evaluation section below.

20.4.3 Regulatory Basis

The requirements and guidance for emergency preparedness for beyond-design-basis external events are established or described in the following:

- 10 CFR 50.47(b)(6) states that provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

- 10 CFR 50.47(b)(1) states, in part: ". . . each principal response organization has staff to respond and to augment its initial response on a continuous basis."

- 10 CFR 50.47(b)(2) states, in part: ". . . adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, . . ."

- 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," Section IV. E. 9. states that adequate provisions shall be made and described for emergency facilities and equipment, including "at least one onsite and one offsite communications system; each system shall have a backup power source."

- SECY-12-0025 states, in part, that the staff will also request all COL applicants to provide the information required by the orders and request for information letters described in this paper, as applicable, through the review process.

- NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0 - By NRC letter from David Skeen, Director, Japan Lessons-Learned Directorate, to NEI, Susan Perkins-Grew, Director, Emergency Preparedness, dated May 15, 2012, NRC finds the guidance in NEI 12-01 to be an acceptable method for licensees to employ when responding to the 10 CFR 50.54(f) letters regarding NTTF Recommendation 9.3.

- NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Section B, Onsite Emergency Organization, states in part:

  > 5. Each licensee shall specify . . . functional areas of emergency activity...These assignments shall cover the emergency functions in Table B-1 entitled, 'Minimum Staffing Requirements for Nuclear Power Plant Emergencies.' The minimum on-shift staffing shall be as indicated in Table B-1. The licensee must be able to augment

> on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1. . .

- NUREG-0696, "Functional Criteria for Emergency Response Facilities," issued February 1981, offers guidance on how to meet the requirements of Appendix E to 10 CFR Part 50 and describes the onsite and offsite communications requirements for the licensee's emergency response facilities.

20.4.4 Technical Evaluation

The NRC issued RAI Letter No. 108 dated March 15, 2012 to the applicant, concerning implementation of the Fukushima NTTF Recommendation 9.3 in the combined license application for LNP Units 1 and 2. In response, the applicant proposed a license condition in Revision 5 of the LNP COL application submitted on July 31, 2012, to address the 10 CFR 50.54(f) request for information letters sent to existing licensees – including COL applicants - regarding communications and staffing for NTTF Recommendation 9.3. This license condition was subsequently revised in Revision 7 of the license application. As part of its proposed license condition, the applicant committed to perform assessments for NTTF Recommendation 9.3 using NEI 12-01, Revision 0. By letter from the NRC to NEI dated May 15, 2012 (ADAMS Accession No. ML1213A043), the NRC stated that the guidance in NEI 12-01, Revision 0, provides an acceptable method for licensees to employ when responding to the 10 CFR 50.54(f) letters regarding NTTF Recommendation 9.3. The applicant proposed the license condition on communications and staffing in License Condition 12, Section C to Part 10 of the COL application. The staff reviewed the applicant's proposed license condition and revised it to reflect the NRC's expectation when addressing NTTF Recommendation 9.3 as stated below in Section 20.4.5 of this SER. The NRC staff has revised the timeframe of the completion of this license condition to be consistent with the schedules provided in 10 CFR 52.99(a) and 10 CFR 52.103(a).

20.4.5 Post Combined License Activities

The license condition language in this section has been clarified from previously considered language. In a letter dated March 22, 2016 (ADAMS Accession No. ML16084A099), the applicant did not identify any concerns with the clarified license condition language. The changes do not affect the staff's above analysis of the conditions, and therefore, for the reasons discussed in the technical evaluation section above, the staff finds the following license conditions acceptable:

- License Condition (20-3) – 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.

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:

(a) Incorporation of corrective actions identified in the staffing assessment required by this license condition; and
(b) Identification of how the augmented staff will be notified, given degraded communications capabilities.

- License Condition (20-4) – 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.

  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.

20.4.6 Conclusion

Based on the staff's review, the staff finds that the license condition, as revised by the staff above, is acceptable because it conforms to the guidance provided in SECY-12-0025 and NEI 12-01 regarding communications and staffing to address NTTF Recommendation 9.3, in NUREG-0654/FEMA-REP-1, and in NUREG-0696, and meets the applicable requirements in 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50.

21.0 DESIGN CHANGES PROPOSED IN ACCORDANCE WITH ISG-11

This safety evaluation report (SER) chapter contains the staff's evaluations of five requests from the Levy Nuclear Plant (LNP) Units 1 and 2 combined license (COL) applicant to depart from the AP1000 certified design referenced in the COL application. The applicant made the requests subsequent to determining that the departures in its COL application involved changes to the application that did not meet the criteria for post-COL deferral identified in Interim Staff Guidance DC/COL-ISG-011, "Finalizing Licensing-Basis Information." The five requests include six departures from the AP1000 certified design. Because each of the requests contains changes to the AP1000 Tier 1 information or technical specifications (TS), exemptions are required, in accordance with Title 10 of the *Code of Federal Regulations* Part 52, Appendix D, Section VIII, in order for the staff to find the departures acceptable. The applicant included exemption requests in its application, and the staff review of each request also appears in this chapter as part of each technical evaluation. The requests address the following five aspects of the AP1000 certified design:

- Passive core cooling system containment condensate return (two departures)
- Main control room (MCR) dose
- MCR Heatup
- Hydrogen Vent Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)
- Neutron Flux Logic Operating Bypass

The staff evaluated each of the departures for impact on the LNP plant-specific probabilistic risk assessment (PRA). None of them have any impact on the quantification of core damage frequency or large release frequency. Only one (the departure relating to the passive core cooling system containment condensate return) resulted in a revision to any PRA-based insight. As discussed in Section 21.1.4 of this SER, this clarification did not alter any staff finding related to AP1000 design certification. The staff finds that the cumulative risk impact of these design changes and departures is acceptable.

21.1 Passive Core Cooling System Containment Condensate Return

21.1.1 Introduction

General Design Criteria (GDC) 34 of Appendix A to 10 CFR Part 50, requires that nuclear power plant designs have a system capable of removing residual heat, such that the decay heat does not exceed design limits for the fuel and pressure boundary. Inherent in this requirement is the need to bring the plant to a safe, stable condition following an anticipated transient. The AP1000 design accomplishes this function via the passive core cooling system (PXS). The PXS is designed to perform the following safety-related functions:

- emergency core decay heat removal
- reactor coolant system (RCS) emergency makeup and boration
- safety injection
- containment sump pH control

In order to support long term decay heat removal in a closed loop configuration, the AP1000 passive core cooling system must achieve a sufficient condensate return rate such that

inventory in the in-containment refueling water storage tank (IRWST) is maintained in order to retain the heat transfer capability of the passive residual heat removal (PRHR) heat exchanger (HX). Water is steamed from the IRWST during transients that require the PRHR HX to remove decay heat from the RCS. The steam that reaches the containment shell condenses and returns to the IRWST through a gutter system. LNP DEP 3.2-1, a departure from the AP1000 design control document (DCD) requested by the applicant and reviewed below, proposes design changes to increase the fraction of condensate return to the IRWST and quantifies the condensate losses associated with the pressurization of the containment atmosphere, condensation on heat sinks within the containment, and from dripping or splashing from structures and components attached to the containment shell. LNP DEP 6.3-1, another departure reviewed below, makes further changes to the final safety analysis report (FSAR) supporting the design change proposed in LNP DEP 3.2-1.

21.1.2 Summary of Application

Tier 1 and Tier 2 Departures

The applicant proposed the following Tier 1 and Tier 2 departures from the AP1000 DCD:

- LNP DEP 3.2-1 and LNP DEP 6.3-1

In LNP DEP 3.2-1, the applicant proposed a departure from Tier 1 and Tier 2 information related to design changes of the containment condensate return system used to direct water that has condensed on the containment shell to the IRWST during accident scenarios. As described in a request for additional information (RAI) partial response dated June 27, 2014, the proposed Tier 2 departure includes changes to FSAR Chapters 3, 5, 6, 7, 14, 15, 16, and 19 as well as the TS and corresponding Bases appearing in Part 4 of the COL application and cited in FSAR Chapter 16. In addition, the applicant requested an exemption from the incorporation by reference of AP1000 DCD Tier 1 information, specifically Tier 1 Subsection 2.2.3, Tables 2.2.3-1 and 2.2.3-2. The exemption request proposes to revise the list of components in these tables to include additional components of the containment condensate return cooling system of the PXS. These changes were incorporated into Revision 7 of the FSAR, submitted August 28, 2014.

In LNP DEP 6.3-1, the applicant proposed changes to FSAR Chapters 5, 6, 7, 9, 15, and 19 to address a departure related to quantifying the duration that the PRHR HX can maintain safe shutdown conditions, changing the description of the duration from indefinite to at least 14 days. These changes, described in a RAI partial response dated June 27, 2014, were incorporated into Revision 7 of the FSAR, submitted August 28, 2014.

In letters dated November 17, 2014, May 5, 2015, July 14, 2015, and July 20, 2015, the applicant proposed additional changes to LNP DEP 3.2-1 and LNP DEP 6.3-1. These changes were incorporated into Revision 8 of the FSAR, submitted December 7, 2015.

Subsequent to a staff audit of supporting documentation, in letters dated January 14, 2016, and January 26, 2016, the applicant proposed additional changes under LNP DEP 3.2-1 in Chapters 1, 5, 6, 15, and 19 of the FSAR, to be incorporated in a future revision to the FSAR and COL application. The staff confirmed that the changes proposed in the above submittals dated January 14 and January 26, 2016, were incorporated into Revision 9 of the COL application, dated April 6, 2016.

This exemption request involves a departure from Tier 1 Section 2.2.3, Tables 2.2.3-1 and 2.2.3-2, with Tier 2 involved departures. Therefore, these departures require NRC approval and are evaluated below.

21.1.3 Regulatory Basis

In conducting its review of STD COL 6.3-1, the NRC staff used the guidance and staff positions of Regulatory Guide 1.82, Revision 3, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," and NEI 04-07, "Pressurized Water Reactor Sump Performance Evaluation Methodology," Revision 0, Volume 1, and in the "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to NRC Generic Letter 2004-02," in NEI 04-07, Revision 0, Volume 2.

The changes proposed in LNP DEP 3.2-1 and LNP DEP 6.3.1 are also required to meet the following GDC, which also apply to the AP1000 DCD:

> Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, GDC 34, "Residual heat removal," as it applies to the capability of the PRHR HX to perform safety related safe shutdown cooling of the RCS. Additionally, LNP DEP 3.2-1 and LNP DEP 6.3.1 are required to meet GDC 44, "Cooling Water," as it applies to the ability of the containment systems to transfer heat from the PRHR HX to the ultimate heat sink via the passive containment cooling system.

21.1.4 Technical Evaluation

Tier 1 and Tier 2 Departures

- LNP DEP 3.2-1 and LNP DEP 6.3-1

LNP DEP 3.2-1 proposes to change the PXS to increase the fraction of condensate returning to the IRWST when there is steam in the containment building. This change creates intermediate gutters at the top and bottom of the polar crane girder and at the containment shell intermediate ring stiffener. It blocks drain holes that were in these structures and adds dams where needed to collect condensate. It adds downspouts from these gutters to the IRWST. It also modifies the gutter drip lip so that condensate is not lost between the containment wall and the gutter. Condensate that is "lost" does not return to the IRWST, and instead drips off of the shell into various containment holdup volumes, such as the loop compartments or reactor vessel cavity.

LNP DEP 6.3-1 proposes additional changes to the FSAR in conjunction with the design changes described in LNP DEP 3.2-1 to clarify the duration of operation of the PRHR HX and separate the description of the safety functions from the non-safety design function of the PXS.

The staff reviewed a request for an exemption submitted by the applicant. The request proposed changes to Tier 1 Tables 2.2.3-1 and 2.2.3-2 and generic TS Surveillance Requirement (SR) 3.5.4.7 in the AP1000 DCD. Additionally, the staff reviewed the Tier 2 changes for potential effects on safety functions of the PXS and the associated Chapter 15 safety analyses, the safe-shutdown temperature evaluation in Chapter 19E, the seismic classification in Chapter 3, and the TS and Bases in Chapter 16. The regulatory evaluation of

the exemption request appears in Subsection A, below, and the technical evaluation of the exemption request and departure appears in Subsection B, below.

A. Regulatory Evaluation of Exemption Request

A.1 Summary of Exemption

The applicant requested an exemption from the provisions of 10 CFR Part 52, Appendix D, Section III.B, "Design Certification Rule for the AP1000 Design, Scope and Contents," that require the applicant referencing a certified design to incorporate by reference Tier 1 information. Specifically, the applicant proposed to revise Tier 1 Tables 2.2.3-1 and 2.2.3-2 by adding components to the condensate return design to enable the PXS to more effectively perform its design functions and revised TS SR 3.5.4.7 to address downspout screens.[1]

A.2 Regulations

- 10 CFR Part 52, Appendix D, Section VIII.A.4 states that exemptions from Tier 1 information are governed by the requirements of 10 CFR 52.63(b) and 10 CFR 52.98(f). It also states that the Commission may deny such a request if the design change causes a significant reduction in plant safety otherwise provided by the design. This subsection of Appendix D also provides that a design change requiring a Tier 1 change shall not result in a significant decrease in the level of safety otherwise provided by the design.

- 10 CFR Part 52, Appendix D, Section VIII.C.4 states that an applicant may request an exemption from the generic TS or other operational requirements. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of 10 CFR 52.7.

- 10 CFR 52.63(b)(1) allows an applicant or licensee to request NRC approval for an exemption from one or more elements of the certification information. The Commission may only grant such a request if it complies with the requirements of 10 CFR 52.7 which in turn points to the requirements listed in 10 CFR 50.12 for specific exemptions, and if the special circumstances present outweigh the potential decrease in safety due to reduced standardization. Therefore, any exemption from the Tier 1 information certified by Appendix D to 10 CFR Part 52 must meet the requirements of 10 CFR 50.12, 52.7, and 52.63(b)(1).

A.3 Evaluation of Exemption

As stated in Section VIII.A.4 of Appendix D to 10 CFR Part 52, an exemption from Tier 1 information is governed by the requirements of 10 CFR 52.63(b)(1) and 52.98(f). Additionally, the Commission will deny an exemption request if it finds that the requested change to Tier 1 information will result in a significant decrease in safety. Pursuant to 10 CFR 52.63(b)(1), the

[1] While the applicant describes the requested exemption as being from Section III.B of 10 CFR Part 52, Appendix D, the entirety of the exemption pertains to proposed departures from Tier 1 information and generic TS in the generic DCD. In the remainder of this evaluation, the NRC will refer to the exemption as an exemption from Tier 1 information and generic TS to match the language of Sections VIII.A.4 and VIII.C.4 of 10 CFR Part 52, Appendix D, which specifically govern the granting of exemptions from Tier 1 information and generic TS.

Commission may, upon application by an applicant or licensee referencing a certified design, grant exemptions from one or more elements of the certification information, so long as the criteria given in 10 CFR 50.12 are met and the special circumstances as defined by 10 CFR 50.12 outweigh any potential decrease in safety due to reduced standardization. As stated in Section VIII.C.4 of Appendix D to 10 CFR Part 52, the Commission may grant an exemption from generic TS of the DCD only if it determines that the exemption will comply with the requirements of 10 CFR 52.7. As stated above, Section 52.7 points to 10 CFR 50.12 for specific exemptions.

Applicable criteria for when the Commission may grant the requested specific exemption are provided in 10 CFR 50.12(a)(1) and (a)(2). Section 50.12(a)(1) provides that the requested exemption must be authorized by law, not present an undue risk to the public health and safety, and be consistent with the common defense and security. The provisions of 10 CFR 50.12(a)(2) list six special circumstances for which an exemption may be granted. It is necessary for one of these special circumstances to be present in order for NRC to consider granting an exemption request. The applicant stated that the requested exemption meets the special circumstances of 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." The staff's analysis of each of these findings is presented below.

A.3.1 Authorized by Law

This exemption would allow the applicant to implement approved changes to Tier 1 Tables 2.2.3-1 and 2.2.3-2 and generic TS SR 3.5.4.7. This is a permanent exemption limited in scope to particular Tier 1 information and generic TS, and subsequent changes to this information or any other Tier 1 information or generic TS would be subject to full compliance with the change processes specified in Sections VIII.A.4 and VIII.C.4 of Appendix D to 10 CFR Part 52. As stated above, 10 CFR 52.63(b)(1) allows the NRC to grant exemptions from one or more elements of the certification information, namely, as discussed in this exemption evaluation, the requirements of Tier 1. Moreover, Section VIII.C.4 allows the NRC to grant exemptions from generic TS if the exemption meets the requirements of 10 CFR 52.7 and 50.12. The NRC staff has determined that granting of the applicant's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, as required by 10 CFR 50.12(a)(1), the exemption is authorized by law.

A.3.2 No Undue Risk to Public Health and Safety

The underlying purpose of AP1000 Tier 1 Tables 2.2.3-1 and 2.2.3-2 and generic TS SR 3.5.4.7 is to ensure that the plant will be constructed and operated with a safe and reliable condensate return system in the event of an accident.

Additions to the condensate return portion of the passive core cooling system improve the reliability and effectiveness of the condensate return system; these additions to the system, therefore, support the system's intended design functions. The plant-specific Tier 1 DCD and TS will continue to reflect the approved licensing basis for the applicant and will maintain a level of detail consistent with that which is provided elsewhere in Tier 1 of the plant-specific DCD. The affected design description in the plant-specific Tier 1 DCD provides the detail to support the performance of the associated ITAAC. The proposed changes to Tier 1 information and generic TS are evaluated and found to be acceptable in Section 6.3 of this safety evaluation.

Therefore, the staff finds the exemption presents no undue risk to public health and safety as required by 10 CFR 50.12(a)(1).

A.3.3 Consistent with Common Defense and Security

The proposed exemption would allow the applicant to implement modifications to the Tier 1 information and generic TS requested in the applicant's submittal. This is a permanent exemption limited in scope to particular Tier 1 information and a specific TS. Subsequent changes to this information or any other Tier 1 information or generic TS would be subject to full compliance with the change processes specified in Sections VIII.A.4 and VIII.C.4 of Appendix D to 10 CFR Part 52. This change is not related to security issues. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that the exemption is consistent with the common defense and security.

A.3.4 Special Circumstances

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purposes of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purpose of the specific Tier 1 Tables 2.2.3-1 and 2.2.3-2 and TS SR 3.5.4.7 being modified in the exemption request is to identify and conduct surveillances of the components that will be added to the design of the condensate return portion of the passive core cooling system. The additional components and new surveillance requirements for those components are needed so that the passive core cooling system can perform its intended function, that is, to bring the reactor coolant system to safe shutdown conditions during certain non-loss-of-coolant-accident events.

Application of the requirements in Tier 1 Tables 2.2.3-1 and 2.2.3-2 and generic TS SR 3.5.4.7 is not necessary to achieve the underlying purpose of those portions of the rule. The proposed additions to the condensate return portion of the passive core cooling system support the system's intended design functions, as does the addition of a generic TS to conduct surveillances of those additional components. The system and tables listing its components and surveillances, as modified in the requested exemption, will continue to perform their intended functions and will, therefore, meet the underlying purposes of the rule. Accordingly, because application of the requirements in Tier 1 Tables 2.2.3-1 and 2.2.3-2 and the generic TS SR 3.5.4.7 is not necessary to achieve the underlying purpose of the rule, special circumstances are present. Therefore, the staff finds that special circumstances exist as required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from the Tier 1 information and generic TS described above.

A.3.5 Special Circumstances Outweigh Reduced Standardization

This exemption, if granted, would allow the applicant to change certain Tier 1 information incorporated by reference from the AP1000 DCD into the LNP COL application. An exemption from Tier 1 information may only be granted if the special circumstances of the exemption request, required to be present under 10 CFR 52.7 and 10 CFR 50.12, outweigh any reduction in standardization. The proposed exemption would modify the condensate return portion of the passive core cooling system to improve the reliability and effectiveness of the condensate return

system. The proposed additions to the system support the system's intended design functions and the key design functions of the passive core cooling system will be maintained.[2]

As described below in the technical evaluation, the changes to the condensate return system (1) ensure the capability of the PRHR HX to maintain the RCS in a safe, stable condition, as described in DCD Chapter 19E, "Shutdown Temperature Evaluation," and (2) demonstrate the existing non-loss-of-coolant accident (LOCA) analyses in Chapter 15 that credit the PRHR HX remain valid. Consequently, while there is a small possibility that standardization may be slightly reduced by the granting the exemption from the specified Tier 1 requirements, the proposed exemption modifying the condensate return portion of the passive core cooling system will improve the reliability and effectiveness of the condensate return system, to better allow the system to perform its intended function. For this reason, the staff determined that even if other AP1000 licensees and applicants do not request similar departures, the special circumstances supporting this exemption outweigh the potential decrease in safety due to reduced standardization of the AP1000 design, as required by 10 CFR 52.63(b)(1).

A.3.6 No Significant Reduction in Safety

The proposed exemption would modify the passive core cooling system from the design presented in the original application. As described below in the technical evaluation, the changes to the condensate return system (1) ensure the capability of the PRHR HX to maintain the RCS in a safe, stable condition, as described in DCD Chapter 19E, "Shutdown Temperature Evaluation," and (2) demonstrate the existing non-LOCA analyses in Chapter 15 that credit the PRHR HX remain valid. The proposed changes to the PXS design will increase the reliability of the system, maintain its key design functions, and will not adversely affect its function. Therefore, the staff finds that granting the exemption would not result in a significant decrease in the level of safety otherwise provided by the design, as required by 10 CFR Part 52, Appendix D, Section VIII.A.4.

A.4 Conclusion

The staff has determined that pursuant to Section VIII.A.4 of Appendix D to 10 CFR Part 52, the exemption: (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) has special circumstances that outweigh the potential decrease in safety due to reduced standardization, and (5) does not significantly reduce the level of safety at the licensee's facility. The staff has also determined, pursuant to Section VIII.C.4 of Appendix D to 10 CFR Part 52 , that the generic TS portion of the exemption request: (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) demonstrates the existence of special circumstances. Therefore, the staff grants the applicant an exemption from the requirements of Tier 1 Tables 2.2.3-1 and 2.2.3-2 and generic TS SR 3.5.4.7 of the generic DCD associated with the LNP Units 1 and 2.

[2] Based on the nature of the proposed changes to the generic Tier 1 information in Tables 2.2.3-1 and 2.2.3-2 and TS SR 3.5.4.7, both of which maintain and support the design functions of the passive core cooling system, other AP1000 licensees and applicants may request the same exemption, preserving the intended level of standardization.

B. Technical Evaluation of Exemption Request and Departure

B.1 Passive Core Cooling System, Accident Analysis, and Shutdown Temperature Evaluation

Letter NPD-NRC-2014-005, submitted by the applicant and dated February 7, 2014, requested the previously described departures from 10 CFR Part 52, Appendix D, Section III.B. A revised submittal, letter NPD-NRC-2015-015, dated May 5, 2015, included two supporting reports as Enclosures 2 and 3: APP-GW-GLR-161, Revision 2 (proprietary) and APP-GW-GLR-607, Revision 2 (non-proprietary), respectively, both titled "Changes to Passive Core Cooling System Condensate Return." These reports describe the change and the basis for the change. In addition, APP-GW-GLR-161 and APP-GW-GLR-607 references three calculations and a test report further described below. Enclosure 6 provides the applicant's request for exemption related to this topic. Enclosures 7 and 8 present, respectively, changes to AP1000 DCD Revision 19 and the LNP COLA information that will be included in a future revision to the COLA. Letter NPD-NRC-2014-005 and its enclosures are the subject of the following review by the staff.

The applicant indicated that the changes described in LNP DEP 3.2-1 are necessary to (1) ensure the capability of the PRHR HX to maintain the RCS in a safe, stable condition, as described in DCD Chapter 19E, "Shutdown Temperature Evaluation," and (2) to demonstrate the existing non-LOCA analyses in Chapter 15 that credit the PRHR HX remain valid. The safe shutdown temperature evaluation, presented in DCD Chapter 19E Revision 19, assumes a constant condensate return fraction (the fraction of the water boiled off from the IRWST that will condense on the containment shell and return to the IRWST). Water that does not return to the IRWST can be referred to as condensate losses. The NRC staff understands that the applicant's analyses showed there are a number of mechanisms for condensate losses that vary with time including: steam to pressurize the containment atmosphere, condensation on passive heat sinks within the containment, and condensate splashing from the containment vessel and its attachments that does not reach to the PXS gutter system. The NRC staff's review of this departure request indicates some of these losses, such as the steam to pressurize the atmosphere, initially account for the majority of the condensation losses but decrease as the transient progresses, while other losses, such as the splashing from the attachments to the shell, are relatively time-independent and only a function of the amount of condensation on the shell. Condensate return is one of the primary factors influencing the performance of the PRHR HX.

Section 5.0, "Design Changes," of APP-GW-GLR-607 and APP-GW-GLR-161 detail the changes proposed by the applicant for increasing the condensate return rate. Subsection 1 describes the PXS downspout piping network added at the polar crane girder and stiffener, the routing for which is shown in the revised Figure 6.3-1 of the FSAR. Four collection points are located on both the upper portion and the lower flange of the polar crane girder and the stiffener ring that are routed to common lines that empty into two collection points already existing on either side of the IRWST. These downspouts, collection points and connecting piping serve to capture condensate that previously would have been lost, and are sized such that any one line can accommodate the full flow anticipated during a transient to prevent a single failure from impacting the return flow to the IRWST. Subsection 2 describes the screens added to the downspouts and new guttering that is similar to screens existing on the IRWST gutter. These screens are designed to keep larger debris from blocking piping while still allowing condensate flow. The seismic qualifications of the downspouts and screens are further discussed later in

this section. Subsection 3 explains how fabrication holes are blocked in the polar crane girder and the stiffener. Subsection 4 details the dam added to the polar crane girder to alleviate flow interactions between the containment shell and polar crane girder that contributed to losses. Furthermore, changes to the gutter drip lip and gutter routing were made to reduce losses from the gutter-wall interaction as much as possible. The effect of these changes on the transient analysis is described in detail below.

The design changes, which are intended to reduce the condensate losses, prompted review of the analyses associated with transients that rely on condensate return. The effectiveness of the condensate return to the IRWST is captured in a series of proprietary calculations supporting the submittal, which were audited by the staff (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14219A200 and ML15187A248) and are described in Section A.2 of APP-GW-GL-161 and APP-GW-GLR-607. The containment response is analyzed in calculation APP-PXS-M3C-071, "Containment Response Analysis for the Long Term PRHR Operation," via modifying the NRC-approved AP1000 WGOTHIC model used for containment peak pressure calculation that is part of the licensing basis, and provides transient containment pressure, temperature, and condensate holdup volumes input to the other calculations. Condensate losses implemented in WGOTHIC are obtained from a second calculation, APP-PXS-M3C-072, "Condensate Return to IRWST for Long Term PRHR Operation," which uses the parameters from WGOTHIC in concert with test results to provide a bounding condensate loss fraction from the containment shell. The test data used to calculate the losses are summarized in Section 4 of APP-GW-GL-161 and APP-GW-GLR-607 and described in detail in report TR-SEE-III-12-01, "AP1000 Condensate Return Test Report." A further calculation, APP-SSAR-GSC-536, "AP1000 Safe Shutdown Temperature Evaluation," incorporated the containment parameters and condensate behavior from the WGOTHIC analysis into LOFTRAN to calculate the behavior of the RCS and PRHR heat exchanger. This calculation was performed both for a 72-hour design basis case to verify that the assertions in Chapter 6 of the FSAR remain valid for all FSAR Chapter 15 events reliant on the PRHR, and for the 36-hour cooldown case depicted in Chapter 19 of the FSAR. A further calculation, APP-SSAR-GSC-009, "AP1000 Plant Safe Shutdown Duration Evaluation," justifies the duration of extended operation to 14 days using a LOFTRAN analysis. Further discussion of the analyses is located below in the "Evaluation of Containment Response," "Safety Design Bases," and "Non-Safety Design Bases" subsections of this SER section.

B.1.1 Evaluation of Containment Response

Although the staff audited the calculations referenced in the February 7, 2014 submittal by the applicant (ADAMS Accession Nos. ML14219A200 and ML15187A248), the submittal did not contain sufficient information for the staff to make a safety finding based on the docketed information, and thus the staff issued RAI 7439 in a letter dated March 6, 2014, asking the applicant to summarize the containment response calculation and its relationship with the other calculations. In its response dated May 5, 2014, the applicant provided a summary to address the impact of the cited calculation on the changes in LNP DEP 3.2-1. The staff requested in RAI 7439, Question 6.03-1, that the applicant provide additional detail on the results described in "Containment Response Analysis for the Long Term PRHR Operation" (ADAMS Accession Nos. ML14077A609 and ML14126A702), which describes the WGOTHIC model used to calculate the containment pressure and temperature as well as the steaming rate from the IRWST to the containment atmosphere, heat sinks and the containment shell, to address the technical merits of the changes in LNP DEP 3.2-1. The staff reviewed this response and finds it acceptable, as it provides an accurate summary of the analysis explaining how the containment response

calculation relates to other calculations, inputs, and key results with sufficient information for the staff to make its finding.

Operation of the PRHR HX is affected by the amount of condensate returned to the IRWST. Therefore, in order to bound all events that credit the PRHR HX, the staff considered events requiring operation of the PRHR HX. The applicant identified the loss of normal feedwater coincident with a loss of alternating current (ac) power to the plant auxiliaries as the most limiting transient. The discussion below analyzes this scenario, and the justification for the loss of ac power as the most limiting transient is provided below in the "Safety Design Basis" subsection of this SER.

Using WGOTHIC, the applicant modeled the containment behavior during a transient involving the actuation of the PRHR by modifying the containment model used for the peak pressure calculation such that it conservatively captured the phenomena that would challenge the performance of the PRHR HX. This was accomplished by modifying the existing peak pressure calculation model in the following ways: increasing the area of the passive heat sinks as modeled by applying a multiplying factor, creating a volume to capture the condensate losses on the shell, adding a flow path to account for containment leakage, changing the IRWST (including a structure simulating PRHR heat exchanger using boundary conditions from LOFTRAN) to better represent the conditions during a non-LOCA transient, and adding a heat structure in the cavity to represent the vessel, among other minor changes. The net effect of these changes is to minimize the condensation rate on the containment inner shell, maximize the amount of steam and condensate that does not return to the IRWST—such as on passive heat sinks in containment and in the containment atmosphere—and maximize the amount of heat input to the IRWST, all of which are conservatisms for the non-LOCA transients that challenge the PRHR HX.

The addition of the heat structure to represent the reactor vessel in the reactor cavity, although used appropriately to capture a physical phenomenon present in the problem, is not the most conservative modeling choice with respect to the calculation of condensate return. Most condensate that is lost from the containment shell eventually reaches the reactor cavity. This water fills the cavity to the point that it reaches the vessel and begins steaming. The vessel is surrounded by metallic insulation material designed to admit water through gaps and release the resultant steam through larger gaps between the insulation and the vessel. Although steaming from the reactor vessel cavity has competing effects on the system performance, as it both cools the reactor vessel and results in additional mixing below the operating deck, it does result in a larger net condensate return fraction to the IRWST. The applicant explored mechanisms that stimulate mixing within containment, but the precise extent of the mixing beneath the operating deck is not fully defined. The applicant states that additional mixing below the operating deck results in more condensate holdup on passive heat sinks, but also that in the long term steaming from the reactor vessel results in additional inventory return to the IRWST.

The analysis in WGOTHIC accounts for the heat removal from the reactor vessel by subtracting it from heat that would be removed by the PRHR HX so that the energy balance is maintained. Temperature data from LOFTRAN is extracted and input into one boundary of the WGOTHIC vessel, while the other boundary exposed to the control volume uses a boiling correlation. The amount of heat removed by the boiling from the vessel is stored and subtracted from the PRHR HX heat input. Due to the nature of the modeling of the heat structure in the cavity in WGOTHIC, the entirety of the structure participates in heat transfer to the fluid in the reactor

cavity. To mitigate against the effects of this, the applicant subtracted the volume in the cavity underneath the vessel and added it to the reactor coolant drain tank room so as to increase the holdup volume that must fill prior to condensate reaching the reactor vessel. This still results in additional boiling from the condensate that reaches the reactor vessel, as a larger area available (at least until the water would have reached the top of the bottom head) results in higher heat transfer. Conversely, in the very long term, the WGOTHIC model does not consider additional area that would participate as the water in the cavity rises above the lower head of the reactor vessel. In "Containment Response Analysis for the Long Term PRHR Operation," the applicant documents a sensitivity study that explores the effect on IRWST level of no condensate return resulting from reactor vessel steaming. The analysis shows that IRWST level is reduced by as much as 7 inches in the 72-hour period following the transient as a result of not accounting for reactor vessel steaming. This reduction in IRWST inventory does not appreciably impact system performance during the first 72 hours and would not challenge the operability of the system until much later in the transient. The staff performed a confirmatory analysis on the effect of the lower condensate return rate using LOFTRAN, which showed the lack of steaming from the reactor vessel would have less impact than was calculated by the applicant in their sensitivity study. In addition, the staff confirmatory calculation in MELCOR documented below tracks level along the reactor vessel heat structure and uses a conservatively high holdup volume such that steaming from the cavity is not established until almost one day into the transient. The applicant's design basis calculation bounds the confirmatory analysis performed by the staff. As a result, the staff finds the treatment of steaming from the vessel bottom head acceptable for this analysis.

The applicant made additional changes as compared to the approved WGOTHIC model used for peak pressure analyses in the most recent revisions of the calculations referenced in the May 5, 2015, submittal. The elevation of a modeled volume was changed, (resulting in changes to flow paths not representative of pipes but rather a function of the modeling divisions) in the analysis to prevent condensate build up in the control volume from inhibiting air flow between the control volumes to prevent non-physical behavior and better represent real conditions. The condensate return fraction was further modified to be a flat value representative of the loss rate determined by testing at the highest flow rate (discussed further below) plus a margin of 0.7 percent. In addition, the heat structures representing the PRHR HX and reactor vessel receive temperature conditions from iterative runs of the LOFTRAN model discussed later in the "Safety Design Basis" section of this report, rather than bounding values.

In the applicant's supporting analysis, condensation on most of the heat sinks is directly analyzed in WGOTHIC, while condensation holdup on surfaces such as the operating deck floor and other equipment was incorporated into a horizontal film holdup volume assumed proportional to the cross sectional area of containment multiplied by a factor with no provided justification. Therefore, in RAI 7439, Question 6.03-3, the staff requested that the applicant justify the multiplication factor used and the treatment of the horizontal film in the WGOTHIC model. In a response dated June 12, 2014, the applicant determined that the earlier treatment of film may not have been conservative. Thus, the applicant performed a sensitivity study to determine the effect of a different approach. The approach detailed in the response changed the representative area to a value incorporating the total surface area of the heat sinks modeled within containment in WGOTHIC, which are a conservative representation of the total passive heat sink area inside containment, incorporating the fixed components. For direct condensation in WGOTHIC, the applicant further increased this value to bound the total passive heat sink area within containment. Though this value does not directly represent the film holdup area as some heat sinks like the core makeup tanks (CMTs), polar crane girder and stiffener are

excluded, the use of total surface area rather than horizontal surface area incorporates margin such that this treatment is conservative.

In addition, the applicant used a different approach to determine film thickness for condensation on surfaces utilizing a maximum contact angle for wetting in the design basis analyses and a more realistic contact angle for the "conservative, non-bounding" analyses to determine the thickness of the film. Although these changes increase the film holdup by a factor of more than three, there is a negligible effect on the performance of the PRHR HX during the first 72 hours. Initially following a non-LOCA transient, the significantly lower condensate return rates for the first few hours and lack of steaming from the reactor vessel cause the impact of additional holdup resulting from the more conservative film holdup calculation to be lessened and the level in the IRWST to be relatively unchanged. As condensate return increases to its long term value, and steaming from the reactor vessel begins to have a measurable impact on the transient, the submittal shows a minor reduction in the time before the RCS begins to reheat, well after the safety-related 72-hour period. The PRHR is required to remove decay heat following a design basis event for a minimum of 72 hours, in accordance with the revised FSAR Section 6.3.1.1.1, "Emergency Core Decay Heat Removal" in LNP DEP 6.3-1. The staff verified that this calculation was incorporated into "Containment Response Analysis for the Long Term PRHR Operation" calculation in a subsequent audit (ADAMS Accession No. ML15187A248).

The amount of condensation held up on surfaces within containment is also an important parameter during containment floodup following a LOCA or automatic depressurization system (ADS) actuation. Because the AP1000 relies on gravity for the driving force for recirculation in the long-term following an accident, the height of water in containment must be sufficient to force flow through the direct vessel injection lines for an opening in the RCS above the floodup level. The NRC staff's confirmatory analysis applying the revised film holdup to the floodup calculation shows a negligible impact on the containment water level following a LOCA or ADS actuation. Thus, the staff finds the treatment of film holdup on surfaces within containment acceptable because it conservatively accounts for condensation on surfaces using conditions for maximum condensate losses, and does not adversely affect current bounding analyses for other transients.

Containment response heavily depends on the initial conditions assumed for the transient of interest. Containment pressure and temperature, IRWST temperature, and the ambient outside temperature (equal to passive containment cooling system (PCS) water temperature) all have an impact. Pressure response can be divided into two phases for this transient, an initial spike up in pressure as the IRWST boils off, followed by a slow levelling off to a peak and decay as passive cooling occurs. Confirmatory analysis performed by the staff using MELCOR for design basis conditions follows a similar trend as the analysis performed by the applicant documented in "Containment Response Analysis for the Long Term PRHR Operation" (ADAMS Accession No. ML14219A200), although the pressure calculated by the applicant bounds the pressure in MELCOR at all points within an hour after steaming begins for the design basis. For best estimate conditions, the staff's confirmatory analysis shows a peak pressure of approximately 2 pounds per square inch greater than the applicant's WGOTHIC analysis, while design basis conditions result in confirmatory analysis yielding a pressure approximately 5 pounds per square inch less than the conservative value calculated by the applicant in WGOTHIC; these events, like all events involving PRHR actuation, do not challenge the design pressure. More importantly for this transient, the applicant's pressure used for the design basis analysis results in a higher saturation pressure for water in containment, which results in additional holdup in the containment atmosphere and higher IRWST temperatures and,

therefore, reduced heat transfer through the PRHR. As such, the applicant's modeled pressure response in containment is conservative because it uses bounding inputs into an approved methodology and yields a more conservative value than staff models of the same conditions.

In each analysis performed by the applicant, calculations were performed for design basis conditions for Chapter 15 and "non-bounding, conservative" conditions for Chapter 19. Design basis conditions should represent the conservatively bounding set of values for any given transient, and the design basis values for the maximum temperature inside containment is 120 degrees Fahrenheit (°F) (48.9 degrees Celsius (°C)) and outside containment is 115 °F (46.1 °C). The analysis submitted used an in-containment initial temperature of 85 °F (29 °C) (capturing all the heat sinks as well as the IRWST) and an environment temperature of 115 °F (46.1 °C). In RAI 7439, Question 6.03-4, the staff requested the applicant justify the assumption of 85 °F (29 °C) for the initial temperature of containment for the design-basis accident (DBA) analysis. In the response dated July 1, 2014, the applicant explained that the effect of the temperature of the heat sinks outweighed the effect of the IRWST temperature. That is, a lower heat sink temperature results in more condensation on heat sinks and, therefore, more losses when compared with the effect of a change in the initial enthalpy in the IRWST, which affects the time to begin boiling. The NRC staff reviewed analysis supporting this assertion (ADAMS Accession No. ML14219A200), and although the effect is slight, lower heat sink temperatures result in a lower IRWST level as the transient progresses.

The choice of 85 °F (29 °C) for in-containment initial temperature was based on the use of an exterior temperature of 115 °F (46.1 °C), the TS maximum for ambient air temperatures for the environment outside containment. The applicant performed a study for a plant located at a site where meteorological data indicates ambient temperatures could reach 115 °F (46.1 °C) and calculated in-containment temperatures for an operating facility with containment coolers running to show that containment temperatures (and therefore the temperatures of the heat sinks and the IRWST) would not reach below 88 °F (31 °C) for an ambient temperature of 115 °F (46.1 °C). The influence of exterior temperatures is more dramatic on PRHR HX performance: while lower temperatures inside containment would result in additional condensation on heat sinks, higher ambient temperatures result in higher initial PCS water temperatures, which result in less heat removal from containment during a transient and thus higher containment pressures and temperatures. The staff agrees that 85 °F (29 °C) for the in containment temperature presents an acceptably conservative value for a transient given a bounding environmental temperature of 115 °F (46.1 °C), due to the large thermal inertia of the heat sinks within containment and the sizable heat load for the operating plant under the steady state conditions leading up to the transient, in addition to the applicant's justification based on ambient temperatures.

Section 6.3.2.1.1 of the revised FSAR, "Emergency Core Decay Heat Removal at High Pressure and Temperature Conditions," in LNP DEP 6.3-1, addresses the impact of the revised analysis due to the design changes. The revised FSAR discusses the integrated system, including emphasis on the condensate return features, and explicitly describes the mechanics of in-containment condensation as the heat transfer mechanism. In addition, the FSAR now highlights that "[c]ondensation that is not returned to the in-containment refueling water storage tank drains to the containment sump." This is in accordance with the staff's understanding of the system as discussed in this subsection, and is acceptable because most water that does not return to the IRWST fills holdup volumes, which must fill to a certain level before overflowing and eventually reaching the lowest point in containment and filling the reactor coolant drain tank room and reactor cavity.

Section 6.3.2.1.1 also explains the impact of the condensate return rate on the duration of operation of the PRHR HX, and explains that if ac power is not recovered, the PRHR HX can continue to perform for a period of time beyond 72 hours. The plant also retains the ability to transition to open loop cooling via the automatic depressurization system if inventory in the IRWST is insufficient. This agrees with the staff analysis of the performance of the system and is an acceptable change to the FSAR, discussed further in the following section, "Safety Design Basis."

The changes made to Figures 6.3-1 and 6.3-2 in the FSAR appropriately capture the design changes as modeled in the analyses described in the submittal and are acceptable. The components in these figures added to Tier 1 are discussed in the "Classification of Structures, Components, and Systems" subsection below.

The applicant stated that the modifications referenced above to the WGOTHIC model, such as those incorporating condensate return to the IRWST, have no effect on the peak containment pressure calculation. Peak containment pressure is reached well before condensate return has a measurable impact on the transient, and any benefits from condensate return at later times are not credited. The addition of downspouts at the polar crane and stiffener have no impact on the current peak pressure analysis because the model already assumes that condensate reaching the polar crane and stiffener makes its way to the reactor coolant drain tank room, which overflows to the reactor cavity region. The assumptions used in these analyses for initial conditions for temperature, humidity, and heat sink area limiting the amount of condensate return are less bounding for the case of peak containment pressure and, therefore, would not be applicable to the peak pressure calculation. The staff finds the peak pressure analysis in the licensing basis is unaffected by the changes implemented in the current analyses.

For the analyses supporting LNP DEP 3.2-1, the treatment of the PCS water coverage of the outside of the containment shell is consistent with that used in the peak pressure calculation model previously approved by the staff. That is, an assumed film coverage below the weir of 90 percent (for design basis conditions) at nominal flow rates, decreasing as the level in the PCS water storage tank drops during the 72-hour period (discussed in Section 6.2.1 of NUREG-1273 and Table 6.2.2-1 of the AP1000 DCD). Thus, that treatment is conservative for this analysis, as minimizing shell coverage maximizes the energy within containment, which maximizes the containment pressure and saturation temperature.

The calculation, "Containment Response Analysis for the Long Term PRHR Operation," receives inputs from the "Condensate Return to IRWST for Long Term PRHR Operation" calculation (ADAMS Accession No. ML14219A200), which calculates the effective condensate losses on the inside surface of the containment shell. The NRC staff requested in RAI 7439, Question 6.03-2 that the applicant submit additional detail on the results described in "Condensate Return to IRWST for Long Term PRHR Operation," which describes the methodology used to calculate losses over the containment shell, including the tests used to determine losses over attachments to the shell. This request was to address deficiencies in the submittal related to insufficient justification of the applicability of the development of the condensate loss model. The applicant summarized the calculation in a response dated June 12, 2014. The NRC staff reviewed the response and found it acceptable because it provides a summary with sufficient information on the calculation for the staff to make its finding.

Tests for losses over attachments to the shell were performed at lower temperatures than the prototypic conditions on the containment shell during a non-LOCA transient, which could peak in excess of 220 °F (104 °C). Therefore, in RAI 7439, Question 6.03-5, the staff requested the applicant justify the extrapolation from the losses for tested values of condensate losses over attachments to the wall to the values used in the analysis at containment pressure and temperature. In its response to the RAI dated June 27, 2014, the applicant explained that although the losses over wall attachments are extrapolated, the extrapolation is overly conservative and prior research indicates that film thickness should decrease at the same Reynolds number at higher temperatures and thus decrease the condensate losses. In addition, the applicant performed sensitivity studies on the effect of increasing the losses on the performance of the PRHR HX. Those sensitivities indicate that even for a case when losses over attachments are increased by a factor of 1.4 to 1.75, there is a negligible effect on the performance of the system in the first 72 hours and only a minor (approximately 5 percent) reduction in the long term capability of the system. The NRC staff remains unconvinced as to the validity of the applicant's temperature scaling argument, especially given the relative variance in the test results. However, on the basis of the large degree of conservatism inherent in the extrapolation and the fact that a further 40 percent increase in losses over wall attachments results in an insignificant impact to the system performance, the staff finds the treatment of film losses over attachments to the containment shell acceptable.

The analysis described above using WGOTHIC passes a set of inputs to analyses in LOFTRAN (discussed below). The applicant extracts a table including time, condensate return flow, condensate temperature, IRWST steaming rate, containment pressure, and CMT compartment temperature. The data for condensate return flow and condensate temperature are combined to create a recirculation ratio (the fraction of boil off from the IRWST returning as condensate). The recirculation ratio and containment pressure are then used in the LOFTRAN analysis; in the case of the LOFTRAN run using design basis conditions, the recirculation ratio is further reduced and the pressure is increased from the values calculated in WGOTHIC for additional conservatism.

On the bases that the modifications to the gutter system are appropriately incorporated into the analyses for events that actuate the PRHR, that the data from tests used to determine the losses on the containment shell conservatively bound realistic losses, and that condensate loss mechanisms have been quantified and captured in the analysis, the staff finds the treatment of containment conditions in calculations supporting LNP DEP 3.2-1 and LNP DEP 6.3-1 acceptable. Therefore, the staff finds the proposed LNP DEP 3.2-1 FSAR revisions related to containment response noted above to be acceptable pending the staff's confirmation that the proposed FSAR revisions are incorporated in the LNP Units 1 and 2 COL application. The staff is tracking these revisions as **LNP Confirmatory Item 21.1-1.**

Resolution of LNP Confirmatory Item 21.1-1

LNP Confirmatory Item 21.1-1 is a commitment by the applicant to revise the LNP COL FSAR to provide additional information related to containment response as indicated in the letter dated January 14, 2016. The staff confirmed that the LNP COL FSAR has been appropriately revised. As a result, LNP Confirmatory Item 21.1-1 is now closed.

B.1.2 Safety Design Bases

The PXS performs the following safety-related functions:

1. Emergency decay heat removal
2. Emergency reactor makeup/boration
3. Safety injection
4. Containment pH control

The following subsections evaluate the impact of LNP DEP 3.2-1 and LNP DEP 6.3-1 on each safety function of the PXS.

B.1.2.1 Emergency Decay Heat Removal

LNP DEP 3.2-1 impacts the condensate return rate to the IRWST and thus impacts the emergency decay heat removal function of the PRHR HX. Under LNP DEP 3.2-1 and LNP DEP 6.3-1, the revised FSAR Section 6.3 states that for non-LOCA events in which a loss of core decay heat removal capability via the steam generators (SGs) occurs, the PRHR HX is designed to perform the following functions:

1. Remove core decay heat following a design basis event.
2. Maintain acceptable reactor coolant system conditions for a minimum of 72 hours following a non-LOCA event. Applicable post-accident evaluation criteria are specified in Chapter 15.
3. Sufficiently reduce RCS temperature and pressure during an SG tube rupture (SGTR) event to terminate breakflow, without overfilling the SG.

Emergency decay heat removal functions 1 and 3 are design criteria that have been evaluated in DCD Chapter 15, Revision 19 for the events identified in Table 21.1-1 and reviewed in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design." Previous staff review of DCD Chapter 15 events did not consider the possibility of PRHR HX tube uncovery. Therefore, calculations could be terminated once the acceptance criteria for the design basis events were initially met. LNP DEP 3.2-1 revealed that the PRHR HX can provide cooling for a finite period of time before performance degrades and transition to open-loop cooling, via ADS actuation, is required to maintain the reactor in a safe, stable shutdown condition. LNP DEP 3.2-1 states that the water level in the IRWST remains above the uppermost points of the PRHR HX for the duration of all DCD Chapter 15 analyses and, therefore, there is no impact to the calculated heat transfer through the heat exchanger. This caused the staff to question the mission time for the PRHR HX and the termination criteria for DCD Chapter 15 analyses for events that credit the PRHR HX (Table 21.1-1).

Table 21.1-1. Chapter 15 Events that Credit the PRHR HX for Decay Heat Removal

DCD Section	Scenario	Calculation Duration
15.2.6	Loss of AC Power to Plant Auxiliaries	6.2 hrs
15.2.7	Loss of Normal Feedwater Flow	5.4 hrs
15.2.8	Feedwater System Pipe Break	3.1 hrs
15.5.1	Inadvertent Operation of CMTs During Power Operation	8.6 hrs
15.5.2	CVCS Malfunction that Increases RCS Inventory	5.6 hrs
15.6.3	Steam Generator Tube Rupture	6.7 hrs

Section 4.3.3.5 of the Electric Power Research Institute's Advanced Light Water Reactor Utility Requirements Document (URD) and Section 2.3.2 of the staff's corresponding safety evaluation

(NUREG-1242, "NRC Review of Electric Power Research Institute's Advanced Light Water Reactor Utility Requirements Document, Evolutionary Plant Designs," Volume 3) both state that a design expectation for the passive decay heat removal system is to have sufficient water capacity in the passive decay heat water pools to permit 72 hours of operation after SCRAM without the need for refill. The 72-hour capacity of the passive residual heat removal system was approved by the Commission in their responses to SECY-94-084, "Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Designs," and SECY-95-132, "Policy and Technical Issues Associated with Regulatory Treatment of Non-Safety Systems in Passive Plant Designs (SECY-94-084)." Based upon the Commission position expressed in SECY-94-084 and SECY-95-132, the licensing guidance in the URD, NUREG-1242, "NRC Review of Electric Power Research Institute's Advanced Light Water Reactor Utility Requirements Document, Evolutionary Plant Designs," and the Regulatory Treatment of Non-Safety Systems as discussed in Section 19.3 of the Standard Review Plan, in order for the PRHR HX to meet the requirements of GDC 34 and GDC 44, the IRWST should have sufficient capacity to permit a minimum of 72 hours of operation after SCRAM following an accident without the need for refill. In RAI-7475, Question 6.03-10, the staff requested clarification of the mission time for the PRHR HX. In a response dated June 27, 2014 (ADAMS Accession No. ML14182A106), the applicant stated that the PRHR HX operates to bring the RCS to an acceptable, stable condition and maintain this condition for at least 72 hours after a non-LOCA event to allow ample time for decision-making and initiation of recovery actions. During this 72-hour time period, applicable Chapter 15 design basis safety evaluation criteria are met. The 72-hour operational requirement for the PRHR HX following a non-LOCA event is consistent with the Commission position for compliance with GDC 34 and GDC 44.

DCD Chapter 15 analyses that credit the PRHR HX, shown in Table 21.1-1, terminate before the 72-hour operational requirement of the PRHR HX. This caused the staff to question the possibility of PRHR HX tube uncovery during the 72-hour time period, and the resulting impact to Chapter 15 analyses. In RAI 7440, Question 15.02.06-2, the staff requested the applicant to (1) identify the bounding Chapter 15 event in terms of PRHR HX performance, and (2) extend the calculation for the bounding event out to 72 hours in order to demonstrate the 72-hour operational requirement of the PRHR HX.

In their response dated June 27, 2014 (ADAMS Accession No. ML14182A106), to the first part of RAI 7440, Question 15.02.06-2, the applicant identified the Loss of AC Power to Plant Auxiliaries (LOAC) as the limiting event in terms of PRHR HX performance. The applicant explained that the LOAC event combines a relatively late reactor trip with a significant loss of secondary side inventory in both steam generators, and a loss of forced reactor coolant flow. It therefore, represents the largest mismatch between primary side energy and secondary side/PRHR HX heat removal capability. The applicant's response to RAI 7440, Question 15.02.06-2 included a sensitivity study, performed with the MAAP4.0.7 code, to evaluate the impact of different events on PRHR HX performance. The results demonstrated that the plant response to different events begins to converge after approximately 8 hours into the event with the LOAC event producing slightly bounding heat loads on the PRHR HX over the 72-hour calculation time. The NRC staff performed confirmatory calculations as part of the review, which include a sensitivity study to investigate the impact of the initiating event. The result of the staff's sensitivity study is consistent with the applicant's response to RAI 7440, Question 15.02.06-2. Based upon considerations discussed in this paragraph, the staff finds the selection of LOAC as the limiting event in terms of PRHR HX performance to be acceptable.

In their response to the second part of RAI 7440, Question 15.02.06-2, the applicant performed a 72-hour calculation of the LOAC event. The analysis utilized the LOFTRAN code to model the response of the reactor coolant system. In evaluating the applicant's response, the staff evaluated the analytical procedure (i.e., use of LOFTRAN) and the results of the calculation. In the NRC staff's safety evaluation for the AP1000 DCD, NUREG-1793, the staff concluded that the applicant's use of LOFTRAN as described in WCAP-15644 (ADAMS Accession No. ML040890663) is acceptable for licensing calculations of the AP1000 subject to the following limitation:

- LOFTRAN is approved to analyze the transients listed in Table 21-2 of NUREG-1793. Use of the code for other analytical purposes will require additional justification.

Previous licensing calculations that utilized LOFTRAN extended less than 10 hours and did not experience uncovery of the PRHR HX tubes. Thus, the staff investigated the applicability of the code to the analyses referenced in the departure. Modeling of tube uncovery in LOFTRAN uses a collapsed liquid level within the IRWST, where surface area of the PRHR HX above the collapsed liquid level is not credited for heat removal. The surface area below the liquid level is calculated as described in WCAP-14235 (ADAMS Accession No. 9709290174) and approved in the staff's safety evaluation of the AP1000 DCD in NUREG-1793. During pool boiling, the secondary side heat transfer is modeled using a modified Rosenhow correlation. This modified Rosenhow correlation was developed from experimental data obtained from the AP600 PRHR HX test program described in WCAP-13573 (ADAMS Accession No. 9705280203). The AP600 PRHR HX test program included a series of tests where PRHR HX tubes were uncovered to different levels (75 percent, 50 percent, and 25 percent) which demonstrated insignificant heat transfer for the uncovered tubes and heat transfer consistent with nucleate boiling for the covered tubes. Details of the staff review of the PRHR HX test program are available in Section 21.5.3 of NUREG-1512, "Final Safety Evaluation Report Related to Certification of the AP600 Standard Design." Of specific concern were the flow distribution and behavior in the tubes and two-phase flow behavior in the IRWST, especially within the tube bundle. High heat transfer rates could cause violent boiling on the outer surface of the tube, resulting in vapor blanketing of some portion of the heat exchanger surface and drastic reduction in heat transfer. Westinghouse analyzed the PRHR HX performance and concluded that it is unlikely that vapor blanketing could occur, and that if it did occur, such behavior would be limited to a very short length near the inlet of the tube bundle, leaving sufficient heat transfer area to meet its design performance requirements. Based upon the Westinghouse analysis and that vapor blanketing was not observed at any of the integral test facilities (OSU/APEX, SPES-2, or ROSA/LSTF), the staff concluded in NUREG-1512 that Westinghouse resolved the concern of vapor blanketing. The potential for the vapor generated by the lower tubes to impede the heat transfer of the upper (covered) tubes is reduced as the PRHR HX begins to uncover. Based upon considerations discussed in this paragraph, the staff finds the previous resolution of the vapor blanketing issue to remain valid for the case of tube uncovery and the heat transfer modeling of the PRHR HX to be acceptable.

In order to understand the limits of the analysis, the staff explored additional input considerations. In RAI 7475, Question 6.03-10, the staff requested the tube plugging assumption used for DBA analyses. In the response, dated June 27, 2014, the applicant stated that a design change was implemented to reduce the allowable number of plugged tubes for the PRHR-HX from the number of tubes making up 8 percent of the heat transfer area to the number of tubes making up 5 percent of the heat transfer area. However, the original 8 percent assumption is utilized for the DBA analysis presented in the response to RAI 7440,

Question 15.02.06-2. Existing Chapter 15 analyses assume 8 percent tube plugging in the PRHR-HX (in terms of heat transfer area) for scenarios where minimizing heat removal is bounding and 0 percent tube plugging in the PRHR-HX where maximizing heat removal is bounding (e.g., steam line break). Boundary conditions for the containment response (i.e., containment pressure and condensate return ratio) were input as functions of time and have been evaluated above in subsection "Evaluation of Containment Response" of this SER. During an audit, the NRC staff identified that the initial power utilized in the 72 hour analysis accounted for a 1 percent uncertainty. Section 15.0.3.2 of the AP1000 DCD, Revision 19, states that a 1 percent uncertainty is supported by the main feedwater flow measurement instrumentation, but that a bounding value of 2 percent is used in the analysis. The Levy COL FSAR contains COL Information Item STD COL 15.0-1, which identifies the plant operating instrumentation which when properly calibrated will support 1 percent uncertainty in the core power based on flow measurement uncertainty. Additionally, the NRC staff performed a sensitivity study investigating the impact of the reduced core power uncertainty on the 72-hour LOAC event. The results of this study demonstrated that the reduction in core power uncertainty has an insignificant impact on the RCS response and Chapter 15 acceptance criteria.

The analysis of the LOAC event submitted by the applicant demonstrates that during the 72-hour period the top horizontal portion of the PRHR HX becomes uncovered. However, the PRHR HX capacity remains sufficient to prevent RCS heatup for a time period greater than 72 hours. The submitted analysis demonstrates that once the Chapter 15 acceptance criteria are satisfied, at approximately 6.2 hours, they remain satisfied for a time period exceeding 72 hours. The NRC staff performed confirmatory calculations as part of the review, which include a 72-hour analysis of the LOAC event. The staff's confirmatory calculation for the LOAC event is consistent with the applicant's submitted analysis. Based upon the identification of the LOAC event being the bounding event in terms of PRHR HX operation, the acceptable modeling of the LOAC event, and the result demonstrating the 72-hour operational requirement for the PRHR HX, the staff finds the submitted analysis of the 72-hour LOAC event acceptable.

In a letter dated January 14, 2016 (ADAMS Accession No. ML16020A250), the applicant updated their submittal, which included the consideration of ambient heat losses from the RCS during Chapter 15 non-LOCA events. Previous analyses had assumed the RCS to be adiabatic, which would result in the highest required heat removal from the PRHR HX; due to ambient heat losses from the RCS, from the pressurizer in particular, and in the absence of positive pressure control associated with pressurizer heaters, the applicant was concerned that pressure in the RCS could be reduced to the point that subcooled margin is lost. A loss of subcooling was thought to have the potential to inhibit the performance of the PRHR HX. Additional analyses were conducted by the applicant to investigate the impact of ambient heat loss from the RCS. A description of these analyses is provided in APP-GW-GLR-607, Revision 4 "Changes to Passive Core Cooling System Condensate Return," which is included as an enclosure to the letter of January 14, 2016. The NRC staff audited the supporting calculations (documented in the audit report, ADAMS Accession No. ML16034A034). The audit resulted in a supplemental RAI response, provided in letter dated January 14, 2016 (ADAMS Accession No. ML16020A105), to establish the basis for the ambient heat losses associated with the pressurizer. The RAI response included (1) a description of the ambient heat loss flow paths from the pressurizer and their treatment in transient analyses, and (2) a FSAR update to Section 5.4.5.2.1 to include the average maximum heat transfer rate specification for the metallic reflective insulation installed on the external surfaces of the RCS. The NRC staff found the RAI response identified the applicable heat loss mechanisms from the pressurizer during a DBA. NRC reviewed the details of the heat loss calculation during their audit of the supporting

calculations and observed that additional conservatism was included in pressurizer heat loss calculations. Additionally, the NRC staff performed confirmatory calculations for the heat losses from the pressurizer which resulted in values that were consistent with the applicant's analyses. The conservative modeling of the heat losses from the pressurizer is further supported by data from applicable literature identified in the NRC staff's audit report. Based upon the information discussed above, the NRC staff finds the treatment of ambient heat losses in the analysis of DBAs to be suitably conservative. The applicant performed a DBA analysis that considers ambient heat losses, performed with LOFTRAN, showing that the RCS remains subcooled for a time period exceeding 72 hours. Therefore, the only impact on the DBA analysis was a lower temperature in the RCS due to the increased heat removal. The NRC staff performed confirmatory calculations as part of this review and obtained results that were consistent with the applicant's analysis. Based on the information in this paragraph, the NRC staff finds that ambient heat losses do not adversely impact DBA analyses for the AP1000.

The staff performed confirmatory calculations, which included the Chapter 15 LOAC event, to assist in evaluating the impacts of LNP DEP 3.2-1 to Chapter 15. The calculations caused the staff to question whether containment backpressure effects on PRHR HX performance were accounted for in Chapter 15. During the staff audit of the applicant's documents related to LNP DEP 3.2-1 and LNP DEP 6.3-1 (ADAMS Accession No. ML14219A200), the staff verified that in Revision 19 of the DCD, Chapter 15 analyses that credit the PRHR HX for decay heat removal do not account for containment backpressure effects on the PRHR HX. Not accounting for containment backpressure on PRHR HX performance introduces a slightly non-conservative boundary condition that affects PRHR HX performance late in the transient. However, the staff verified that this effect does not alter the conclusions of Chapter 15 analyses and thus produces no consequential impact.

The change from indefinite operation of the PRHR HX to the 72-hour operational requirement, and subsequent analysis demonstrating the 72-hour operational requirement, are reflected in the applicant's proposed changes under FSAR Sections 5.4, 6.3, 7.4, and Table 19.59-18 in letter dated June 27, 2014. In the proposed FSAR changes noted above, indefinite operation is changed to extended operation at several locations. For consistency among the proposed changes, the staff is interpreting extended operation to be at least 72 hours. Based upon the considerations discussed within this subsection, the staff finds the proposed FSAR revisions noted above to be acceptable pending the staff's confirmation that the proposed revisions are incorporated in the LNP Units 1 and 2 COL application. The staff is tracking these revisions as **LNP Confirmatory Item 21.1-1**.

Resolution of LNP Confirmatory Item 21.1-1

LNP Confirmatory Item 21.1-1 is a commitment by the applicant to revise the LNP COL FSAR to provide additional information related to ambient heat losses as indicated in the letter dated January 14, 2016. The staff confirmed that the LNP COL FSAR has been appropriately revised. As a result, LNP Confirmatory Item 21.1-1 is now closed.

Indefinite is still used in the revised FSAR (in Sections 6.3.1.1.4, 6.3.3.3.3, 6.3.3.4.3, and 7.4) when considering the entirety of the passive core cooling system; that is, when ADS is actuated and the system transitions to open-loop cooling with gravity driven injection. At that point, the system is nominally limited by normal containment leakage. This treatment remains unchanged from the system as reviewed by the staff in Revision 19 of the DCD.

B.1.2.2 Emergency Makeup and Boration

Emergency makeup and boration for non-LOCA events are functions performed by the CMTs and are not impacted by LNP DEP 3.2-1.

B.1.2.3 Safety Injection

LNP DEP 3.2-1 is evaluated to ensure ADS actuation and transition to open loop cooling is retained as a defense-in-depth means of providing emergency core cooling during non-LOCA events. The evaluation includes investigating the impact of IRWST level on the performance of the ADS spargers, the impact of LNP DEP 3.2-1 on the containment floodup level, and the availability of the ADS, IRWST injection, and containment recirculation valves during an extended station blackout.

In the event that operator action is taken to prolong closed loop mode of PXS operation for an extended period of time, the level in the IRWST can drop below the ADS spargers, causing the staff to question whether ADS actuation can be inhibited by a low IRWST level. In RAI 7440, Question 15.02.06-1, the staff requested information regarding the minimum IRWST level required for ADS actuation. In a letter dated June 19, 2014, the applicant stated that no minimum IRWST level is required for ADS actuation because:

1. ADS spargers do not limit the containment pressure increase for the bounding mass and energy release. The associated mass and energy release attributed to ADS actuation is bounded by the large break LOCA accident or a large main steam line break inside containment.
2. IRWST vents are more than sufficient to vent the amount of steam released if ADS Stages 1-3 are actuated after the spargers are uncovered. The IRWST vents are sized to vent steam relief from ADS stages 1-3 at high system pressures following several hours of PRHR HX operation during which the IRWST has reached saturation pressure.
3. During a long-term non-LOCA event, during which the IRWST level has fallen below the elevation of the ADS spargers, RCS pressure at the time of ADS actuation will be relatively low.
4. Steam relief from uncovered ADS spargers actually improves ADS Stages 1-3 performance due to the lower backpressure provided by the IRWST water. Limitations are imposed on the maximum sparger submergence depth to limit sparger discharge backpressure.
5. No damage is done to spargers, IRWST, or surrounding structures.

The NRC staff identifies the reasons as valid, but requested further justification for the argument that no damage is done to the ADS spargers, IRWST, or surrounding structures. In a supplemental letter dated July 24, 2014, the applicant stated that the ADS spargers are designed to withstand spurious actuation of ADS Stages 1-3 at normal operating conditions. Spurious actuation of ADS Stages 1-3 is bounding in terms of stress on the spargers because it results in bounding mass flows and temperatures experienced by the spargers. Additionally, with the IRWST water level below the spargers, the hydrodynamic loads associated with the initial discharge of air (trapped in the ADS valve discharge lines) or of the subsequent discharge of steam into the water are eliminated. Forces encountered by the IRWST and surrounding structures due to ADS actuation would not be large because the spargers contain a large number of small jets that would interact and dissipate over a relatively short distance. Based upon the considerations mentioned above and the equipment classification of the associated

structures and components, the staff finds that ADS actuation is not inhibited by low IRWST level.

The NRC staff reviewed the potential changes to containment holdup during floodup following a LOCA or ADS actuation as a result of the changes in LNP DEP 3.2-1. The NRC staff audited the "Containment Floodup Level" calculation (ADAMS Accession No. ML14219A200), and found that steam in the containment atmosphere and film on surfaces was accounted for. Applying the calculation for film condensing on surfaces used in RAI 7439, Question 6.03-3, results in a higher holdup than calculated in the supporting analysis in the form of film, which would reduce the containment level following depressurization of the RCS by less than 2 inches. Given the conservatisms inherent in the film holdup analysis in RAI 7439, Question 6.03-3, the staff finds no significant impact to containment floodup level as a result of LNP DEP 3.2-1.

An additional consideration is the availability of the ADS, IRWST injection, and containment recirculation valves during an extended station blackout event. The operator action to establish open loop cooling, if required, may occur at a time that exceeds the operating times for the ADS, IRWST injection, and containment recirculation valves specified in Table 3.11-1 of the FSAR. As part of the staff review of submittals from Southern Nuclear Operating Company (SNC) in response to "Order to Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, Order EA-12-049," issued on March 12, 2012, for Vogtle Electric Generating Plant Units 3 and 4, which is licensed based on the same AP1000 certified design as the LNP Units 1 and 2 applicant, the NRC staff issued RAI 7741 and RAI 7756 to SNC seeking further justification that the AP1000 can transition to open loop cooling during an extended station blackout. SNC's response in letters dated December 4, 2014 (ADAMS Accession No. ML14338A658), and February 26, 2015 (ADAMS Accession No. ML15057A590), provided justification regarding (1) equipment qualification of the ADS, IRWST injection, and containment recirculation valves, and (2) diverse actuation capability for the squib valves.

SNC demonstrated the equipment qualification envelope for the ADS, IRWST injection, and containment recirculation valves is bounding for an event that utilized the PRHR HX long term. This was done by performing a best estimate calculation for the containment response to an event that utilized the PRHR HX over a 30-day duration. The pressure profile for the qualification envelope was shown to bound the results of the containment response calculation. The temperature profile from the containment response calculation was converted into an equivalent time at 150 °F (65.6 °C) using the Arrhenius method. This equivalent time is bounded by the qualification time specified for the ADS, IRWST injection, and containment recirculation valves. The Arrhenius methodology has been previously reviewed and approved by the NRC staff for modeling the temperature effects in a post-LOCA environment (ADAMS Accession No. ML003701987). Based on the discussion in this paragraph, the NRC staff finds the equipment qualification envelope for the ADS, IRWST injection, and containment recirculation valves bounds the expected containment environment during an extended station blackout for at least 30 days.

Additionally, SNC discussed the diverse capability for establishing open loop cooling. The primary means of establishing open loop cooling utilizes the Class 1E dc and uninterruptible power supply system (IDS). SNC's response included an analysis of the capacity of the IDS batteries. This analysis considered temperature de-rating of the batteries and self-discharge over a month and showed that sufficient margin is available for the batteries to perform their intended function during an extended station blackout. Should the battery supplies become

completely exhausted, the ADS Stage 4, IRWST injection, and containment recirculation valves can be actuated via a diverse actuation system power independent device located at the secondary diverse actuation system station. Based upon the considerations in this paragraph, the NRC staff finds reasonable assurance that open loop cooling can be actuated during an extended station blackout event.

In a letter dated July 16, 2015 (ADAMS Accession No. ML15201A129), the applicant endorsed the RAI responses of SNC discussed above. Based upon the considerations of the environmental qualification of the ADS, IRWST injection, and containment recirculation valves, the containment floodup level, and the diverse actuation for establishing open loop cooling, the NRC staff finds that the safety injection function of the PXS is not impacted by LNP DEP 3.2-1.

B.1.2.4 Containment pH Control

Control of the pH in the containment sump post-accident is achieved through the use of pH adjustment baskets containing granulated trisodium phosphate (TSP) and is not impacted by LNP DEP 3.2-1.

B.1.2.5 Safe Shutdown

Short term safe shutdown conditions, defined in Section 7.4 of the DCD, include:

- Maintaining the reactor in a subcritical condition
- Maintaining RCS average temperature less than or equal to no load temperature
- Retaining adequate coolant inventory
- Providing adequate core cooling

Establishing short term safe shutdown conditions after an event has been demonstrated through DCD Chapter 15 analyses and reviewed by the staff in NUREG-1793. Through the evaluation of the PXS safety functions, the staff finds that short term safe shutdown is not impacted by LNP DEP 3.2-1.

Long term safe shutdown conditions, defined in Section 7.4 of the DCD, are the same as the short term conditions except that the RCS average temperature shall be less than 420 °F. The design requirement of entering a long term safe shutdown condition within 36 hours (i.e., reaching an average RCS temperature less than 420 °F in 36 hours) following an event is established in the URD and SECY-94-084. In Section 6.3 of the DCD, Revision 19, cooling the RCS to 420 °F in 36 hours is identified as part of the design basis for the PRHR HX. The ability of the PRHR HX to satisfy this design requirement is demonstrated in the shutdown temperature evaluation provided in DCD Section 19E.4.10.2.

The shutdown temperature evaluation utilizes the same model and evaluates the same event as discussed in subsection “Emergency Decay Heat Removal” of this SER. The analysis in Section 19E.4.10.2 differs in that several model inputs (e.g., containment response pressure, condensate return rate, initial power, and core decay heat) utilize more realistic values. Sections 6.3.3 and 7.4.1.1 of the revised FSAR refer to this analysis as “non-bounding, conservative.” In order to better understand the sources of conservatism in the calculation, the NRC staff issued RAI 7475, Question 6.03-11. The response, provided in letter from the applicant dated June 27, 2014, identified conservatism inherent in the condensate return rate

and several modeling choices that were taken to increase the heat load on the PRHR HX and limit the heat removal capability of the PRHR HX. The use of nominal and best-estimate values for reactor power and decay heat remains consistent with the shutdown temperature evaluation supporting the design certification as verified by the staff during an audit of the original calculation (ADAMS Accession No. ML14219A200). The results of the updated analysis demonstrate the RCS average temperature decreases below 420 °F within 36 hours. The staff performed confirmatory calculations as part of the review, which include a shutdown temperature evaluation. The result of the staff's confirmatory calculation for the shutdown temperature evaluation is consistent with the applicant's submittal. Based upon the considerations within this subsection, and the results of the bounding calculation discussed in subsection "Emergency Decay Heat Removal" of this SER, the staff finds the plant is consistent with SECY-94-084. The updated analysis is reflected in the applicant's proposed changes to FSAR Section 19E described in a letter from the applicant dated May 5, 2015.

In Revision 19 of the AP1000 DCD, the cooldown requirement of reaching an RCS temperature of 420 °F in 36 hours is the only performance criteria listed in Section 6.3.1.1.1 that is not demonstrated by a Chapter 15 analysis. In reading the original DCD, it would be possible to incorrectly conclude that this performance requirement was demonstrated by a Chapter 15 analysis. The applicant's proposed changes under FSAR Sections 6.3.1.1 in letters dated June 27, 2014, and July 24, 2014, clarify how this design requirement is demonstrated. Based upon considerations within this subsection, the staff finds the proposed FSAR revisions in Sections 6.3.1.1 and 19E, noted above, to be acceptable.

B.1.3 Non-Safety Design Basis

In the proposed FSAR revision under Section 6.3.1.2 the applicant states that the PRHR HX, in conjunction with the IRWST and the condensate return features of the PXS, has the capability to maintain the reactor coolant system in the specified, long-term shutdown condition for 14 days in a closed loop mode of operation. The 14-day operation is also reflected in the applicant's proposed changes under FSAR Section 19E. The basis for this duration is provided by extending the duration of the non-bounding conservative LOFTRAN calculation that was discussed in subsection "Safe Shutdown" of this SER. The staff verified the results of the analysis in an audit (see ADAMS Accession No. ML15187A248). In an update to the departure provided in a letter dated January 14, 2016 (ADAMS Accession No. ML16020A250), the applicant identified calculations incorporating ambient heat losses performed using RELAP 5, a transient analysis code, as LOFTRAN was not suited for demonstrating two-phase flow through the RCS. The RELAP calculations showed a loss of subcooling in the RCS occurring after 72 hours, but prior to 14 days. The calculations showed that the PRHR HX was capable of performing its function out to 14 days even with the loss of subcooling. The applicant provided test results from the APEX facility to demonstrate the ability of the PRHR HX to perform its function with a saturated RCS. The staff verified the results of the calculation and test results in an audit (ADAMS Accession No. ML16034A034). Operation of the PXS for 14 days in closed loop mode is not required to satisfy Commission regulations. The operational requirements of the PRHR HX have been evaluated in subsection "Safety Design Basis" of this SER. The staff finds the changes made to the operational duration and safety classification of the PRHR HX in LNP DEP 6.3-1 acceptable.

B.1.4 Post-72-Hour Actions

In DCD Section 6.3.4, it is stated that the only post-72-hour action required is a potential need for containment inventory makeup. This caused the staff to question the post-72-hour actions in the event that closed loop mode of PXS operation is extended following a non-LOCA event. In RAI-7440, Question 15.02.06-3, the staff requested clarification on post-72-hour actions following non-LOCA events. In a response dated June 19, 2014 (ADAMS Accession No. ML14171A453), the applicant stated that containment makeup would be necessary if containment leakage reduces the containment flood-up level, but there is no requirement to provide makeup to the IRWST to maintain PRHR HX operability. The primary post-72-hour actions are to provide water makeup to continue passive containment cooling and spent fuel cooling and, in the event that operators extend the closed loop mode of PXS operation, to provide power to the post-accident monitoring cabinets when transition to open loop cooling is required. In RAI 7440, Question 15.06.01, the NRC staff sought clarification on the criteria for operators to actuate ADS and transition to open loop cooling. The applicant's response provided in letter dated January 15, 2016 (ADAMS Accession No. ML16021A188), stated four criteria associated with reliable indication of core cooling which included (1) power availability to IDS divisions B and C, (2) hot leg and CMT level, (3) core exit thermocouple temperature, and (4) RCS pressure. The NRC staff finds this answer acceptable because it requires operators to check for diverse and reliable indication of adequate core cooling. The impact of post-72-hour actions has been reviewed by the staff in subsection "Safety Design Bases" of this SER.

B.2 Classification of Structures, Components, and Systems

Section 6.0, "Impacts to the Licensing Basis," of APP-GW-GLR-607 and APP-GW-GLR-161, Revision 2 describes the changes impacted to the COL application and provides the additional piping and components to the PXS. Subsection "Tier 1," states that "The added components of the PXS are integral to providing safety-related core decay heat removal during non-LOCA events. Therefore, it is appropriate to apply inspections, test, analyses and acceptance criteria to the added PXS components to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the applicable design criteria, codes and standards." It further states that "As required by general design criterion 2 of Appendix A to 10 CFR Part 50, the PXS is designed to withstand the effects of natural phenomena and normal and accident conditions without loss of capability to perform its safety functions." The PXS containment recirculation downspout screens are identified as follows:

PXS-MY-Y81	PXS-MY-Y85
PXS-MY-Y82	PXS-MY-Y86
PXS-MY-Y83	PXS-MY-Y87
PXS-MY-Y84	PXS-MY-Y88

These component numbers will be added to the LNP Units 1 and 2 FSAR to supplement Table 2.2.3-1 of the AP1000 DCD, Revision 19, Tier 1. Mark-ups to Table 2.2.3-1 of the AP1000 DCD, Revision 19, Tier 1 and Table 3.2-3 of the AP1000 DCD, Revision 19, Tier 2, provided in Appendix B of APP-GW-GLR-607 and APP-GW-GLR-161, state that these eight additional downspout screens are not American Society of Mechanical Engineers (ASME) Code Section III components and the principal construction code is manufacturer standard.

In Section 6.0 of APP-GW-GLR-607 and APP-GW-GLR-161, under the subheadings "Tier 2," "Chapter 3: Impacted," the applicant states that, "The new PXS downspout screens are AP1000 Safety Class C and seismic Category I components. These components meet the quality assurance requirements of 10 CFR 50, Appendix B. Additionally, the screens must be demonstrated to have no functional damage following a seismic ground motion exceeding the one-third of the safe shutdown earthquake ground motion before resuming operations in accordance with 10 CFR Part 50, Appendix S." Under the subheading "Tier 1," the applicant further states that ITAAC design requirements will be met for these eight added downspout screens.

On the basis of the safety and seismic classifications of these eight added downspout screens, their quality assurance requirements, and the fact that SRP 3.2.1, "System Quality Group Classification," and Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," do not provide specific guidance for the code of construction for non-ASME, non-pressure retaining components that belong to Quality Group C, the staff agrees that the use of manufacturer standards for the design of these downspout screens and the classification of AP1000 Safety Class C and seismic Category I is acceptable. Therefore, the staff finds the proposed FSAR revisions concerning these eight added downspout screens to be acceptable.

Section 6.0 of APP-GW-GLR-607 and APP-GW-GLR-161, Subsection "Tier 1," states that "As required by general design criterion 4 of Appendix A to 10 CFR Part 50, the PXS containment downspout piping would be safety-related and required to withstand normal and seismic design basis loads without losing functional capability." The following PXS containment downspout piping are the proposed piping to be added to the LNP Units 1 and 2 FSAR to supplement Table 2.2.3-2 of AP1000 DCD, Revision 19, Tier 1:

PXS-L301A	PXS-L306A	PXS-L301B	PXS-L306B
PXS-L302A	PXS-L307A	PXS-L302B	PXS-L307B
PXS-L303A	PXS-L308A	PXS-L303B	PXS-L308B
PXS-L304A	PXS-L309A	PXS-L304B	PXS-L309B
PXS-L305A	PXS-L310A	PXS-L305B	PXS-L310B

Section 5.0, "Design Changes," Subsection "Polar Crane Girder and Internal Stiffener Modifications," Sub-subsection "1) PXS Downspout Piping," of APP-GW-GLR-607 and APP-GW-GLR-161 states that these added downspout piping are classified as AP1000 Safety Class C, seismic Category I. Mark-up of Table 2.2.3-2 to AP1000 DCD, Revision 19, Tier 1, provided in Appendix B of APP-GW-GLR-607 and APP-GW-GLR-161, further states that these added downspout piping are ASME Code Section III piping. According to the AP1000 DCD, Revision 19, Tier 2, Section 3.2.2, "AP1000 Classification System," Subsection 3.2.2.5, "Equipment Class C," Class C structures, systems and components are designed to codes and standards consistent with the guidelines for NRC Quality Group C. In addition, 10 CFR 50, Appendix B and ASME Code, Section III, Class 3 apply to pressure retaining components.

Section 6.0 of APP-GW-GLR-607 and APP-GW-GLR-161, Subsection "Tier 1," states that ITAAC design commitments will be met for these added downspout piping. In addition, Table 2.2.3-4 of the AP1000 DCD, Revision 19, Tier 1, provides ITAAC that 1) ensure the piping identified in Table 2.2.3-2 as ASME Code Section III is designed and constructed in accordance with ASME Code Section III requirements; 2) pressure boundary welds in piping identified in Table 2.2.3-2 as ASME Code Section III meet ASME Code Section III requirements; and

3) piping identified in Table 2.2.3-2 as ASME Code Section III retains its pressure boundary integrity at its design pressure.

On the bases that these downspout piping are designed to ASME Code Section III, Class 3 and the quality assurance requirements of 10 CFR 50, Appendix B, and that the ITAAC related to piping listed in Table 2.2.3-4 of the AP1000 DCD, Revision 19, Tier 1 apply, the staff finds the classification of this added downspout piping acceptable. Therefore, the staff finds the proposed FSAR revisions noted above to be acceptable.

B.3 Technical Specifications

In a letter dated February 7, 2014, the applicant submitted an exemption request titled "Supplement 3 to Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Revision19 to Address Containment Condensate Return Cooling Design," for LNP Units 1 and 2. As a result of the condensate return testing conducted at the Waltz Mill Test Facility, modifications to the polar crane girder, internal stiffener, and IRWST gutter designs were made. In addition, extensions of the gutter were added above the upper personnel airlock and upper equipment hatch. A downspout system was also added to capture condensation at the polar crane girder and stiffener locations. These modifications result in minor editorial changes in a few sections of the TS and Bases (Chapter 16) in the COL application.

In a letter dated November 17, 2014, and titled "Supplement 5 to Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Revision19 to Address Containment Condensate Return Cooling Design," the applicant provided further details on the condensate return issue including other editorial modifications to the TS and Bases.

These changes are necessary to ensure that the TS and Bases accurately reflect the updated design and are described below.

LCO Section of B3.3.3 (Postaccident Monitoring (PAM) Instrumentation)

On page B3.3.3-4, in the last line of the first paragraph in Section 11, "In-Containment Refueling Water Storage Tank (IRWST) Water Level," the text "…via a gutter." is updated to "…via a gutter and downspouts."

Background Section of B3.5.4 (Passive Residual Heat Removal Heat Exchanger (PRHR HX) – Operating)

On page B3.5.4-1, in the first and second lines of the third paragraph of the Background section, the text "…PRHR HX operation, a gutter is provided…" is updated to "…PRHR HX operation, downspouts and a gutter are provided…"

Also in that paragraph, the text in the fourth and fifth line is updated from "…collected by the gutter is directed…" to "...collected by the downspouts or gutter is directed…"

TS and SR Sections for B3.5.4.7

On page 3.5.4-3 of the TS, the text in SR 3.5.4.7 is updated from "…gutter is…" to "…gutter and downspout screens are…"

On page B3.5.4-7, the text in the first and second lines of the only paragraph in SR 3.5.4.7 is updated from "…IRWST gutters to verify…" to "…IRWST gutters and downspout screens to verify…"

Also in that paragraph, the text in the fourth and fifth lines is updated from "…the gutters could become restricted." to "…the gutter or downspout screens could become restricted."

The staff finds the proposed changes in both Supplement 3 and 5 acceptable because the changes make the TS and Bases consistent with the revised design. Therefore, the staff finds the proposed revisions noted above to be acceptable.

B.4 Risk Results and Insights

The proposed departure did not entail any change to the models used for plant-specific PRA. However, FSAR Table 19.59-202, "AP1000 PRA-Based Insights" item 1.e. was clarified to reflect how long the PRHR HX, IRWST, PCS, and condensate return features can now be relied on for core cooling.

The plant-specific PRA results and insights have been updated to account for this design change and departure. This is consistent with 10 CFR 52.79(d)(1) and is, therefore, acceptable to the staff.

21.1.5 Post Combined License Activities

There are no post-COL activities related to this section.

21.1.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to the design change of the passive core cooling system, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and meets the regulatory requirements and guidance discussed in Section 21.1.3 of this SER. The staff based its conclusion on the following:

- LNP DEP 6.3-1 and LNP DEP 3.2-1 are acceptable because the described changes permit the applicant to meet the licensing basis within the bounds of the updated licensing document.

21.2 Main Control Room Dose Departure

21.2.1 Introduction

At a meeting with the staff on July 23, 2014 (ADAMS Accession Nos. ML14220A110, ML14220A111, and ML14220A113), Westinghouse Electric Company, vendor for the AP1000 design, presented some self-identified discrepancies in underlying calculations supporting the AP1000 DCD, Revision 19, DBA MCR habitability dose analyses. Westinghouse identified the need to update the DBA analyses in order to show compliance with the control room habitability regulatory requirements in 10 CFR Part 50, Appendix A, GDC 19, "Control Room," because: (1) the analyses did not account for the MCR emergency habitability system (VES) filter direct dose in the control room, (2) the nuclear island nonradioactive ventilation system (VBS) radiation monitor setpoints for control room ventilation system actuation did not account for all DBA release scenarios, and (3) the analyses that estimated the MCR dose contribution from direct radiation and skyshine used methodology that are not up-to-date. Subsequently, the staff issued RAI Letter No. 121, dated September 24, 2014 (ADAMS Accession No. ML14259A094), RAI 7661, to the LNP Units 1 and 2 COL applicant requesting them to address this information from the AP1000 design vendor.

21.2.2 Summary of Application

In response to the staff's RAI Letter No. 121, the applicant determined that a comprehensive change was necessary to correct the errors in the certified design and submitted site-specific departure LNP DEP 6.4-1 by letter dated February 6, 2015, as superseded by submittals dated June 5, 2015, and July 1, 2015 (ADAMS Accession Nos. ML15040A470, ML15161A039, and ML15189A255, respectively).

In response to subsequent RAI Letter Nos. 129, 130, and 131, dated July 13, August 7, and September 2, 2015, respectively (ADAMS Accession Nos. ML15194A263, ML15219A536, and ML15245A738, respectively), the applicant submitted responses dated October 13, 2015, November 2, 2015 (two responses), December 22, 2015, and February 9, 2016 (ADAMS Accession Nos. ML15289A228, ML15308A383, ML15308A002, ML15358A013, and ML16042A081, respectively).

On December 7, 2015, the applicant submitted Revision 8 to the LNP Units 1 and 2 COL application, which had been updated to incorporate changes proposed by the applicant in submittals from before November 6, 2015. The staff has verified that the FSAR additions and changes that are part of the proposed departure have been incorporated into Revision 8 of the COL application and no confirmatory items are required.

Tier 1 and Tier 2 Departure

The applicant proposed the following Tier 1 and Tier 2 departure (DEP) from the AP1000 DCD, Revision 19:

- LNP DEP 6.4-1

In LNP DEP 6.4-1, the applicant proposed a departure from the AP1000 DCD, Tier 1 and Tier 2 information to reflect revised DBA dose analyses and design changes. As described in the letters referenced above, the proposed Tier 2 departure includes changes to FSAR Chapters 1,

3, 6, 7, 9, 11, 12, 14, and 15 in the LNP Units 1 and 2 COL application, as well as TS and TS Bases appearing in Part 4 of the COL application and cited in FSAR Chapter 16. In addition, the applicant requested an exemption from the incorporation by reference of AP1000 DCD Tier 1 information, specifically Tier 1 Section 2.7.1, to change the VES actuation signal name from "high-high" to "High-2" and to revise Tier 1 Section 2.2.5 and Tables 2.2.5-1 and 2.2.5-5 to add information on ITAAC for added shielding below the VES filter.

For the LNP DEP 6.4-1 revisions to FSAR Chapter 15 discussed above, the DBA dose analysis calculations that supported the DCD text are effectively replaced in full by site-specific DBA dose calculations that support departure LNP DEP 6.4-1. All seven of the DBA dose analyses documented in AP1000 DCD Chapter 15 are affected by at least one change to the analysis proposed in LNP DEP 6.4-1. The revisions to the DBA dose analyses affect both the MCR and offsite dose results.

This exemption request involves departures from Tier 1 Subsection 2.7.1 and the generic TS with other Tier 2 involved departures. Therefore, these departures require NRC approval and are evaluated below.

21.2.3 Regulatory Basis

The staff reviewed the departures related to the evaluation of control room habitability systems in accordance with NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition" (SRP), Section 6.4, "Control Room Habitability System." This guidance includes acceptance criteria that have been found acceptable by the staff for meeting the following control room habitability systems requirement:

- GDC 19, regarding providing a control room from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions

The staff used a dose criterion of 0.05 Sievert (Sv) (5 roentgen equivalent man (rem)) total effective dose equivalent (TEDE) for evaluating the control room radiological consequences resulting from DBAs, pursuant to GDC 19 of Appendix A to 10 CFR Part 50.

Because the proposed revisions to the DBA dose analyses affected the offsite dose results, the staff also evaluated the radiological consequences of DBAs against the dose criteria specified in 10 CFR 52.79(a)(1)(vi), of 0.25 Sv (25 rem) TEDE at the exclusion area boundary (EAB) for any 2-hour period, following the onset of the postulated fission product release, and 0.25 Sv (25 rem) TEDE at the outer boundary of the low population zone (LPZ) for the duration of exposure to the release cloud.

The staff used applicable guidance in SRP Section 6.4, "Control Room Habitability System," SRP Section 15.0.3, "Design Basis Accident Radiological Consequences Analyses for Advanced Light Water Reactors," and RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," in its review of the revised AP1000 DBA radiological consequence analyses.

21.2.4 Technical Evaluation

Tier 1 and Tier 2 Departure

- LNP DEP 6.4-1

LNP DEP 6.4-1 proposes to (1) revise the design description of the VBS to reflect the correct name of the actuation signal (high-high to High-2) for isolating the MCR penetrations, (2) reduce the allowable secondary coolant iodine activity to meet GDC 19 requirements for the main steam line break accident, and (3) address a number of other DCD changes based on issues that were identified through the design finalization process that challenge the ability of the AP1000 certified design to satisfy GDC 19.

LNP DEP 6.4-1 also provides site-specific adoption of generic revisions to the AP1000 DBA dose analyses, including calculation of the MCR dose, and proposes a design change to add radiation shielding to the VES filter. Changes are made to each of the DBA dose analyses evaluated in Chapter 15 of the AP1000 DCD as referenced in the LNP Units 1 and 2 FSAR. Staff review of the specific changes will be discussed below in the technical evaluation of the departure.

In addition, the staff reviewed a request for an exemption submitted by the applicant. The request proposed changes to Tier 1 Sections 2.2.5 and 2.7.1, Tier 1 Tables 2.2.5-1 and 2.2.5-4, and generic TS limiting condition for operation (LCO) 3.7.4 and surveillance requirement (SR) 3.7.4.1 and the related TS Bases in the AP1000 DCD. The regulatory evaluation of the exemption request appears in Subsection A, below, and the technical evaluation of the exemption request and departure appears in Subsection B, below.

A. Regulatory Evaluation of Exemption Request

A.1 Summary of Exemption

The applicant requested an exemption from the provisions of 10 CFR Part 52, Appendix D, Section III.B, "Design Certification Rule for the AP1000 Design, Scope and Contents," that require the applicant referencing a certified design to incorporate by reference Tier 1 information.[3] Specifically, the applicant proposed to revise Tier 1 Section 2.2.5 and Tables 2.2.5-1 and 2.2.5-5 to add information on ITAAC related to the radiation shielding below the VES filter. Also, the applicant proposed to revise Tier 1 Section 2.7.1 to reflect a change to the name of the actuation signal for isolating the MCR penetrations and initiating the VES from "high-high" to "High-2". In addition, the applicant proposed a departure from the AP1000 generic TS, specifically TS LCO 3.7.4 and TS SR 3.7.4.1 to lower the allowable value for secondary coolant iodine activity concentration from 0.1 µCi/gm dose equivalent iodine-131 (DEI-131) to 0.01 µCi/gm DEI-131.

[3] While the applicant describes the requested exemption as being from Section III.B of 10 CFR Part 52, Appendix D, the entirety of the exemption pertains to proposed departures from Tier 1 information and generic TS in the generic DCD. In the remainder of this evaluation, the NRC will refer to the exemption as an exemption from Tier 1 information and generic TS to match the language of Sections VIII.A.4 and VIII.C.4 of 10 CFR Part 52, Appendix D, which specifically govern the granting of exemptions from Tier 1 information and generic TS.

A.2 Regulations

- 10 CFR Part 52, Appendix D, Section VIII.A.4 states that exemptions from Tier 1 information are governed by the requirements of 10 CFR 52.63(b) and 10 CFR 52.98(f). It also states that the Commission may deny such a request if the design change causes a significant reduction in plant safety otherwise provided by the design. This subsection of Appendix D also provides that a design change requiring a Tier 1 change shall not result in a significant decrease in the level of safety otherwise provided by the design.

- 10 CFR Part 52, Appendix D, Section VIII.C.4 states that an applicant may request an exemption from the generic TS or other operational requirements. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of 10 CFR 52.7.

- 10 CFR 52.63(b)(1) allows an applicant or licensee to request NRC approval for an exemption from one or more elements of the certification information. The Commission may only grant such a request if it complies with the requirements of 10 CFR 52.7 which in turn points to the requirements listed in 10 CFR 50.12 for specific exemptions, and if the special circumstances present outweigh the potential decrease in safety due to reduced standardization. Therefore, any exemption from the Tier 1 information certified by Appendix D to 10 CFR Part 52 must meet the requirements of 10 CFR 50.12, 52.7, and 52.63(b)(1).

A.3 Evaluation of Exemption

As stated in Section VIII.A.4 of Appendix D to 10 CFR Part 52, an exemption from Tier 1 information is governed by the requirements of 10 CFR 52.63(b)(1) and 52.98(f). Additionally, the Commission will deny an exemption request if it finds that the requested change to Tier 1 information will result in a significant decrease in safety. As required by 10 CFR 52.63(b)(1), the Commission may, upon application by an applicant or licensee referencing a certified design, grant exemptions from one or more elements of the certification information, so long as the criteria given in 10 CFR 50.12 are met and the special circumstances as defined by 10 CFR 50.12 outweigh any potential decrease in safety due to reduced standardization.

As stated in Section VIII.C.4 of Appendix D to 10 CFR Part 52, the Commission may grant an exemption from generic TS of the DCD only if it determines that the exemption will comply with the requirements of 10 CFR 52.7. As stated above, Section 52.7 points to 10 CFR 50.12 for specific exemptions.

Applicable criteria for when the Commission may grant the requested specific exemption are provided in 10 CFR 50.12(a)(1) and (a)(2). Section 50.12(a)(1) provides that the requested exemption must be authorized by law, not present an undue risk to the public health and safety, and be consistent with the common defense and security. The provisions of 10 CFR 50.12(a)(2) list six special circumstances for which an exemption may be granted. It is necessary for one of these special circumstances to be present in order for NRC to consider granting an exemption request. The applicant stated that the requested exemption meets the special circumstances of 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." The staff's analysis of each of these findings is presented below.

A.3.1 Authorized by Law

This exemption would allow the applicant to implement approved changes to Tier 1 Sections 2.2.5 and 2.7.1, Tier 1 Tables 2.2.5-1 and 2.2.5-5 and generic TS LCO 3.7.4 and SR 3.7.4.1. This is a permanent exemption limited in scope to particular Tier 1 information and generic TS, and subsequent changes to this information or any other Tier 1 information or generic TS would be subject to full compliance with the change processes specified in Sections VIII.A.4 and VIII.C.4 of Appendix D to 10 CFR Part 52. As stated above, 10 CFR 52.63(b)(1) allows the NRC to grant exemptions from one or more elements of the certification information, namely, as discussed in this exemption evaluation, the requirements of Tier 1. Moreover, Section VIII.C.4 allows the NRC to grant exemptions from generic TS if the exemption meets the requirements of 10 CFR 52.7 and 50.12. The staff has determined that granting of the applicant's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the NRC's regulations. Therefore, as required by 10 CFR 50.12(a)(1), the exemption is authorized by law.

A.3.2 No Undue Risk to Public Health and Safety

The underlying purpose of AP1000 Tier 1 Sections 2.2.5, 2.7.1, Tier 1 Tables 2.2.5-1 and 2.2.5-5 and generic TS LCO 3.7.4 and SR 3.7.4.1 is to ensure that the plant will be constructed and operated with appropriate protection of the public health and safety and provide radiation protection to workers in the event of an accident, including radiation shielding and limitation of radioactive material that could be released to the environment.

Addition of radiation shielding below the VES filter improves worker protection from the effects of radiation and ensures that the control room operators can occupy the control room in order to take actions to maintain the plant in a safe condition during accident conditions; this change, therefore, supports the system's intended design functions. Reducing the allowable iodine activity concentration in the secondary coolant limits the amount of radioactive material that is available for release to the environment during accidents and, therefore, reduces the potential dose to the public from accidents to meet the offsite dose criteria for the plant siting and safety assessment. Changing the name of the VES actuation signal for isolating the MCR penetrations in Tier 1, Section 2.7.1, ensures consistency with Tier 2 design information and does not change the function of the actuation signal.

The plant-specific Tier 1 DCD and TS will continue to meet regulatory requirements for protecting public health and safety and will maintain a level of detail consistent with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD. 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. The proposed changes to Tier 1 information and generic TS are evaluated and found to be acceptable in Section 21.2.B of this safety evaluation. Therefore, the staff finds the exemption presents no undue risk to public health and safety as required by 10 CFR 50.12(a)(1).

A.3.3 Consistent with Common Defense and Security

The proposed exemption would allow the applicant to implement modifications to the Tier 1 information and generic TS requested in the applicant's submittal. This is a permanent exemption limited in scope to particular Tier 1 information and a specific TS. Subsequent changes to this information or any other Tier 1 information or generic TS would be subject to full compliance with the change processes specified in Sections VIII.A.4 and VIII.C.4 of Appendix D to 10 CFR Part 52. This change is not related to security issues. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that the exemption is consistent with the common defense and security.

A.3.4 Special Circumstances

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purposes of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purpose of the specific Tier 1 Tables 2.2.5-1 and 2.2.5-5 and TS LCO 3.7.4 and SR 3.7.4.1 being modified in the exemption request is to identify and conduct surveillances of the components that will be added to the design of the VES and also the control of radioactive material in the secondary coolant. The additional components and new surveillance requirements for those components are needed so that the MCR can perform its intended functions, that is, to (1) provide a control room from which actions can be taken to operate the nuclear power unit safely under normal conditions, (2) maintain the nuclear power unit in a safe condition under accident conditions, with adequate radiation protection, and (3) permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposure in excess of 0.05 Sv (5 rem) TEDE for the duration of the accident, in accordance with GDC 19. The proposed change to the VES actuation signal name in Tier 1 Section 2.7.1 does not affect the design function of the VBS to isolate the MCR penetrations and ensures consistency with Tier 2 design information.

Using the "high-high" name for the VES actuation signal in Tier 1, Section 2.7.1, and application of the requirements in Tier 1, Tables 2.2.5-1 and 2.2.5-5 (related to the VBS and VES design description and ITAAC) and generic TS LCO 3.7.4 and SR 3.7.4.1 (related to the specific activity limit in the secondary coolant), as was previously approved for the AP1000 design certification, is not necessary to achieve the underlying purpose of those portions of the rule, given that the departures proposed by the applicant improve consistency with Tier 2 design information and improve the function of systems designed to limit doses to workers and the public . The proposed additions to the VES filter shielding supports the MCR's intended design functions, as does the addition of ITAAC for those additional components. Likewise, the changes to the allowable iodine activity concentration in the secondary coolant supports the MCR's intended design function and compliance with the siting and safety assessment offsite dose requirements. Reducing the TS limit for DEI-131 improves accident consequence margins for DBAs involving secondary coolant release. These changes do not affect the ability of any structures, systems, or components to perform their functions or impair safety and, therefore, meet the underlying purposes of the rule. Accordingly, because application of the requirements in Tier 1 Tables 2.2.5-1 and 2.2.5-5 and the generic TS LCO 3.7.4 and SR 3.7.4.1 is not necessary to achieve the underlying purpose of the rule, special circumstances are present. Therefore, the staff finds that special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from the Tier 1 information and generic TS described above are present.

A.3.5 Special Circumstances Outweigh Reduced Standardization

This exemption, if granted, would allow the applicant to change certain Tier 1 information incorporated by reference from the AP1000 DCD into the LNP COL application. An exemption from Tier 1 information may only be granted if the special circumstances of the exemption request, required to be present under 10 CFR 52.7 and 10 CFR 50.12, outweigh any reduction in standardization. The proposed exemption would add shielding under the VES filter and change the name of the VES actuation signal that isolates the MCR. The proposed changes to the VES filter shielding and VES actuation signal name support and maintain the MCR's intended design functions.[4]

As described below in the technical evaluation, the changes to the VES filter shielding and the name of the VES actuation signal ensure the capability of the safety related VES to maintain habitability in the control room during accidents, as described in DCD Chapter 6.4 "Control Room Habitability Systems," and meet the dose limit requirements of GDC 19. Consequently, although there is a small possibility that standardization may be slightly reduced by the granting the exemption from the specified Tier 1 requirements, the proposed exemption adding shielding to the VES filter will improve the reliability and effectiveness of the MCR and associated heating, ventilation, and air conditioning (HVAC) systems, to better allow the MCR and the VES to perform their intended functions with respect to radiological habitability. For this reason, the staff determined that even if other AP1000 licensees and applicants do not request similar departures, the special circumstances supporting this exemption outweigh the potential decrease in safety due to reduced standardization of the AP1000 design, as required by 10 CFR 52.63(b)(1).

A.3.6 No Significant Reduction in Safety

The proposed exemption would add shielding under the VES filter and change the name of the VES actuation signal. As described below in the technical evaluation, these changes (1) ensure the design functions for the VES and the MCR are maintained, (2) ensure consistency with Tier 2 design descriptions, and (3) ensure that the requirements of GDC 19 are met for all DBAs. The proposed changes to the VES filter shielding design will maintain the MCR's key design functions and will not impair the function of the VES or the MCR. The proposed change to the VES actuation signal name does not affect the function of the VBS or VES, and, therefore, does not affect the function of the MCR. Because the proposed changes will ensure that the design functions for the VES and MCR are maintained and that the requirements of GDC 19 are met for all DBAs, there is no reduction in safety. Therefore, the staff finds that granting the exemption would not result in a significant decrease in the level of safety otherwise provided by the design, as required by 10 CFR Part 52, Appendix D, Section VIII.A.4.

A.4 Conclusion

The staff has determined that pursuant to Section VIII.A.4 of Appendix D to 10 CFR Part 52, the exemption: (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) has special circumstances that

[4] Based on the nature of the proposed changes to the plant-specific Tier 1 information in Sections 2.2.5 and 2.7.1, other AP1000 licensees and applicants may request the same exemption, preserving the intended level of standardization.

outweigh the potential decrease in safety due to reduced standardization, and (5) does not significantly reduce the level of safety at the applicant's facility. The staff has also determined, pursuant to Section VIII.C.4 of Appendix D to 10 CFR Part 52 , that the generic TS portion of the exemption request: (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, and (4) demonstrates the existence of special circumstances. Therefore, the staff grants the applicant an exemption from the requirements of Tier 1 Sections 2.2.5 and 2.7.1, Tables 2.2.5-1 and 2.2.5-5 and generic TS LCO 3.7.4 and generic TS SR 3.7.4.

B. Technical Evaluation of Exemption Request and Departure

As summarized above in Section 21.2.2 of this safety evaluation, the applicant proposed LNP DEP 6.4-1 to depart from the AP1000 DCD. The applicant's departure is based on new DBA radiological consequence analyses instead of the generic site analyses that AP1000 DCD Chapter 15 is based on. The remainder of the analysis assumptions, inputs, and methodologies are the same as given in AP1000 DCD that the staff previously evaluated and found acceptable in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," Initial Report, Section 15.3.

In addition to review of the departure information submitted by letter and incorporated into the FSAR and Parts 2, 4, 7, 9, and 10 of the COL application, the staff performed an audit of the applicant's proprietary calculation packages and had the opportunity during public meetings to discuss the contents of both the submittals and the audited calculations (ADAMS Accession No. ML15231A003). During the audit, the staff verified that the changes to the DBA dose analyses presented in LNP DEP 6.4-1 and reflected in the provided markups of DCD were included in the supporting DBA dose analysis proprietary calculation packages and that the calculations did not contain additional changes not reflected in LNP DEP 6.4-1. The staff's review of the proposed design changes and revisions to the DBA radiological consequences analyses, including calculation of the MCR dose, is discussed below in this section.

DBAs analyzed for radiological consequences and the corresponding AP1000 DCD sections where the radiological consequences analyses for those DBAs are discussed are given below.

DCD Section	Design Basis Accident
15.1.5.4	Main Steam Line Break (MSLB)
15.3.3.3	Reactor Coolant Pump Shaft Seizure (Locked Rotor, LRA)
15.4.8.3	Control Rod Ejection Accident (REA)
15.6.2	Small Line Break
15.6.3.3	Steam Generator Tube Rupture (SGTR)
15.6.5.3	Loss of Coolant Accident (LOCA)
15.7.4.3	Fuel Handling Accident (FHA)

B.1 MCR direct dose analysis revisions

At a public meeting with the staff on July 23, 2014, Westinghouse Electric Company presented information about some self-identified discrepancies in underlying calculations supporting the AP1000 DCD DBA MCR habitability dose analyses. Westinghouse identified the need to update the analyses in order to show compliance with GDC 19 because the analyses did not account for the MCR VES filter direct dose in the control room, and the MCR dose contribution from direct radiation and skyshine calculations used a methodology that was not up-to-date. Following this meeting, on September 24, 2014, the staff issued RAI Letter No. 121, RAI 7661 (ADAMS Accession No. ML14259A106). Section 1c of Question 06.04-2 of this RAI specifically asked for additional information regarding intended revisions to the MCR direct radiation and skyshine dose calculations.

At a public meeting held on February 26, 2015, the applicant for the LNP Units 1 and 2 COL presented information on the approaches to address three departures from the AP1000 DCD: estimated dose to MCR operators, MCR heatup, and hydrogen vent location ITAAC (ADAMS Accession No. ML15056A091). The purpose of the meeting was to discuss ways for resolving the issues identified in the July 2014 meeting, including RAI 7661, and to discuss the path for conducting the relevant staff reviews. In this meeting, the applicant indicated that it was changing the methods for calculating direct radiation and skyshine doses to MCR operators from those used in AP1000 DCD.

Information contained in Tier 2 Sections 6.4, 9.4.1, and 11.5, of the AP1000 DCD Tier 2 describes how the two ventilation systems operate during normal and accident conditions. In summary, the VBS system, provides heating, cooling, and air exchange during normal operation. The fans, controls, and air conditioning equipment receive power from non-safety-related alternating current sources. Radiation monitors are located in the outside air inlets to the VBS system. When the safety-related radiation monitors detect a release of radioactive material, non-safety-related signals activate controls to realign non-safety-related dampers that direct airflow through charcoal and high-efficiency particulate air (HEPA) filters. These actions help reduce the amount of activity added to the MCR air and act to reduce the amount of activity already present. If inlet radioactivity levels continue to rise, a safety-related signal (High-2) from the radiation monitors actuates safety-related controls that isolate the MCR from the VBS system and actuate the safety-related VES ventilation system. The VES system uses high-pressure air from compressed air bottles to supply make-up air to the MCR. The air flows through an eductor that recirculates air in the MCR through safety-related HEPA and charcoal filters. The operation of the safety-related radiation monitors, VBS dampers, and VES actuation on a High-2 signal serve to maintain MCR operator doses less than the dose criterion of GDC 19 during accidents.

The applicant's VBS analysis supporting LNP DEP 6.4-1 assumed that the VES system did not actuate when the safety-related High-2 signal actuated. The applicant's supporting calculation for the total dose resulting from exclusive use of the VBS system without transitioning to the VES system is conservative and unnecessary for the staff to reach a safety finding.

On February 24, 2015, the staff began auditing MCR-dose-related calculation packages. The packages reviewed indicated that the direct dose contribution for some portions of the MCR dose analysis were performed using the Monte Carlo N-Particle (MCNP) radiation-transport code, Version 5, developed by Los Alamos National Laboratory. The calculation packages initially reviewed by the staff did not contain listings of the MCNP input or output files used for

these calculations. Information provided in the calculation packages indicated that in one area of the plant located adjacent to the MCR, the design used a flexible radiation shielding material to reduce post-loss-of-coolant accident (LOCA) dose rates from Zone IX to Zone VIII. Radiation Zones are defined in AP1000 DCD, Tier 2 Chapter 12, "Radiation Protection," Section 12.3 "Radiation Protection Design Features," of the AP1000 DCD (ADAMS Accession No. ML11171A354), Figure 12.3-2 (Sheet 1 of 16,) "Radiation Zones, Post-Accident Legend." Zone VIII is defined as greater than 100 rem/hr (1 Sv/hr) and less than or equal to 500 rem/hr (5 Sv/hr), and Zone IX as greater than 500 rem/hr (5 Sv/hr). Other portions of the calculation packages indicated that no shielding material is included in penetration models between the Shield Building wall opening and piping or electrical cabling passing through penetrations.

The June 5, 2015, response to RAI 7661 contained in Enclosure 1 to NPD-NRC-2015-014 (ADAMS Accession No. ML15161A042), stated that site-specific revisions for direct radiation and skyshine dose would be included in the LNP COL application. These revisions would include updated direct radiation and skyshine dose calculations to account for MCR penetrations shielding differences between the AP1000 and AP600 designs. In the AP1000 DCD, dose contributions from adjacent structure direct and skyshine radiation included in the MCR operator dose results for LOCA are based upon AP600 post-accident dose calculations and assume the presence of shielding that was not included in the AP1000 design. In LNP DEP 6.4-1, the applicant revised the post-accident radiological dose calculations to use updated AP1000 detailed design inputs and analyses for skyshine and direct radiation.

The information gathered by the staff during audits and the applicant's June 5, 2015, response to RAI 7661 led the staff to issue RAI Letter No. 130, RAI 8028, on August 7, 2015. RAI 8028 contained Questions 12.03-2 through 12.03-9, seeking additional information and clarification regarding the methods, models, and assumptions used to determine the direct and skyshine dose to the MCR operators. The applicant provided the initial response to this RAI in NPD-NRC-2015-042, dated November 2, 2015.

The calculation packages reviewed by the staff indicated that all penetrations greater than 6 inches in diameter were included in the applicant's MCNP model. The calculation packages further stated that contributions from penetrations less than 6 inches in diameter were not included in the MCNP model, but their contribution to the MCR dose was analyzed. The analysis of the contribution to MCR dose from penetrations less than 6 inches in diameter was not included in the set of initial documents reviewed by the staff.

It was not clear to the staff how the AP1000 design ensured that the contribution of direct radiation streaming through penetrations in the MCR envelope shield walls would result in MCR operator doses less than the requirements of GDC 19. In RAI 8028 Question 12.03-2, the staff asked the applicant to: (1) identify penetrations to the MCR shielding boundary, (2) identify the radiation protection design features credited for attenuating streaming radiation into the MCR, and (3) describe the direct radiation dose contribution to the MCR operators from MCR shielding penetrations. The applicant's response stated that Westinghouse had evaluated the control room layout and designed openings to identify penetrations with significant implications for radiation streaming. These penetrations were included in the MCNP model. The applicant excluded smaller penetrations from the model because ". . . previous analyses and informal work (using the Rockwell equations) showing streaming contributions through small penetrations is expected to be insignificant." "Reactor Shielding Design Manual," Editor Theodore Rockwell III, McGraw-Hill Book Company, Inc., 1956, available as TID-7004, Chapter 8, "Effects of Irregularities in Shields," Section 3, "Gammas," describes the referenced

Rockwell equations. Using the referenced Rockwell equations, some penetration sizes representative of those portrayed in the RAI response, and the dose rates referred to in AP1000 DCD, Tier 2 Section 12.3, Figure 12.3-2, the staff performed some scoping calculations to ascertain the potential impact from penetrations on MCR operator dose. Because the Rockwell equations are not directly applicable to the radiation and shielding environment surrounding the MCR shielding envelope, the staff also performed an MCNP-based scoping analysis representing a penetration into the MCR at a right angle to the incident radiation. The analysis performed by the staff indicated that a potential existed for exceeding the requirements of GDC 19 to some MCR operators due to radiation streaming through penetrations under the conditions analyzed in the DCD.

From the audit reviews conducted, it was not clear to the staff how the AP1000 design used flexible shielding material to prevent radiation streaming through penetrations into areas located adjacent to the MCR envelope. The staff was concerned because the environmental conditions of some of the locations where this material was located could exceed the design characteristics of the shielding material. It was not clear to the staff to what extent the AP1000 MCR shielding design relied on the use of a flexible shielding material to maintain MCR operator doses less than the requirements of GDC 19. In RAI 8028 Questions 12.03-3 and 12.03-4, the staff asked the applicant to: (1) describe where radiation protection design features such as penetration sealants are credited for attenuating direct radiation entering the MCR, and (2) identify those locations where environmental conditions could limit the serviceability of radiation protection design features such as penetration sealants that are credited for attenuating direct radiation entering the MCR. The applicant's response dated November 2, 2015, acknowledged that there were inconsistencies in the calculation packages regarding crediting the use of flexible shielding material for the MCR dose calculations. The response stated that the MCR dose provided in Enclosure 1 to NPD-NRC-2015-014 and currently certified post-accident radiation zone results do not require penetration sealant materials to be credited, and that the associated dose calculation packages were being revised to clarify this position. Because flexible shielding material is not credited in the MCR post-accident dose analysis used to demonstrate compliance with GDC 19, the staff finds this response acceptable.

NPD-NRC-2015-027 Enclosure 3, Figure 9.4.1-1 (Sheet 5 of 7), "Nuclear Island Non-Radioactive Ventilation System," shows the particulate, iodine, and noble gas airborne radiation monitor sample points upstream of the isolation valves V186 and V187. AP1000 DCD, Tier 2 Figure 7.2-1, Sheet 13 of 21, "Functional Diagram Containment and Other Protection," shows that the MCR radiation monitors are de-energized and the MCR isolation is actuated on either a High-2 radiation signal or a low battery charger input voltage for greater than 10 minutes. DCD Tier 2 Tables 8.3.2-1 through 8.3.2-4, describing 250V dc Class 1E divisional battery nominal load requirements, do not show any MCR airborne activity radiation monitors or MCR area radiation monitors, nor does it indicate any provisions for power to supply portable airborne activity monitoring equipment. Therefore, in RAI 8028 Question 12.03-7, the staff asked how the applicant would perform the surveys required by 10 CFR 20.1501 needed to ensure that the MCR filtration system was maintaining MCR dose less than the requirements of GDC 19 during post-accident conditions. The applicant's response stated that results of manual surveys are not credited as part of the AP1000 design. Such actions and the scope for the surveys mentioned in this question would likely fall within an Emergency Planning and Response Program. In addition, the applicant stated that grab samples could be taken using battery-operated equipment or a supply of ac power from a battery-backed control room outlet could be temporarily diverted to sampling equipment to obtain a grab sample of the MCR atmosphere. Because of the limited duration of sampling and the minimal heat load provided by

this type of equipment, such activities are expected to have an insignificant impact on temperatures in the MCR. The samples would be analyzed in laboratory space located outside of the MCR envelope. Because this response meets the requirements of 10 CFR 20.1501 for performing surveys, the staff finds this response acceptable.

During the audit reviews, the staff identified a number of individually minor differences between information contained within design basis documents, such as the density of concrete specified in DCD, discussions provided in calculation packages and the MCNP input/output files used to calculate MCR dose. Also, AP1000 DCD Tier 1 Table 3.3-1 "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," Footnote 2, states that the wall thicknesses have a tolerance of plus or minus 1 inch. The staff determined that the MCNP input/output files (proprietary) provided by the applicant used to calculate MCR dose calculations specified the nominal wall thicknesses instead of the minimum allowable wall thicknesses (ADAMS Accession Nos. ML15132A101 and ML15148A574). Using Grove Software, MicroShield Version 9.06 and MCNP6, the staff performed some scoping calculations to ascertain the potential effect on MCR operator dose. Based on the results of these calculations, it was not clear to the staff that the AP1000 design ensured that MCR operator doses would be maintained less than the requirements of GDC 19. Therefore, in RAI 8028 Questions 12.03-8 and 12.03-9, the staff asked the applicant to provide sufficient information to demonstrate that the shielding provided for MCR operators would be sufficient to maintain MCR operator doses within the limits of GDC 19, under the conditions analyzed in the DCD. The applicant's response stated that the AP1000 DCD specified the use of the Westinghouse Quality Program to define how the company meets customer and regulatory requirements. This program was designed to meet the quality requirements of the U.S. nuclear industry including 10 CFR Part 50 Appendix B and ASME NQA-1. Westinghouse procedures control the use of external computer software applied in safety-related design applications (in this case, the MCNP5 software) acquired from Non-Qualified Suppliers. The inputs to the MCNP5 code were made in accordance with the high-level Westinghouse Policies and Procedures, and the related configuration control procedures in place for design analysis applications. The applicant and Westinghouse further noted that information regarding shield walls and dimensions are noted in Tier 1, Table 3.3-1, of the licensing basis, and that the ITAAC text that introduces this table (Tier 1, Section 3.3, Item 3) states that this information is for "shielding during normal operations." Therefore, information in this table is not indicative of methods and inputs used in post-accident radiation shielding calculations and is not intended to be used for post-accident MCR operator dose calculations. The applicant and Westinghouse also stated that other conservative assumptions, such as source term assumptions, elemental make up, and concrete density during construction versus concrete density specified within the MCNP input files, provided sufficient margin to ensure that MCR dose remained within the GDC 19 dose criterion.

Following staff scoping calculations performed to evaluate the effects on MCR dose from MCR shield wall penetrations and changes in shielding thicknesses and densities, and technical discussions with the applicant during the audit, the applicant made available for audit additional information about MCR penetrations. After reviewing the additional information, the staff continued audit discussions with the applicant and Westinghouse shielding design technical experts. The applicant agreed to provide additional information about: (1) some additional specific penetrations that were being evaluated, (2) treatment of penetrations and embedded piping running through floor shielding, (3) relative value of assumed conservatisms, and (4) a discussion of conservative assumptions that would balance against non-conservatisms (ADAMS Accession No. ML16020A355).

The applicant submitted additional information to address these concerns in NPD-NRC-2016-010, dated February 9, 2016 (ADAMS Accession No. ML16042A081). As stated above, in RAI 8028 Question 12.03-2, the staff asked the applicant to provide information about potential dose to MCR operators due to radiation streaming through penetrations in the MCR shield wall envelope. The supplemental response contained in NPD-NRC-2016-010 described a sensitivity study used to ascertain the total effect of all existing penetrations included in the MCNP model to the calculated MCR operator dose. The applicant's supplemental response provided additional information to address the staff's concerns. The response stated that these studies showed that the dose resulting from penetrations was a small fraction of the total direct dose to the MCR operators. The response compared the existing modeled penetrations to the penetrations identified during the staff review. Most of the extra penetrations identified by the staff were similar in size and location to already modeled penetrations, so any incremental increase in dose from those penetrations should be small. The response provided information showing that in several cases, such as for horizontal runs of piping through shielding material, the actual dose rates within the areas adjacent to the location of the lines were only a fraction of the maximum dose rate listed for the zone.

The staff also used the response to assess treatment of penetrations and embedded piping running through floor shielding. The information contained in DCD Tier 2 Figure 3H.5-9, Sheet 2 of 3,) "Auxiliary Building Finned Floor," showing the steel plate referenced in the response, in conjunction with the note on Figure 3H.5-9 stating that staff approval is required prior to implementing a change to Figure 3H.5-9, provided confirmation to the staff that other structural components not credited in the MCNP calculations were present in the design. The staff used MicroShield scoping calculations to assess the relative attenuation of an air-filled void horizontal drain system pipe combined with the additional steel plate not credited in the applicant's MCNP calculation to a solid concrete floor without the void and steel plate. The attenuation provided by the void and steel plate appeared to be less than a solid concrete floor. However, by using the information provided in the supplemental response about the localized dose rates in the adjacent rooms, the conservatisms used in the model for the operation of the VBS system, and the directional nature of the radiation in the adjacent rooms, the staff ascertained that any incremental increase in MCR dose resulting from the embedded pipe would be insignificant.

The information in supplemental response NPD-NRC-2016-010 also addressed the potential contribution to MCR dose from some staff-identified penetrations in the MCR shield wall into an area of the plant next to the Shield Building. This area contains large penetrations through the Shield Building wall which can result in radiation streaming. The response noted that the radiation zoning for the room is due to the radiation levels next to the Shield Building penetrations. Because of the location of the penetrations in the MCR wall with respect to the Shield Building penetrations, the dose rates near the MCR wall penetrations would be significantly lower than the maximum dose rate associated with the zone designation of the room. The response also noted that because of the directional nature of the radiation streaming through the MCR wall penetrations and the location of the dose receptor point of interest inside of the MCR area, further attenuation would occur. Staff-based MCNP6 scoping calculations to assess the magnitude of the expected attenuation were consistent with the information provided in the supplemental response.

The supplemental response contained in NPD-NRC-2016-010, also addressed the staff request to have information demonstrating an understanding of the full extent of penetrations through the MCR shield wall envelope. To help quantify direct dose to operators in the MCR from the

existing AP1000 control room penetrations, Westinghouse stated that, based on their analysis, the contribution from the existing penetrations was a small fraction of the total direct dose to the MCR operators. Westinghouse stated that they reviewed archived concrete drawings, reviewed archived penetration drawings, and reviewed completed design change packages, to ensure that that the full scope of penetrations were identified and considered. Through reviews of the AP1000 plant three-dimensional software model, they verified that all penetrations into radiologically significant areas were identified.

Because the information provided in the supplemental response contained in NPD-NRC-2016-010 shows that the contribution to MCR operator dose from penetrations through the MCR shielding envelope would not result in exceeding the operator dose requirements of GDC 19, under the conditions analyzed in the DCD, the staff considers the issue identified in RAI 8028 Question 12.03-2 resolved.

As stated above in RAI 8028 Questions 12.03-8 and 12.03-9, the staff asked the applicant to provide sufficient information to demonstrate that the shielding provided for MCR operators would be sufficient to maintain MCR operator doses within the limits of GDC 19. The supplemental response contained in NPD-NRC-2016-010 discussed materials and construction details of the Shield Building wall that were not echoed in the applicant's/Westinghouse's MCNP shielding model. The staff also performed some scoping calculations using MCNP6 to evaluate the relative effectiveness of regular concrete versus regular concrete with embedded rebar. The staff scoping calculations showed that the degree of radiation attenuation is sensitive to variations in the location, size, or distribution of the rebar material. The level of detail in the DCD regarding location of rebar within walls and rebar size used in various walls of the plant does not support the staff performing a reliable evaluation of the relative attenuation effectiveness for generic walls.

To address the staff concerns related to the shielding design assumptions, the applicant provided a description of the conservatisms present in other portions of the MCR dose calculation, to show that any realistic non-conservatisms in the shielding design assumptions were well exceeded by the conservatisms present in the airborne activity dose calculations. In the supplemental response contained in NPD-NRC-2016-010, the applicant quantitatively discussed the relative significance of operation of the VBS system below the safety-related High-2 setpoint that would result in the transition from the non-safety-related VBS system to the safety-related VES system. The calculation used by the applicant estimated the total dose resulting from exclusive use of the VBS system without transitioning to the safety-related VES system, even though the VBS inlet airborne radioactivity concentrations would exceed the High-2 setpoints. Because the calculation assumes the non-safety related VBS system continues to operate with inlet airborne radioactivity levels above the safety related High-2 setpoint (the threshold at which the safety-related VES system actuates), this results in over estimating MCR operator dose because of airborne activity concentrations within the MCR. This is a very conservative approach, and unnecessary for the staff to reach a safety finding. As a result, a large margin exists between the 0.05 Sv (5 rem) TEDE criterion used for evaluating the VBS system performance and the total dose estimate derived from operating the VBS system below the High-2 setpoint. Because this margin ensures that the potential additional contribution to MCR operator dose resulting from the use of minimum wall thicknesses would not result in exceeding the operator dose requirements of GDC 19, under the conditions analyzed in the DCD, the staff considers the issue identified in RAI 8028 Question 12.03-8 and 12.03-9 to be resolved.

B.2 Control room filter direct dose

In its initial response to RAI 7661, dated February 6, 2015, the applicant identified that radiation contributions from MCR HVAC filters were not considered in the MCR dose analyses reported in the AP1000 DCD, Chapters 6.4 and 15. The applicant's revised DBA dose analyses include the contribution to the total MCR operator dose due to direct radiation from radioactive material estimated to accumulate on the VES and VBS filters during the accident.

The staff reviewed applicant-provided information about the direct dose from the VES and VBS filters. Because the VBS filter is located outside of the MCR envelope shielding boundary, the direct radiation dose from the VES filter is more limiting than the direct radiation dose from the VBS filter. Based on this consideration, the staff developed a scoping model using MCNP6 for the VES filter. The scoping model developed by the staff did not indicate the presence of any significant differences between the staff approach and that evidenced in the applicant's MCNP input and output files for the VES and VBS reviewed by the staff. The applicant's submittal dated July 1, 2015, states that shielding of the VES filtration unit is accomplished by safety-related metal shielding. The attenuating capability that is required is stated using tungsten as a reference. An equivalent amount of attenuation using stainless steel is also acceptable. However, neither AP1000 DCD Tier 1, Table 3.3-1, "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," nor DCD Tier 1, Section 2.2.5, "Main Control Room Emergency Habitability System," including Table 2.2.5-5, "Inspections, Tests, Analyses, and Acceptance Criteria," and Figure 2.2.5-1, "Main Control Room Emergency Habitability System," describe an ITAAC for verifying the presence, quantity, and the material properties of the VES shielding material. Therefore, in RAI 8028 Question 12.03-5, the staff asked the applicant whether an ITAAC for verifying the installation of the VES shielding material required to ensure compliance with GDC 19 is necessary. In the response dated November 2, 2015, the applicant revised the proposed departure to identify the VES filter shield in Tier 1, Tables 2.2.5-1 and 2.2.5-5, including a new ITAAC item 7e, which is consistent with modifications to Tier 2 of the licensing basis presented in the proposed FSAR Section 12.3.2.2.7. Because an ITAAC exists to ensure installation of design features needed to meet the regulatory requirements of GCD 19, the staff finds this response acceptable. The staff did not identify any additional issues associated with direct radiation exposure from the VES or VBS filters.

Through the addition of the additional shielding at the VES filter and the addition of the related ITAAC, the deficiency in the DCD analysis related to the direct dose contribution from the VES filter identified in the applicant's revised analysis provided as part of LNP DEP 6.4-1 is resolved. Because additional shielding ensures that the incremental increase to MCR operator dose resulting from the use of the VES filter would not result in exceeding the operator dose requirements of GDC 19, under the conditions analyzed in the DCD. Therefore, the staff finds the proposed changes acceptable.

B.3 Radiation monitor setpoint changes

As discussed in the response to RAI 7661, dated July 1, 2015, during its re-evaluation of MCR doses to include the direct dose contribution from HVAC filters, the applicant identified that the VBS radiation monitor setpoints in the AP1000 DCD, which were based on LOCA releases, were not selected in a manner that ensures that GDC is met for non-LOCA DBAs. In addition, they determined that the setpoints did not ensure the AP1000 design objective that the non-safety-related VBS supplemental filtration mode would be used when available, instead of initiating the safety-related VES. As stated in item 4 on page 5 of Enclosure 1 to the response to RAI 7661:

> For postulated accident conditions involving a reduced source term or release rate other than evaluated for DBAs as part of the certified design, there may not be sufficient radioactivity within the MCR Envelope to prompt actuation of VES, and yet, enough radioactivity could exist that would lead to operator doses in excess of 5 rem [0.05 Sv] without manual actuation. The radiation monitor setpoint values are therefore updated to ensure VBS or VES filtration mode actuation occurs for any radiological release event that could result in MCR operator doses in excess of GDC-19.

Specifically, the applicant stated on page 3 of Enclosure 1 to the response to RAI 7661:

> To ensure that GDC-19 is met for all design basis accidents, site-specific revisions to the radiation monitor setpoints will be included in the LNP COL application. These revised setpoints for MCR VES actuation will be based upon concentrations for any particular monitoring channel (particulate or iodine) not exceeding an operator dose of 1 rem [0.01 Sv]—regardless of release or accident scenario. This methodology will allow for airborne radioactivity in the control room to reach concentrations in each of the three channels at the setpoint and maintain compliance with GDC-19.

The applicant ensured that the postulated radioactive material releases for each DBA were conservatively compared to the setpoints to determine the timing of the initiation of the VES or the non-safety-related VBS supplemental filtration mode used as input to the MCR dose analyses. As the staff verified through audit of the proprietary radiation monitor setpoint calculation, the radiation monitor setpoints are calculated to correspond to a radioactive material concentration at the MCR HVAC intake that results in an MCR operator dose of 0.01 Sv (1 rem) in any channel because of the airborne release. Therefore, although the calculation of the VBS radiation monitor setpoints does not explicitly include the direct dose component of the MCR operator dose, the setpoint radioactive material concentration values provide sufficient margin to accommodate the addition of direct dose in the MCR and ensure that the GDC 19 dose criterion of 0.05 Sv (5 rem) TEDE is met. The staff finds these changes related to the VBS radiation monitor setpoints acceptable because they appropriately reflect the expected MCR HVAC system operation and provide acceptable input assumptions for use in each of the revised DBA dose analyses.

B.4 DBA dose analysis changes that affect the MCR airborne dose calculation

In addition to making changes to the DBA dose analyses to correct errors in the AP1000 DCD analysis of the direct dose component of the MCR dose as described above, the applicant

revised the modeling of the MCR in the calculation of the dose to MCR operators from immersion in and inhalation of the airborne release. The applicant made these changes to the AP1000 DCD Chapter 15 analyses modeling of the MCR to partially offset the increase in MCR operator dose because of the revised direct dose calculations and to reflect general updates to the detailed design. The staff's review of these DBA dose analysis changes that affect the calculation of MCR airborne dose are discussed in the following B.4 subsections.

Although LNP DEP 6.4-1 is a site-specific departure from the AP1000 DCD, the revised DBA dose analyses provided by the applicant are generic analyses in that they use the same short-term (accident) atmospheric dispersion factor (χ/Q) values given as site parameters in AP1000 DCD, Section 2.3.4. For LNP DEP 6.4-1, no changes were made to the LNP site characteristic short-term χ/Qs given in FSAR 2.3.4; therefore, in accordance with the discussion of LNP COL 2.3-4 in Section 15A.4 of this safety evaluation, the LNP site-specific short-term χ/Q values are less than those used in the revised generic analysis supporting LNP DEP 6.4-1. The applicant did not provide site-specific doses at the EAB, LPZ, or MCR for the DBAs referenced in AP1000 DCD, Chapter 15, but instead provided the results of the revised generic DBA dose analysis, which are bounding for the LNP site.

The estimated DBA dose calculated for a particular site is affected by the site characteristics through the calculated χ/Q input to the analysis; therefore, the resulting dose would be different than that calculated generically for the AP1000 design in the revised generic analyses. All other inputs and assumptions in the radiological consequences analyses remain the same as in the revised generic analyses. Smaller χ/Q values are associated with greater dilution capability, resulting in lower radiological doses. When comparing a DCD site parameter χ/Q value and a site characteristic χ/Q value, the site is acceptable for the design if the site characteristic χ/Q value is smaller than the site parameter χ/Q value. Such a comparison shows that the site has better dispersion characteristics than that required by the reactor design.

For each of the DBAs, the LNP site-specific χ/Q values for each time averaging period are less than the comparable design reference χ/Q values used in the AP1000 DCD and the revised DBA dose analyses provided in LNP DEP 6.4-1. Because the result of the radiological consequences analysis for a DBA during any time period of radioactive material release from the plant is directly proportional to the χ/Q for that time period, and because the LNP site-specific χ/Q values are less than the comparable AP1000 design reference χ/Q values for all time periods and all accidents, the LNP site-specific estimated total dose at the EAB, LPZ, and the MCR for each DBA is, therefore, less than the generic revised estimated total dose at the same receptor location for each DBA, as provided in LNP DEP 6.4-1.

B.4.1 Increase in VES filter efficiency for organic iodine

As discussed in the response to RAI 7661, dated July 1, 2015, the applicant increased the assumed VES charcoal filter efficiency for organic iodine to 90 percent from the 30 percent value used in the AP1000 DCD Chapter 15 DBA dose analyses and the estimation of the DBA dose to the MCR operators as reported in AP1000 DCD Chapter 6.4. The applicant proposed this change to partially offset increases in the total dose to the operators related to the revised consideration of direct dose from VES filter shine and other refinements in the MCR direct dose calculations. The change in the VES filter organic iodine efficiency is noted as a revision to DCD Table 15.6.5-2, Sheet 2 of 3. The change in the assumed organic iodine efficiency for the VES filter is based upon the applicant's updated evaluation of the relative humidity expected in

the MCR during post-accident operation of the VES and upon conformance with the guidance in RG 1.52, Revision 2, “Design, Testing, and Maintenance Criteria for Postaccident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants.”

As stated in Section 6.4.2.3 of the DCD incorporated by reference in the LNP COL application, the LNP VES charcoal adsorber is designed in accordance with ASME AG-1, Section FD, and RG 1.52. Each charcoal adsorber is an assembly with 2-inch deep Type II adsorber cells. RG 1.52 specifies the use of a safety factor of at least 2 when determining the appropriate methyl iodide penetration acceptance criterion in the TS for the representative sample of the charcoal adsorber. According to NRC Generic Letter 99-02, “Laboratory Testing of Nuclear-Grade Activated Charcoal,” the following equation is used to determine the appropriate methyl iodide allowable penetration:

penetration = (100% - organic iodide efficiency credited in accident analysis)/safety factor)

In AP1000 DCD, Table 15.6.5-2, the charcoal filter efficiency for organic iodine credited in accident analysis has been revised from 30 percent to 90 percent. The efficiencies for elemental iodine, 90 percent, and particulates, 99 percent, remain the same. Section 5.5.13 of the LNP TS requires the laboratory testing of the VES charcoal filters at 30 degrees Celsius (C) (86 degrees Fahrenheit (F)) and 95 percent RH using the American Society for Testing and Materials standard ASTM D3803, “Standard Test Method for Nuclear-Grade Activated Carbon,” with a test penetration of 5 percent.

Appling the above equation, the safety factor of two is satisfied.

Therefore, the required LNP TS laboratory test will ensure that the DBA dose analysis credited efficiency of 90 percent organic iodine will conservatively be met with margin (i.e. safety factor of 2) which accounts for potential degradation over the 24-month operating cycle.

B.4.2 Changes to MCR design input assumptions

The applicant’s DBA dose analyses included revisions to the analysis input assumptions on MCR and MCR HVAC volume based on updated detailed design data. In addition, the VBS intake and VBS ancillary fan intake flow rates include a 10-percent uncertainty on the nominal flow rates used in the DCD Revision 19 Chapter 15 DBA dose analyses.

The staff finds these changes acceptable because they are based on detailed design data and include appropriate consideration of uncertainty.

As discussed in the response to RAI 7661, dated July 1, 2015, the applicant determined that the time modeled in the AP1000 DCD, Chapter 15, DBA analyses for the switchover from VBS normal operation to the VBS supplemental filtration mode based on the VBS radiation monitor reaching the non-safety-related High-1 MCR HVAC system setpoint was not bounding for non-LOCA analyses when the updated detailed design information was taken into account. Similarly, the VES initiation time assumed in the DCD non-LOCA DBA analyses was not bounding. To address this concern, the applicant revised the DBA dose analyses using updated detailed design information and included a longer delay interval between the time that the VBS radiation monitor reaches the High-1 setpoint concentration and the time when the non-safety-related VBS supplemental filtration mode is operational. The applicant’s revised

DBA dose analyses that show compliance with GDC 19 included consideration of a longer delay interval between the time that the VBS radiation monitor reaches the High-2 setpoint concentration and the time when the safety-related VES is operational, based on updated detailed design information.

In RAI Letter No. 129, dated July 13, 2015 (ADAMS Accession No. ML15194A263), RAI 8004 Question 06.04-10, the staff asked for more information on the calculated time after the beginning of the accident that the VBS radiation monitor setpoints are reached and the timing of initiation of the VES or VBS supplemental filtration mode. The applicant's response, dated October 13, 2015 (ADAMS Accession No. ML15289A228), provided information that listed the calculated times that the radiation monitor setpoints are reached and the times that the VES or VBS supplemental filtration mode begins operation for each of the DBAs based on the calculated radioactive material release for the specific DBA. Additional proprietary information was also provided on the estimated delay time for each event related to system initiation, including the time to detect the radioactive material, time for signal processing, and time to complete damper movement. The staff determined that the more detailed information supports the changes to the assumptions on timing of the VES and VBS systems operation made in the revised DBA dose analyses. The staff also determined that the proposed changes to DBA dose analysis input related to MCR HVAC system operation appropriately address the issue that the applicant identified where the DCD MCR dose analysis would not be bounding for non-LOCA DBAs. Therefore, the staff finds acceptable the proposed changes to the MCR design assumptions used as input to the DBA dose analyses, and RAI 8004, Question 06.04-10, is resolved.

B.5 Other DBA dose analysis changes that affect both the MCR dose and the offsite dose results

The applicant made additional changes to selected DBA dose analysis assumptions to reflect general detailed design updates. Because the proposed analysis changes result in a change of the calculated amount of radioactive material that is assumed to be released to the environment, the offsite dose results are also affected. The staff's review of these DBA dose analysis changes are discussed below in the following B.5 subsections.

B.5.1 Iodine re-evolution modeling in LOCA dose analysis

As discussed in the response to RAI 7661, dated July 1, 2015, to partially offset increases in the MCR operator dose because of addition of the VES filter shine and other analyses changes proposed in LNP DEP 6.4-1, the applicant made changes to the modeling assumptions regarding iodine re-evolution from the IRWST in the DBA LOCA dose analysis. Specifically, the proposed changes involve refining the assumed water/vapor partition factor for elemental iodine to be consistent with guidance in RG 1.183 and using updated AP1000 design information to determine revised timing associated with the conversion of elemental iodine to organic iodine and its availability for release from the IRWST fluid.

On page 6 of Enclosure 1 of the July 1, 2015, submittal, the applicant provided the following description of the specific proposed changes:

> The iodine source term applied in the LOCA dose analysis supporting DCD Revision 19 is based upon the NUREG-1465 source term described in Regulatory Guide 1.183. The analysis models a staged release of core activity

(i.e. gap release and early in-vessel) to the containment atmosphere over the first 2 hours following the start of the event. The chemical form of iodine released is assumed to be 95% particulate, 4.85% elemental, and 0.15% organic, consistent with Regulatory Guide 1.183. Particulate removal via passive processes (i.e., diffusiophoresis, thermophoresis, and sedimentation) and elemental iodine removal via deposition are modeled. Organic iodine removal via processes other than decay or leakage from containment is not modeled.

Particulates removed to the containment shell are assumed to be washed off the shell by the flow of water resulting from condensing steam (i.e. condensate flow). The particulates may be either washed into the sump, which is controlled to a pH > 7 post-accident or into the IRWST, which is not pH controlled post-accident. Due to the assumed conditions in the IRWST, the particulate iodine washed into the IRWST may chemically convert to an elemental form and re-evolve, subject to partitioning, as airborne. A portion (3%) of that airborne elemental iodine is then assumed to convert to an organic form. This is consistent with elemental organic split assumed for the initial release from the core (4.85/0.15 = 97/3) and is consistent the Regulatory Guide 1.183 guidance for other events.

The calculational approach to account for the iodine that is assumed to re-evolve from the IRWST post-LOCA is overly conservative in the certified design analysis. The certified design analysis applies a water-steam partition factor of 5 for elemental iodine and neglects the time dependent formation of organic iodine from elemental iodine; the organic iodine that would be formed over time is assumed to be present at time zero.

NUREG-1465 states that “It is unduly conservative to assume that organic iodine is not removed at all from containment atmosphere, once generated, since such an assumption can result in an overestimate of the long-term doses to the thyroid.” The revised analysis approach applies a conservative water/vapor elemental iodine partition factor of 10, selected to conservatively bound the time-dependent partition factors calculated using the NUREG/CR-5950 models and IRWST temperature and pH as a function of time. Additionally, the conversion of elemental iodine to organic iodine is modeled on a time-dependent basis in which 3% of the evolved elemental iodine is assumed to convert to an organic form upon its release to containment. It is noted that this does not impact the percentage of iodine assumed to convert to the organic form.

Although this description of the proposed changes to the modeling of iodine re-evolution from the IRWST fluid during a DBA LOCA was given in Enclosure 1 of the submittal dated July 1, 2015, no markup of DCD text was given to document the site-specific changes in the LNP FSAR. In RAI Letter No. 129, the staff issued RAI 8005 Question 15.00.03-4 asking for additional detail on the revised modeling of iodine re-evolution from the IRWST, including values for the time-dependent pH and partition coefficients for the water in the IRWST. The staff also asked that the applicant document the specifics of this departure from the DCD dose analysis in the LNP FSAR.

In the response to RAI 8005 Question 15.00.03-4, dated October 13, 2015, the applicant provided the requested detailed information marked as proprietary information. The staff was able to audit the proprietary LOCA DBA calculation package and verified that the LOCA DBA

dose calculation inputs agreed with the information given in the RAI response. The response to Question 15.00.03-4 also provided text to describe the LNP DEP 6.4-1 change to iodine re-evolution modeling, which the staff verified was added to Revision 8 of the LNP FSAR, Section 15.6.5.3.2.

The staff finds through review of the description of the departure that the applicant's revisions to the iodine re-evolution analysis use models and methods that have been previously found acceptable to the staff, as noted in RG 1.183. The staff also determined through review of the proprietary information provided that the applicant's inputs and assumptions reflect the AP1000 design information and are acceptable. A description of the changes made to the LOCA dose analysis modeling of iodine re-evolution from the IRWST was added to the LNP FSAR. Therefore, the staff finds the proposed changes to the modeling of IRWST iodine re-evolution acceptable and RAI 8005, Question 15.00.03-4, is resolved.

B.5.2 Increase in containment elemental iodine deposition removal coefficient

In the revised LOCA and REA dose analyses, the applicant increased the passive containment elemental iodine deposition coefficient value to 1.9 hr^{-1} from the AP1000 DCD value of 1.7 hr^{-1}. The change in the deposition removal coefficient value was calculated based on a larger containment surface area available for deposition, as determined in the AP1000 updated detailed design.

Through audit of the revised LOCA and REA dose analyses, the staff verified that the calculations used the increased containment elemental iodine deposition coefficient as input. The staff finds the increased containment elemental iodine deposition coefficient acceptable because the value was calculated using the same method that was found acceptable in review of the DCD, with the only change the incorporation of updated detailed design information as input to the calculation of the deposition coefficient.

B.5.3 Revised steam release rates for the MSLB dose analysis

The applicant calculated revised steam release rates from the secondary coolant system based on calculation of an earlier time for steam generator dry-out, which would be limiting for MCR dose estimation. As stated on page 7 of Enclosure 1 to the response to RAI 7661, dated July 1, 2015:

> The AP1000 steam line break accident analysis described in DCD Revision 19 assumes a 10 minute faulted steam generator (SG) blowdown based on a Hot Zero Power (HZP) SG mass released at an average rate. This HZP case is conservative for offsite dose. It was determined, however, that a full power SG mass could lead to SG dry-out occurring at ~200 seconds. Earlier dry-out is more limiting for the purposes of operator post-accident dose calculations. To ensure a conservative dose for both offsite and MCR, the HZP initial mass was retained, a bounding release rate was modeled until 300 seconds, and any remaining activity was released thereafter.

Through audit of the revised MSLB dose analyses, the staff verified that the calculation used revised steam release rates as input. Calculating an earlier time for steam-generator dry-out results in an earlier increase in the estimated release of radioactive material to the environment because of reduced retention in the steam generators. Because there is a delay in the timing of

the control room VES initiation, the calculation of the MCR dose is more sensitive to the timing of the increase in the SGTR releases, as compared to the calculation of the offsite doses. The staff finds the revised steam release rates acceptable because the values were calculated using the same method that was found acceptable in review of the DCD, with the only change to the calculation of the mass releases being the use of a more limiting power condition for the estimation of the timing of steam generator dry-out and the subsequent effect on the calculation of the MCR dose.

B.5.4 TS secondary coolant iodine activity concentration limit reduced to 0.01 µCi/gm DEI-131

In the revised dose analyses for the MSLB, REA, SGTR and LRA, in order to offset increases in the calculated MCR operator dose due to other changes in the DBA dose analyses, particularly the MSLB steam releases as discussed above in Section B.5.3, the applicant reduced the assumed secondary coolant iodine activity concentration to 0.01 µCi/gm DEI-131. To reflect this change, the applicant also proposed to revise the TS LCO 3.7.4 limit for secondary coolant iodine concentration from the AP1000 generic value of 0.1 µCi/gm DEI-131 to 0.01 µCi/gm DEI-131.

The site-specific departure on the TS LCO limit for secondary coolant allowable iodine concentration results in a lower amount than allowed by the AP1000 generic TS of radioactive material available for release during DBAs that include release of the secondary coolant through break flow or through steaming to cool down the RCS). The staff verified that the revised MSLB, REA, SGTR and LRA dose analyses assume that the secondary coolant is at the TS allowable limit at the beginning of the accident in accordance with the guidance in RG 1.183. Therefore, the staff finds that the proposed LNP DEP 6.4-1 change to TS LCO 3.7.4 was appropriately accounted for in the safety analyses provided to support the departure.

B.5.5 Change in methodology to estimate fuel damage in the REA dose analysis

The applicant revised the method to estimate fuel damage for the REA to be based on an updated accepted methodology. As stated on page 8 of Enclosure 1 to the response to RAI 7661, dated July 1, 2015:

> The method for performing the REA dose analysis has changed from that applied in DCD Revision 19. As stated in NUREG-1793, the NRC accepted the use of NUREG-0800 Section 4.2 Revision 2 for design certification of the AP1000 plant. However, in NUREG-1793 Supplement 2 it is stated that:
>
> > "For COL applicants or licensees who reference the AP1000 or AP600 certified designs, the staff will review any change or departure from the certified design that requires prior NRC approval as specified in Section VIII of Appendices C and D to 10 CFR Part 52, respectively.
> >
> > The staff will evaluate the reactivity-initiated accidents such as rod ejection accidents based on the acceptance criteria in effect 6 months before docketing the amendment request, such as the interim acceptance criteria specified in Appendix B to

> NUREG-0800 Section 4.2, Revision 3, if a change or departure in fuel design or other aspects is proposed that requires a reevaluation of final safety evaluation report Chapter 4, "Reactor," or Chapter 15, "Transient and Accident Analysis."

> Due to the need to incorporate other design changes in the REA MCR operator dose calculations, NUREG-0800, Section 4.2, Revision 3, is used for recalculation of the rod ejection dose analysis, which results in a significant impact to the rod ejection dose analysis. NUREG-0800, Section 4.2, Revision 3, precludes fuel melt, providing a dose benefit, but also connects the source term to the fuel enthalpy increase, which is a significant dose penalty. The dominant contributor to the increased dose is the increase by a factor of more than 5 in alkali metal releases.

The staff evaluated the information provided in the July 1, 2015, response to RAI 7661 and through audit of the proprietary calculation package verified that the revised fuel failure assumptions were reflected in the revised REA dose analysis. The method the applicant used to estimate fuel failure and fission product release during the REA is in conformance with the guidance in SRP, Revision 3, Section 4.2, which the staff stated in NUREG-1793 is an acceptable methodology for this purpose. The staff also determined that the fuel enthalpy input to the calculation of the fuel failure was consistent with the AP1000 design information. Therefore, the staff finds acceptable the proposed changes in LNP DEP 6.4-1 related to the estimation of fuel failure for the REA dose analysis.

B.5.6 Increase in SG moisture carryover assumptions

In the revised dose analyses for the REA, SGTR, and LRA, the assumed full-power moisture carryover from the steam generators was increased from the value of 0.1 percent used in AP1000 DCD to 0.35 percent to be consistent with the updated AP1000 detailed design.

In RAI Letter 129, RAI 8005, Question 15.00.03-2, dated July 13, 2015, the staff noted that using the increased full-power moisture carryover from the steam generators of 0.35 percent to model alkali metal releases to the environment in the revised DBA analyses that assume release through the secondary system is consistent with guidance in Appendix E of RG 1.183 (ADAMS Accession No. ML15194A263). However, the staff also noted that the value for the full-power moisture carryover is larger than the maximum weight percent moisture carryover value of 0.25 percent listed in AP1000 DCD Table 5.4-4, “Steam Generator Design Requirements,” and asked that applicant clarify this apparent discrepancy. In its response to RAI 8005, Question 15.00.03-2, dated October 13, 2015, the applicant stated that the value of 0.35 percent for moisture carryover used in the REA, SGTR, and LRA dose analyses was chosen to be a conservative bounding value for analysis purposes, and is considered to be an upper bound for the amount of moisture carryover that could be expected during plant operation and is consistent with the value considered in RCS design (ADAMS Accession No. ML15289A228). The staff agrees that using the larger moisture carryover assumption in the DBA dose analyses is conservative for the design. Therefore, the staff finds that the use of a conservative steam generator moisture carryover assumption in the DBA dose analyses is acceptable, and RAI 8005, Question 15.00.03-2, is resolved.

B.5.7 Additional changes to SGTR dose analysis assumptions

In addition to changes to the steam generator moisture carryover and the assumed secondary coolant iodine activity concentration in the revised SGTR dose analysis, the applicant proposed to increase the duration of steam releases from the values used in the AP1000 DCD and decrease the initial values assumed for the reactor coolant mass and secondary coolant mass.

In RAI Letter 129, RAI 8005, Question 15.00.03-3, the staff requested that the applicant provide the basis for these proposed changes to the SGTR dose analysis. In the response to RAI 129, Question 15.00.03-3, the applicant stated that the changes were conforming changes to reflect the updated AP1000 detailed design and are conservative values to provide additional margin for future design updates. Through audit of the revised SGTR dose analyses, the staff verified that the calculation used the proposed revisions to the duration of steam release and the primary and secondary coolant mass values as input to the analyses. Because the applicant made these changes to reflect the updated detailed design and to provide additional analysis margin, the staff finds the changes acceptable, and RAI 8005, Question 15.00.03-3, is resolved.

B.5.8 Change in assumed fuel radial peaking factor to account for advanced first core design

In the revised dose analyses for the REA, LRA, and FHA, the applicant changed the fuel radial peaking factor to a value of 1.75, which is higher than the value of 1.65 used in the AP1000 DCD DBA dose analyses. The increase in the fuel radial peaking factor was proposed in order to provide additional analysis margin for future core design changes. This results in a 6 percent increase to the estimated amount of radioactive material released from the fuel.

Through audit of the revised REA, LRA, and FHA dose analyses, the staff verified that the calculations used the increased fuel radial peaking factor as input to the analyses. Because the applicant proposed the increased fuel radial peaking factor as a conservative multiplying factor to provide additional analysis margin, the staff finds the increased radial peaking factor acceptable.

B.5.9 Small line break flashing fraction increased based on updated detailed design

The applicant's revised small line break dose analysis included an increase in the assumed fraction of reactor coolant flashing to steam from the value that was used in AP1000 DCD small line break dose analysis. The flashing fraction is increased from 0.41 to 0.47 based on the updated AP1000 detailed design and the determination that the RCS hot leg temperature should be used to calculate the flashing fraction instead of basing it on the vessel average temperature as was done in the AP1000 DCD small line break dose analysis.

Through audit of the revised small line break dose analyses, the staff verified that the calculation used increased flashing fraction as input. The staff finds the revised flashing fraction acceptable because the value was calculated using the same method that was found acceptable in review of the AP1000 DCD, with the only change to the calculation of the flashing fraction being the correction of the coolant temperature, which was based on updated detailed design information.

B.6 Comparison of revised DBA doses to regulatory criteria

Because the revised generic DBA dose analyses that support LNP DEP 6.4-1 show that the offsite radiological consequences meet the regulatory dose requirements of 10 CFR 52.79(a)(1)(vi), and because, by the reasoning above in Section B.4, the LNP site-specific DBA radiological consequences are estimated to be less than those calculated in the revised generic DBA dose analyses, the applicant has sufficiently shown that the DBA offsite radiological consequences meet the requirements 10 CFR 52.79(a)(1)(vi).

Because the revised generic DBA dose analyses that support LNP DEP 6.4-1 show that the DBA MCR radiological consequences meet the regulatory dose requirements of GDC 19, and because, by the reasoning above in Section B.4, the LNP site-specific DBA MCR radiological consequences are estimated to be less than those calculated in the revised generic DBA MCR dose analyses, the applicant has sufficiently shown that the DBA MCR radiological consequences meet the requirements of GDC 19.

Based on the technical evaluation discussion above in Section B, the staff finds that LNP DEP 6.4-1 sufficiently addresses the concerns raised in RAI 7661, Question 06.04-2. Therefore, RAI 7661, Question 06.04-2 is resolved.

B.7 Risk Results and Insights

This design departure does not alter the description of AP1000 design features relevant to human performance in the control room. It does not modify the plant-specific PRA model used for licensing. Consequently, there is no change to the risk profile described in the COL application or the risk insights concerning the control room AP1000 DCD Revision 19, Table 19.59-18, item 20. Instead, the change improves confidence in the validity of the reported risk results and insights. Consistent with DC/COL ISG 003, “PRA Information to Support Design Certification and Combined License Applications,” the plant-specific PRA remains acceptable to the staff.

21.2.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff finds acceptable item 7e proposed to be inserted in DCD Table 2.2.5-5, reproduced below in Table 21.2-1.

Table 21.2-1: DCD ITAAC item 7e from DCD Table 2.2.5-5, as revised by LNP DEP 6.4-1

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
7e) Shielding below the VES Filter is capable of providing attenuation that is sufficient to ensure main control room doses are below an acceptable level during VES operation.	Inspection will be performed for the existence of a report verifying that the as-built shielding meets the requirements for functional capability.	A report exists and concludes that the as-built shielding identified in Table 2.2.5-1 meets the functional requirements and exists below the filtration unit, and within its vertical projection.

21.2.6 Conclusion

The staff reviewed the application for proposed departure number LNP DEP 6.4-1 and checked the referenced DCD. The staff’s review confirmed that the applicant addressed the required information relating to the departure, including the design change and revised DBA dose

analyses related to addressing errors in the AP1000 DCD MCR dose assessment, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and meets the regulatory requirements and guidance discussed in Section 21.2.3 of this SER. The staff based its conclusion on the following:

- Based on the evaluation discussed above, the staff concludes that the revised DBA dose departure from the AP1000 design certification rule at the LNP Units 1 and 2 site meets the 10 CFR 52.79(a)(1)(vi) dose criteria and the offsite dose acceptance criteria, as given in SRP 15.0.3 and RG 1.183 for these accidents.

- The staff finds reasonable assurance that the VES, under High-2 radiological conditions as described in FSAR Section 6.4 and LNP DEP 6.4-1, can mitigate the dose in the MCR following DBAs to meet the dose acceptance criterion specified in GDC 19.

- The staff finds it reasonable that, if available, the non-safety-related VBS as described in FSAR Sections 6.4 and 9.4.1, and in LNP DEP 6.4-1 can mitigate the dose in the MCR following DBAs to be within 0.05 Sv (5 rem) TEDE.

21.3 Main Control Room Heat Load

21.3.1 Introduction

The AP1000 DCD Tier 2, Section 6.4.3.2, describes how the temperature and humidity in the MCR pressure boundary remain within limits for reliable human performance over a 72-hour period. At a public meeting held on July 23, 2014 (ADAMS Accession Nos. ML14192A803 and ML14220A113), with Westinghouse, the staff received information that a more limiting transient had been identified and that additional heat sources exist in the control room that were not accounted for in the original analysis that may challenge the ability of the plant to meet control room habitability requirements and equipment qualification limits.

The AP1000 design normally uses the non-safety related nuclear island nonradioactive ventilation system (VBS) to provide heating, ventilation, cooling, and filtration to the MCR when power is available. During events where VBS is unavailable, however, the MCR emergency habitability system (VES) uses a combination of bottled air and passive heat sinks to maintain the MCR in a habitable state. As a result of development of the detailed AP1000 design, the applicant identified that the VES is not capable of maintaining the MCR in an acceptable condition for human performance during certain transients. Acceptability, in the certified design, is defined as an MCR effective temperature of 85 °F (29 °C), which corresponds to a dry bulb temperature of 95 °F (35 °C) with a relative humidity (RH) of 50 percent.

During events where the MCR is isolated (e.g., because of radiological conditions exceeding the VES actuation setpoint or both trains of VBS are unavailable) and VES is actuated, but offsite power is available to power other plant equipment, the heat loads in the MCR further exceed those set forth in the certified design. Considering the above, by letter dated October 10, 2014 (ADAMS Accession No. ML14283A522), the staff requested a description of how the LNP plant,

taking into account the new limiting transient and the additional heat sources, will remain within the bounds of the licensing basis.

In an RAI response dated March 26, 2015, and supplemented on July 1, November 12, December 11, and December 22, 2015, the applicant stated that the heat sources in the MCR exceeded those assumed in the DCD, and an event that results in MCR isolation with offsite power available would result in significantly higher heat loads than described in the DCD, and thus a revised approach to evaluate the heat load in the MCR was required. The applicant proposed a design change to add a load shedding arrangement to some of the MCR heat loads, changed the acceptance criteria for the MCR temperature for human performance to a wet bulb globe temperature of 90 °F (32 °C) (consistent with NUREG-0700, Revision 2, "Human-System Interface Design Review Guidelines" for an unlimited stay time), revised the curve defining equipment qualification limits, revised the analysis supporting the habitability of the MCR to incorporate the new heat loads and other analysis changes, and changed the classification of a set of valves in the VES from inactive to active.

21.3.2 Summary of Application

Tier 1 and Tier 2 Departure

The applicant proposed the following Tier 1 and Tier 2 departure from the AP1000 DCD:

- LNP DEP 6.4-2

AP1000 DCD, Revision 19, Tier 2 Section 6.4.3.2, describes how the temperature and humidity in the MCR are maintained within the limits for reliable human performance. By letters dated March 26 and November 12, 2015, the applicant requested an exemption and site specific departure LNP DEP 6.4-2 from the AP1000 DCD, Revision 19, for the LNP Units 1 and 2 COL application to address newly identified limiting transients and heat sources in the MCR.

The initial submittal, dated March 26, 2015 (ADAMS Accession No. ML15089A193), which contains changes to DCD Tier 1 design descriptions, TS, and design information in DCD Tier 2, requests, in part:

- the addition of an automatic and manual class 1E electric load shed of certain non-safety-related equipment, and accompanying TS changes

- revision of the heat loads in the MCR and associated equipment rooms to reflect the revised analysis, including temperature controls for rooms surrounding the MCR

- reclassification of safety-related 1-inch manual globe valves VES-PL-018 (Temporary Instrument Isolation Valve A) and VES-PL-019 (Temporary Instrument Isolation Valve B) from "non-active valves" with a pressure boundary safety function to "active valves" with pressure-boundary and transfer-open safety functions (After 72 hours following a DBA, a non-safety-related breathable air supply will be connected to the test connections

upstream of valves VES-PL-V018 and VES-PL-V019, and the valves will be manually operated to the open position to provide breathable air to the MCR.)

This submittal was supplemented on July 1, 2015 (ADAMS Accession No. ML15187A039), with a more detailed description of the load shed and the list of loads to be shed.

FSAR changes proposed in the March 26, 2015, submittal were incorporated into Revision 8 of the FSAR, which the applicant submitted on December 7, 2015.

The departure was further supplemented on November 12, 2015 (ADAMS Accession Nos. ML15320A025, ML15320A028, and ML15322A009), with the applicant's response to staff RAIs prompting a subsequent revision to the MCR heat-up analysis and acceptance criteria and additional proposed changes to the FSAR. A December 11, 2015, letter from the applicant (ADAMS Accession No. ML15349A962) corrects errors in one of the November 12, 2015 submittals. Finally, a December 22, 2015, letter proposes additional changes to the departure by including a specification limiting the moisture content in VES bottled air (ADAMS Accession No. ML15358A014). The staff confirmed that the changes proposed in the above submittals dated November 12, December 11, and December 22, 2015, were incorporated into Revision 9 of the COL application, dated April 6, 2016.

Specific RAI responses are discussed below in the applicable portion of the Technical Evaluation section.

This exemption request proposes changes to plant-specific DCD Tier 1 information and generic TS with other Tier 2 involved departures. Therefore, these departures require NRC approval and are evaluated below.

21.3.3 Regulatory Basis

The acceptance criteria for the staff review of the design and qualification of the main control room habitability system include the following:

- 10 CFR Part 50, Appendix A, GDC 2 requires that safety-related portions of the control room ventilation system be designed to withstand the effects of natural phenomena. Meeting the requirements associated with GDC 2 provides assurance that the habitability of the control room area will be maintained and that equipment in the control room will operate as designed, thereby minimizing the potential for loss of function.

- GDC 4 requires that SSCs important to safety be designed to accommodate the effects of environmental conditions of normal operation, maintenance, testing, and postulated accidents. Meeting the requirements associated with GDC 4 provides assurance that control room ventilation system will support the functioning of systems and components important to safety by maintaining suitable environmental conditions for performance of safety functions.

- GDC 19 requires that the control room remain functional to the degree that actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain the plant in a safe condition under accident conditions. This is accomplished

by providing adequate protection to equipment and operators to permit access to and occupy the control room under accident conditions.

The acceptance criteria associated with the human factors review include the following:

- 10 CFR 50.34(f)(2)(iii), which requires a control room design that reflects state-of-the-art human factor principles. Guidance applicable to design-related human factors principles is set out in NUREG-0700.

The acceptance criteria for the staff review of the design and qualification of the instrumentation and controls include the following:

- 10 CFR 50.55a(h)(3), "Protection and Safety Systems," requires compliance with Institute of Electrical and Electronics Engineers (IEEE) Std. 603-1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," and the correction sheet dated January 30, 1995. Clause 5.1 of IEEE Std. 603-1991, "Single Failure Criterion," requires, in part, that safety systems shall perform all safety functions required for a design-basis event in the presence of (1) any single detectable failure within the safety systems concurrent with all identifiable but non-detectable failures, (2) all failures caused by the single failure, and (3) all failures and spurious system actuations that cause or are caused by the design-basis event requiring the safety functions. Clause 5.6.3 of IEEE Std. 603-1991, "Between Safety Systems and Other Systems," requires, in part, that the safety system design shall be such that credible failures in and consequential actions by other systems, as documented in Clause 4.8 of the design basis, shall not prevent the safety systems from meeting the requirements of this standard.

- GDC 13, "Instrumentation and Control," requires, in part, that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety.

- Clause 5.4 of IEEE Std. 603-1991, "Equipment Qualification," requires safety system equipment be qualified by type test, previous operating experience, or analysis, or any combination of these three methods, to substantiate that it will be capable of meeting, on a continuing basis, the performance requirements as specified in the design basis.

The acceptance criteria for the staff review of the design, qualification (functional, seismic, and environmental), and inservice testing (IST) programs for safety-related valves include the following:

- GDC 1 requires that valves important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. Meeting the requirements of GDC 1 provides assurance that valves important to safety are capable of performing their intended safety functions.

- GDC 2 requires that components important to safety be designed to withstand the effects of expected natural phenomena, combined with appropriate effects of normal and accident conditions, without loss of capability to perform their safety functions. Meeting

the requirements of GDC 2 provides assurance that valves important to safety are capable of withstanding the effects of expected natural phenomena while performing their safety functions during and after the occurrence of those phenomena, as applicable.

- GDC 4 requires that components important to safety be designed to accommodate the effects of, and be compatible with, the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents. Meeting the requirements of GDC 4 provides assurance that the components can withstand those effects and perform their intended safety functions.

- 10 CFR 50.55a(f) requires that applicable valves whose function is required for safety be assessed for operational readiness in accordance with the applicable revision to the ASME *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code). Meeting the requirements of 10 CFR 50.55a(f) provides assurance that applicable valves important to safety are capable of performing their intended safety function.

21.3.4 Technical Evaluation

Tier 1 and Tier 2 Departures

- LNP DEP 6.4-2

LNP DEP 6.4-2 proposes to change the safety-related MCR VES to control the heat-up of the MCR envelope (MCRE) following VES actuation to meet the licensing basis requirements for equipment qualification and human factors engineering, described in DCD Tier 1 Subsection 2.2.5 and would also add generic TS to conduct surveillances of the revised components of the VES. The proposed changes do not change the VES safety-related design requirements and design functions.

The staff reviewed a request for an exemption submitted by the applicant. The request proposed changes to Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 in the AP1000 DCD and generic TS 3.3.2, TS Table 3.3.2-1, TS 3.7.6, and TS surveillances (SRs) 3.7.6.3, 3.7.6.8, and 3.7.6.12. Additionally, the staff reviewed the associated changes to Tier 2 information for potential effects on safety functions of the MCR VES and the associated TS Bases in Chapter 16. The regulatory evaluation of the exemption request appears in Subsection A, below, and the technical evaluation of the exemption request and departure appears in Subsection B, below.

A. Regulatory Evaluation of Exemption Request

A.1 Summary of Exemption

The applicant requested an exemption from the provisions of 10 CFR Part 52, Appendix D, Section III.B, “Design Certification Rule for the AP1000 Design, Scope and Contents,” that require the applicant referencing a certified design to incorporate by reference Tier 1 information. Specifically, the applicant proposed to revise Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 (1) to ensure the VES design functions to maintain heat loads inside the MCRE within design-basis assumptions to limit the heat-up of the room, (2) to ensure a 72-hour

supply of breathable-quality air for the occupants of the MCRE, (3) to maintain the MCRE pressure boundary at a positive pressure with respect to the surrounding areas, and (4) to provide a passive recirculation flow of MCRE air to maintain MCR dose rates below an acceptable level during VES operation.[5]

A.2 Regulations

- 10 CFR Part 52, Appendix D, Section VIII.A.4 states that exemptions from Tier 1 information are governed by the requirements of 10 CFR 52.63(b)(1) and 10 CFR 52.98(f). It also states that the Commission will deny such a request if the design change causes a significant reduction in plant safety otherwise provided by the design. This subsection of Appendix D also provides that a design change requiring a Tier 1 change shall not result in a significant decrease in the level of safety otherwise provided by the design.

- 10 CFR Part 52, Appendix D, Section VIII.C.4 states that an applicant may request an exemption from the generic TS or other operational requirements. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of 10 CFR 52.7.

- 10 CFR 52.63(b)(1) allows an applicant or licensee to request NRC approval for an exemption from one or more elements of the certification information. The Commission may only grant such a request if it complies with the requirements of 10 CFR 52.7, which in turn points to the requirements listed in 10 CFR 50.12 for specific exemptions, and if the special circumstances present outweigh the potential decrease in safety due to reduced standardization. Therefore, any exemption from the Tier 1 information certified by Appendix D to 10 CFR Part 52 must meet the requirements of 10 CFR 50.12, 52.7, and 52.63(b)(1).

A.3 Evaluation of Exemption

As stated in Section VIII.A.4 of Appendix D to 10 CFR Part 52, an exemption from Tier 1 information is governed by the requirements of 10 CFR 52.63(b)(1) and 52.98(f). Additionally, the Commission will deny an exemption request if it finds that the requested change to Tier 1 information will result in a significant decrease in safety. Pursuant to 10 CFR 52.63(b)(1), the Commission may, upon application by an applicant or licensee referencing a certified design, grant exemptions from one or more elements of the certification information, so long as the criteria given in 10 CFR 50.12 are met and the special circumstances as defined by 10 CFR 50.12 outweigh any potential decrease in safety due to reduced standardization.

[5] Although the applicant describes the requested exemption as being from Section III.B of 10 CFR Part 52, Appendix D, the entirety of the exemption pertains to proposed departures from Tier 1 information and generic TS in the generic DCD. In the remainder of this evaluation, the NRC will refer to the exemption as an exemption from Tier 1 information and generic TS to match the language of Sections VIII.A.4 and VIII.C.4 of 10 CFR Part 52, Appendix D, which specifically govern the granting of exemptions from Tier 1 information and generic TS.

As stated in Section VIII.C.4 of Appendix D to 10 CFR Part 52, the Commission may grant an exemption from generic TS of the DCD only if it determines that the exemption will comply with the requirements of 10 CFR 52.7. As stated above, Section 52.7 points to 10 CFR 50.12 for specific exemptions.

Applicable criteria for when the Commission may grant the requested specific exemption are provided in 10 CFR 50.12(a)(1) and (a)(2). Section 50.12(a)(1) provides that the requested exemption must be authorized by law, not present an undue risk to the public health and safety, and be consistent with the common defense and security. The provisions of 10 CFR 50.12(a)(2) list six special circumstances for which an exemption may be granted. It is necessary for one of these special circumstances to be present in order for NRC to consider granting an exemption request. The applicant stated that the requested exemption meets the special circumstances of 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." The staff's analysis of each of these findings is presented below.

A.3.1 Authorized by Law

This exemption would allow the applicant to implement approved changes to Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 and generic TS 3.3.2, TS Table 3.3.2-1, TS 3.7.6, and TS SRs 3.7.6.3, 3.7.6.8, and 3.7.6.12. This is a permanent exemption limited in scope to particular Tier 1 information and generic TS, and subsequent changes to this information or any other Tier 1 information or generic TS would be subject to full compliance with the change processes specified in Sections VIII.A.4 and VIII.C.4 of Appendix D to 10 CFR Part 52. As stated above, 10 CFR 52.63(b)(1) allows the NRC to grant exemptions from one or more elements of the certification information, namely, as discussed in this exemption evaluation, the requirements of Tier 1. Moreover, Section VIII.C.4 allows the NRC to grant exemptions from generic TS if the exemption meets the requirements of 10 CFR 52.7 and 50.12. The staff has determined that granting of the applicant's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the NRC's regulations. Therefore, as required by 10 CFR 50.12(a)(1), the exemption is authorized by law.

A.3.2 No Undue Risk to Public Health and Safety

The underlying purpose of AP1000 Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 and generic TS 3.3.2, TS Table 3.3.2-1, TS 3.7.6, and TS SRs 3.7.6.3, 3.7.6.8, and 3.7.6.12 is to ensure that the plant will be constructed and operated with a safe and reliable VES in the event of an accident.

The changes to the VES system description and associated TS (1) ensure the VES design functions to maintain heat loads inside the MCRE within design-basis assumptions to limit the heat-up of the room, (2) ensure a 72-hour supply of breathable-quality air for the occupants of the MCRE, (3) maintain the MCRE pressure boundary at a positive pressure with respect to the surrounding areas, and (4) provide a passive recirculation flow of MCRE air to maintain MCR dose rates below an acceptable level during VES operation. The changes to the VES system therefore support the system's intended design functions. The plant-specific Tier 1 DCD and TS will continue to meet regulatory requirements for protecting public health and safety and will maintain a level of detail consistent with what is provided elsewhere in Tier 1 of the plant-specific DCD. 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. The proposed changes to Tier 1 information and generic TS are evaluated and found to be acceptable in Section 21.3 of this safety evaluation. Therefore, the staff finds the exemption presents no undue risk to public health and safety as required by 10 CFR 50.12(a)(1).

A.3.3 Consistent with Common Defense and Security

The proposed exemption would allow the applicant to implement modifications to the Tier 1 information and generic TS requested in the applicant's submittal. This is a permanent exemption limited in scope to particular Tier 1 information and a specific TS. Subsequent changes to this information or any other Tier 1 information or generic TS would be subject to full compliance with the change processes specified in Sections VIII.A.4 and VIII.C.4 of Appendix D to 10 CFR Part 52. This change is not related to security issues. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that the exemption is consistent with the common defense and security.

A.3.4 Special Circumstances

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purposes of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purposes of the specific Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 modified in the exemption request is (1) to ensure the VES design functions to maintain heat loads inside the MCRE within design-basis assumptions to limit the heat-up of the room, (2) to ensure a 72-hour supply of breathable-quality air for the occupants of the MCRE, (3) to maintain the MCRE pressure boundary at a positive pressure with respect to the surrounding areas, and (4) to provide a passive recirculation flow of MCRE air to maintain MCR dose rates below an acceptable level during VES operation. The underlying purposes of the specific generic TS 3.3.2, TS Table 3.3.2-1, TS 3.7.6, and TS SRs 3.7.6.3, 3.7.6.8, and 3.7.6.12 modified in the exemption request is to identify and conduct surveillances of the components that will be revised in the design of the VES. The revised components and new surveillance requirements for those components ensure that the VES can perform its intended function.

Application of the requirements in Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 and generic TS 3.3.2, TS Table 3.3.2-1, TS 3.7.6, and TS SRs 3.7.6.3, 3.7.6.8, and 3.7.6.12 is not necessary to achieve the underlying purpose of those portions of the rule. The proposed revisions to the VES support the system's intended design functions, as does the addition of generic TS to conduct surveillances of those revised components. The system and tables listing its components and surveillances, as modified in the requested exemption, will continue to perform its intended function and will, therefore, meet the underlying purpose of the rule. Accordingly, because application of the requirements in Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 and generic TS 3.3.2, TS Table 3.3.2-1, TS 3.7.6, and TS SRs 3.7.6.3, 3.7.6.8, and 3.7.6.12 is not necessary to achieve the underlying purpose of the rule, special circumstances are present. Therefore, the staff finds that special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from the Tier 1 information and generic TS described above.

A.3.5 Special Circumstances Outweigh Reduced Standardization

This exemption, if granted, would allow the applicant to change certain Tier 1 information incorporated by reference from the AP1000 DCD into the LNP COL application. An exemption from Tier 1 information may only be granted if the special circumstances of the exemption request, required to be present under 10 CFR 52.7 and 10 CFR 50.12, outweigh any reduction in standardization. The proposed exemption would modify the VES to support the system's intended design functions. The proposed additions to the system support the system's intended design functions and the key design functions of the VES will be maintained.[6]

As described below in the technical evaluation, the changes to the VES (1) maintain heat loads inside the MCRE within design-basis assumptions to limit the heat-up of the room, (2) ensure a 72-hour supply of breathable-quality air for the occupants of the MCRE, (3) maintain the MCRE pressure boundary at a positive pressure with respect to the surrounding areas, and (4) provide a passive recirculation flow of MCRE air to maintain MCR dose rates below an acceptable level during VES operation. While there is a small possibility that standardization may be slightly reduced by granting the exemption from the specified Tier 1 requirements, the proposed exemption modifying the VES will result in no reduction in the level of safety. For this reason, the staff determined that, even if other AP1000 licensees and applicants do not request similar departures, the special circumstances supporting this exemption outweigh the potential decrease in safety because of reduced standardization of the AP1000 design, as required by 10 CFR 52.63(b)(1).

A.3.6 No Significant Reduction in Safety

The proposed exemption would modify the VES from the design presented in the original application. As described below in the technical evaluation, the changes to the VES (1) maintain heat loads inside the MCRE within design-basis assumptions to limit the heat-up of the room, (2) ensure a 72-hour supply of breathable-quality air for the occupants of the MCRE, (3) maintain the MCRE pressure boundary at a positive pressure with respect to the surrounding areas, and (4) provide a passive recirculation flow of MCRE air to maintain MCR dose rates below an acceptable level during VES operation. Because the proposed changes will ensure that the VES design will support the system's intended design functions and will not adversely affect its function, there is no reduction in the level of safety. Therefore, the staff finds that granting the exemption would not result in a significant decrease in the level of safety otherwise provided by the design, as required by 10 CFR Part 52, Appendix D, Section VIII.A.4.

A.4 Conclusion

The staff has determined that, as required by Section VIII.A.4 of Appendix D to 10 CFR Part 52, the exemption: (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) has special circumstances that outweigh the potential decrease in safety because of reduced standardization, and (5) does not significantly reduce the level of safety at the applicant's facility. The staff has also determined, pursuant to Section VIII.C.4 of Appendix D to 10 CFR Part 52 , that the generic TS portion of the exemption request: (1) is authorized by law, (2) presents no undue risk to the

[6] Based on the nature of the proposed changes to the generic Tier 1 information in Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1, which maintain and support the design functions of the VES, other AP1000 licensees and applicants may request the same exemption, preserving the intended level of standardization.

public health and safety, (3) is consistent with the common defense and security, and (4) demonstrates the existence of special circumstances. Therefore, the staff grants the applicant an exemption from the requirements of Tier 1 Tables 2.5.2-3, 2.5.2-4, 2.2.5-4, and 2.2.5-1 and generic TS 3.3.2, TS Table 3.3.2-1, TS 3.7.6, and TS SRs 3.7.6.3, 3.7.6.8, and 3.7.6.12.

B. Technical Evaluation of Exemption Request and Departure

B.1 Main Control Room Temperature and Humidity

To maintain conditions in the control room within limits for reliable human performance and maintain equipment within qualified limits, the applicant proposed changes to the calculated heat loads, as well as changes to the acceptance criteria for conditions resulting in no restrictions to stay times for operators. Because in events where the MCR is isolated—for instance, because of radiological conditions exceeding the VES actuation setpoint or having both trains of VBS out of service at the onset of an accident—and VES is actuated, but offsite power is available to power other plant equipment, the heat loads in the MCR exceed those set forth in the certified design. The applicant's proposed changes to rectify this issue are evaluated below.

FSAR Tier 1 Departure

FSAR Tier 1, Section 2.2.5, "Main Control Room Habitability System," provides a functional description of the MCR VES. This includes a limit on the heat-up of the MCR, instrumentation and control (I&C) equipment rooms, and dc equipment rooms to provide assurance that acceptance criteria for reliable human performance and equipment qualification are not exceeded. This is accomplished by limiting the heat loads in these rooms to values specified in FSAR Tier 1, Table 2.2.5-4. The proposed departure includes changes to the table for the values in the control room based on the new load shedding scheme and expectation of the as-installed heat loads, including operators. The staff finds this change acceptable, given that the proposed limiting heat loads are reflected in the GOTHIC analysis (discussed further below) and that the values in Table 2.2.5-4 will be confirmed as limiting in the as-built design by ITAAC 7.c in Table 2.2.5-5. In addition, these values correspond with the changes to FSAR Tier 2, Table 6.4-3.

FSAR Tier 2 Departure

In a letter dated November 12, 2015, the applicant proposed to change the acceptance criteria for acceptable conditions for control room habitability from the effective temperature of 85 °F (29 °C) in the certified AP1000 design to a wet bulb globe temperature of less than 90 °F (32 °C) in the LNP FSAR. The wet bulb globe temperature (WBGT) is defined as 0.7 times the natural wet bulb temperature of the air plus 0.3 times the dry bulb temperature of the air. The WBGT stay-time criteria, defined in NUREG-0700, was referenced by the applicant. The staff considered that, according to NUREG-0700, Table 12.6, at less than 90 °F (32 °C) WBGT, there is no stay time limit if workers are performing low-metabolism work. The temperature ranges in Table 12.6 are intended to minimize performance decrements and potential harm to workers because of excessive heat. These temperature ranges are ceiling values (i.e., they assume that protective practices, such as acclimatization, training, and a cool

place to rest, are in place). Further discussion related to this topic is located in the "Impact of control room habitability changes on operator performance" subsection presented below.

The staff views an unlimited stay time as an appropriate method for meeting the GDC 19 requirement to permit operators to occupy the control room under accident conditions. The other aspect required by GDC 19, adequate protection for equipment, is addressed via maintaining MCR conditions under those specified in revised FSAR Figure 3D-201, "Typical Abnormal Environmental Test Profile: Main Control Room (Sheet 1 of 3)," which the applicant identified as a departure from AP1000 DCD Figure 3D.5-1, Sheet 1 of 3. The staff's review of the applicant's analysis justifying that limits for reliable human performance and equipment qualification, following the limiting DBA conditions, is below, and is divided into two parts: the first 72 hours, during which the VES system operates to provide air to the main control room, and post-72 hours, when ancillary fan(s) are placed in operation to ventilate the MCRE.

First 72 hours

As discussed earlier, the heat loading values in FSAR Tier 2, Table 6.4-3, have been changed to correspond with the new load shedding design and revised LNP FSAR heat loads expected in the MCR for the limiting DBA with ac power still available. The staff reviewed the GOTHIC calculations supporting the temperature evaluation, and the revised heat loads including the new timing resulting from the load shed are reflected in the GOTHIC analyses.

The applicant's GOTHIC heat load analyses calculated MCR and I&C equipment room temperatures during a DBA. The temperature and RH values calculated during the 72 hours following a DBA with ac power available equate to a maximum average WBGT index for the control room of less than 90 °F (32 °C). The 90 °F (32 °C) WBGT index is the design limit for minimizing performance decrements and potential harm, and preserving well-being and effectiveness of the control room staff for an unlimited duration. Under the load shed, non-1E MCR heat loads are de-energized by automatic actions of the protection and safety monitoring system (PMS) within 3 hours after VES is actuated, and the 24-hour battery heat loads are terminated or exhausted at 24 hours to maintain the assumed heat load values, which then maintain the occupied zone of the MCR and the zones containing qualified safety-related equipment within the temperature constraints at 72 hours following VES actuation. The occupied zone is considered to be the area between the raised floor and 7 ft (2.13 m) above the floor, which encompasses the reactor operators and senior reactor operator consoles. In the event that power to the VBS is unavailable for more than 72 hours, MCR habitability is maintained by operating one of the two MCR ancillary fans to supply outside air to the MCR. Discussion of the post-72-hour conditions can be found below in the "Post 72 hours" subsection below. These conditions are reflected in the GOTHIC model, which was audited by the staff.

The GOTHIC calculation used the following conservatisms:

- Finned surfaces areas are conservatively reduced to account for construction tolerances and embedments in the as-built design that could inhibit the heat transfer from the fins

- Heat transfer is conservatively calculated to account for thermal resistances associated with coatings and fouling (minimal fouling is expected over the life of the plant)

- Initial room temperatures are conservatively initialized above expected conditions

Related to the above, the applicant revised the FSAR to include new TS surveillance requirements (and changes to the associated TS Bases) for the rooms surrounding the MCR, as well as the I&C and dc equipment rooms, to verify the average temperature is less than 85 °F (29 °C). This is conservative with respect to the value used in the applicant's analysis and therefore is acceptable to the staff, as provisions to ensure that the initial values are bounded, in concert with limits on the design heat loads, are necessary to meet GDC 4 (specifically, the aspect of maintaining operation under the environmental conditions associated with both normal operations and following a postulated accident).

The applicant proposed to revise LNP FSAR Subsection 6.4.3.2 to state that the bounding initial values of temperature and RH in the MCR are 75 °F (24 °C)/60 percent. The temperature and RH values calculated during the 72 hours following a DBA equate to a maximum average WBGT Index for the control room of less than 90 °F (32 °C).

The humidity of the air in the MCR also represents an important parameter in the acceptance criteria of the WBGT and is not calculated in the applicant's GOTHIC analysis. The applicant instead calculated the moisture content in the MCR in a separate spreadsheet calculation. During the first 72 hours, the safety-related VES system supplies air to the MCR.

During the first 72 hours, the RH in the control room (and therefore the wet bulb temperature) is a function of the initial moisture in the room, any moisture input from heat loads in the room (e.g., the operators), and any moisture stored in the VES bottles. Uncertainty regarding the allowed level of moisture in the VES bottles led staff to ask RAI 09.04.01-1, as the DCD did not specify a moisture specification for the air stored in the VES bottles. This lack of a moisture specification had potential effects on both the MCR analysis for human performance limits and operability of the VES system under conditions that could lead to freezing of the VES regulator.

In the certified design, given a potential scenario where the VES moisture content was sufficiently high, the potential existed to cause freezing at the VES regulator because of the Joule-Thomson effect. The air stored in the VES bottles is at high pressure. It is expanded through a pressure regulator before being supplied to the main control room. During the expansion process, the air cools below the freezing point for water. At higher moisture contents (a higher dew point or wet bulb temperature), moisture could condense out of the air and form ice on the regulator, potentially inhibiting the expected flow of air from the VES system to the MCR. In addition, a higher moisture content input from the VES bottled air could result in humidity values in the MCR that may challenge the human performance acceptance criteria outlined above.

In a letter dated December 22, 2015, the applicant submitted a revised RAI response proposing revisions to the FSAR and the TS. The proposed changes to FSAR Sections 6.4.5.3 and 9.3.1.1.2, TS Surveillance 3.7.6.8, and the associated TS bases state that the air in the VES bottles will be supplied as ANSI/CGA-7.1 Quality Level E with a pressure dew point temperature not to exceed 40 °F at 3,400 psig (4.4 °C at 23.5 MPa) or greater. Adding a VES moisture specification to the licensing basis that requires a relatively low-pressure dew point (i.e., dry air) in VES prevents moisture from affecting proper operation of VES components, such as the pressure regulator, given that the VES temperatures are maintained in a temperature range of 60–80 °F (16–27 °C) (from TS Bases Figure B3.7.6-2, "VES Operability Requirements") and the VES has insulated piping and components.

In addition, the applicant states that the moisture specification is conservative with respect to maintaining acceptable conditions for habitability in the MCR during the first 72 hours following a transient even with maximum occupancy in the MCR. The staff audited the calculation supporting the RH in the MCR with maximum occupancy. The applicant calculated the humidity content of the control room under limiting conditions with 11 operators and initial values of 75 °F (24 °C) and 60 percent RH, and found that humidity conditions in the control room asymptotically approach a roughly steady-state condition because control room air is exhausted at the same rate it enters the control room not long into the transient (as the control room does not continually increase in pressure). The staff audited the applicant's calculation, which showed the control room reached a limiting humidity content of approximately 78 °F (26 °C) wet bulb. Because the TS do not impose a limit on the humidity in the control room, the staff performed confirmatory calculations using initial values of 75 °F (24 °C), 100 percent RH with the limiting moisture content added by 11 operators to determine the effect of adding the small amount of moisture present in the bottles using a 40 °F (4.4 °C) pressure dew point at 3,400 psig (4.4 °C at 23.5 MPa). The staff calculated a dew point in the control room of approximately 79 °F (26 °C) wet bulb at 72 hours, less than the value of 80.1 °F (26.7 °C) assumed by the applicant in the submittal. Given the above discussion, staff finds the proposed changes to the air quality acceptable. The staff is tracking the revisions discussed above to the FSAR as **LNP Confirmatory Item 21.3-1**.

Resolution of LNP Confirmatory Item 21.3-1

LNP Confirmatory Item 21.3-1 is a commitment by the applicant to revise the LNP COL application to provide additional information in the FSAR as indicated in the letters dated November 12, December 11, and December 22, 2015, including information related to limiting moisture content in the VES bottled air. The staff confirmed that the LNP COL FSAR has been appropriately revised. As a result, LNP Confirmatory Item 21.3-1 is now closed.

Post 72 hours

After 72 hours, the bottled air in the VES system has been depleted. If no non-safety system recovery has taken place, one of two ancillary fans is placed in operation to blow approximately 1,500 cfm (42,475 lpm) of outside air through the MCR envelope such that the maximum average WBGT index for the control room is less than 90 °F (32 °C). Likewise, outside air is supplied to Division B and C I&C rooms in order to maintain the ambient temperature below the qualification temperature of the equipment. In an RAI response dated July 17, 2015 (ADAMS Accession No. ML15201A540), the applicant stated that beyond 7 days, if VBS is still not operable, offsite support is available to extend habitability system operations. As such, the post-72-hour analyses are performed for a four-day period beginning at 72 hours and ending at 7 days after the onset of the transient.

Operation of the ancillary fans results in conditions in the MCR closely resembling ambient outdoor air conditions. In a November 12, 2015, RAI response (ADAMS Accession No. ML15322A009), the applicant performed an MCR habitability analysis in GOTHIC using a diurnal outdoor air input, with a maximum of 101 °F (38.3 °C) and a minimum of 86 °F (30 °C) for the dry bulb temperature. The corresponding wet bulb temperature in the analysis was assumed to be a constant 82.4 °F (28.0 °C) for 4 days. The applicant stated 101 °F (38.3 °C) is the maximum normal temperature for the certified design (FSAR Tier 2, Table 2-1); this value corresponds to the 1 percent seasonal exceedance temperature (or 0.4 percent annual

exceedance temperature) for sites referencing the AP1000. The staff has evaluated the applicability of these values to the LNP site and found them acceptable, and further discussion of the staff evaluation is located in Section 2.3 of this SER. The constant 82.4 °F (28.0 °C) wet bulb temperature is a bounding assumption with respect to the value of 80.1 °F (26.7 °C) corresponding wet bulb coincident with the maximum normal dry bulb temperature as reflected in FSAR Tier 2, Table 2-1. FSAR Tier 2, Sections 6.4.2, 9.4.1.1.2, and 9.4.1.2.3.1 have been revised to reflect that, post-72 hours, the ventilation system is designed to maintain the MCR below the limits associated with reliable human performance, as defined in the "Impact of Control Room Habitability Changes on Operator Performance," section of this SER, below, and the equipment qualification limits in DCD Figure 3D.5-1, Sheet 2 of 3, based on operation at the maximum normal site ambient temperature.

Using the temperature data discussed above, the applicant's analysis demonstrated that the MCR remained below a WBGT index of 90 °F (32 °C) during the 4-day period between 72 hours and 7 days. The staff reviewed the temperature input values and assumptions in the applicant's analysis and performed its own analysis to confirm the acceptability of the temperature inputs. The staff analysis consisted of reviewing data from National Weather Service stations near the Levy site. As part of its review, the staff identified the worst consecutive 4-day period with respect to the WBGT index, and compared this data set to the applicant's inputs and assumptions. The staff found that the applicant's analysis conservatively bounds the staff calculated WBGT index recorded near the site. In addition, in the staff's analysis, the staff found that the dry and wet bulb temperatures for the entirety of the 4-day period that resulted in the worst WBGT index were bounded by the applicant's assumption of a daytime peak of 101 °F (38.3 °C) with an 15 °F (8.3 °C) diurnal swing and a wet bulb temperature of 82.4 °F (28.0 °C).

In addition, the staff also identified the worst 1-hour period with respect to the WBGT index that was recorded at National Weather Service stations near the Levy site. The staff compared this data to the applicant's MCR habitability inputs and assumptions. Using the worst 1-hour data, the staff found that the applicant's peak conditions bound the staff calculated peak WBGT index recorded near the site.

The staff recognizes that the use of a WBGT index as an appropriate metric to assess MCR habitability consists of a calculation that combines the dry bulb and wet bulb temperatures using appropriate scaling factors. In the staff's review of the worst recorded 1-hour WBGT index, an individual temperature input that contributed to calculating the WBGT index (i.e., wet bulb temperature) exceeded the assumed value in the applicant's analysis. However, when the wet bulb temperature was combined with the coincident dry bulb temperature to form the calculated WBGT index, the staff found that the WBGT index was bounded by the applicant's analysis.

Humidity in the control room after 72 hours is primarily a function of the initial humidity of the control room at 72 hours combined with the moisture content of the outside ambient air, as an ancillary fan operates to blow approximately 1500 cfm of air through the MCR and Division B and C I&C rooms. The FSAR was revised to state the fans are expected to maintain the environment in the MCR near the daily average outdoor air temperature. Operators inside the control room represent a substantially smaller contribution to the ambient humidity as compared to the case prior to 72 hours, given the flow rate through the MCR from the fans. As stated earlier, the applicant uses conservative values for the temperature and moisture content of the air.

Finally, the applicant revised FSAR Figure 3D-201 to reflect the post-72-hour limits for equipment qualification to 110 °F (43.3 °C) with 35 percent RH at this temperature. This change results in different acceptance criteria for equipment qualification and human performance after 72 hours. In addition, staff audited an analysis performed by the applicant demonstrating that even in conditions where 101 °F (38.3 °C) outside air was input to the control room for the entirety of the period between 72 hours and 7 days, the limits in FSAR Figure 3D-201 were not exceeded. As such, based on the above discussion, staff finds the proposed change to the FSAR acceptable, as the applicant's analysis provides reasonable assurance that the requirements associated with GDC 2 (with respect to natural phenomena, including ambient conditions) and GDC 4 are met. The calculated dry bulb temperature in the control room in this analysis was lower than the equipment qualification curve in Figure 3D-201, demonstrating further margin as compared to the diurnal temperature analysis discussed above.

The applicant's calculation showed that the WBGT remains below the 90-degree F (32.2-degree C) index associated with unlimited stay times for the operators. Additionally, the temperatures remain within the bounds for equipment qualification specified in DCD Figure 3D.5-1, Sheet 2 of 3. Based on the above review, the conservatism used by the applicant, and the staff's confirmatory analysis, the staff believes that the applicant's control room temperature calculation is acceptable, and therefore meets NRC regulations as specified in GDC 2, GDC 4, and GDC 19.

B.2 Impact of Control Room Habitability Changes on Operator Performance

In response to an RAI on control room habitability dated October 10, 2014 (ADAMS Accession No. ML14283A522), the applicant submitted a response dated March 26, 2015 (ADAMS Accession No. ML15089A193) stating that:

The MCRE temperature profile contained in the DCD is incorrect because of the following errors:

(1) MCRE heat loads during operation with or without normal ac power sources exceed the values documented in the DCD.

(2) Analyses that were performed to support the DCD were non-conservative because these analyses assumed that:

- VES actuation is always coincident with station blackout (SBO); however, MCRE heat load challenge is most severe during events that result in isolation of the control room with offsite power available.
- EDS batteries are exhausted at exactly 1 hour beyond minimum mission time when there is a high probability that these batteries would last considerably longer.

These errors could result in the MCR becoming a limited tolerance hot zone according to the referenced licensing basis standard, MIL-STD-1472E. This results in a 2- to 4-hour stay time for control room personnel, as stated in the applicant's RAI response dated July 17, 2015 (ADAMS Accession No. ML15201A540).

In the applicant's RAI responses dated November 12, 2015 (ADAMS Accession Nos. ML15320A025, ML15320A028, and ML15322A009), the applicant proposed to change the

acceptance criteria for control room habitability from the effective temperature of 85 °F (29 °C) in the certified AP1000 design to a WBGT of less than 90 °F (32 °C) in the LNP FSAR. NUREG-0700, Table 12.6, “Ranges of WBGT for Different Ranges of Stay Times,” was used by the applicant as the basis for stay time limits. In accordance with NUREG-0700, Table 12.6, at 90 °F (32 °C) WBGT or less under control room working conditions (low-activity levels, normal work clothing), there is no stay time limit. The temperature ranges in Table 12.6 are intended to minimize performance decrements and potential harm to workers because of excessive heat. These temperature ranges are ceiling values (i.e., they assume that protective practices, such as acclimatization, training, and a cool place to rest, are in place).

The staff finds the change in licensing basis from MIL-STD-1472E to NUREG-0700 to be acceptable and confirmed that the change was incorporated into the FSAR. Both documents establish stay time limits above 90-degree F (32.2-degree C) WBGT with NUREG-0700 providing a more detailed set of limitations based on temperature, clothing, and work activity. NUREG-0700 is also the established NRC-approved standard for human factors guidance. The staff finds the change of acceptance criteria for control room habitability from the effective temperature of 85 °F (29 °C) in the certified AP1000 design to a WBGT of less than 90 °F (32 °C) in the LNP FSAR to be acceptable. The new limit, as did the old limit, maintains an unlimited stay time in the control room and provides reasonable assurance that operator performance will not be affected by the control room environment.

B.3 Addition of Load Shed

The safety-related PMS and post-accident monitoring (PAM) system in the certified AP1000 DCD, Revision 19, as modified by LNP DEP 6.4-2, were reviewed to meet the above regulatory requirements. Chapter 7 of AP1000 DCD, Revision 19, as incorporated by reference in the LNP COL application includes the certified PMS and PAM systems. However, in response to RAI Question 06.04-4 on the MCR heat-up concern, dated October 10, 2014, the LNP COL applicant proposed in a submittal dated March 26, 2015, two new safety-related load shedding panels with associated other components to receive commands from the PMS to de-energize some non-safety-related electrical loads in the MCR (ADAMS Accession Nos. ML14283A522 and ML15089A193). In the RAI response, the applicant also stated that the PAM system would be revised to include some status signals. The above design changes were assessed below by the staff to ensure the regulatory requirements in Section 21.3.3 of this SER are still met. In addition, in response to RAI Question 06.04-4 on the MCR heat-up issue, the applicant stated the environmental conditions in the MCR after a design-basis event are changed from the certified, original conditions of 95 °F (35 °C) and 70 percent RH to 115 °F (46.1 °C) and 35 percent RH for an extended time duration of 4 days. The above changes to the environmental conditions in the MCR were also evaluated below by the staff to ensure the related regulatory requirement on equipment qualification in Section 21.3.3 of this SER is still met for the safety-related I&C equipment located in the MCR.

In order for the safety-related main control room VES to maintain heat loads for the MCRE within design-basis assumptions to limit the heat-up of the MCR, the applicant stated in response to NRC RAI Question 06.04-4 that two safety-related MCR load shedding panels containing Class 1E equipment will be added to automatically or manually de-energize some non-safety-related electrical loads in the MCR. The applicant also stated in response to NRC RAI Question 06.04-4 that automatic actuation of the two new MCR load shedding panels is added to the existing PMS VES system actuation signal for VES MCRE isolation, pressurization, and filtration on a high iodine or particulate MCRE air supply radioactivity signal

or a loss of all ac power for longer than 10 minutes signal by the low Class 1E battery charger input voltage parameter. In addition, the existing manual actuation signal for VES MCRE isolation, pressurization, and filtration is added to the two new MCR load shedding panels. De-energized, non-safety-related electrical loads are separated into two stages (Stage 1 and Stage 2) to maximize the availability of some non-safety-related wall panel information system, which is de-energized with other Stage 2 loads. Timers controlling the de-energization of electrical loads in both Stage 1 and Stage 2 are internal to each MCR load shedding panel and actuate relays to de-energize the associated loads. Stage 1 loads are de-energized by both panels immediately after the timers in each load shedding panel receive the PMS VES system actuation signal. Stage 2 loads are de-energized by both load shedding panels within 180 minutes after the timers in each load shedding panel receive the PMS VES system actuation signal. Component Interface Modules (CIMs) in PMS Divisions A and C are provided to de-energize non-safety-related electrical loads powered by the two MCR load shedding panels. In the staff's evaluation, it was not clear in the response to NRC RAI Question 06.04-4 how the above proposed design changes meet the regulatory requirement for the single failure criterion, as required in Clause 5.1 of IEEE Std. 603-1991, for the two new load shedding panels. Hence, the staff issued RAI Question 07.03-1 requesting the applicant to provide design information to demonstrate its compliance with the single failure criterion. In the response to RAI Question 07.03-1, the applicant stated that either PMS Division A or C is capable of de-energizing the two new MCR load shedding panels. Each load shedding panel de-energizes separate, non-essential, non-safety-related electrical loads from both Stage 1 and Stage 2. Each MCR load shedding panel contains redundant load shedding relays and timers that are actuated by both PMS Divisions A and C; therefore, actuation of either PMS Division A or C de-energizes all required non-safety-related electrical loads. The staff found that the additional information submitted in the RAI response demonstrated the compliance with Clause 5.1 of IEEE Std. 603-1991 for the single failure protection.

During the staff's evaluation, it was not clear in the response to NRC RAI Question 06.04-4 how physical separation and electrical isolation were achieved between the two safety-related MCR load shedding panels and non-safety electrical loads controlled by them. In addition, the description on how the non-safety-related electrical loads will be controlled by the two new MCR load shedding panels was not clear in the response to RAI Question 06.04-4. For example, in Section 3.0 of Enclosure 2 in its response to RAI Question 06.04-4, the applicant states that two redundant MCR load shedding panels are added. However, later it states that each panel de-energizes separate nonessential non-safety-related electrical loads. Therefore, in RAI Question 07.03-1 dated May 20, 2015, the staff requested the applicant to demonstrate clearly how the proposed changes meet the regulatory requirements for separation and isolation between safety systems and other systems, as required in Clause 5.6.3 of IEEE Std. 603-1991 (ADAMS Accession No. ML15140A475). In its response dated July 16, 2015, the applicant stated that each of the two load shedding panels contains two independent, isolated, in-series sets of relay contacts, one controlled by PMS Division A and the other controlled by PMS Division C (ADAMS Accession No. ML15201A542). In the RAI response, the applicant also provided schematic diagrams showing how the control and feedback signals are designed. Power for the non-safety-related loads, which may be de-energized, passes through both sets of relay contacts in one of the two new load shedding panels. Spatial separation between PMS Division A and Division C within the panel and between Class 1E and non-Class 1E circuits on the two load shedding panels is also provided to meet the requirements of IEEE Std. 384 and Regulatory Guide 1.75, "Criteria for Independence of Electrical Safety Systems," in accordance with the certified AP1000 commitments and exceptions. The applicant also stated in its response that the non-Class 1E loads to be shed by the two MCR load shedding panels are isolated from

each of the Class 1E PMS Divisions A and C through the use of two fuses in series. These fuses provide Class 1E to non-Class 1E isolation and PMS Division to Division isolation. The staff found that the additional design information and schematic diagrams provided by the applicant in its response to RAI Question 07.03-1 demonstrated compliance with the regulatory requirements in Clause 5.6.3 of IEEE Std. 603-1991 regarding separation and isolation between safety systems and other systems.

In response to NRC RAI Question 06.04-4, the applicant stated the PAM system will be revised to include the status of the two new MCR load shedding panels. However, the revised Table 7.5-1 provided in the response only identified the MCR electrical load status, which would be added as PAM parameters. The staff found there is an inconsistency in the above description on what new parameters will be added to the PAM system. Therefore, the staff issued RAI Question 07.03-1 requesting the application to clarify what parameters will be added to the existing PAM system. In its response dated July 16, 2015, the applicant stated that each load shedding panel provides feedback to the PMS through individual digital input and output for affirmative display of de-energization of non-safety MCR electrical load status on the primary dedicated safety panel. Two Stage 1 feedbacks and two Stage 2 feedbacks per Division (a total of eight signals) are provided. Each MCR electrical load status signal is reported as closed when the contactor is closed (and MCR loads are energized). When the contactor input is open, the PMS inverts the signal to report that the contactor is open (and MCR loads are de-energized). The staff found that the above additional design information clarified which new parameters will be added to the existing PAM system. Therefore, the staff found that the response to RAI Question 07.03-1 is acceptable to meet the regulatory requirements in GDC 13 for variables to be monitored.

The staff found that electrical loads to be shed includes non-safety-related electrical equipment, such as wall panel information system displays, office equipment, water heater, kitchen appliances, and non-emergency lighting. However, it does not include the non-safety-related, but important to safety diverse actuation system equipment. Therefore, the staff found that the proposed changes do not affect the certified design in the AP1000 DCD, Revision 19, approach to diversity and defense-in-depth.

Safety-related I&C equipment located in the MCR must meet the regulatory requirements on equipment qualification as entailed in Clause 5.4 of IEEE Std. 603-1991. Chapter 7 of AP1000 DCD, Revision 19, as incorporated by reference in the LNP COL application, includes description of the PMS hardware, which will use the approved Common Qualified (Common-Q) platform, as described in Topical Report WCAP-16097-P-A, Revision 2, "Common Qualified Platform Topical Report." Table 7-1 in Topical Report WCAP-16097-P-A identifies the environmental design requirements for the Common-Q equipment, which includes a maximum temperature at 120 °F (48.9 °C) and 95 percent RH, and a minimum temperature of 40 °F (4.4 °C) and 20 percent RH for a time duration of 12 hours. In response to NRC RAI Question 06.04-4, the applicant stated the potential environmental conditions in the MCR after a design-basis event need to be revised from 95 °F (35 °C) and 70 percent RH, to 115 °F (46.1 °C) and 35 percent RH for an extended time duration of 4 days (between 4th and 7th day after a design-basis event).[7] However, the response to NRC RAI Question 06.04-4, lacked discussion on how the safety-related Common-Q equipment, such as flat display panels, node

[7] Subsequent to the RAI response discussed here, the applicant decreased the proposed limit for the environmental conditions during the period between 72 hours and 7 days from 115 °F (46.1 °C) to 110 °F (43.3 °C).

boxes, AP1000 modems and their processors located in the MCR, is qualified for the changed environmental conditions and time duration. It was not stated in the response to NRC RAI Question 06.04-4 whether the qualification already conducted for the Common-Q platform equipment was to be credited for the COL application. Therefore, the staff issued RAI Question 07.01-1, dated October 1, 2015, requesting the applicant to demonstrate how the safety-related Common-Q equipment is qualified for the revised higher temperature with an extended time duration after a design-basis event (ADAMS Accession No. ML15275A000). The staff also requested the applicant to clarify whether the qualification conducted for the Common-Q equipment is credited for the LNP COL application, or if additional testing needs to be performed on safety-related Common-Q equipment in the MCR.

In its response to RAI Question 07.01-1 dated November 12, 2015, the applicant stated that qualification performed with the Common-Q platform is not utilized as the only basis for the environmental qualification for the AP1000 safety-related Common-Q equipment in the MCR (ADAMS Accession No. ML15320A022). Topical Report WCAP-16097-P-A provides a qualification basis for the Common-Q system as a whole, but is not specific to the MCR installation of the Common-Q equipment. The MCR safety-related I&C equipment is listed in Table 3.11-1 of the AP1000 DCD, Revision 19. According to AP1000 DCD Tier 2 Appendix 3D, "Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment," the safety I&C equipment in the MCR requires an equipment qualification data package to demonstrate environmental qualification. After the proposed changes in potential environmental conditions to 115 °F (46.1 °C) and 35 percent RH post-72 hours, various test programs that environmentally qualified similar safety-related equipment were used to show the safety Common-Q equipment is qualified for the changed environmental conditions. No further additional testing is expected because these safety-related I&C components have been qualified in other test programs.[8] The equipment qualification data package for the Common-Q equipment in the MCR, which are lower-level design documents, is being updated to reflect the revised environmental conditions in the MCR and reference the evaluation performed to ensure the Common-Q equipment in the MCR remains qualified for the changed environmental conditions with an extended time duration. The staff found the additional design information provided by the applicant demonstrated compliance with Clause 5.4 of IEEE Std. 603-1991.

Based on the evaluation above on meeting regulatory requirements for protection and safety systems, the staff finds the design changes meet the requirements identified in 10 CFR 50.55a(h)(3) and GDC 13.

B.4 Impact of Load Shed on Operator Performance

To limit control room maximum temperature during VES operation, a two-stage load shed of selected MCR equipment is automatically initiated on a high iodine or particulate MCRE air supply radioactivity signal or a loss of all ac power for greater than 10 minutes. Select, non-safety loads are de-energized by the Stage 1 load shed, which occurs coincident with VES actuation. Consisting primarily of office equipment and non-battery-backed lighting, specific loads include:

[8] Subsequent to the RAI response discussed here, the applicant decreased the proposed limit for the environmental conditions during the period between 72 hours and 7 days from 115 °F (46.1 °C) to 110 °F (43.3 °C).

- large screen displays used for weather or plan of the day information
- water heater
- coffee machine
- refrigerator
- microwave
- dishwasher
- drinking fountain/icemaker
- site-supplied desktop computer, monitors, copy machine, printers
- normal ELS lighting (i.e., not battery-backed)
- convection heater (2)
- non-safety-related MCR area radiation monitor

Additional non-safety-related loads de-energized by the Stage 2 load shed include the

- local area network consoles
- wall panel information system (WPIS) Displays.

This occurs 3 hours after the Stage 1 load shed.

The staff confirmed that the Stage 1 load shed, with the exception of normal lighting, does not affect operational decision making or plant control. The applicant stated in the July 1, 2015, supplement (ADAMS Accession No. ML15187A039) that the plant lighting system (ELS) in the control area will continue to be available throughout the event using Class 1E battery-backed power. This battery-backed lighting provides the necessary illumination for safe operation.

With battery-backed lighting available, the staff concludes the Stage 1 load shed does not affect operator performance.

The staff identified two concerns with the proposed Stage 2 load shed:

(1) The WPIS is credited with supporting teamwork, situational awareness, and command and control as part of the "control room design that reflects state-of-the-art human factor principles" required by 10 CFR 50.34(f)(2)(iii).

(2) It is not clear whether the plant would remain at power and for how long it would stay at power following the initiation of VES followed by the subsequent load shed.

The staff requested additional information on how the load shed affected these issues in RAI Letter No. 128, issued June 29, 2015 (ADAMS Accession No. ML15180A275). The applicant provided additional information addressing these issues in their RAI response dated August 5, 2015 (ADAMS Accession No. ML15219A202).

The July 1, 2015, supplement states that the Two-Stage Automatic Load Shed does not de-energize all non-safety equipment and that although the WPIS displays are de-energized, the information shown on these panels can be readily retrieved and displayed on any available console that is not de-energized. The consoles that are not de-energized are identified as:

- shift manager office console
- senior reactor operator console
- reactor operator consoles (excluding business LAN)

The staff concludes that the command and control and situational awareness functions are not significantly affected because the WPIS information is available to the control room personnel at their normal work station consoles, which are not de-energized. The information available on the WPIS is high-level, fundamental safety information that is available on the work station consoles typically at the first or second information level so information accessibility remains reasonably quick and simple. Also the safety-related consoles display the minimum inventory parameters that are used to monitor the status of critical safety functions and to manually actuate the safety-related systems that achieve these critical safety functions.

While the loss of the WPIS places additional emphasis on communications between operators, the staff concludes the control room communications are also not significantly affected. The normal conduct of operations for MCR communications includes repeat backs, status announcements, and independent verifications to minimize human error and are used for normal and abnormal operations. During normal operations these communication practices reinforce information made readily available to the control room team via WPIS. During abnormal operations, the same practices would supplement the information each operator has available at his control station and compensate for loss of the centralized information on WPIS.

Although the control room design is sufficiently diverse to compensate for loss of the WPIS information, the reduction in defense-in-depth strategy within the control room human factors design caused by the removal of common indications, instantly and simultaneously available to all control room personnel that supports analysis and decision making warrants a better understanding of the conditions under which the loss of WPIS would occur. The staff prepared the following table based on the August 5, 2015, RAI response.

Table 21.3-1. VBS/VES Functionality

	Scenario	Response	Standby Diesel Generator (DG) Functionality	VBS Functionality
1	Station blackout	Rx trip; VES actuates 10 min after power loss; WPIS is de-energized 2 hours after power loss because of battery limit or immediately if non-safety EDS batteries are not functioning	None—Cannot be credited under definition of station blackout	VBS not functional, but after 72 hours, operators may be able to align the ancillary DG to the VBS fans
2	Loss of switchyard only (offsite power) with runback (rapid power reduction)	Rx power reduced to meet plant loads. VBS continues to operate.	Available but not needed	Fully functional

	Scenario	Response	Standby Diesel Generator (DG) Functionality	VBS Functionality
3	Loss of switchyard and turbine generator trip	Rx trip; VES 10-minute timer starts on loss of battery charger input voltage. If DGs not functional then plant is in a station blackout condition	Standby DG starts and provides power to VBS system	Fully functional on power from standby DG.
4	Spurious VES actuation because of component failures.	Simultaneous, independent failures actuate VES and isolate VBS. If repairs unsuccessful WPIS de-energized by auto load shed at 3 hours. Mode 3 required by TS about 26 hours from VES actuation. Exact time to shutdown is dependent on component(s) which failed.	No impact, failures assumed to be independent of power supply	After verification of plant condition, operators override VBS isolation and return system to service.
5	VBS isolation occurs because of simultaneous, independent component failures	Operator manually initiates VES. If VBS repairs unsuccessful, WPIS de-energized by auto load shed at 3 hours. Mode 3 required by TS about 26 hours from VES actuation.	No impact; failures assumed to be independent of power supply	System is unavailable
6	LOCA with fuel failure and leakage from containment. Offsite ac available.	Rx trip; High-1 setpoint shifts VBS to recirc mode. VBS designed to maintain MCR doses below GDC 19 limits during design-basis events.	Available but not needed	Fully functional
7	LOCA with fuel failure and leakage from containment. Offsite ac not available.	Rx trip; VES 10-minute timer starts. If DG not credited then plant is in a station blackout condition with LOCA.	Standby DG starts and provides power to VBS system; High-1 shifts system to recirc	Fully functional on power from standby DG.
8	LOCA with fuel failure and leakage from containment from adjacent plant.	High-1 setpoint shifts VBS to recirc mode. VBS designed to maintain MCR doses below GDC 19 limits during design-basis events.	Available but not needed	Fully functional

	Scenario	Response	Standby Diesel Generator (DG) Functionality	VBS Functionality
9	LOCA with fuel failure and leakage from containment from adjacent plant with concurrent, simultaneous, independent failure of two VBS recirculation trains on intact unit	High-2 actuates VES on intact unit. WPIS de-energized by auto load shed at 3 hours. Mode 3 required by TS about 26 hours from VES actuation.	No impact; failures assumed to be independent of power supply	System is unavailable

In summary:

(1) If the VES actuation occurs from a loss of power the plant is in a station blackout condition and the WPIS would not be available regardless of the load shed feature. This condition was accepted as part of the AP1000 design certification. If power is available either from offsite or the standby diesel generator, then the VBS system remains functional and VES actuation is unnecessary. The VBS system is designed to maintain MCR doses below GDC 19 limits.

(2) If the VES actuation occurred because of spurious component failures or a valid High-2 actuation signal, then TS associated with room temperature limits would require a plant shutdown within 26 hours. These scenarios require multiple independent system or component failures to cause VES actuation.

Scenarios 4, 5, and 9 would be most limiting in that the unit continues at power for up to 26 hours followed by a plant shutdown. However, these scenarios assume multiple, independent failures occur. The incorporation of independent systems and components into a design is a defense-in-depth strategy credited to effectively minimize the scenarios being postulated. Therefore the staff concludes that there is reasonable assurance that Scenarios 4, 5, and 9 will not occur because of the low probability of concurrent independent failures. If they should occur, the MCR operating staff still has the information necessary to evaluate and diagnose plant condition and implement the necessary actions to place the plant in a safe condition. It should be noted that many of the scenarios evaluated above are beyond design requirements. They are being used to illustrate intersystem functionality and the defense-in-depth provided by the design and are not part of the applicant's design basis.

The combination of failures and/or events that would cause VES actuation are either beyond the design basis and already addressed in the station blackout regulation or require failure combinations that are beyond what regulation addresses because of their low probability of occurrence.

Regardless, should such a combination of events occur, the defense-in-depth strategy inherent to the control room design would be reduced. Given the limited time at power at which the condition exists, the fact that that time is governed by technical specifications, and that redundant information is readily available on each of the operator consoles the staff concludes there is reasonable assurance that the operators could complete the actions necessary to maintain plant safety. Accordingly, the staff finds that, given the low probability of events

resulting in WPIS load shed and the availability of alternate indications, the WPIS load shed does not undermine the acceptability of the WPIS system under 10 CFR 52.34(f)(2).

B.5 Reclassification of VES-PL-V018 and VES-PL-V019 as Active Safety-Related Valves

This section evaluates provisions for the functional design, qualification (functional, seismic, and environmental), and IST for safety-related valves identified in the LNP Units 1 and 2 request for exemption regarding MCR heat load.

The staff reviewed the following proposed departures from DCD Revision 19 to verify that the appropriate provisions are specified for the design, qualification, and IST of valves VES-PL-V018 and VES-PL-V019.

FSAR Tier 1 Departures

DCD Tier 1, Section 2.2.5, "Main Control Room Habitability System," describes the design-related information for valves VES-PL-V018 and VES-PL-V019. The applicant proposed a departure from DCD Tier 1, Table 2.2.5-1, to add valves VES-PL-V018 and VES-PL-V019, and identified the design requirements as ASME *Boiler & Pressure Vessel Code* (BPV Code), Section III, and seismic Category I, with an active function as "Transfer Open." The proposed departure to DCD Tier 1, Table 2.2.5-1 also specifies that the valve design does not include remote operators, safety-related displays, or PMS controls.

DCD Tier 2, Section 3.9.3, "ASME Code Classes 1, 2, and 3 Components, Component Supports, and Core Support Structures," states that pressure retaining components classified as Class 1, 2, or 3, are constructed according to the rules of ASME BPV Code, Section III, Division 1. Also, DCD Tier 2, Section 3.10, "Seismic and Dynamic Qualification of Seismic Category I Mechanical and Electrical Equipment," describes seismic qualification requirements for seismic Category I valves.

The staff finds the applicant's proposal to add valves VES-PL-V018 and VES-PL-V019 to DCD Tier 1, Table 2.2.5-1, to be acceptable because it includes the correct identification of the design criteria for the valves. The valves are designed and constructed in accordance with ASME BPV Code, Section III, requirements to withstand seismic design-basis loads without a loss of safety function to transfer open. Therefore, provisions are specified to meet the design and construction requirements of GDC 1 and the design requirements to withstand the effects of natural phenomena requirements of GDC 2. The valves are located in Environmental Zone 7 of the auxiliary building (not in the MCR itself), and are accessible for manual operation during normal, abnormal, and accident conditions as identified in Tables 3D.5-1, 3D.5-4, and 3D.5-5 of DCD Tier 2, and therefore do not require automatic operators.

FSAR Tier 2 Departures

The capability provisions for valves VES-PL-V018 and VES-PL-V019 are specified in DCD Tier 2, Section 3.9.3.2.2, "Valve Operability." DCD Tier 2, Section 3.9.3.2.2 states that prior to installation, qualification of the functional capability of active valve assemblies is performed in accordance with the requirements of ASME Standard QME-1-2007, "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants," and that Tier 2, Table 3.9-12, "List of ASME Class 1, 2, and 3 Active Valves," identifies the active valves in the AP1000 design. The

applicant proposed a departure to add valves VES-PL-V018 and VES-PL-V019 to FSAR Tier 2, Table 3.9-12, and to classify the valve function as active.

The staff finds the applicant's proposal to reclassify the function of valves VES-PL-V018 and VES-PL-V019 in DCD Tier 2, Table 3.9-12, from inactive valves to "active valves" to be acceptable because it is consistent with the active safety-related function of the valves, and provides identification of the functional qualification requirements in accordance with the provisions of ASME QME-1-2007 where implemented as accepted in NRC Regulatory Guide 1.100, "Seismic Qualification of Electrical and Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants" (Revision 3).

The IST (including preservice testing) provisions for valves VES-PL-V018 and VES-PL-V019 are described in DCD Tier 2, Section 3.9.6, "Inservice Testing of Pumps and Valves." DCD Tier 2, Section 3.9.6, specifies that inservice testing of ASME BPV Code, Section III, Class 1, 2, and 3 valves is performed in accordance with the ASME OM Code as required by 10 CFR 50.55a(f), and that DCD Tier 2, Table 3.9-16, "Valve Inservice Test Requirement," identifies components subject to the IST program. Table 3.9.6 also identifies the method and frequency of inservice testing for each valve. The applicant proposed a departure from DCD Tier 2, Table 3.9-16, to add valves VES-PL-V018 and VES-PL-V019, and identified the following test requirements: (1) the valves are active manual valves with a safety-related mission to maintain closed, transfer open, and maintain open, (2) the valves are ASME BPV Code, Class 3 and ASME OM Code, IST Category B, and (3) the IST type is full stroke and the test frequency is 2 years.

The staff finds the applicant's proposal to be acceptable because the IST provisions are consistent with the requirements specified in ASME OM Code, Subsection ISTC, "Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants." The staff notes that leak testing and position indication testing per ASME OM Code, Subsection ISTC are not required because these valves are classified as Category B and do not have remote position indication.

The environmental qualification provisions for valves VES-PL-V018 and VES-PL-V019 are specified in DCD Tier 2, Section 3.11, "Environmental Qualification of Mechanical and Electrical Equipment." Section 3.11 states that mechanical components identified in DCD Tier 2, Table 3.11-1, "Environmentally Qualified Electrical and Mechanical Equipment," are qualified to perform their required functions under the appropriate environmental effects of normal, abnormal, accident, and post-accident conditions. For mechanical equipment, DCD Tier 2, Section 3.11, specifies two categories of components: (1) active equipment that performs a mechanical motion as part of its safety-related function, and (2) non-active equipment whose only safety function is to maintain its structural integrity. For active components, the environmental qualification program is based on a combination of design, test, and analysis of critical sub-components, which is supported by maintenance and surveillance programs. For non-active equipment, the only safety-related function is to maintain the structural integrity according to the ASME BPV Code, Section III. The applicant proposed a departure from DCD Tier 2, Table 3.11-1, to reclassify the function of valves VES-PL-V018 and VES-PL-V019 from "non-active valves" to "active valves."

The staff finds the applicant's proposal to be acceptable because reclassification of the valves VES-PL-V018 and VES-PL-V019 in DCD Tier 2, Table 3.11-1, from "non-active valves" to "active valves" is consistent with the active safety-related function of the valves, and provides identification of the environmental qualification requirements associated with active valves.

Therefore, provisions are specified to meet the environmental requirements of GDC 4. Valves VES-PL-V018 and VES-PL-V019 are located in Environmental Zone 7 (auxiliary room). In addition, other mechanical equipment listed in DCD Tier 2, Table 3.11-1, and located in Environmental Zone 3 (MCR) is required to be environmentally qualified to the revised test profile identified in FSAR Figure 3D-201. Use of this revised test profile for environmental qualification is acceptable to the staff because it is consistent with the environmental assumptions for the location.

DCD Tier 2, Appendix 3I, "Evaluation for High Frequency Seismic Input," states that the seismic analysis and design of the AP1000 plant is based on the Certified Seismic Design Response Spectra (CSDRS). Ground Motion Response Spectra (GMRS) for some Central and Eastern United States rock sites show higher amplitude at high frequency than the CSDRS. Appendix 3I describes the methodology and criteria to evaluate equipment that might be sensitive to the high-frequency input. Equipment that is not sensitive to high frequency input is listed in DCD Tier 2, Table 3I.6-3, "List of AP1000 Safety-Related Electrical and Mechanical Equipment Not High Frequency Sensitive," and does not require high frequency evaluation per Appendix 3I. The applicant proposed a departure to classify valves VES-PL-V018 and VES-PL-V019 as being "not high frequency sensitive," and added the valves to FSAR Tier 2, Table 3I.6-3.

The staff finds the applicant's proposal to classify valves VES-PL-V018 and VES-PL-V019 as "not high frequency sensitive," and add the valves to Tier 2, Table 3I.6-3, to be acceptable because the valves are not within the high frequency sensitive criteria listed in Tier 2, Table 3I.6-1, "Potential High Frequency Sensitive Equipment List." The criteria include attributes such as: (1) equipment or components with moving parts that are required to perform a switching function during the seismic event, and (2) components with moving parts that may bounce or chatter, such as relays and actuation devices.

The staff concludes that the LNP proposed departure to DCD, Revision 19, to reclassify valves VES-PL-018 and VES-PL-019 from non-active valves to active valves is acceptable because the applicant specified appropriate provisions for the design, qualification, and IST of valves VES-PL-V018 and VES-PL-V019 and meets NRC regulations as specified in GDC 1, GDC 2, GDC 4, and 10 CFR 50.55a(f).

B.6 Technical Specifications

In a letter dated March 26, 2015, the applicant submitted its response to RAI Letter 122, Question 06.04-4, related to a revised Auxiliary Building heat-up analysis to adequately support the safety function of the VES. This revised analysis results in modification of the VES design to add two new safety-related load-shed panels to allow automatic shutting off of various non-safety electrical loads during certain design-basis events, and a need to monitor the initial air temperatures in the MCRE as well as in selected adjacent rooms around the MCRE. These modifications result in changes in a few sections of the TS and TS Bases (Chapter 16) in the COL application.

In letters dated July 17 and November 12, 2015, the applicant submitted its responses to follow-up RAI Letter 126, Question 16-3, and RAI Letter 134, Question 16-4, to address the staff's concerns related to proposed TS requirements and insufficient level of details provided in the TS Bases. Also, in its response letter dated December 22, 2015, to RAI Letter 132, Question 09.04.01-1, regarding the freezing issue in the VES air distribution lines, the applicant

proposed changes to existing SR 3.7.6.5 (renumbered as SR 3.7.6.8) to address the potential high-moisture content of the air stored in the VES storage tanks.

These changes are necessary to ensure that the TS and TS Bases accurately reflect the updated design and are described below, with deleted text lined out and added text underlined.

- LCO 3.3.2 (engineered safety features actuation system (ESFAS) Instrumentation)

  Required Action F.2.2 and Function 20 in Table 3.3.2-1 are revised to include the actuation of the new MCR Load Shed function as follows (with added text underlined):

  The description of Function 20 is revised to read "Main Control Room Isolation, Air Supply Initiation, and Electrical Load De-energization" including a minor editorial correction for the input sensor description to read "a. Main Control Room Air Supply Radiation – High-2"

  Required Action F.2.2 is revised to read "[V]erify main control room isolation, air supply initiation and electrical load de-energization manual controls are OPERABLE"

- Applicable Safety Analyses, LCOs, and Applicability (ASA) Section of TS Bases B3.3.2 (ESFAS Instrumentation)

  On page B3.3.2-45, the discussion of Function 20 is revised as follows (with deleted text lined out and added text underlined):

  > "Main Control Room Isolation, Air Supply Initiation, and Electrical Load De-energization
  >
  > Isolation of the main control room and initiation of the VES air supply provides a ~~protected environment from which operators can control the plant following an uncontrolled release of radioactivity~~ breathable air supply for the operators following an uncontrolled release of radiation. De-energizing non-essential main control room electrical loads maintains the room temperature within habitable limits. This Function is required to be OPERABLE in MODES 1, 2, 3, and 4, and during movement of irradiated fuel because of the potential for a fission product release following a fuel handling accident, or other DBA.
  >
  > 20.a. Main Control Room Air Supply Radiation – High 2"

- Actions Section of TS Bases B3.3.2 (ESFAS Instrumentation)

  On pages B3.3.2-55 and 57, in the first and second paragraphs under Actions F.1, F.2.1, and F.2.1 and in the second paragraph under Action K.1, the phrase "main control room isolation and air supply initiation" is revised as follows (with deleted text lined out and added text underlined):

> "Condition F is applicable to the Main Control Room (MCR) isolation, ~~and~~ air supply initiation and electrical load de-energization function which has only two channels of the initiating process variable …"
>
> "Alternatively, radiation monitor(s) which provide equivalent information and main control room isolation, ~~and~~ air supply initiation and electrical load de-energization manual controls may be verified to be OPERABLE ..."
>
> "Condition K is applicable to the Main Control Room Isolation, ~~and~~ Air Supply Initiation, and Electrical Load De-energization (Function 20), during movement of irradiated fuel assemblies ..."

The staff finds the above proposed changes to TS LCO 3.3.2 and its associated bases acceptable because they reflect the change in the VES actuation logics described in FSAR Chapter 7.

- LCO 3.7.6 (VES)

  A new condition, required action, and its associated completion time are added to address failure of the MCR load-shed panels to perform their safety function, as follows:

  > Condition B which reads "One PMS division inoperable in MCR load shed panel(s)"
  >
  > Required Action B.1 which reads "Restore MCR load shed panel(s) to OPERABLE status" with a Completion Time of "7 days"

  A new condition, required action, and its associated completion time are added to address nonconformance issues with monitored air temperature in adjacent rooms around the MCRE, as follows:

  > Condition D which reads "Air temperature in one or more required rooms not within limit"
  >
  > Required Action D.1 which reads "Restore air temperature of required room(s) to within limit" with a Completion Time of "24 hours"

  A new surveillance requirement is added to monitor the air temperature in the adjacent rooms around the MCRE, as follows:

  > SR 3.7.6 3 which reads "[V]erify the air temperatures of required rooms are ≤ 85°F" with a Frequency of "24 hours"

  A new surveillance requirement is added to verify the automatic response of the electrical load shed function, as follows:

  > SR 3.7.6.12 which reads "[V]erify the MCR load shed function actuates upon receipt of an actual or simulated actuation signal" with a Frequency of

"24 months"

The existing SR 3.7.6.5 for the verification of air quality in the VES high-pressure storage tanks is revised to address the freezing of air distribution lines because of high relative humidity condition of air in the tanks, as follows:

> "Verify that the air quality of the air storage tanks meets the requirements of Appendix C, Table C-1 of ASHRAE Standard 62 with a pressure dew point of 40°F or lower at 3400 psig or greater."

In addition, the order of all SRs is changed such that the one with the shorter Frequency would come first, and the one with the longer Frequency would come last to be consistent with the convention used in the STS.

- Background Section of TS Bases B3.7.6

On page B3.7.6-1, in the first paragraph, the last line is revised as follows (with added text underlined):

> "… functional during an accident, via de-energizing (load shedding) non-essential, non-safety main control room (MCR) electrical equipment (e.g., wall panel information system displays, office equipment, water heater, kitchen appliances, and non-emergency lighting) and the heat absorption of passive heat sinks. The VES limits the maximum temperature in DC Equipment Rooms (12201, 12202, 12203, 12204, 12205, and 12207), I&C rooms (12301, 12302, 12304, and 12305), as well as the MCRE.

On page B3.7.6-2, the fourth paragraph is revised as follows (with deleted text lined out and added text underlined):

> "~~Sufficient thermal mass exists in the surrounding concrete structure (including walls, ceiling and floors) to absorb the heat generated inside the MCRE, which is initially at or below 75°F~~ The VES also provides emergency passive heat sinks for the main control room (Room 12401), instrumentation and control rooms (Rooms 12301, 12302, 12304, and 12305), and dc equipment rooms (Rooms 12201, 12202, 12203, 12204, 12205, and 12207). Provided air temperatures in the rooms requiring monitoring are within their Surveillance Requirement limits, the VES passive heat sinks limit the temperature rise inside each room during the 72-hour period following VES actuation. Heat sources inside the MCRE include operator workstations, emergency lighting and occupants. ~~Sufficient insulation is provided surrounding the MCRE pressure boundary to preserve the minimum required thermal capacity of the heat sink. The insulation also limits the heat gain from the adjoining areas following the loss of VBS cooling~~."

On page B3.7.6-2, new 5th through 13th paragraphs are added as follows:

"During normal operation, temperatures in the main control room, instrumentation and control rooms, dc equipment rooms, Class 1E electrical penetration rooms, and adjacent rooms are maintained within a specified range by the VBS. As described in Section 9.4.1.2, the VBS consists of independent subsystems, including the main control room / control support area HVAC subsystem and the Class 1E Electrical Room HVAC subsystem. The Class 1E Electrical room HVAC subsystem is further divided into two independent subsystems, with one serving the Division A & C Class 1E electrical division rooms and the other serving Division B & D Class 1E electrical division rooms. Each independent subsystem serves its associated rooms with two redundant, 100 percent capacity equipment trains, maintaining temperatures within the specified range.

Surveillance limits are required for rooms which have limits on allowable temperature increase, and conservatively established for some adjacent rooms of the VES passive heat sinks. Monitoring the air temperature is required for the rooms with the following numerical designators: 12201, 12202, 12203, 12204, 12205, 12207, 12300, 12301, 12302, 12303, 12304, 12305, 12313, 12401, 12412, and 12501.

Initial temperatures assumed for remaining rooms modeled in the VES passive heat sinks analysis are selected to maximize ~~operational~~ flexibility in responding to abnormal conditions or equipment failures, while still maintaining sufficient margin below safety analysis limits.

Access corridors, stairwells, rooms separated by an air gap, and other rooms without significant heat loads are not monitored because these areas do not contain significant heat sources and their temperatures are assumed to match the connected spaces. The numerical designators for these unmonitored rooms are 12211, 12311, 12400, 12405, 12411, 21480, 40400, and Stairwells.

Initial temperatures assumed for remaining rooms are conservatively selected to match the outdoor ambient or do not have an appreciable impact on the analyses. The numerical designators of these unmonitored rooms are 12212, 12213, 12306, 12312, 12404, 12406, 12504, 12505, 12506, and Level 1 rooms.

Non-essential, non-safety MCR heat loads are de-energized by the PMS VES actuation signal, which is generated by the "Main Control Room Isolation, Air Supply Initiation and Electrical Load De-energization" ESFAS function, to maintain the MCRE within habitable limits for 72 hours.

Upon receipt of a "Main Control Room Isolation, Air Supply Initiation and Electrical Load De-energization" ESFAS signal, PMS Divisions A and C energize associated redundant relays in each of the two safety-related

electrical panels (VES-EP-01 and VES-EP-02). Energizing one set of relays in each panel disconnects non-safety related electrical power to the non-safety electrical loads in the MCRE. Energizing just one set of relays in one panel de-energizes non-safety loads associated only with that panel.

De-energized non-safety loads are separated into stage 1 and stage 2 to maximize the availability of the non-safety related wall panel information system which is deenergized with stage 2 ~~loads~~. Timers and associated relays, which actuate to deenergize the stage 1 and stage 2 non-safety loads, are internal to each safety-related load shed panel. Stage 1 loads are de-energized by both panels immediately after the timers in each panel receive the PMS VES system actuation signal. Stage 2 loads are de-energized by both panels within 180 minutes after the timers in each panel receive the "Main Control Room Isolation, Air Supply Initiation, and Electrical Load Deenergization" ESFAS signal.

OPERABILITY of two redundant divisions of MCR Class 1E load-shed relays and timers located in two safety-related panels is required to meet the single failure criteria. Each panel contains redundant load-shed relays and timers actuated by the two PMS divisions, such that actuation of either division de-energizes all required loads."

- LCO Section of TS Bases B3.7.6

On page B3.7.6-3, in the third paragraph, the phrase "[T]his includes components listed in SR 3.7.6.3 through 3.7.6.10" is changed to read "[T]his includes components monitored under surveillance requirements" to accommodate the renumbering of all SRs as mentioned above.

On page B3.7.6-3, a new paragraph is added after the fourth paragraph as follows:

"The initial MCRE temperature (75°F), DC Equipment and I&C Rooms, and required room temperatures (≤85°F) are initial conditions required to both meet the maximum MCRE temperature limit 72 hours after VES actuation, and to maintain DC Equipment and I&C rooms below the equipment qualification temperature limit throughout the duration of the postulated accidents."

On page B3.7.6-4, a new paragraph is added at the end of the LCO Section as follows:

"All PMS divisions in the two safety-related electrical panels are required to be OPERABLE, so that non-safety stage 1 ~~and~~ stage 2 MCR heat loads can be de-energized by the VES system actuation signal within the required time. This maintains the MCR temperature within habitable limits."

- Actions Section of TS Bases B3.7.6

  On page B3.7.6-4, a discussion of the new Action B.1 is added as follows:

  > "If one division of MCR load shed panel(s) is inoperable, all divisions of both MCR load shed panels must be restored to OPERABLE status within 7 days. In this condition, the OPERABLE unaffected division of the panels is capable of providing 100% of the load shed function.
  >
  > A Completion Time of 7 days is permitted to restore the inoperable division of MCR load shed panel(s) to OPERABLE status before action must be taken to reduce power. The Completion Time of 7 days is based on engineering judgment, considering the low probability of an accident that would require VES actuation, and that the remaining panel division can provide the required load shed function.
  >
  > As described in Subsection 6.4.2.3 of Ref.1, any component failure in a PMS division of the load shed panel(s) renders that division inoperable. If this failure affects only one PMS division, leaving the remaining division of PMS unaffected, including the associated power and control circuit, it renders the panel(s) inoperable, while still maintaining the full load shed function.
  >
  > An event or action that impacts both PMS divisions in either panel does not maintain the full load shed function, and Condition G or H of LCO 3.7.6 would apply."

  On page B3.7.6-5, a discussion of the new Action D.1 is added as follows:

  > "When the air temperature in one or more of the rooms requiring temperature monitoring is not within the required limit, action is required to restore it to within the limit. A Completion Time of 24 hours is based on ~~engineering~~ judgment, considering the low probability of an accident that would require VES actuation under the worst case temperature conditions. It is judged to be a sufficient amount of time allotted to correct the deficiency in the non-safety ventilation system before shutting down."

  On pages B3.7.6-6 and 7, in the discussions of Actions E.1, E.2, and F.1 (renumbered G.1, G.2, and H.1), editorial corrections are made to reflect the renumbered applicable Conditions which use the specified action to exit the Modes of Applicability.

- Surveillance Requirements Section of TS Bases B3.7.6

  On page B3.7.6-7, the discussion of SR 3.7.6.1 is revised to clarify that temperature of air in the return air duct can be used for the performance of this surveillance.

  On page B3.7.6-7, a discussion of the new SR 3.7.6.3 (for monitoring of air temperature in the required adjacent rooms around the MCRE) is added as follows:

"Using indication from temperature elements in each room, the air temperatures in the following rooms are checked at a Frequency of 24 hours: 12202, 12204, 12300, 12303, 12313, 12412, and 12501.

Using indication from temperature elements located in shared return air ducting, the air temperatures in the following rooms are checked at a Frequency of 24 hours: 12201/12301, 12203/12302, 12205/12305, and 12207/12304.

This is done to verify that the VBS is performing as required to maintain the initial conditions assumed in the safety analyses, and to show that the VES heat sinks provide adequate thermal capacity to limit the temperature increase in the MCRE, DC Equipment Rooms, and I&C Rooms from exceeding the allowable limits after VES actuation. The surveillance limit of 85°F is below the initial temperature assumed in the analysis.

The 24 hour Frequency is acceptable based on the availability of automatic VBS temperature controls, alarms and indication in the MCRE. Air temperatures may also be verified using local measurement."

On page B3.7.6-10, a discussion of SR 3.7.6.5 (renumbered as SR 3.7.6.8) is revised as follows:

"Verification that the air quality of the air storage tanks meets the requirements of Appendix C, Table C-1 of ASHRAE Standard 62 with a pressure dew point of 40°F or lower at 3400 psig or greater, is required every 92 days. If air has not been added to the air storage tanks since the previous verification, verification may be accomplished by confirmation of the acceptability of the previous surveillance results along with examination of the documented record of air makeup. The purpose of ASHRAE Standard 62 states: "This standard specifies minimum ventilation rates and indoor air quality that will be acceptable to human occupants and are intended to minimize the potential for adverse health effects." Verification of the initial air quality (in combination with the other surveillances) ensures that breathable air is available for 11 MCRE occupants for at least 72 hours. Verification of the pressure dew point ensures that no water will form in the line, eliminating the potential for freezing at the pressure regulating valve during VES operation. In addition, the dry air ensures the MCRE will remain below the maximum relative humidity to support the 90°F WBGT required for human factors performance."

On page B3.7.6-10, a discussion of the new SR 3.7.6.12 (for automatic response of the new MCR load shed panels) is added as follows:

"Verification that the MCR load shed function actuates on an actual or simulated signal from each PMS Division is required every 24 months to ensure that the non-safety stage 1 and stage 2 MCR heat loads can be de-energized by the VES system actuation signal within the required time.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage, to minimize the potential for adversely affecting MCR operations."

The staff finds the above proposed changes to TS LCO 3.7.6 and its associated Bases acceptable because the newly established TS requirements are consistent with guidance in the STS with regards to format and content, the specified completion times and SR frequencies are consistent with those in similar LCOs in the AP1000 TS that are specifically relevant to this modified VES design, and these revised and new TS requirements also reflect the modified VES design described in FSAR Sections 6.4 and 9.4.1.

Based on the above evaluation, and pending the staff's confirmation that the proposed revisions are incorporated in Part 4 of the LNP Units 1 and 2 COL application, the staff finds the proposed TS and Bases revisions meet the requirements of 10 CFR 50.36, "Technical specifications." The staff is tracking these revisions as **LNP Confirmatory Item 21.3-1**.

Resolution of LNP Confirmatory Item 21.3-1

LNP Confirmatory Item 21.3-1 is a commitment by the applicant to revise the LNP COL application to provide additional information as indicated in the letters dated November 12, December 11, and December 22, 2015, including changes to TS and TS Bases. The staff confirmed that the TS and TS Bases have been appropriately revised. As a result, LNP Confirmatory Item 21.3-1 is now closed.

B.7 Risk Results and Insights

This design departure does not alter the description of AP1000 design features relevant to human performance in the control room. It does not modify the plant-specific probabilistic risk assessment (PRA) model used for licensing. Consequently, there is no change to the risk profile described in the COL application or the risk insights concerning the control room AP1000 DCD Table 19.59-18, item 20. Instead, the change improves confidence in the validity of the reported risk results and insights. Consistent with DC/COL-ISG-3, "PRA Information to Support Design Certification and Combined License Applications," the plant-specific PRA remains acceptable to the staff.

21.3.5 Post Combined License Activities

There are no post-COL activities related to this section.

21.3.6 Conclusion

The staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant addressed the required information relating to the design change of the VES, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. As discussed above in the technical evaluation section, the staff finds the departure acceptable, as it meets the requirements associated with GDCs 1, 2, 4, 13, and 19, 10 CFR 50.34(f)(2)(iii); 10 CFR 50.55a(h)(3); and 10 CFR 50.55a(f).

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR is acceptable and meets the regulatory requirements and guidance discussed in Section 21.3.3 of this SER. The staff based its conclusion on the following:

- LNP DEP 6.4-2 is acceptable because the described changes permit the applicant to meet the licensing basis within the bounds of the updated licensing document.

21.4 Hydrogen Vent ITAAC

21.4.1 Introduction

The applicant requests a change to the AP1000 DCD Revision 19 information. The LNP COL application incorporates the AP1000 DCD by reference. The change involves a departure from DCD Tier 1 ITAAC as well as an associated DCD Tier 2 departure.

The applicant determined that the ITAAC described in Tier 1 Table 2.3.9-3 cannot be met by the certified design. Instead, the applicant requested to revise the ITAAC described in Tier 1 Table 2.3.9-3, Item 3, Acceptance Criterion iii. This ITAAC requires that 98 percent of the primary openings through the ceilings of the passive core cooling system (PXS) valve/accumulator rooms in containment must be at least 19 feet (5.8 meters) away from the containment shell and all other openings must be at least 3 feet (0.9 meters) away.

The applicant also proposes to depart from Tier 2, Section 6.2.4.5.1, “Preoperational Inspection and Testing, Hydrogen Ignition Subsystem,” and Tier 2, section 19.41.7, “Diffusion Flame Analysis”.

21.4.2 Summary of Application

Tier 1 and Tier 2 Departure

The applicant proposed the following Tier 1 and Tier 2 departure from the AP1000 DCD:

- LNP DEP 6.2-1

LNP DEP 6.2-1 proposes to change the acceptance criteria to be applied to a specific ITAAC design commitment and associated inspection, test, or analysis in Tier 1 Table 2.3.9-3, Item 3 to establish consistency with the current detailed design of the plant. The ITAAC contained in the AP1000 DCD, Tier 1 Table 2.3.9-3, Item 3, for control of containment hydrogen concentration for beyond-design-basis accidents, was based on the original AP600 and AP1000 design. The applicant determined that changes during the development of the current detailed design have resulted in inconsistencies between the design and the ITAAC acceptance criteria for (1) the primary vent paths through the ceilings of the PXS valve/accumulator rooms and (2) the proximity of these paths to the containment shell.

The applicant submitted an exemption request and departure on June 30, 2015 (ADAMS Accession No. ML15187A049) and incorporated the information in Revision 8 of the LNP Units 1 and 2 COL application dated December 7, 2015. The information was superseded by an updated submittal dated January 6, 2016 (ADAMS Accession No. ML16008A082).

The staff reviewed the applicant's request for an exemption. The request proposed changes to Tier 1 Table 2.3.9-3, Item 3. Additionally, the staff reviewed the Tier 2 changes for potential effects on safety functions and design criteria of the PXS valve/accumulator room vents as described in DCD Sections 6.2.4.5.1 and 19.41.7. Subsection A of this SER (below) shows the staff's regulatory evaluation of the exemption. Subsection B of this SER (below) shows the staff's technical evaluation of the exemption request and departure.

Below are the specific ITAAC and DCD changes the applicant proposed under LNP DEP 6.2-1 in the submittal dated January 6, 2016, and which the staff confirmed were incorporated into Revision 9 of the COL application, dated April 6, 2016.

- Tier 1, Table 2.3.9-3, Item 3, Acceptance Criteria iii, be revised to state:

  "The equipment access opening and CMT-A opening constitute at least 98% of vent paths within Room 11206 that vent to Room 11300. The minimum distance between the equipment access opening and containment shell is at least 24.3 feet. The minimum distance between the CMT-A opening and the containment shell is at least 9.4 feet. The CMT-B opening constitutes at least 98% of vent paths within Room 11207 that vent to Room 11300 and is a minimum distance of 24.6 feet away from the containment shell. Other openings through the ceilings of these rooms must be at least 3 feet from the containment shell."

- Tier 2, chapter 6.2.4.5.1 Preoperational Inspection and Testing, Hydrogen Ignition Subsystem, second paragraph be revised to read:

  "Pre-operational inspection is performed to verify the location of openings through the ceilings of the passive core cooling system valve/accumulator rooms with respect to the containment pressure boundary. The primary openings are those that constitute 98% of the opening area. The primary openings in Room 11206 that vent to Room 11300 are the equipment access opening and CMT-A opening. These openings are verified to be a minimum distance of 24.3 feet and 9.4 feet, respectively, from the containment shell. The primary opening in Room 11207 that vents to Room 11300 is the CMT-B opening, which is verified to be a minimum distance of 24.6 feet away from the containment shell. Other openings through the ceilings of these rooms are verified to be at least 3 feet from the containment shell."

- Tier 2, chapter 19.41.7, "Diffusion Flame Analysis" the last two paragraphs should be revised to read:

  "In the event that ADS stage 4 fails to adequately direct hydrogen away from combined compartments, the compartment vents are designed to release the hydrogen at locations where it burns, but does not challenge the containment shell integrity.

  Vents from the PXS and CVS compartments to the CMT room are located away from the containment shell and containment penetrations. Access hatches to the subcompartments that are near the containment shell are covered and secured closed such that they will not open as a result of a pipe break inside the compartment. Therefore, hydrogen releases to the CMT room from the subcompartments have been shown to not challenge the containment integrity."

This exemption request involves a departure from Tier 1 Table 2.3.9-3, with a Tier 2 involved departure. Therefore, these departures require NRC approval and are evaluated below.

21.4.3 Regulatory Basis

The regulatory basis for evaluating the requested departures is provided by the applicable change processes in the AP1000 design certification rule. Departures from Tier 1 and Tier 2 requirements shall comply with Appendix D to Part 52, Design Certification Rule for the AP1000 Design, Section VIII, "Processes for Changes and Departures." Specifically, the Tier 1 departure shall comply with the requirements for exemptions from Tier 1 information, which are governed by the applicable requirements in 10 CFR 52.63(b)(1) and 52.98(f). The Commission will deny a request for an exemption from Tier 1 if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design. An applicant may depart from Tier 2 information without prior NRC approval, subject to the conditions of 10 CFR Part 52, Appendix D, Section VIII.B.5.

The regulatory guidance applicable for this technical evaluation is found in SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor Designs," issued April 2, 1993, and the corresponding SRM, issued July 21, 1993, Section I.J, "Containment Performance," which states that the containment should maintain its role as a reliable, leak-tight barrier by ensuring that containment stresses do not exceed ASME Service Level C limits for a minimum period of 24 hours following the onset of core damage, and that following this 24-hour period the containment should continue to provide a barrier against the uncontrolled release of fission products.

21.4.4 Technical Evaluation

A. Regulatory Evaluation of Exemption Request

A.1 Summary of Exemption

The applicant requested an exemption from the provisions of 10 CFR Part 52, Appendix D, Section III.B that require the applicant referencing a certified design to incorporate by reference Tier 1 information. Specifically, the applicant proposed to revise Tier 1 Table 2.3.9-3, Item 3, Acceptance Criteria iii, to make it consistent with the current detailed design of the plant.[9]

A.2 Regulations

- 10 CFR Part 52, Appendix D, Section VIII.A.4 states that exemptions from Tier 1 information are governed by the requirements of 10 CFR 52.63(b) and 10 CFR 52.98(f). It also states that the Commission may deny such a request if the design change causes a significant reduction in plant safety otherwise provided by the design. This subsection of 10 CFR Part 52 Appendix D also provides that a design

[9] While the applicant describes the requested exemption as being from Section III.B of 10 CFR Part 52, Appendix D, the entirety of the exemption pertains to proposed departures from Tier 1 information in the generic DCD. In the remainder of this evaluation, the NRC will refer to the exemption as an exemption from Tier 1 information to match the language of Section VIII.A.4 of 10 CFR Part 52, Appendix D, which specifically governs the granting of exemptions from Tier 1 information.

change requiring a Tier 1 change shall not result in a significant decrease in the level of safety otherwise provided by the design.

- 10 CFR 52.63(b)(1) allows an applicant or licensee to request NRC approval for an exemption from one or more elements of the certification information. The Commission may only grant such a request if it complies with the requirements of 10 CFR 52.7, "Specific Exemptions," which in turn points to the requirements listed in 10 CFR 50.12, "Specific Exemptions," for specific exemptions. In addition, the special circumstances present outweigh the potential decrease in safety due to reduced standardization. Therefore, any exemption from the Tier 1 information certified by Appendix D to 10 CFR Part 52 must meet the requirements of 10 CFR 50.12, 10 CFR 52.7, and 10 CFR 52.63(b)(1).

A.3 Evaluation of Exemption

As stated in Section VIII.A.4 of Appendix D to 10 CFR Part 52, an exemption from Tier 1 information is governed by the requirements of 10 CFR 52.63(b)(1) and 10 CFR 52.98(f). Additionally, the Commission will deny an exemption request if it finds that the requested change to Tier 1 information will result in a significant decrease in safety. Pursuant to 10 CFR 52.63(b)(1), the Commission may, upon application by an applicant or licensee referencing a certified design, grant exemptions from one or more elements of the certification information, so long as the criteria given in 10 CFR 50.12 are met and the special circumstances as defined by 10 CFR 50.12 outweigh any potential decrease in safety due to reduced standardization.

The guidance of 10 CFR 50.12(a)(1) and 10 CFR 50.12(a)(2) provide the applicable criteria for when the Commission may grant the requested specific exemption. Section 50.12(a)(1) provides that the requested exemption must be authorized by law, not present an undue risk to the public health and safety, and be consistent with the common defense and security. The provisions of 10 CFR 50.12(a)(2) list six special circumstances for which an exemption may be granted. In order for NRC to consider granting an exemption request, at least one of these six special circumstances must be present. The applicant stated that the requested exemption meets the special circumstances of 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." The staff's analysis of each of these findings is presented below.

A.3.1 Authorized by Law

This exemption would allow the applicant to implement approved changes to Tier 1 Table 2.3.9-3, Item 3. This is a permanent exemption limited in scope to particular Tier 1 information; subsequent changes to this information or any other Tier 1 information would be subject to full compliance with the change processes specified in Section VIII.A.4 of Appendix D to 10 CFR Part 52. As stated above, 10 CFR 52.63(b)(1) allows the NRC to grant exemptions from one or more elements of the certification information, namely, as discussed in this exemption evaluation, the requirements of Tier 1. The NRC staff has determined that granting the applicant's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, as required by 10 CFR 50.12(a)(1), the exemption is authorized by law.

A.3.2 No Undue Risk to Public Health and Safety

The underlying purpose of AP1000 Tier 1 Table 2.3.9-3, Item 3 is to ensure that in the postulated beyond-design-basis accident scenarios discussed in DCD Subsections 19.34 and 19.41, hydrogen generated as a result of the accident which migrates to the PXS compartments is vented through large openings in the ceilings of these rooms such that, in the event of ignition of the hydrogen plume, the containment shell will not fail.

A change to Tier 1 Table 2.3.9-3, Item 3, Acceptance Criteria iii, is necessary to establish consistency with the current detailed design of the plant by changing the ITAAC acceptance criteria for the primary ventilation paths through the ceilings of the PXS valve/accumulator rooms and the proximity of the paths to the containment shell. This change maintains the design margins of the Containment Hydrogen Control System; therefore, the change supports the intended design functions. The plant-specific Tier 1 DCD will continue to protect public health and safety and will maintain a level of detail consistent with that which is provided elsewhere in Tier 1 of the plant-specific DCD. 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. In Section 21.4.4 of this safety evaluation, the NRC staff evaluates the proposed changes to Tier 1 information and finds them to be acceptable. Therefore, the staff finds the exemption presents no undue risk to public health and safety as required by 10 CFR 50.12(a)(1).

A.3.3 Consistent with Common Defense and Security

The proposed exemption would allow the applicant to implement modifications to the Tier 1 information requested in the applicant's submittal. This is a permanent exemption limited in scope to particular Tier 1 information. Subsequent changes to this information or any other Tier 1 information would be subject to full compliance with the change processes specified in Section VIII.A.4 of Appendix D to 10 CFR Part 52. This change is not related to security issues. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that the exemption is consistent with the common defense and security.

A.3.4 Special Circumstances

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purposes of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purpose of the specific Tier 1 Table 2.3.9-3, Item 3, Acceptance Criteria iii, modified in the exemption request, is to ensure that, in the postulated beyond-design-basis accident scenarios discussed in DCD Subsections 19.34 and 19.41, the following will happen: hydrogen generated as a result of the accident which migrates to the PXS compartments is vented through large openings in the ceilings of these rooms such that, in the event of ignition of the hydrogen plume, the containment shell will not fail. A change to the ITAAC acceptance criteria is necessary to establish consistency with the current detailed design of the plant.

Application of the requirements in Tier 1 Table 2.3.9-3, Item 3, Acceptance Criteria iii, as stated in the certified design, is not necessary to achieve the underlying purpose of those portions of the rule. The proposed change to the ITAAC acceptance criteria maintains the design margins of the Containment Hydrogen Control System, therefore supporting the intended design functions. This change does not impact the ability of any structures, systems, or components to

perform their functions or negatively impact safety; therefore, the change meets the underlying purposes of the rule. Because application of the current requirements in Tier 1 Table 2.3.9-3, Item 3 is not necessary to achieve the underlying purpose of the rule, special circumstances are present. Therefore, the staff finds that special circumstances exist, as required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from the Tier 1 information described above.

A.3.5 Special Circumstances Outweigh Reduced Standardization

This exemption, if granted, would allow the applicant to change certain Tier 1 information incorporated by reference from the AP1000 DCD into the LNP COL application. An exemption from Tier 1 information may only be granted if the special circumstances of the exemption request, required to be present under 10 CFR 52.7 and 10 CFR 50.12, outweigh any reduction in standardization. The proposed exemption would modify the ITAAC acceptance criteria for the primary ventilation paths through the ceilings of the PXS valve/accumulator rooms and the proximity of the paths to the containment shell. The proposed changes to the ITAAC acceptance criteria maintain the design margins of the Containment Hydrogen Control System, therefore supporting the intended design functions.[10]

As described below in the technical evaluation, the change to the ITAAC acceptance criteria for the primary ventilation paths through the ceilings of the PXS valve/accumulator rooms and the proximity of the paths to the containment shell is necessary to establish consistency with the description of the hydrogen ventilation paths in the current detailed design of the plant. While there is a small possibility that standardization may be slightly reduced by granting the exemption from the ITAAC acceptance criteria in Tier 1 Table 2.3.9-3, Item 3, the proposed exemption modifying the ITAAC acceptance criteria for combustible gas control will allow for application of acceptance criteria that are appropriate to evaluate a plant built according to the current detailed design. The proposed exemption modifying the ITAAC acceptance criteria for combustible gas control does not reduce the design margins of the Containment Hydrogen Control System and will result in no reduction in the level of safety. For this reason, the staff determined that even if other AP1000 licensees and applicants do not request similar departures, the special circumstances supporting this exemption outweigh the potential decrease in safety due to reduced standardization of the AP1000 design, as required by 10 CFR 52.63(b)(1).

A.3.6 No Significant Reduction in Safety

The proposed exemption would modify the ITAAC acceptance criteria for combustible gas control presented in the original application. As described below in the technical evaluation, the change to the ITAAC acceptance criteria for the primary ventilation paths through the ceilings of the PXS valve/accumulator rooms and the proximity of the paths to the containment shell is necessary to establish consistency with the current detailed design of the plant. Because the proposed change does not reduce the design margins of the Containment Hydrogen Control System, there is no reduction in the level of safety. Therefore, the staff finds that granting the

[10] Based on the nature of the proposed change to the Tier 1 Table 2.3.9-3, Item 3, Acceptance Criteria iii, and the understanding that this change is necessary to establish consistency with the current detailed design of the plant and does not impact the design function of the Containment Hydrogen Control System, other AP1000 licensees and applicants may request the same exemption, preserving the intended level of standardization.

exemption would not result in a significant decrease in the level of safety otherwise provided by the design, as required by 10 CFR Part 52, Appendix D, Section VIII.A.4.

A.4 Conclusion

The staff has determined that pursuant to Section VIII.A.4 of Appendix D to 10 CFR Part 52, the exemption: (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) has special circumstances that outweigh the potential decrease in safety due to reduced standardization, and (5) does not significantly reduce the level of safety at the licensee's facility. Therefore, the staff grants the applicant an exemption from the requirements of Tier 1 Table 2.3.9-3, Item 3, Acceptance Criteria iii.

B. Technical Evaluation of Exemption Request and Departure

As discussed in Section 21.4.3 of this report, SECY-93-087 states that the containment should maintain its role as a reliable, leak-tight barrier by ensuring that containment stresses do not exceed ASME Service Level C limits for a minimum period of 24 hours following the onset of core damage, and that following this 24-hour period the containment should continue to provide a barrier against the uncontrolled release of fission products.

The purpose of the ITAAC in Tier 1 Table 2.3.9-3, Item 3 is to keep postulated diffusion flame sources away from the containment pressure boundary to mitigate potential for over temperature leading to failure of the containment shell, hatches, and penetrations.

The applicant's review of the assessment of the hydrogen diffusion flame locations and zones of influence for equipment survivability showed that a burning hydrogen plume from the passive core cooling system (PXS)-A compartment (Room 11206) to the core makeup tank (CMT)-A Room 11300 in the current detailed design could potentially challenge containment thermal limits.

The staff's technical evaluation is largely based on the following Westinghouse documents, which were reviewed during an audit conducted by the staff (ADAMS Accession No. ML15156B062).

- WEC Document No. APP-VLS-M3C-008, Revision 0, "Hydrogen Diffusion Flame and Containment Integrity Analysis," dated October 15, 2015.

- WEC Engineering & Design Coordination Report No. APP-VLS-GEF-017, Revision 0, "Containment Structural Assessment for Hydrogen Venting," which includes Appendix A, "Structural Assessment for Equipment Survivability of the Containment Pressure Boundary during Diffusion Flame in CMT Compartment." Appendix A will be added to the APP-VLS-M3C-008 calculation.

- WEC Document No. APP-VLS-M3C-008, Appendix A, which calculates temperature distributions on the containment pressure boundary near the lower equipment hatch for a hydrogen diffusion flame from the PXS-A room vent exit to the CMT-A room. The temperature distribution will be input to a containment structural model to assess the containment pressure boundary severe accident survivability under the heat load of a hydrogen diffusion flame.

- WEC Document No. APP-VLS-M3C-007, Revision 0, “Thermal Analysis of Hydrogen Venting and Burning from the PXS-A compartment.” This document describes a computational fluid dynamics (CFD) analysis which models a hydrogen diffusion flame in the CMT-A room that creates a containment wall temperature response. The CFD analysis, which models the hydrogen plumes exiting both the CMT-A opening and the floor hatch opening, shows that plume behavior is affected by the cutout for the equipment hatch in the CMT-A compartment ceiling. The hot plume is drawn toward the containment wall at the location of the lower equipment hatch, creating a hot spot. The applicant used the CFD analysis only as a sensitivity analysis and to identify non-conservative assumptions.

B.1 Hydrogen Diffusion Flame and Temperature Distribution Evaluation

The applicant first performed a computational fluid dynamics (CFD) sensitivity analysis to evaluate location of hot spots and any flow split variation effects from the PXS-A room below. Using the insights gained from the CFD analysis, the applicant then performed a one-dimensional (1D) analysis to calculate temperature distributions on the containment pressure boundary in the CMT-A area near the lower equipment hatch for a hydrogen diffusion flame from the PXS-A room vents following a beyond design basis accident. This 1D calculation was based on first principle heat transfer and thermodynamic correlations. A conservative hydrogen plume temperature is calculated and the radiation and convection heat transfer is assessed to calculate a maximum containment wall temperature. The temperature distribution was then used as input to a containment structural model to assess the containment pressure boundary severe accident survivability under the heat load from a hydrogen diffusion flame.

The hydrogen venting scenario from the PXS-A room is for a beyond-design-basis event involving significant core damage and hydrogen generation due to fuel cladding oxidation. The scenario pertains to only one specific initiating event, a direct vessel injection (DVI) double-ended or large-line break which spills into the PXS-A compartment below the CMT room floor. The break must be large enough to defeat injection through the DVI line for the accident to progress to core damage. The PXS-B line must also fail to inject. Multiple failures of the ADS-4 valves must occur for the hydrogen generated in the core to reach the DVI line break and be released into the PXS-A compartment. This potential challenge applies only to a small subset of severe accident scenarios by frequency. The cut set frequency for this scenario, from the AP1000 probabilistic risk assessment (APP-GW-GL-022, Revision 8) is 6.4E-09/reactor-year.

The purpose of calculation APP-VLS-M3C-008 was to perform a simple heat transfer calculation independent of the CFD analysis, to calculate potential pressure boundary transients during a diffusion flame hydrogen burn in the CMT-A compartment for the bounding hydrogen release scenario described above. The source term for the hydrogen and steam from the PXS-A vents are from a Modular Accident Analysis Program (MAAP) analysis, referenced in APP-VLS-M3C-007.

The diffusion flame hydrogen temperature is calculated from the heat balance on the plume, which is modeled as a cylinder. The area for heat transfer to the containment wall is based on the hydraulic radius of the source, the distance from the source to the wall, and the height of the CMT-A compartment. The calculation assumed that the hydrogen igniters are operable and preventing global hydrogen combustion. The temperature distributions are based on the peak

temperatures assuming that 100 percent of the hydrogen release is from the equipment access floor hatch. Sensitivity analyses in the CFD calculation showed that the hydrogen release from the floor hatch only produced the most challenging temperature results.

The APP-VLS-M3C-008, Appendix A, analysis creates two temperature distributions on the containment pressure boundary based on insights from the CFD analysis and identifies the location of maximum temperature, referred to as the hot spot. The first distribution, Temperature Distribution No. 1, assumes the plume creates a hot spot that spans the lower containment equipment hatch cover, the hatch barrel, the insert plate, and the containment shell. The second distribution, Temperature Distribution No. 2, locates the hot spot on the containment shell at the vent exit (opening in ceiling above the lower equipment hatch).

The hot spot is the local area where the hot plume impacts the containment pressure boundary. Heat transfer to the hot spot consists of radiation and convection from the hydrogen diffusion flame. Heat transfer to the containment shell away from the hot spot consists of radiation from the hydrogen diffusion flame. For the structural analysis, the allowable surface temperatures within the hot spot are assumed to be the bounding temperature limits of the containment shell and the hatch door cover. For the hatch barrel hot spot temperature, where the hatch seals are located, the allowable average wall temperature is assumed to be the temperature limit of the ethylene propylene diene monomer (EPDM) rubber, and the corresponding surface temperature is reported.

Zone 1 is the area of the containment pressure boundary above the hot spot in contact with the plume flow up the containment wall. The heat transfer consists of radiation and flat plate in parallel flow convection. Zone 2 is the area of the containment pressure boundary below the hot spot where the containment shell is not in contact with the plume flow but is receiving radiation from the plume.

Temperatures outside of Zones 1 and 2 are assumed unaffected and remain at 200 °F (93 °C). The calculations are performed to capture the maximum temperature on the inside surface of the heat sink in each region. The average temperatures in each region are also reported because the structural analysis uses the average through-wall temperatures for assessing integrity.

The peak surface and average temperatures from the limiting scenario identified by the sensitivity analysis for each of the zones are shown in the table below. The peak average through wall temperatures are assigned to the structural model. For Temperature Distribution No. 1, the temperatures were assigned as both a gradient from the hot spot outward to the base shell temperature and also as a constant value over the zone. Temperature Distribution No. 2 used the worst case from Temperature Distribution No. 1.

The component surface temperatures within each zone are calculated from these distributions.

Table 21.4-1 provides the results of the applicant's heat transfer calculations for Zone 1 and Zone 2 and compares them to the applicant's maximum allowable temperature for the hot spot. The results show that the applicant's calculated peak surface temperatures and peak average wall temperatures are below the allowable limits. The acceptability of the applicant's maximum allowable temperatures is discussed in Subsection B.2, below.

Table 21.4-1. Summary of Peak Temperature Results

	Peak Surface Temperature (°F (°C))		
Component	Hot Spot Allowables	Zone 1=Radiation and Convection	Zone 2=Radiation only
CTMT shell	650* (343)	470 (243)	436 (224)
Insert Plate/Barrel	488** (253)	366 (186)	344 (173)
Hatch Cover	800 (427)	591 (310)	543 (284)

	Peak Average Wall Temperature (°F (°C))		
Component	Hot Spot Allowables	Zone 1=Radiation and Convection	Zone 2=Radiation Only
CTMT Shell	607 (319)	442 (228)	411 (210)
Insert Plate/Barrel	390** (199)	308 (153)	293 (145)
Hatch Cover	780 (416)	577 (303)	530 (277)

* Allowable maximum temperature limit from ASME Code Service Level C for SA 738 Grade B.

** Allowable maximum temperature limit for insert plate/barrel corresponds to acceptance criterion for ethylene propylene diene monomer (EPDM) rubber.

The staff concludes that the methodology and assumptions in the analysis for determining the temperature source terms from the hydrogen burns are appropriately conservative, and the results are acceptable to be used as input to the structural analysis. The staff is tracking the proposed FSAR and ITAAC revisions proposed in the applicant's January 6, 2016, submittal, to be included in a future revision of the COL application, as **LNP Confirmatory Item 21.4-1**.

Resolution of LNP Confirmatory Item 21.4-1

LNP Confirmatory Item 21.4-1 is a commitment by the applicant to revise the LNP COL application FSAR and ITAAC as indicated in the letter dated January 6, 2016, in areas related to combustible gas control. The staff confirmed that the LNP COL FSAR and ITAAC have been appropriately revised. As a result, LNP Confirmatory Item 21.4-1 is now closed.

B.2 Containment Structural Evaluation of Hydrogen Venting

The NRC staff considered FSAR, Revision 8, Section 3.8, "Design of Category I Structures" to perform the technical evaluation. The staff also considered portions of NUREG–1793, Supplement 2, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Plant Design" (ADAMS Accession No. ML112061231).

The applicant's January 6, 2016, submission identifies the actual design distances between the PXS vents and the containment shell, including consideration of construction tolerances that pertain to the ITAAC in AP1000 DCD Tier 1 Table 2.3.9-3, Item 3. This submittal also contains proposed changes to AP1000 DCD Tier 2, Section 6.2.4.5.1, "Preoperational Inspection and Testing for the Hydrogen Ignition Subsystem," and Tier 2 Section 19.41, "Diffusion Flame Analysis." This section of the SER evaluates containment survivability and confirms that

containment integrity is not challenged due to diffusion flame hydrogen burn in the containment compartments.

In the letter dated January 6, 2016, the applicant discussed changes in the analytical approach for the heat transfer calculation and the analysis to confirm that the containment integrity was not challenged due to a diffusion flame hydrogen burn in the containment compartments. In the applicant's supporting analysis audited by the staff, the maximum allowable temperature of the local area at the lower equipment hatch cover (approximately 780 °F (416 °C)) exceeded the ASME NE-3000 maximum service temperature limit of 650 °F (343 °C). The applicant's supporting information audited by the staff provided further explanation of why the higher limit was acceptable. The temperature exceedance occurs at low containment pressure on order of 1.5 to 2.0 bar absolute. In order to assess the containment survivability of the hydrogen burning in the PXS-A compartment, the staff conducted an audit of the structural calculation (Westinghouse Document No. APP-VLS-GEF-017, Revision 0). As discussed above, the applicant's calculation developed two temperature distributions, each of which identified the location of a hot spot and two zones relative to the location of features on the containment shell. The calculation also performed sensitivity cases of the structural analysis. The applicant's results show Zone 1 and 2 are not affected by the hydrogen burn and remain below the service temperature limits. The hot spot area is a local area where burning plume flow impacts the containment pressure boundary. The hot spot area is about 2 meters in diameter and located on the equipment hatch at the top and covers the hatch barrel. For this hot spot, within the hatch barrel where the hatch seal is located, the peak allowable average wall temperature of 390 °F (199 °C) is based on the temperature limit of the EPDM rubber seal located within the hatch. The EPDM rubber is behind the 4-inch (10-cm) -thick lip of the hatch cover and, therefore, it is exposed to lesser temperature than the surrounding area of the hatch door. As shown in Table 21.4-1, above, the maximum average wall temperatures in Zone 1 and Zone 2 for the insert plate/barrel component are well below the applicant's 390 °F (199 °C) allowable limit.

Table 21.4-2, below, shows the applicant's calculation results of the stress analysis following ASME NE-3000, Service Level C code requirements for the containment vessel and hatch, which are fabricated from SA 738 Grade B steel.

Table 21.4-2. ASME Service Level C Limits

Location and Corresponding Maximum Allowable Temperature	ASME Section 2, Part D Yield strength (Sy) for SA 738 Grade B	ASME Service Level C Allowable for SA 738 Grade B
780 °F (416 °C)– Hot spot on equipment hatch	42.4 ksi (292 MPa)	63.6 ksi (438 MPa)
607 °F (319 °C)– Hot spot on containment shell	46.3 ksi (319 MPa)	69.45 ksi (478.8 MPa)

The applicant used an ANSYS finite element analysis (using software from ANSYS, Inc.) to calculate the maximum resultant stress intensity that would be experienced at the hot spot locations on the equipment hatch and containment shell. From the ANSYS stress analysis, the calculated maximum resultant stress intensity of 15.25 thousand pounds per square inch (ksi) (105.1 Megapascal (MPa) is less than ASME Service Level C allowable of 63.6 ksi (438 MPa).

Therefore, based on the presented results, the staff concluded that the applicant meets the Service Level C requirements of ASME Code, Section III, Division 1, Subsection NE-3230.

Further, during the staff audit, the staff discussed the containment metal creep values at peak average wall temperature with the applicant. The applicant presented to the staff results of the creep calculation that was based on EGG-EA-7431, "Creep Rupture Failure of Three Components of the Reactor Primary Coolant System during the TMLB Accident," published November 1986. Based on the creep calculation results, the time required to rupture at 800 °F (427 °C) is 6.3 E+07 hours and temperature required to rupture at stress level of 15.25 ksi (105.1 MPa) is 1291 °F (699 °C) for a 1-hour duration. Since the time at the elevated temperature exposed for the containment shell and hatch cover is short (less than 10 minutes) the staff concluded that the creep is not significant factor for the containment to rupture for the hydrogen burn event.

According to Regulatory Guide 1.216, "Containment Structural Integrity Evaluation for Internal Pressure Loadings Above Design Bases Pressure," regulatory position 2(b), an instability (buckling) calculation is not required for the steel containments. Therefore, buckling is not an issue for the hydrogen burn event.

Based on the staff's evaluation of containment survivability, discussed above, the staff finds that containment integrity is not challenged due to diffusion flame hydrogen burn in the containment CMT-A compartment from the PXS-A compartment because the containment meets the Service Level C requirements of ASME Code, Section III, Division 1 Subsection NE-3230 and Regulatory Guide 1.216. Therefore, the staff finds that applicant's FSAR and ITAAC revisions proposed in the January 6, 2016 submittal are acceptable. The staff is tracking these proposed FSAR and ITAAC revisions, to be included in a future revision of the COL application, as **LNP Confirmatory Item 21.4-1**.

Resolution of LNP Confirmatory Item 21.4-1

LNP Confirmatory Item 21.4-1 is a commitment by the applicant to revise the LNP COL application FSAR and ITAAC as indicated in the letter dated January 6, 2016, in areas related to combustible gas control. The staff confirmed that the LNP COL FSAR and ITAAC have been appropriately revised. As a result, LNP Confirmatory Item 21.4-1 is now closed.

B.3 Risk Results and Insights

This design departure does not materially alter the description of AP1000 design features that reduce the risk associated with generation of combustible gases. It does not modify the plant-specific probabilistic risk assessment model used for licensing. Consequently, there is no change to the risk profile described in the COL application or the risk insights concerning hydrogen control in AP1000 DCD Revision 19, Table 19.59-18, Item 31. Consistent with DC/COL-ISG-003, "PRA Information to Support Design Certification and Combined License Applications," the plant-specific PRA remains acceptable to the staff.

21.4.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff finds acceptable revised Acceptance Criteria iii, as part of DCD ITAAC Item 3 in DCD Table 2.3.9-3, reproduced below in Table 21.4-3.

Table 21.4-3. DCD ITAAC Item 3 from DCD Table 2.3.9-3, as revised by LNP DEP 6.2-1.

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3. The VLS provides the nonsafety-related function to control the containment hydrogen concentration for beyond design basis accidents.	i) Inspection for the number of igniters will be performed.	i) At least 64 hydrogen igniters are provided inside containment at the locations specified in Table 2.3.9-2.
	ii) Operability testing will be performed on the igniters.	ii) The surface temperature of the igniter exceeds 1700°F.
	iii) An inspection of the as-built containment internal structures will be performed.	iii) The equipment access opening and CMT-A opening constitute at least 98% of vent paths within Room 11206 that vent to Room 11300. The minimum distance between the equipment access opening and containment shell is at least 24.3 feet. The minimum distance between the CMT-A opening and the containment shell is at least 9.4 feet. The CMT-B opening constitutes at least 98% of vent paths within Room 11207 that vent to Room 11300 and is a minimum distance of 24.6 feet away from the containment shell. Other openings through the ceilings of these rooms must be at least 3 feet from the containment shell.
	iv) An inspection will be performed of the as-built IRWST vents that are located in the roof of the IRWST along the side of the IRWST next to the containment shell.	iv) The discharge from each of these IRWST vents is oriented generally away from the containment shell.

21.4.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD, including the applicant's proposed changes in LNP DEP 6.2-1. The NRC staff's review confirmed that the applicant addressed the required information relating to the ITAAC and FSAR changes to be in conformance with the current detailed design while continuing to preserve the containment integrity. The staff concluded that the AP1000 containment will continue to maintain its role as a reliable leak-tight barrier in accordance with the containment performance regulatory guidance of SECY 93-087.

Based on the staff's technical evaluation documented above, the staff finds that the proposed change to allow short duration of the hydrogen burn temperature and pressure effect on the containment shell and equipment hatch with verification of the ITAAC distances from the containment shell is acceptable. The staff based its conclusion on the following:

- The methodology and assumptions used in the applicant's analysis for determining the temperature source terms from the hydrogen burns are appropriately conservative, and the result are acceptable to be used as input to the structural analysis.

- The containment meets the Service Level C requirements of ASME Code, Section III, Division 1 Subsection NE-3230 and Regulatory Guide 1.216, and the staff confirmed that the containment integrity is not challenged due to diffusion flame hydrogen burn in the containment compartment.

21.5 Source Range Neutron Flux Doubling Logic Operating Bypass

21.5.1 Introduction

The regulations in 10 CFR Part 50, Section 50.55a, "Codes and standards," cites certain standards published by the IEEE. According to 10 CFR 50.55a(h)(3), "Safety Systems," applicants for a COL must comply with IEEE Std. 603–1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," and the associated correction sheet dated January 30, 1995.

Operating bypasses are addressed in Clause 6.6 of the standard. Under certain conditions, it may be acceptable to bypass a safety function. All of the conditions that permit bypassing the function must exist before the bypass is activated. If an operating bypass has been activated and plant conditions change so that the bypass is no longer permissible, the safety system must automatically do one of three things: restore plant conditions so that bypass is permissible, remove the active bypass, or initiate the safety function.

In the AP1000 certified design, safety functions are initiated by the PMS. In Revision 19 of the AP1000 DCD, Chapter 7, all safety functions initiated by the PMS comply with IEEE Std. 603-1991, Clause 6.6, "Operating Bypasses," with one exception. The exception is the manually activated operating bypass of the safety function called the boron dilution block from the source range neutron flux doubling logic. The boron dilution blocking function is normally activated when neutron flux doubles too quickly while reactor power is in the source range. However, bypassing this block is permitted above a certain temperature when boron dilution can no longer lead to inadvertent criticality. The AP1000 design of the PMS flux doubling logic for the boron dilution block did not meet the operating bypass requirements of IEEE Std. 603-1991 because the logic programmed into the PMS did not include a permissive to allow the block of the flux doubling function under the appropriate conditions.

21.5.2 Summary of Application

Tier 2 Departure

The applicant proposed the following Tier 2 departure from the AP1000 DCD:

- LNP DEP 7.3-1

In a letter dated September 1, 2015, the applicant submitted LNP DEP 7.3-1, which proposes to make required changes for the PMS source range neutron flux doubling logic to comply with the

requirements of IEEE Std. 603-1991, Clause 6.6 (ADAMS Accession No. ML15247A153). The departure included changes to the FSAR and TS.

The applicant submitted Revision 8 of the LNP COL application on December 7, 2015. The staff verified that the proposed changes in the September 1, 2015, submittal were incorporated into Parts 2, 7, and 10 of the updated COL application.

In a letter dated December 23, 2015, the applicant proposed additional changes to the FSAR and TS under LNP DEP 7.3-1, which the staff confirmed were incorporated into Revision 9 of the LNP COL application, dated April 6, 2016.

This exemption request involves a departure from the generic TS Table 3.3.2-1, and Tier 2 involved departures. Therefore, these departures require NRC approval and are evaluated below.

21.5.3 Regulatory Basis

The regulations in 10 CFR 50.55a(h)(3) require compliance with IEEE Std. 603-1991, and the correction sheet dated January 30, 1995. Clause 5.1 of IEEE Std. 603-1991, "Single Failure Criterion," requires, in part, that safety systems shall perform all safety functions required for a DBE in the presence of (1) any single detectable failure within the safety systems concurrent with all identifiable but nondetectable failures, (2) all failures caused by the single failure, and (3) all failures and spurious system actuations that cause or are caused by the DBE requiring the safety functions. Clause 6.6 of IEEE Std. 603-1991, requires that, whenever the applicable permissive conditions are not met, a safety system shall automatically prevent the activation of an operating bypass or initiate the appropriate safety function(s). If plant conditions change so that an activated operating bypass is no longer permissible, the safety system shall automatically accomplish one of the following actions: (1) remove the appropriate active operating bypass(es), (2) restore plant conditions so that permissive conditions once again exist, or (3) initiate the appropriate safety function(s).

The regulations in 10 CFR 52.79(a)(2) require, in part, that the description of the structures, systems, and components shall be sufficient to permit understanding of the system designs and their relationship to the safety evaluations.

The guidance of SRP Appendix 7.1-C, "Guidance for Evaluation of Conformance to IEEE Std. 603," Section 4, "Safety System Designation," states that the information provided for the design-basis items, taken alone and in combination, should have one and only one interpretation.

21.5.4 Technical Evaluation

Tier 2 Departure

- LNP DEP 7.3-1

LNP DEP 7.3-1 proposes to make changes for the PMS source range neutron flux doubling logic to comply with the requirements of IEEE Std. 603-1991, Clause 6.6 (Operating Bypasses). The manual block of the source range neutron flux doubling logic portion of the boron dilution block logic in the AP1000 DCD, Revision 19, does not comply with the requirements contained

in Clause 6.6 of IEEE Std. 603-1991, which require the PMS to accomplish one of the following actions if plant conditions change so that an activated operating bypass is no longer permissible: (1) automatically remove the appropriate active operational bypass(es), (2) automatically restore plant conditions so that permissive conditions once again exist, or (3) automatically initiate the appropriate safety functions.

The staff reviewed a request for an exemption submitted by the applicant. The request proposed changes to generic TS Table 3.3.2-1. Additionally, the staff reviewed the associated changes to Tier 2 information, including DCD Chapters 7, 9, 14, 16, and 19. The regulatory evaluation of the exemption request appears in Subsection A, below, and the technical evaluation of the exemption request and departure appears in Subsection B, below.

A. Regulatory Evaluation of Exemption Request

A.1 Summary of Exemption

The applicant requested an exemption from the provisions of 10 CFR Part 52, Appendix D, Section III.B, "Design Certification Rule for the AP1000 Design, Scope and Contents," that require the applicant referencing a certified design to incorporate by reference generic TS. Specifically, the applicant proposed to revise TS Table 3.3.2-1 by adding a P-8 permissive to the TS Table 3.3.2-1 for the ESFAS to provide reasonable assurance that the facility will be constructed and operated in conformity with the applicable design criteria, codes and standards.[11]

A.2 Regulations

10 CFR Part 52, Appendix D, Section VIII.C.4 states that an applicant may request an exemption from the generic TS or other operational requirements. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of 10 CFR 52.7, "Specific Exemptions."

A.3 Evaluation of Exemption

As stated in Section VIII.C.4 of Appendix D to 10 CFR Part 52, the Commission may grant an exemption from generic TS of the DCD only if it determines that the exemption will comply with the requirements of 10 CFR 52.7. As stated above, Section 52.7 points to 10 CFR 50.12 for specific exemptions.

Applicable criteria for when the Commission may grant the requested specific exemption are provided in 10 CFR 50.12(a)(1) and (a)(2). Section 50.12(a)(1) provides that the requested exemption must be authorized by law, not present an undue risk to the public health and safety, and be consistent with the common defense and security. The provisions of 10 CFR 50.12(a)(2) list six special circumstances for which an exemption may be granted. It is necessary for one of these special circumstances to be present in order for NRC to consider

[11] Although the applicant describes the requested exemption as being from Section III.B of 10 CFR Part 52, Appendix D, the entirety of the exemption pertains to proposed departures from generic TS in the generic DCD. In the remainder of this evaluation, the staff will refer to the exemption as an exemption from generic TS to match the language of Section VIII.C.4 of 10 CFR Part 52, Appendix D, which specifically governs the granting of exemptions from generic TS.

granting an exemption request. The applicant stated that the requested exemption meets the special circumstances of 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." The staff's analysis of each of these findings is presented below.

A.3.1 Authorized by Law

This exemption would allow the applicant to implement approved changes to TS Table 3.3.2-1. This is a permanent exemption limited in scope to particular generic TS, and subsequent changes to this information or any other generic TS would be subject to full compliance with the change processes specified in Section VIII.C.4 of Appendix D to 10 CFR Part 52. Section VIII.C.4 allows the NRC to grant exemptions from generic TS if the exemption meets the requirements of 10 CFR 52.7 and 50.12. The staff has determined that granting of the applicant's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the NRC's regulations. Therefore, as required by 10 CFR 50.12(a)(1), the exemption is authorized by law.

A.3.2 No Undue Risk to Public Health and Safety

Design changes are required for the PMS source range neutron flux doubling logic to comply with the requirements of IEEE Std. 603-1991, Clause 6.6 on operating bypasses; these changes to the source range flux doubling logic therefore support the system's intended design functions. The change will enable the plant-specific TS to meet the requirements of IEEE Std. 603-1991 and therefore the TS will continue to protect public health and safety and will maintain a level of detail consistent with that which is currently provided elsewhere in the plant-specific TS of the plant-specific DCD. The proposed changes to generic TS are evaluated and found to be acceptable in Section 21.5.4 of this safety evaluation. Therefore, the staff finds the exemption presents no undue risk to public health and safety as required by 10 CFR 50.12(a)(1).

A.3.3 Consistent with Common Defense and Security

The proposed exemption would allow the applicant to implement modifications to generic TS requested in the applicant's submittal. This is a permanent exemption limited in scope to a specific TS. Subsequent changes to this information or any other generic TS would be subject to full compliance with the change processes specified in Section VIII.C.4 of Appendix D to 10 CFR Part 52. This change is not related to security issues. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that the exemption is consistent with the common defense and security.

A.3.4 Special Circumstances

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purposes of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purpose of TS Table 3.3.2-1 is to ensure compliance with the requirements of IEEE Std. 603-1991, Clause 6.6. Because TS Table 3.3.2-1 does not include the missing elements as described in the PMS source range neutron flux doubling logic, the proposed addition is needed to ensure that the plant-specific TS reflect the actual PMS design which meets the applicable requirements in IEEE Std. 603-1991. The additional TS requirements are needed so

that the PMS source range flux doubling logic maintains the design margins of reactor startup protection.

Application of the requirements in TS Table 3.3.2-1 is not necessary to achieve the underlying purpose of those portions of the rule. The proposed changes to the PMS source range neutron flux doubling logic support the system's intended design functions, as does the proposed changes to the TS requirements. The system as modified in the requested exemption will continue to perform its intended functions and will, therefore, meet the underlying purposes of the rule. Accordingly, because application of the requirements in generic TS Table 3.3.2-1 is not necessary to achieve the underlying purpose of the rule, special circumstances are present. Therefore, the staff finds that special circumstances exist, as required by 10 CFR 50.12(a)(2)(ii), for the granting of an exemption from generic TS described above.

A.4 Conclusion

The staff has determined that, as required by Section VIII.C.4 of Appendix D to 10 CFR Part 52, the exemption: (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, and (4) has special circumstances. Therefore, the staff grants the applicant an exemption from the requirements of TS Table 3.3.2-1.

B. Technical Evaluation of Exemption Request and Departure

B.1 Operating Bypasses

Operating bypasses are usually included in the reactor safety I&C system design to permit some safety functions to be bypassed, so that normal plant operations can occur without actuating safety systems unnecessarily. The implementation of operating bypasses for safety functions are required to meet the requirements in Clause 6.6 of IEEE Std. 603-1991, which is required by regulation in accordance with 10 CFR 50.55a(h)(3).

The applicant has incorporated the AP1000 DCD for the LNP COL application. However, the applicant proposed this design change because it found that the design in the safety-related PMS for bypassing the source range neutron flux doubling logic input to the boron dilution block, which is a safety function as shown in Figure 7.2-1 (Sheet 3 of 21) in the AP1000 DCD, did not meet the criteria in Clause 6.6 of IEEE Std. 603-1991. Hence, the applicant submitted the exemption request from generic TS and design change description, dated September 1, 2015, for a Tier 2 departure from the AP1000 DCD in which the applicant proposed the following design changes to ensure that the regulatory criteria on operating bypasses for safety functions are met in the LNP COL application:

(1) Add a new permissive, P-8, to permit blocking the flux doubling logic during reactor startup (P-8 provides the logical permissive input to the PMS. P-8 is set to 551 degrees Fahrenheit (°F) (288 degrees Celsius (°C)) RCS temperature, the minimum temperature for criticality).

(2) Add logic that will cause the PMS to force chemical and volume CVS Valves 136A and 136B closed if the flux doubling logic is blocked when reactor temperature is less than P-8. This ensures a permissible condition exists before flux doubling is bypassed below

P-8, which is one option from IEEE Std. 603-1991, the other being to perform the appropriate safety functions.

(3) When RCS temperature is below P-8 with the flux doubling signal block control logic actuated to block, reset of the flux doubling logic is required to open CVS Valves 136A and 136B.

(4) Add an additional reset of source range flux doubling logic when RCS temperature falls below P-8. Existing PMS design resets flux doubling logic when neutron flux decreases below P-6.

(5) Include new permissive and actuation in TS, and describe the changes in Tier 2 information.

In its submitted exemption request and design change description, the applicant also included revised logic Figure 7.2-1, Sheet 3 of 21, to show the incorporation of the above proposed design changes, which are evaluated below in this section of the safety evaluation.

In the AP1000-certified design, without this departure, when the reactor is shut down from power operations, the PMS design for the block of the flux doubling logic safety function met the criteria in Clause 6.6 of IEEE Std. 603-1991 regarding to the operating bypass because the flux doubling logic safety function will be automatically reset to remove its block when the neutron flux falls below the existing Permissive P-6 setpoint. However, when the reactor starts up, the certified design of the PMS did not meet the regulatory requirement to impose permissive conditions for the manual block of the flux doubling logic safety function at any time because there were no permissive conditions implemented in the PMS design for the manual block of the flux doubling logic safety function for the boron dilution block. In addition, for the flux doubling logic safety function the PMS design in the certified AP1000 DCD did not include control logic to reinstate permissive conditions or initiate appropriate safety function when the permissive conditions do not exist.

To address the above design deviations from the regulatory requirement on operating bypasses, the applicant proposed to create a new permissive, P-8, by using the RCS temperature to permit blocking the flux doubling logic during reactor startup. The setpoint for the new Permissive P-8 is selected to be at 551 °F (288.3 °C) for the RCS temperature, which is the minimum temperature for criticality for the AP1000 standard design. The staff found that this proposed design change will provide the necessary permissive condition to allow manual bypass of the flux doubling logic safety function during the plant startup. The applicant also proposed to add an additional reset of source range flux doubling logic when the RCS temperature falls below the setpoint for the new Permissive P-8. The staff found that this proposed design change will address the lack of the control logic in the current PMS design to reinstate permissive conditions to manually block the flux doubling logic safety function. When the RCS temperature falls below the setpoint for the new P-8 permissive, the applicant proposed to add logic in the PMS to force CVS Valves 136A and 136B closed. The CVS in the AP1000 DCD is designed to avoid or terminate boron dilution events by isolating sources of unborated water to the RCS during all modes of operation when signaled to do so by the PMS. Valves 136A and 136B are installed on the demineralized water supply line for isolating the unborated demineralized water to the CVS system. The staff found that this proposed change could prevent and/or terminate a boron dilution event from happening when the RCS temperature is below the new P-8 permissive setpoint if the flux doubling logic safety function is blocked.

In the revised logic Figure 7.2-1, Sheet 3 of 21, included in the submittal dated September 1, 2015, the staff noticed that there is a RESET/BLOCK momentary command for each applicable division for the "FLUX DOUBLING BLOCK CONTROL." This momentary command is used for the newly created function to close demineralized water system (DWS) isolation valves. However, the staff found that there is not a coincident voting logic used for this divisionized command. Therefore, the staff issued RAI 8404, Question 07.02-1, requesting the applicant to clarify how the single failure criterion, as required in Clause 5.1 of IEEE Std. 603-1991, is met for this newly added actuation signal sent to "CLOSE DWS ISOLATION VALVES." In its response, dated December 23, 2015, the applicant described how the DWS isolation valves are controlled by the PMS Division A for isolation Valve V136A and Division C for isolation Valve 136B, respectively. When the flux doubling block control is actuated for each division, the respective isolation valve is closed. Because the isolation valves are in series on the demineralized water supply connecting the DWS to the CVS system, the isolation function complies with the single failure criterion. In addition, this new function block to "CLOSE DWS ISOLATION VALVES" is added to prevent a boron dilution from happening if the flux doubling logic is blocked when the RCS temperature falls below the P-8 setpoint. Because this new function is not required to mitigate any DBE, it is not added as an engineered safety feature actuation function. The staff found that the response from the applicant to the above question in the RAI is appropriate and acceptable because it clarified how the design change meets the single failure criterion.

The applicant initially proposed to add logic to reset the flux doubling logic if CVS isolation Valves 136A and 136B are opened when RCS temperature is below the setpoint for the new P-8 permissive. However, the staff found that this original proposed change was not consistent with the revised logic Figure 7.2-1, Sheet 3 of 21. Hence, the staff issued RAI 8404, Question 07.02-1 requesting the applicant to explain how the proposed logic change would be implemented to match with the revised logic diagram (ADAMS Accession No. ML15329A055). In its response dated December 23, 2015, the applicant provided additional information stating that the information initially submitted is incorrect for this change, which should be changed as follows: When the RCS temperature is below the setpoint for the new P-8 permissive with the flux doubling signal block control logic actuated to block, the reset of the flux doubling block control logic is required to open CVS isolation Valves 136A and 136B (ADAMS Accession No. ML15329A055). The staff found that this modified description matches the revised logic Figure 7.2-1, Sheet 3 of 21.

Overall, the staff found that the changes to the PMS design comply with criteria in Clauses 5.1 and 6.6 of IEEE Std. 603-1991. Therefore, the staff found that the design changes proposed by the applicant are acceptable.

B.2 Boron Dilution Analysis

The staff reviewed the design change descriptions presented in the departure and exemption request (letter NPD-NRC-2015-038, dated November 12, 2015) with respect to the boron dilution analysis presented in AP1000 DCD Revision 19 Section 15.4.6. The design changes include adding a P-8 permissive which limits the ability to manually block the flux doubling calculation during plant startup and logic to force applicable CVS DWS isolation valves closed if the flux doubling logic is blocked.

The inclusion of the new permissive, P-8, does not change the approach and underlying assumptions used in the analysis for boron dilution as presented in Section 15.4.6. The logic

presented in the exemption includes the automatic closure of the CVS valves if a manual block of the flux doubling logic is implemented below the P-8 permissive. This would block the potential source of unborated water and would be consistent with the termination method for a boron dilution event for modes 1 through 4 as discussed in DCD Section 15.4.6.2. When above the P-8 permissive, the manual block of the flux doubling logic may be permitted to allow for plant startup. The logic associated with the new P-8 permissive is also consistent with the description of dilution during startup (mode 2) as described in DCD Section 15.4.6.2.5.

Based on the staff's review of the new permissive and associated logic, the staff concludes that the boron dilution analysis presented in DCD Section 15.4.6 remains applicable given the changed descriptions presented in exemption request NPD-NRC-2015-038.

B.3 Technical Specifications

The design changes proposed by the applicant correspond to proposed changes in Section 3.3 of the TS and TS Bases (FSAR Chapter 16) in the COL application.

These changes, which appear in the September 1, 2015, submittal and have been incorporated into Part 4 of, Revision 8 of the COL application, submitted on December 7, 2015, are necessary to ensure that the TS and TS Bases accurately reflect the updated design and are described below.

Additionally, in a letter dated December 23, 2015, the applicant submitted its response to RAI Letter No. 135, Question 16-5, to address the staff's concerns related to proposed TS changes and insufficient level of details provided in the TS Bases. These changes, to be included in a future revision of the COL application, are among those described below and are being tracked by the staff as **LNP Confirmatory Item 21.5-1**.

Resolution of LNP Confirmatory Item 21.5-1

LNP Confirmatory Item 21.5-1 is a commitment by the applicant to revise the LNP COL application TS Bases as indicated in the letter dated December 23, 2015, in areas related to the flux doubling logic operating bypass. The staff confirmed that the LNP COL TS Bases have been appropriately revised. As a result, LNP Confirmatory Item 21.5-1 is now closed.

- LCO 3.3.2 (ESFAS Instrumentation)

  In Table 3.3.2-1 (Page 9 of 13), the Mode 3 Applicability of Function 15.a, "Source Range Neutron Flux Doubling" is revised to indicate that this Function is "not applicable for valve isolation Functions whose associated flow path is isolated" (i.e., by applying Footnote (e) to the listed Mode 3).

  In Table 3.3.2-1 (Page 10 of 13), a new Function 18.d, "Reactor Coolant Average Temperature, P-8" is added, with its associated requirements in columns for Applicable Modes or Other Specified Conditions, Required Channels, Conditions, and Surveillance

Requirements, as follows (with added text underlined):

Applicable Modes or Other Specified Conditions	Required Channels	Conditions	Surveillance Requirements
2, 3(e), 4(e)	4	J, T	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5
5(e)	4	J, P	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5

- Applicable Safety Analyses, LCOs, and Applicability (ASA) Section of TS Bases B3.3.2 (ESFAS Instrumentation)

  On Page B3.3.2-37, the discussion of Function 15 is revised as follows (with deleted text lined out and added text underlined) to accurately reflect the logics shown in DCD Figure 7.2-1 (Sheet 3 of 21):

  "The block of boron dilution is accomplished by closing the CVS makeup line isolation ~~suction~~ valves or closing the demineralized water system isolation ~~storage tanks~~ valves to CVS~~, and aligning the boric acid tank to the CVS makeup pumps~~. This Function is actuated by Source Range Neutron Flux Doubling and Reactor Trip."

  On Page B3.3.2-37, the discussion of Function 15.a is revised as follows (with added text underlined) to reflect the revised logics:

  "A signal to block boron dilution in MODES 2 or 3, when not critical or during an intentional approach to criticality, and MODES 4 or 5 is derived from source range neutron flow increasing at an excessive rate (source range flux doubling). This Function is not applicable in MODES 3, 4 and 5 if the demineralized water makeup flow path is isolated. The source range neutron detectors are used for this Function. The LCO requires four divisions to be OPERABLE. There are four divisions and two-out-of-four logic is used. On a coincidence of excessively increasing source range neutron flux in two of the four divisions, demineralized water is isolated (CVS demineralized water system isolation valves closed) from the makeup pumps and reactor coolant makeup is isolated (CVS makeup line isolation valves closed) from the reactor coolant system to preclude a boron dilution event. In MODE 6, a dilution event is precluded by the requirement in LCO 3.9.2 to close, lock and secure at least one valve in each unborated water source flow path."

  On Page B3.3.2-37, the discussion of Function 15.b is revised, in part, as follows (with deleted text lined out and added text underlined) to clarify the specific components actuated by the permissive P-4:

  "A P-4 signal initiates isolation of RCS makeup from the CVS ~~Demineralized Water Makeup is also isolated~~ by closing the demineralized water system isolation valves, and ~~aligned to the CVS makeup pumps)~~ aligning the CVS

makeup pump suction to the boric acid tank. Unborated water source makeup isolation is initiated by all the Functions that initiate a Reactor Trip."

On Page B3.3.2-41, the discussion of Function 18.c, "Intermediate Range Neutron Flux, P-6," is revised as follows (with deleted text lined out and added text underlined) to reflect the revised logics:

"The Intermediate Range Neutron Flux, P-6 interlock is actuated when the respective NIS intermediate range channel increases to approximately one decade above the channel lower range limit. Above the setpoint, the P-6 interlock allows manual block of the source range neutron flux reactor trip. Below the setpoint, the P-6 interlock automatically energizes the source range detectors and unblocks the source range neutron flux reactor trip. As intermediate range flux decreases from above the setpoint to below the setpoint, the P-6 interlock automatically resets the flux doubling block function ensuring ~~unblocks~~ the source range neutron flux doubling function is enabled~~, permitting the block of boron dilution~~. Normally, the source range neutron flux doubling f~~ this F~~unction is blocked by the main control room operator during reactor startup. This Function is required to be OPERABLE in MODE 2."

On Page B3.3.2-42, the discussion of the new Function 18.d is added as follows to reflect the revised logics:

"The P-8 interlock is provided to permit a manual block of or to reset a manual block of the automatic Source Range Neutron Flux Doubling actuation of the Boron Dilution Block (Function 15.a).

The automatic Source Range Neutron Flux Doubling actuation of the Boron Dilution Block Function may be manually blocked (disabled) to permit plant startup and normal power operation when above the P-8 reactor coolant average temperature setpoint.

The manual block to disable the automatic Source Range Neutron Flux Doubling actuation of the Boron Dilution Block Function is automatically reset upon decreasing reactor coolant average temperature to below the P-8 setpoint.

Once reactor coolant average temperature is below the P-8 setpoint, the Source Range Neutron Flux Doubling actuation of the Boron Dilution Block Function may also be manually blocked to prevent inadvertent actuation during refueling operations and post-refueling control rod testing.

When the Source Range Neutron Flux Doubling actuation of the Boron Dilution Block is manually blocked below P-8 during shutdown conditions, the CVS demineralized water system isolation valves will automatically close to prevent inadvertent boron dilution.

The P-8 interlock is required to be OPERABLE in MODES 2, 3, 4 and 5. This Function is not applicable in MODES 3, 4 and 5, if the demineralized water makeup flow path is isolated. In MODE 6 a dilution event is precluded by the

requirement in LCO 3.9.2 to close, lock and secure at least one valve in each unborated water source flow path."

- Applicable Safety Analyses, LCOs, and Applicability (ASA) Section of TS Bases B3.3.1 (Reactor Trip System (RTS) Instrumentation)

  In addition, unrelated to the revised logics in the ESFAS, on Page B3.3.1-23, in the discussion of the permissive P-6, Item a(3) is revised as follows (with deleted text lined out and added text underlined) to reflect relevant information regarding the permissive P-6:

  "(3) on decreasing ~~increasing~~ power, the P-6 interlock automatically resets the flux doubling block control ensuring ~~provides a backup block signal to~~ the source range neutron flux doubling circuit is enabled. Normally, the source range neutron flux doubling circuit ~~this Function~~ is manually blocked by the main control room operator during the reactor startup."

- Actions Section of TS Bases B3.3.2 (ESFAS Instrumentation)

  On Page B3.3.2-57, in the discussion of Actions J.1 and J.2, the first paragraph is revised to read, in part, "[C]ondition J applies to P-6, P-8, P-11, P-12, and P-19 interlocks ..." to reflect the addition of the permissive P-8.

The staff finds the above proposed changes to TS LCO 3.3.2 and its associated bases acceptable because they reflect the revised logic for the source range neutron flux doubling function of the AP1000 ESFAS as described in DCD Section 7.3.

Based on the above evaluation, the staff finds the proposed TS and Bases revisions meet the requirements of 10 CFR 50.36.

B.4 Risk Results and Insights

This design departure does not affect the description of AP1000 design features that reduce the risk of boron dilution events. It does not modify the plant-specific probabilistic risk assessment model used for licensing. Consequently, there is no change to the risk profile described in the COL application or the risk insights concerning boron dilution in AP1000 DCD Revision 19, Table 19.59-18 (Item 9). Instead, the change improves confidence in the validity of the reported risk results and insights. Consistent with DC/COL-ISG 003, "PRA Information to Support Design Certification and Combined License Applications," the plant-specific probabilistic risk assessment remains acceptable to the staff.

21.5.5 Post Combined License Activities

There are no post-COL activities related to this section.

21.5.6 Conclusion

The staff reviewed the application for proposed departure number LNP DEP 7.3-1 and checked the referenced DCD. The staff's review confirmed that the applicant addressed the required

information relating to the departures, and there is no outstanding information expected to be addressed in the LNP COL FSAR and TS related to this departure.

In addition, the staff concludes that the relevant information presented in the LNP COL FSAR TS is acceptable and meets the regulatory requirements and guidance discussed in Section 21.5.3 of this SER. The staff based its conclusion on the following:

Based on the evaluation discussed above, the staff concludes that the changes to the PMS design and the RAI responses for bypassing the source range neutron flux doubling logic input to the boron dilution block comply with 10 CFR 50.55a(h)(3) because they meet the criteria in Clauses 5.1 and 6.6 of IEEE Std. 603-1991. The staff therefore finds the design changes proposed by the applicant acceptable.

22.0 CONCLUSIONS

In accordance with Subpart C, "Combined Licenses," of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," the staff of the U.S. Nuclear Regulatory Commission reviewed the combined license (COL) application submitted by Duke Energy Florida, LLC, for the Levy Nuclear Plant Units 1 and 2. Based on the staff's evaluation documented in this final safety evaluation report, the staff finds the following with respect to the safety aspects[1] of the COL application:

1) The applicable standards and requirements of the Atomic Energy Act and Commission's regulations have been met,

2) Required notifications to other agencies or bodies have been duly made,

3) There is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the Commission's regulations,

4) The applicant is technically and financially qualified to engage in the activities authorized, and,

5) Issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.

[1] An environmental review was also performed of the COL application, and its evaluation and conclusions are documented in NUREG-1941, "Final Environmental Impact Statement for Combined Licenses for Levy Nuclear Plant Units 1 and 2," dated April 2012.

Appendix A

Post COL Activities: License Conditions; Inspections, Tests, Analyses, and Acceptance Criteria; and Final Safety Analysis Report Commitments

A.1 License Conditions

The Nuclear Regulatory Commission's (NRC's) regulations at Title 10 of the *Code of Federal Regulations* (10 CFR) 52.97, "Issuance of combined licenses," requires a combined license (COL) to specify any terms and conditions of the COL the Commission deems appropriate. A license condition is not needed when an existing NRC regulation requires a future regulatory review of a matter to ensure adequate safety during design, construction, inspection activities or operation for a new plant. The staff is proposing that the Commission include the following license conditions, which are set forth below, to control various safety matters.

Proposed License Condition in FSER	FSER Section	License Condition Description
1-1	1.5.1	Primary and secondary financial protection per 10 CFR 140.11(a)(4) and 10 CFR 50.54(w)
1-2	1.5.1	Financial assurance – deferred reporting of 10 CFR 140.21 for guarantee of payment
1-3	1.5.5	10 CFR Parts 30, 40, and 70 licenses governing the possession and use of applicable source, byproduct and special nuclear materials
1-4	1.5.5	Implementation schedule submission requirements for Special Nuclear Material Control and Accounting Program
1-5*	1.5.5	Implementation schedule submission requirements for Non-Licensed Plant Staff Training Program
1-6	1.5.5	Implementation of Special Nuclear Material Physical Protection Program
2-1	2.5.3.5	Geologic mapping
3-1	3.6.5	As-designed pipe rupture hazards analysis
3-2	3.7.2.5	Seismic interaction analysis update to reflect as-built information
3-3	3.7.2.5	Seismic analyses reconciliation to account for detailed design changes
3-4	3.8.5.5	Implementation schedule submission requirements for construction and inspection procedures for steel concrete composite construction activities for seismic Category I nuclear island modules

Proposed License Condition in FSER	FSER Section	License Condition Description
3-5	3.8.5.5	Roller compacted concrete strength verification and constructability testing
3-6	3.9.6.5	Preservice Testing Operational Program and the Motor-Operated Valve Testing Operational Program
3-7	3.9.6.5	Implementation schedule submission requirements for Inservice Testing program (including preservice and motor-operated valve testing)
3-8	3.9.6.5	Squib valve surveillance and maintenance
3-9	3.11.5	Implementation of Environmental Qualification Program
3-10	3.11.5	Implementation schedule submission requirements for Environmental Qualification Program
3-11	3.12.5	As-designed individual piping segments and reporting requirements
4-1	4.5	Instrument uncertainty for measuring departure from nucleate boiling ratio values
5-1**	5.2.4.5	Implementation schedule submission requirements of operational programs in FSAR Table 13.4-201 (Preservice Inspection and Inservice Inspection Programs)
5-2	5.3.2.5	Implementation of Reactor Vessel Material Surveillance Program
5-3	5.3.2.5	Implementation schedule submission requirements for Reactor Vessel Material Surveillance program
5-4	5.3.3.5	Updating the pressure-temperature limits using the approved pressure-temperature limits report methodologies for reactor vessel material properties
5-5	5.3.4.5	Plant-specific belt line material properties
5-6**	5.4.5	Implementation schedule submission requirements for Preservice Inspection and Inservice Inspection Programs
6-1	6.2.5	Implementation of containment leakage rate testing program
6-2	6.2.5	Implementation schedule submission requirements for containment leakage rate testing program
6-3**	6.6.5	Implementation schedule submission requirements for Preservice Inspection and Inservice Inspection Programs
9-1	9.1.2.5	Implementation of and implementation schedule submission requirements for spent fuel rack Metamic Coupon Monitoring Program
9-2	9.5.1.5	Implementation of Fire Protection Program
9-3	9.5.1.5	Implementation schedule submission requirements for Fire Protection Program
10-1	10.1.5	Implementation of and implementation schedule submission requirements for flow accelerated corrosion program

Proposed License Condition in FSER	FSER Section	License Condition Description
10-2	10.2.5	Implementation of and implementation schedule submission requirements for turbine maintenance and inspection program
11-1	11.2.5	Radionuclide inventory of unpackaged wastes
11-2	11.4.5	Implementation of operational program for process and effluent monitoring and sampling (including process control program)
11-3	11.4.5	Implementation schedule submission requirements for operational program for process and effluent monitoring and sampling (including process control program)
11-4	11.5.5	Implementation of operational program for process and effluent monitoring and sampling, including (1) Radiological Effluent Technical Specifications/Standard Radiological Effluent Controls, (2) Offsite Dose Calculation Manual, and (3) Radiological Environmental Monitoring Program
11-5	11.5.5	Implementation schedule submission requirements for operational program for process and effluent monitoring and sampling, including (1) Radiological Effluent Technical Specifications/Standard Radiological Effluent Controls, (2) Offsite Dose Calculation Manual, and (3) Radiological Environmental Monitoring Program
12-1	12.5.5	Implementation of Radiation Protection Program (including the as low as reasonably achievable (ALARA) principle)
12-2	12.5.5	Implementation schedule submission requirements for Radiation Protection Program (including the ALARA principle)
13-1	13.2.5	Implementation of Reactor Operator Training Program
13-2*	13.2.5	Implementation schedule submission requirements for Non-Licensed Plant Staff Training Program, Reactor Operator Training Program, and Reactor Operation Requalification Program
13-3	13.3.5	Implementation schedule submission requirements for operational programs in FSAR Table 13.4-201, including emergency plan implementing procedures
13-4	13.3.5	Schedule submission requirements for a fully developed set of site-specific emergency action levels
13-5	13.3.5	10 CFR Part 50 Appendix E letters of agreement with emergency organizations
13-6	13.3.5	Initial public information distribution, consistent with LNP Emergency Plan
13-7	13.3.5	NEI 10-05, detailed staffing analysis
13-8	13.6.5	Implementation schedule submission requirements for physical security programs

Proposed License Condition in FSER	FSER Section	License Condition Description
13-9	13.7.5	Implementation schedule submission requirements for Fitness for Duty operational program
13-10	13.8.5	Implementation schedule submission requirements for Cyber Security program implementation
14-1	14.2.3.5	Implementation schedule submission requirements for implementation of preoperational and startup procedures
14-2	14.2.3.5	Initial startup test program changes
14-3	14.2.5.5	First-plant-only and first-three-plant-only testing
14-4	14.2.8.5	Implementation milestones for initial test program
14-5	14.2.8.5	Implementation schedule submission requirements for initial test program
14-6	14.2.8.5	Pre-operational, pre-critical, initial criticality, low-power, and power ascension testing
15-1	15.0.5	Schedule submission requirements for calculations for power calorimetric uncertainty instrumentation and administrative controls
17-1	17.6.5	Implementation schedule submission requirements for Maintenance Rule program
19-1	19.59.5	AP1000 seismic margin analysis
19-2	19.59.5	AP1000 probabilistic risk assessment
19-3	19.59.5	AP1000 internal fire and internal flood analysis
19-4	19.59.5	Implementation schedule submission requirements for site-specific severe accident management guidelines
19-5	19.59.5	Thermal lag assessment
19-6	Appendix 19F	Malevolent aircraft impact FSAR revisions
19.A-1	19.A.5	Implementation schedule submission requirements for operational and programmatic elements of mitigative strategies for responding to a loss of large areas event
20-1	20.2.5	Mitigation strategies for beyond-design-basis external events
20-2	20.3.5	Reliable spent fuel pool instrumentation
20-3	20.4.5	NEI 12-01, Staffing assessment
20-4	20.4.5	NEI 12-01, Communications capability assessment

* License Conditions 1-5 and 13-2 represent the same reporting requirements for the Non-Licensed Plant Staff Training Program.
** License Conditions 5-1, 5-6, and 6-3 represent the same reporting requirements for the Preservice Inspection Program and Inservice Inspection Program.

Appendix A

License Conditions, Inspections, Tests, Analyses, and Acceptance Criteria, and Final Safety Analysis Commitments

A.2 Inspections, Tests, Analyses, and Acceptance Criteria

The staff has identified the certain Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) that it will recommend the United States Nuclear Regulatory Commission impose with respect to a COL issued to the applicant. The following is a list of those ITAAC. In addition to the ITAAC contained in this list, the ITAAC found in the AP1000 DCD Revision 19 Tier 1 material will also be incorporated into the COL should a COL be issued to the applicant.

Listing of Levy Site-Specific ITAAC

ITAAC Number from Draft License	ITAAC Description	SER Section
C.2.5.04.04a–C.2.5.04.04c	Feedwater Flow Measurement	15.0
C.2.6.09.01–C.2.6.09.09	Physical Security	13.6.A
C.2.6.12.07	Offsite Power System	8.2.A
C.3.8.01.01.01–C.3.8.01.15.01	Emergency Planning	13.3
C.3.8.02.01	Waterproof Membrane	3.8.5
C.3.8.03.01–C.3.8.03.03	Roller Compacted Concrete[1]	3.8.5
C.3.8.04.01	Turbine Building, Radwaste Building, and Annex Building drilled shaft foundations[1]	3.8.5
C.3.8.05.01	Pipe Rupture Hazards Analysis	3.6
C.3.8.06.01	Piping Design	3.12
C.2.2.05.07e	Main Control Room Emergency Habitability System	21.2
C.2.3.09.03.iii	Containment Hydrogen Control System[2]	21.4

[1] The Roller Compacted Concrete ITAAC and the Turbine Building, Radwaste Building, and Annex Building Drilled Shaft Foundations ITAAC are unique to LNP.
[2] The Main Control Room Emergency Habitability System ITAAC and the Containment Hydrogen Control System ITAAC appear in the AP1000 DCD Revision 19 and were revised in the LNP COL application.

Appendix A

License Conditions, Inspections, Tests, Analyses, and Acceptance Criteria, and Final Safety Analysis Report Commitments

A.3 Final Safety Analysis Report (FSAR) Commitments

The following FSAR commitments are identified as the responsibility of the licensee:

SER Section	Description
1.4	A site-specific construction plan and startup schedule will be provided after issuance of the COL.
1.4	The licensee will update the FSAR to identify additional participants, principal consultants, outside service organizations, or contractors for the design, construction, and operation of LNP. The licensee will also delineate the division of responsibility among the certified plant designer, architect-engineer, constructor, and plant operator as appropriate.
5.2.5	Prior to initial fuel load, the operating procedures that include identifying, monitoring, trending, and managing the prolonged low-level reactor coolant system leakage will be developed.
6.4	FSAR Commitment 6.4-1. The licensee's control room operator training program will address the following: • Regulatory Position C.5, "Emergency Planning," of RG 1.78 • Regulatory Position 2.5, "Hazardous Chemicals," of RG 1.196 • Regulatory Position 2.2.1, "Comparison of System Design, Configuration, and Operation with Licensing Basis," of RG 1.196 • Regulatory Position 2.7.1, "Periodic Evaluations and Maintenance," of RG 1.196
9.1.4	The light load handling program, including system inspections, will be implemented prior to receipt of fuel onsite.
9.1.5	The overhead heavy-load handling program, including system inspections, will be implemented prior to receipt of fuel onsite.

Appendix B

Chronology

This appendix contains a chronological listing of correspondence to and from the U.S. Nuclear Regulatory Commission regarding the Levy Nuclear Plant Units 1 and 2 combined license application under docket numbers 052-00029 and 052-00030 through March 31, 2016, with the exception of legal filings related to the hearings. Source: Agencywide Documents Access and Management System Accession No. ML12117A332.

Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
5/1/2006	ML101930588	Levy DEIS - NOAA 208/2009 References. (12 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin, National Weather Service	NRC/NRO	05200029 05200030
3/31/2007	ML111880004	U.S. Fish and Wildlife Service International Recovery Plan for the Whooping Crane, Third Revision. (163 Pages)	Environmental Protection Plan	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
4/12/2007	ML071060167	3/22/2007 - 3/23/2007- DCWG Public Meeting Summary Points of Contact. (2 Pages)	Meeting Briefing Package/Handouts	NRC/NRO/DNRL		05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
4/19/2007	ML071090036	5/02-3/2007 Notice of Forthcoming Meeting with Joint AP1000/ESBWR Design-Centered Working Groups Regarding Pre-Col Activities. (9 Pages)	Meeting Notice Memoranda	NRC/NRO/DNRL	NRC/NRO/DNRL	05200029 05200030
4/23/2007	ML071070099	3/22/2007 - 3/23/2007, Summary of Meeting with AP1000 and ESBWR Design-Centered Working Groups to Discuss Pre-Combined License Application Issues. (21 Pages)	Meeting Agenda Meeting Summary	NRC/NRO/DNRL		05200029 05200030
4/27/2007	ML071170620	Site Visit to Progress Energy Levy County Potential Nuclear Plant Site to Observe Combined License Pre-Application Subsurface Investigation Activities (Project No. 756). (6 Pages)	Letter Trip Report	NRC/RGN-II/DCI/CIB1	Progress Energy Co	05200029 05200030 PROJ0756

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
4/27/2007	ML071170384	5/2-3/2007 Agenda for Joint AP1000/ESBWR Design-Centered Working Group Public Meeting. (2 Pages)	Meeting Agenda	NRC/NRO/DNRL/AP1000B1		05200029 05200030
5/30/2007	ML071500286	6/13/2007, Forthcoming Meeting with Joint AP1000/ESBWR Design-Centered Working Groups Regarding PRE-COL Activities. (15 Pages)	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/AP1000B1	NRC/NRO/DNRL/AP1000B1	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
5/31/2007	ML071550412	Progress Energy COL Projects - Response to Specific Questions from the NRC Regulatory Issue Summary 2007-08, "Updated Licensing Submittal Information to Support the Design-Centered Licensing Review Approach." (8 Pages)	Letter	Progress Energy Co	NRC/ Document Control Desk NRC/NRO/DNRL	05200022 05200023 05200029 05200030 PROJ0738 PROJ0756
5/31/2007	ML101960349	Levy EIS Reference - FWS 2007 National Bald Eagle Management Guidelines. (25 Pages)	Regulatory Guide	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
7/11/2007	ML072110500	7/24-25/2007 Meeting to Discuss Pre-Combined License Application Issues Enclosure. Consistent Radioactive Effluent Program Descriptions in COL Applications. (1 Pages)	Meeting Briefing Package/Handouts	NRC/NRO	NRC/NRO	05200018 05200019 05200025 05200026 05200029 05200030 PROJ0739 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
7/12/2007	ML071930036	7/24-25/2007 Notice of Forthcoming Meeting with Joint AP1000/ESBWR Design Centered Working Groups Regarding Pre-COL Activities. (11 Pages)	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/EPB1	NRC/NRO/DNRL/EPB1	05200006 05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0009 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0755 PROJ0756
7/24/2007	ML072110437	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. Design Centered Working Group Presentation Combined License/Design Certification Acceptance Review. (1 Pages)	Meeting Briefing Package/Handouts	NRC/NRO/DNRL	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0745 PROJ0755 PROJ0756

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
7/24/2007	ML072110418	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. Electronic Submittals. (7 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756
7/24/2007	ML072110489	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. NRO Presentation on Joint AP1000/ESBWR Design-Centered Working Groups Pre-COL Activities: Quality Assurance Audits. (8 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO/ DCIP/QVB1	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
7/24/2007	ML072110497	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. NuStart Energy Presentation on Chapter 11 Programs DCWG. (20 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NuStart Energy Development, LLC	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756
7/24/2007	ML072110511	7/24-25/2007 Meeting to Discuss Pre-Combined License Application Issues Enclosure. NRO Presentation on Clarifications to PRA Information to Support Design Certification and Combined License Applications. (17 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO/ DSRA	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
7/25/2007	ML072110508	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. NuStart Energy Presentation on ESBWR COL Items, Section 6.1 ESF Materials Coatings. (3 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NuStart Energy Development, LLC	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756
7/25/2007	ML072110512	7/24-25/2007 Meeting to Discuss Pre-Combined License Application Issues Enclosure. NuStart Energy Presentation on AP1000 R-COLA FSAR Standardization. (35 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NuStart Energy Development, LLC	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756

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9/17/2007	ML072110506	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. ISI/IST Reviews for COLs. (1 Pages)	Graphics incl Charts and Tables Meeting Briefing Package/Handouts	NRC/NRO	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756
9/17/2007	ML072110451	7/24-25/2007 Meeting to Discuss Pre-Combined License Application Issue Enclosure. LPP Topics - Input from DCWGs (AP1 000, ABWR, ESBWR, EPR, USAPWR) + NEI. (1 Pages)	Meeting Briefing Package/Handouts	NRC/NRO	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756

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9/17/2007	ML072110460	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. Schedule for Illustrative Purposes Only. Reference COLA. (1 Pages)	Meeting Briefing Package/Handouts	NRC/NRO	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756
9/17/2007	ML072110503	7/24-25/2007 Meeting To Discuss Pre-Combined License Application Issues Enclosure. ISI/IST Reviews for COLs. (3 Pages)	Meeting Briefing Package/Handouts	NRC/NRO	NRC/NRO	05200018 05200019

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9/17/2007	ML072110516	7/24-25/2007 Meeting to Discuss Pre-Combined License Application Issues Enclosure. NRO Presentation on Clarifications to PRA Information to Support Design Certification and Combined License Applications. (17 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO/ DSRA	NRC/NRO	05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0755 PROJ0756
9/25/2007	ML101930587	Levy DEIS Reference - Letter from Florida SHPO to New South Associates. (1 Pages)	Letter	State of FL	New South Associates NRC/NRO	05200029 05200030
9/30/2007	ML111930471	Potentiometric Surface of the Upper Floridan Aquifer, West-Central, Florida, U.S. Geological Survey, September 2007. (3 Pages)	Report, Miscellaneous	US Dept of Interior, Geological Survey (USGS)	NRC/NRO	05200029 05200030
10/15/2007	ML072550258	Trip Report - August 20 - 21, Pre- Application Readiness Assessment (C-1) for a Combined License Application at the Levy County, Florida Site. (8 Pages)	Memoranda Trip Report	NRC/NRO/DSER/EPB2	NRC/NRO/DSER NRC/NRO/DSER/ ETSB	05200029 05200030 PROJ0756
10/31/2007	ML101930573	Levy DEIS - Ch 2 Reference NMFS 2007b. (4 Pages)	Database File	NRC/NRO		05200029 05200030

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10/31/2007	ML101930575	Levy DEIS - Ch 2 Reference NMFS 2007c Humpback Whale. (11 Pages)	Database File	- No Known Affiliation	NRC/NRO	05200029 05200030
11/1/2007	ML101960355	Levy DEIS Reference - FWS 2009 Florida Wood Stork Colonies Core Foraging Areas. (1 Pages)	Environmental Impact Statement	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
11/8/2007	ML073200074	Nuclear Plant Development and License Renewal, NRC Regulator Issue Summary 2007-17, Preparation and Scheduling of Operator License Examinations. (2 Pages)	Letter License-Operator License Exam, Draft	Progress Energy Co	NRC/ Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030 PROJ0738 PROJ0756
12/23/2007	ML073521566	1/10/08 - Forthcoming Meeting with Progress Energy to Discuss Geotechnical Topics Associated with Levy County Site. (7 Pages)	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/AP1000B1	NRC/NRO/DNRL/AP1000B1	05200029 05200030 PROJ0756
1/10/2008	ML080110713	1/10/2008 Meeting Handout "Progress Energy Levy Nuclear Plant Geotechnical Review." (55 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	Progress Energy Co	NRC/NRO	05200006 05200029 05200030 PROJ0756

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
1/17/2008	ML080160050	1/30/2008 - 1/31/2008 Notice of Meeting with Industry's Design-Centered Working Groups Regarding Information on Status of Items of Interest to Industry as well as Processes the NRC Plans to Employ in Future COL Reviews. (7 Pages)	Meeting Agenda Meeting Notice	NRC/NRO/ DNRL/ AP1000B1	NRC/NRO/DNRL/ AP1000B1	05200006 05200010 05200012 05200013 05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 05200040 05200041 PROJ0737 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745

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1/24/2008	ML080240064	1/30-31/2008-Revised Notice of Meeting With Industry Design-Centered Working Groups to Discuss Topics re: Information on Status of Items of Interest to Industry as Well as Processes the NRC Plans to Employ in Future COL Reviews. (12 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/ DNRL/ AP1000B1	NRC/NRO/DNRL/ AP1000B1	05200010 05200012 05200013 05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200029 05200030 05200040 05200041 PROJ0737 PROJ0738 PROJ0740 PROJ0741 PROJ0742 PROJ0743 PROJ0744 PROJ0745 PROJ0746

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1/31/2008	ML082530125	Levy Nuclear Power Plant, Units 1 & 2, One Year Hourly Data in ARCON Model Input Format, with Data for the Period February 1, 2007 - January 31, 2008, Used in the Prediction of Control Room Diffusion Estimates as Described in FSAR Section 2.3.4.4. (187 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030 PROJ0756
1/31/2008	ML082530134	Levy Nuclear Power Plant, Units 1 & 2, One Year Hourly On-site, "Meteorological Monitoring Programs for Nuclear Power Plants, Revision 1 for Period February 1, 2007 - January 31, 2008." (154 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030 PROJ0756
2/20/2008	ML080520456	2/20/2008 - Slides, Levy Nuclear Plant, from Public Meeting on Limited Work Authorization Implementation Issues, Progress Energy. (7 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	Progress Energy Co	NRC/NRO/DNRL	05200029 05200030 PROJ0756
2/22/2008	ML101930598	Levy DEIS Reference - FWS 2009 Federally Listed and Candidate Species in Polk County, Florida. (2 Pages)	Environmental Impact Statement	NRC/NRO		05200029 05200030
2/28/2008	ML11304A209	GDL Metadata Explorer: Search & Download Data, Mobile Home and RV Parks - February 2008. (1 Pages)	Database File	State of FL, Dept of Health	NRC/NRO	05200029 05200030
2/28/2008	ML111930435	West Indian Manatee (Trichechus manatus), U.S.	Report, Miscellaneous	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030

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		Fish and Wildlife Service, February 2008. (2 Pages)				
3/4/2008	ML082530132	Levy Nuclear Power Plant, Units 1 & 2, One Year of Hourly Data in MACCS2 Model Input Format for Period February 1, 2007 - January 31, 2008. Data was Used in the Severe Accident Analysis Described in ER Section 7.2.5. (187 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030 PROJ0756
3/5/2008	ML080720429	Progress Energy Levy Nuclear Plant COL, Response to NRC Regulatory Issue Summary 2008-01. (2 Pages)	Letter	Progress Energy Co	NRC/ Document Control Desk NRC/NRO	05200029 05200030 PROJ0756
3/27/2008	ML111930508	Public Scoping Meetings for the Tarmac King Road Limestone Mine Environmental Impact Statement, U.S. Army Corps of Engineers, Jacksonville District, March 2008. (17 Pages)	Meeting Summary	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO	05200029 05200030
4/30/2008	ML081210282	6/5/2008 Notice of Public Meeting to Discuss Levy Nuclear Plant Combined License Application Review Process. (1 Pages)	Meeting Notice	NRC/NRO/ DNRL		05200029 05200030 PROJ0756
5/1/2008	ML080850377	1/30/2008 - 1/31/2008 - Summary of Meeting with Industry's Design-Centered Working Groups to Discuss Items of Interest Pertaining to COL Reviews. (8 Pages)	Meeting Agenda Meeting Briefing Package/Handouts Meeting Summary	NRC/NRO/ DNRL/ AP1000B1		05200010 05200011 05200012 05200013 05200014 05200015

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						05200018
5/7/2008	ML081200796	4/10/2008-Summary of Public Meeting With AP1000/ESBWR Design-Centered Working Groups, to Discuss Combined License Application Issues. (16 Pages)	Meeting Summary	NRC/NRO/ DNRL	GE-Hitachi Nuclear Energy Americas, LLC Westinghouse Electric Co	05200010 05200011 05200014 05200015 05200017 05200018 05200019
5/14/2008	ML081220538	6/5/2008 Notice of Public Outreach Meeting on Levy Nuclear Plant Units 1 and 2, Combined License Application (COLA). (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/ DNRL/ AP1000B1	NRC/NRO/ DNRL/ AP1000B1	05200029 05200030 PROJ0756

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5/31/2008	ML102040284	Levy EIS Reference - Golder Associates 2008 - USACE Environmental Resource Permit Application for Transmission Corridors Associated with the Levy Nuclear Plant. (127 Pages)	Environmental Impact Statement	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
6/30/2008	ML101960347	Levy DEIS Reference - CH2M Hill 2008 Ecological Report for the Cross Florida Greenway Recreational Improvement Project. (20 Pages)	Environmental Impact Statement	CH2M Hill	NRC/NRO	05200029 05200030
6/30/2008	ML090610068	Levy COLA Review USACE Response for Permit to Construct a Barge Slip, Boat Ramp, Access Road and Bridge to Connect the Slip/Ramp to CR40. (5 Pages)	Letter	US Dept of the Army, Corps of Engineers	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
7/2/2008	ML082140620	Progress Energy Florida, Inc. - Security Plan for Levy Nuclear Site (LNP 1 and Units 2) - Cover Letter. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/ Document Control Desk NRC/NSIR/ DSO	05200029 05200030 PROJ0756
7/8/2008	ML081580622	Trip Report, May 8 - 9, 2008, Readiness Assessment (C-3) Visit for a Combined License Application at the Levy County Site. (10 Pages)	Meeting Agenda Memoranda Trip Report	NRC/NRO/DSER/ETSB	NRC/NRO/DSER/EPB2	05200029 05200030 PROJ0756
7/17/2008	ML081990118	7/28/2008 Notice of Meeting with Progress Energy to Discuss Geotechnical Topics Associated with the Levy County Site. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/ DNRL/ AP1000B1	NRC/NRO/ DNRL/ AP1000B1	05200029 05200030 PROJ0756

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7/28/2008	ML082260277	Application for Combined License for Levy Nuclear Power Plant, Units 1 & 2. (8 Pages)	Letter License-Application for Combined License (COLA)	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030 PROJ0756
7/28/2008	ML082260278	Supplemental Meteorological Data in Support of Combined License Application for Levy Nuclear Power Plant, Units 1 & 2. (3 Pages)	Letter License-Application for Combined License (COLA)	Progress Energy Carolinas, Inc	NRC/NRO	05200029 05200030 PROJ0756
7/28/2008	ML082260520	Progress Energy Levy Units 1 and 2 COLA (General Financials), Rev. 0 - General and Financial Information (527 Pages)	License-Application for Combined License (COLA)	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030 PROJ0756
7/28/2008	ML082110283	7/28/2008 Meeting Slides, "Levy Nuclear Plant Geotechnical Review," Public Meeting with Progress Energy to Discuss Geotechnical Topics Associated with the Levy County Site. (55 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	Progress Energy Co	NRC/NRO	05200029 05200030 PROJ0756
8/8/2008	ML082380171	U.S. Army Corps of Engineers Request to Become a Cooperating Agency for Levy County Environmental Impact Statement. (2 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jackson District	NRC/NRO/DSER	05200029 05200030 PROJ0756
8/8/2008	ML082210024	8/21/08 - Notice of Meeting with Progress Energy to Discuss the Levy County Units 1 and 2. (6 Pages)	Meeting Agenda Meeting Notice	NRC/NRO/ DNRL/ AP1000B1	NRC/NRO/ DNRL/ AP1000B1	05200029 05200030 PROJ0756

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8/13/2008	ML082340692	Progress Energy COL Project - NRC Number 756 Nuclear Plant Development and License Renewal NRC Regulatory Issue Summary 2008-16, Preparation and Scheduling of Operator Licensing Examinations. (3 Pages)	Letter License-Operator, Part 55 Examination Related Material	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030 PROJ0756
8/15/2008	ML082280036	Progress Energy Levy Co Units 1 and 2 COLA (FSAR), Rev. 0 (Public).	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)(Package)	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030 PROJ0756
8/15/2008	ML082280770	Press Release-08-151: Levy County Application For New Reactors Available On NRC Website. (2 Pages)	Press Release	NRC/OPA		05200029 05200030 PROJ0756
8/27/2008	ML090150548	SCA, Progress Energy Florida Levy Nuclear Plant Powerline Transmission Corridor, Levy County, Florida; Agency Report and Recommended Conditions. (6 Pages)	Letter	State of FL, Fish and Wildlife Conservation Commission	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
8/31/2008	ML082400275	Results of Acceptance Review for the Levy Nuclear Plant, Units 1 & 2 Combined License Application (TAC RD5003). (2 Pages)	Memoranda	NRC/NRR/ DPR/PFPB	NRC/NRO/ DNRL/ AP1000B1	05200029 05200030 PROJ0756
9/3/2008	ML082660552	Enclosure 2 - Acceptance Review Results for the Levy Nuclear Plant COLA, FEMA COLA Acceptance Letter, dated 9/3/2008. (2 Pages)	Letter	US Federal Emergency Mgmt Agency (FEMA)	NRC/NSIR/DPR/D DEP/RIOB	05200029 05200030 PROJ0756

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9/12/2008	ML082660675	Transmittal of Levy Nuclear Plant Units 1 and 2 (LNP), LNP COLA Supplemental Information. (45 Pages)	Letter	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030 PROJ0756
9/15/2008	ML082560578	United States Nuclear Regulatory Commission Progress Energy Florida, Inc. Notice of Receipt and Availability of Application for a Combined License. (2 Pages)	Federal Register Notice	NRC/NRO/DNRL/AP1000B1		05200029 05200030 PROJ0756
9/15/2008	ML082460287	Acknowledgement of Receipt of Combined License Application for Levy Co, Units 1 and 2. (5 Pages)	Federal Register Notice Letter	NRC/NRO/DNRL/AP1000B1	Progress Energy Co	05200029 05200030 PROJ0756
9/18/2008	ML102030019	Levy Nuclear Plant Units 1 and 2 Responses to RAI Comments on Cross Florida Barge Canal Recreational Access Permit. (20 Pages)	Letter Report, Miscellaneous	Progress Energy Co Progress Energy Florida, Inc	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
9/22/2008	ML101930576	Levy DEIS - Ch 2 Reference NMFS 2008 Shad. (4 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030

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9/29/2008	ML082701117	10/9/2008 Notice of Forthcoming Meeting with AP1000 Design-Centered Working Group (DCWG) to Discuss Various Topics of Interest. (8 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/AP1000B1	NRC/NRO/DNRL/AP1000B1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0756 PROJ0763
9/30/2008	ML12017A169	Report -- The Corps of Engineers, Jacksonville District, U. S. Fish and Wildlife Service, Jacksonville Ecological Services Field Office and State of Florida Effect Determination Key for the Wood Stork in Central and North Peninsular Florida. (10 Pages)	Report, Technical	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO	05200029 05200030
10/6/2008	ML082760222	Acceptance Review for the Levy County Nuclear Power Plant Units 1 and 2 Combined License Application. (10 Pages)	Acceptance Review Letter Letter Request for Additional Information (RAI)	NRC/NRO/DNRL/AP1000B1	Progress Energy Co	05200029 05200030

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10/6/2008	ML082760254	NRC Progress Energy Florida, Inc., Acceptance For Docketing Of An Application For Combined License For Levy County Nuclear Power Plant Units 1 and 2.52-030. (2 Pages)	Federal Register Notice	NRC/NRO/DNRL/AP1000B1		05200029 05200030
10/6/2008	ML082800421	Press Release-08-183: NRC Accepts Application for New Reactors at Levy County Site in Florida. (1 Pages)	Press Release	NRC/OPA		05200029 05200030
10/9/2008	ML083090674	NuStart Energy AP1000 Design-Centered Work Group Presentation. (18 Pages)	Meeting Agenda Meeting Briefing Package/Handouts Slides and Viewgraphs	NuStart Energy Development, LLC	NRC/NRO	05200014 05200015 05200018 05200019
10/9/2008	ML083090702	NuStart Technical Issues Presentation. (33 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NuStart Energy Development, LLC	NRC/NRO	05200014 05200015 05200018 05200019

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10/10/2008	ML082490566	Request to Cooperate with the Nuclear Regulatory Commission on the Environmental Impact Statement for the Levy Nuclear Plant Units 1 and 2 Combined License Application. (5 Pages)	Letter	NRC/NRO/DSER	US Dept of the Army	05200029 05200030 PROJ0756
10/14/2008	ML083360192	FRN - Official Acceptance Review for Combined License Application and Docketing for Levy Coun ty, Units 1 and 2 (3 Pages)	Federal Register Notice	NRC/NRO/DNRL/NWE1		05200029 05200030
10/14/2008	ML090700469	Comment (1) of Emily Casey on Behalf of Environmental Alliance of North Florida, and Nature Coast Serria Club Opposing Levy County Nuclear Plant, Units 1 & 2, COLA. (25 Pages)	General FR Notice Comment Letter	Environmental Alliance of North Florida Nature Coast Serria Club	NRC/ADM/DAS/RDEB	05200029 05200030
10/14/2008	ML082401332	Maintenance of Reference Materials at the Coastal Region Library Related to the Environmental Review of the Levy Nuclear Plant Combined License Application. (2 Pages)	Letter	NRC/NRO/DSER/EPB2	Citrus County, FL	05200029 05200030
10/14/2008	ML082401350	Maintenance of Reference Materials at the Dunnellon Branch Library Related to the Environmental Review of the Levy Nuclear Plant Combined License Application. (2 Pages)	Letter	NRC/NRO/DSER/RAP2	Dunnellon, FL	05200029 05200030

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10/14/2008	ML082480634	Levy County COL, Maintenance of Reference Materials at the Bronson Public Library Related to the Environmental Review. (2 Pages)	Letter	NRC/NRO/DSER/RAP2	Levy County, FL, Bronson Public Library	05200029 05200030
10/16/2008	ML083030085	Levy, Units 1 and 2 - Notice to Local Executives. (3 Pages)	Letter	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/17/2008	ML082830024	Federal Register Notice of Intent to Prepare and Environmental Impact Statement and Conduct Scoping. (10 Pages)	Federal Register Notice Letter	NRC/NRO/DSER	Progress Coal Co Progress Energy Co	05200029 05200030
10/22/2008	ML082970573	Task Order No. 050 Under Delivery Order No. NRC-42-07-036. (42 Pages)	ACQ-Contract Task Order	NRC/ADM/DC	Information Systems Labs, Inc ISL, Inc	05200029 05200030 PROJ0756
10/22/2008	ML082970690	Task Order No. 049 Under Delivery Order No. NRC-42-07-036. (32 Pages)	ACQ-Contract Task Order	NRC/ADM/DC	Information Systems Labs, Inc ISL, Inc	05200029 05200030 PROJ0756
10/22/2008	ML082830109	Changes In The Processing Of Requests For Additional Information - Levy County Nuclear Plants Units 1 And 2 Combined License Application. (6 Pages)	Letter	NRC/NRO/DNRL/AP1000B1	Progress Energy Florida, Inc	05200029 05200030
10/24/2008	ML083010028	Federal Register Notice of Intent to Prepare an EIS and Conduct Scoping Related to the Levy Nuclear Power Plant, Units 1 and 2. (3 Pages)	Federal Register Notice	NRC/NRO		05200029 05200030

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10/28/2008	ML083010459	11/7/2008-Notice of Forthcoming Meeting with AP1000 Design-Centered Working Group, to Discuss Various Topics of Interest. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/AP1000B1	NRC/NRO/DNRL/AP1000B1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0756 PROJ0763
10/29/2008	ML083020518	11/12/2008 - Notice of Meeting with Progress Energy to Discuss Levy County Units 1 and 2 Geotechnical Topics. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/AP1000B1	NRC/NRO/DNRL/AP1000B1	05200029 05200030
11/4/2008	ML083080082	208/11/12-Cancelled Forthcoming Meeting with Progress Energy to Discuss Levy County Units 1 and 2 Geotechnical Topics. (7 Pages)	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/AP1000B1	NRC/NRO/DNRL/AP1000B1	05200029 05200030
11/4/2008	ML083090605	11/12/2008 Cancelled Notice of Meeting with Progress Energy To Discuss Levy County Units 1 and 2 Geotechnical Topics. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/AP1000B1	NRC/NRO/DNRL/AP1000B1	05200029 05200030

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11/4/2008	ML083090733	Status of Question handout. (1 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO		05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0763
11/5/2008	ML082740519	Levy County letter to State Historic Preservation Officer - Request For Participation in the Scoping Process for the Proposed Levy County Nuclear Plant, Units 1 and 2, Combined License Application Review. (7 Pages)	Letter	NRC/NRO/DSER/EPB2	State of FL, Div of Historical Resources	05200029 05200030
11/5/2008	ML082740531	Letter re: Request for Participation in the Scoping Process for the Environmental Review of the Levy County, Units 1 and 2, Combined License Application. (7 Pages)	Letter	NRC/NRO/DSER/RAP2	Miccosukee Indian Tribe	05200029 05200030
11/5/2008	ML082740536	Request for Participation in the Scoping Process for the Environmental Review of the Levy County, Units 1 and 2,	Letter	NRC/NRO/DSER/RAP2	Seminole Tribe of Florida	05200029 05200030

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		Combined License Application. (7 Pages)				
11/5/2008	ML082750414	Levy Nuclear Plant, Units 1 & 2, Ltr., Request for Participation in the Environmental Scoping Process and a List of Protected Species Within the Area Under Evaluation, Combined License Application Review. (8 Pages)	Letter	NRC/NRO/DSER/EPB2	US Dept of Commerce, National Marine Fisheries Service	05200029 05200030
11/5/2008	ML082750418	Request for Participation in the Environmental Scoping Process and a List of Protected Species Within the Area Under Evaluation for the Levy Nuclear Plant, Units 1 & 2, Combined Licence Application Review. (8 Pages)	Letter	NRC/NRO/DNRL/EPB2	US Dept of Interior, Fish & Wildlife Service	05200029 05200030
11/5/2008	ML083100612	Consultation Letter to DHS For Acceptance of Levy COLA. (2 Pages)	Letter	NRC/NSIR/DSP/DDRSR/RSPLB	US Dept of Homeland Security, Office of Infrastructure Protection	05200029 05200030
11/6/2008	ML082740502	Request for Participation in the Scoping Process for the Proposed Levy County Nuclear Plant, Unit 1 and 2, Combined License Application Review. (8 Pages)	Letter	NRC/NRO/DSER/RAP2	US Advisory Council On Historic Preservation	05200029 05200030

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11/6/2008	ML082750434	Request for Participation in the Scoping Process and List of State Listed Protected Species for the Environmental Review for the Levy Nuclear Plant, Units 1 and 2, Combined License Application Review. (8 Pages)	Letter	NRC/NRO/DSER/RAP2	State of FL, Fish and Wildlife Conservation Commision	05200029 05200030
11/6/2008	ML083240397	Review of Bellefonte Requests for Additional Information for Applicability to Shearon Harris Nuclear Power Plants Units 2 and 3 and Levy Nuclear Power Plants Units 1 and 2. (2 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200014 05200015 05200022 05200023 05200029 05200030
11/10/2008	ML090490310	WRPC Preliminary Statement of Issues for the Levy County Nuclear Plant Site Certification Application. (9 Pages)	Letter	Withlacoochee Regional Planning Council	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
11/13/2008	ML090150542	SCA, FWC Preliminary Statement of Issues, Progress Energy Florida Levy Nuclear Power Plant, Power Plant and Associated Facilities, Levy County, Florida. (2 Pages)	Letter	State of FL, Fish and Wildlife Conservation Commision	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030

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11/13/2008	ML083050649	10/9/2008 Summary of Category 1 Public Meeting With the AP1000 Design-Centered Working Group To Discuss Various Topics of Interest. (10 Pages)	Meeting Summary Memoranda	NRC/NRO/DNRL	NRC/NRO/DNRL	05200014 05200015 05200018 05200019
11/14/2008	ML082961065	12/4/2008-Notice of Public Meeting to Discuss Environmental Scoping Process for the Levy Nuclear Plant, Units 1 & 2, Combined License Application. (12 Pages)	Memoranda	NRC/NRO/DSER/RAP2	NRC/NRO/DSER/RAP2	05200029 05200030
11/18/2008	ML12068A222	Draft Hydrology Safety Audit Trip Report Deliverable for JCN Q-4007, Task 35, Subtask 1b. (68 Pages)	Audit Report Letter	Battelle Memorial Institute, Pacific Northwest National Lab	NRC/NRO/DNRL	05200029 05200030
11/18/2008	ML083300261	Levy, Units 1 and 2, Supplemental Information for Hydrology Audit - Calculation Native Files. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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11/19/2008	ML083240041	Press Release-08-212: NRC Meeting with Public Dec. 4 on Environmental Scoping for Levy County New Reactor Application. (2 Pages)	Press Release	NRC/OPA		05200029 05200030
11/20/2008	ML083460248	Levy Nuclear Plant, Units 1 and 2 - Response to Request for Additional Information re: Complex Nature of Levy Site Geotechnical Characteristics. (53 Pages)	Graphics incl Charts and Tables Letter	Progress Energy Carolinas, Inc Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/21/2008	ML083100611	Progress Energy Florida, Inc. - Opportunity To Petition For Leave To Intervene And Order Imposing Procedures For Access To Sensitive Unclassified Non-Safeguards Information And Safeguards Information For Contention Preparation. (6 Pages)	Letter	NRC/NRO/DNRL/AP1000B1	Progress Energy Florida, Inc	05200029 05200030

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11/21/2008	ML083170860	11/7/2008 - Summary of Category 1 Public Meeting with the AP1000 Design-Centered Working Group to Discuss the Status of Items of Interest. (12 Pages)	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL	NRC/NRO/DNRL	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0763
11/24/2008	ML091180051	Progress Energy, Levy COL, Units 1 & 2, Essential Fish Habitat Requirements for Species Managed by the Gulf of Mexico Fishery Management Council: Ecoregion 2, Tarpon Springs to Pensacola Bay, Florida. (3 Pages)	- No Document Type Applies	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
11/25/2008	ML083300112	208/11/25 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 001 RELATED TO SRP SECTION 15.00.03 FOR THE LEVY COUNTY NUCLEAR PLANT, UNITS 1 and 2 COMBINED LICENSE APPLICATION (6 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/NWE1	05200029 05200030

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11/29/2008	ML083470108	208/11/29 - Comment (2) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
11/29/2008	ML083470113	208/11/29 - Comment (3) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/1/2008	ML083190842	Levy County Combined License Application - Safety Review Schedule. (3 Pages)	Letter	NRC/NSIR/DPR	US Federal Emergency Mgmt Agency (FEMA)	05200029 05200030
12/1/2008	ML083520105	Transcript of the Levy Scoping Meeting Transcript-Evening Session, Meeting, December 4, 2008, Pages 1-79. (95 Pages)	Meeting Transcript	NRC/NRO		05200029 05200030
12/2/2008	ML083100759	Notice of Hearing and Opportunity to Petition for Leave to Intervene and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information. (18 Pages)	Federal Register Notice	NRC/SECY		05200029 05200030
12/2/2008	ML090490289	Levy County Commissioners SCA Final Agency Report and Recommended Conditions. (16 Pages)	Letter	Levy County, FL, County Commissioners	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
12/4/2008	ML083300067	12/4/2008-Agenda for Public Scoping Meeting Related to the Levy Nuclear Plant Combined License Application. (5 Pages)	Federal Register Notice Meeting Agenda	NRC/NRO		05200029 05200030

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12/4/2008	ML083470116	208/12/04 - Comment (4) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/4/2008	ML083470117	208/12/04 - Comment (5) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/4/2008	ML083460103	Letter of Opposition to the Levy County Nuclear Plant Railroad Crossing Near the Villages of Rainbow Springs. (64 Pages)	Letter	- No Known Affiliation	NRC/NRO	05200029 05200030
12/4/2008	ML083520102	Transcript of Levy Nuclear Plant Combined License Application Public Meeting: Afternoon Session, December 04, 2008, Pages 1-115. (154 Pages)	Meeting Transcript	NRC/NRO		05200029 05200030
12/4/2008	ML083300066	12/4/2008-Public Scoping Meeting, Levy Units 1 & 2, Combined License Application - Presentation Slides. (21 Pages)	Slides and Viewgraphs	NRC/NRO NRC/OCM		05200029 05200030
12/5/2008	ML083470118	208/12/05 - Comment (6) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/5/2008	ML083500252	208/12/05 - Comment (8) E-mail regarding LEVY – EIS Scoping (4 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/8/2008	ML083430114	FRN - Official Notice of Hearing and Opportunity to Petition for Leave to Intervene for Levy County, Units 1 and 2 (2 Pages)	Federal Register Notice	NRC/NRO/DN RL/NWE1		05200029 05200030
12/8/2008	ML083500251	208/12/08 - Comment (7) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030

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12/8/2008	ML083430219	Press Release-08-220: NRC Announces Opportunity to Participate in Hearing on New Reactor Application for Levy County Site. (2 Pages)	Press Release	NRC/OPA		05200029 05200030
12/10/2008	ML090480672	Florida DEP SCA Final Agency Report and Recommended Conditions for Levy Nuclear Plant. (2 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
12/11/2008	ML083510905	208/12/11 - Comment (10) E-mail regarding LEVY – EIS Scoping (5 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/11/2008	ML090650566	Letter Regarding Review of Proposed Levy County Nuclear Plant, Unit 1 & 2 for Possible Impact to Historic Properties. (1 Pages)	Letter	State of FL, Div of Historical Resources	NRC/NRO/DSER/ RAP3	05200029 05200030
12/12/2008	ML090210653	Withlacoochee Regional Planning Council, Final Agency Report for Progress Energy Florida's Levy Nuclear Plant Units 1 and 2 Site Certification Application. (16 Pages)	Letter	Withlacoochee Regional Planning Council	NRC/NSIR State of FL, Dept of Environmental Protection	05200029 05200030
12/12/2008	ML090490299	WRPC SCA Final Agency Report and Recommended Conditions. (16 Pages)	Letter Report, Miscellaneous	Withlacoochee Regional Planning Council	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
12/15/2008	ML083590309	Shearon Harris Units 2 & 3, Levy Units 1 & 2, Summary Identification of Concurrence with Standard Content in	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030

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		Response to Requests for Additional Information. (32 Pages)				
12/15/2008	ML090490275	Florida Department of Transportation SCA Final Agency Report and Recommended Conditions. (5 Pages)	Letter Report, Miscellaneous	State of FL, Dept of Transportation	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
12/16/2008	ML101930601	Levy DEIS Reference - USDA 2002 The Census of Agriculture Vol 1 Chapter 2. (5 Pages)	Database File	US Dept of Agriculture, National Agricultural Statistics Service	NRC/NRO	05200029 05200030
12/16/2008	ML083510834	208/12/16 - Comment (9) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/16/2008	ML083540420	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 002 Related to Condensate Cleanup System. (3 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/16/2008	ML090150465	Department of Community Affairs Final Agency Report, Progress Energy Florida Application for Site Certification of Levy Nuclear Plant Units 1 and 2. (2 Pages)	Letter	State of FL, Dept of Community Affairs	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
12/16/2008	ML090490295	Southwest Florida Water Management District - Site Certification Application Final Agency Report and Recommended Conditions. (19 Pages)	Report, Miscellaneous	Southwest Florida Water Management District	NRC/NRO	05200029 05200030

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12/17/2008	ML090210521	12/17/08 FEMA Acceptance Review of Offsite Emergency Response Plans for Levy Nuclear Plant COLA. (1 Pages)	Letter	US Dept of Homeland Security US Federal Emergency Mgmt Agency (FEMA)	NRC/NSIR/DPR/DDEP/LIB	05200029 05200030
12/17/2008	ML090260730	Levy Nuclear Power Plant, Units 1 and 2, Supplemental Information for Environmental Audit - Geographic Information System Data. (3 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/18/2008	ML083510263	8/21/08, Meeting Summary - Public Meeting on Levy County Combined License. (7 Pages)	Meeting Summary	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200029 05200030
12/19/2008	ML090400336	Comment (3) of Heinz J. Mueller on Behalf of US Environmental Protection Agency, Region 4 to Support Development of Environmental Impact Statement for Combined License (COL) Application for Levy Nuclear Plant, Units 1 & 2. (3 Pages)	General FR Notice Comment Letter	US Environmental Protection Agency (EPA)	NRC/ADM/DAS/RDEB	05200029 05200030
12/19/2008	ML083590246	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 001 re: Design Basis Accidents Radiological Consequence Analyses. (18 Pages)	Graphics incl Charts and Tables Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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12/19/2008	ML083650409	Levy Nuclear Power Plant, Units 1 and 2 - Supplemental Information for Environmental Audit - Calculation Native Files. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/19/2008	ML090210290	Levy, Units 1 & 2, Supplemental Information for Environmental Audit - Calculation Native Files. (3 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/19/2008	ML083540619	7/28/08 - Meeting Summary, Public Meeting with Progress Energy to Discuss Geotechnical Topics Related to the Levy County, Florida Site. (8 Pages)	Meeting Agenda Meeting Summary	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200029 05200030
12/22/2008	ML083640010	208/12/22 - Comment (11) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/RAP2	05200029 05200030
12/22/2008	ML083640011	208/12/22 - Comment (12) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/RAP2	05200029 05200030
12/22/2008	ML083640012	208/12/22 - Comment (13) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/RAP2	05200029 05200030
12/22/2008	ML083640013	208/12/22 - Comment (14) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/RAP2	05200029 05200030
12/22/2008	ML083640014	208/12/22 - Comment (15) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/RAP2	05200029 05200030
12/22/2008	ML083640015	208/12/22 - Comment (16) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/RAP2	05200029 05200030

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12/22/2008	ML083640016	208/12/22 - Comment (17) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/22/2008	ML083640018	208/12/22 - Comment (18) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/22/2008	ML083640019	208/12/22 - Comment (19) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640020	208/12/23 - Comment (20) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640021	208/12/23 - Comment (21) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640022	208/12/23 - Comment (22) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640023	208/12/23 - Comment (23) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640024	208/12/23 - Comment (24) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640026	208/12/23 - Comment (25) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640028	208/12/23 - Comment (26) E-mail regarding LEVY – EIS Scoping (6 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083640030	208/12/23 - Comment (27) E-mail regarding LEVY – EIS Scoping (15 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030

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12/23/2008	ML083640031	208/12/23 - Comment (28) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML090060933	208/12/23 - Comment (29) E-mail regarding LEVY – EIS Scoping (8 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/23/2008	ML083460121	12/4/2008 - Summary of Public Scoping Meetings to Discuss the Environmental Review of the Levy Nuclear Plant, Units 1 and 2. (9 Pages)	Meeting Summary Memoranda	NRC/NRO/DSER	NRC/NRO/DSER	05200029 05200030
12/24/2008	ML083580064	Maintenance of Reference Materials at AF Knotts Public Library Related to the Environmental Review of Levy Nuclear Plant Combined License Application. (2 Pages)	Letter	NRC/NRO/DSER/RAP2	Yankeetown, FL, AF Knotts Public Library	05200029 05200030
12/28/2008	ML090060934	208/12/28 - Comment (30) E-mail regarding LEVY – EIS Scoping (2 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
12/29/2008	ML083640462	208/12/29 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 004 RELATED TO SRP SECTION 14.02-INITIAL PLANT TEST PROGRAM FOR THE LEVY COUNTY NUCLEAR PLANT UNITS 1 AND 2 COMBINED LICENSE APPLICATION (6 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030

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12/29/2008	ML083640520	208/12/29 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 005 RELATED TO SRP SECTION 14.02-INITIAL PLANT TEST PROGRAM FOR THE LEVY COUNTY NUCLEAR PLANT UNITS 1 AND 2 COMBINED LICENSE APPLICATION (6 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030
12/30/2008	ML090700471	Comment (4) of Emily Casey on Behalf of Environmental Alliance of North Florida, and Nature Coast Serria Club Opposing Levy County Nuclear Plant, Units 1 & 2 COLA. Submits Documents as Attachment to Information Submitted on 12/13/2008. (58 Pages)	General FR Notice Comment Letter	Environmental Alliance of North Florida Nature Coast Serria Club	NRC/ADM/DAS/R DEB	05200029 05200030
12/31/2008	ML101930618	Levy DEIS Reference - NMFS and FWS 2008 Loggerhead Sea Turtle. (325 Pages)	Environmental Impact Statement	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA) US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030

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12/31/2008	ML083530210	1/15/2009 -Notice of Meeting with AP1000 DCWG to Discuss Various Topics of Interest (TAC Q00118). (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL	NRC/NRO/DNRL	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0763
12/31/2008	ML090060910	1/15/2009 Revised Meeting Notice, Meeting With AP1000 Design-Centered Working Group. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0763
1/6/2009	ML090060935	209/1/06 - Comment (31) E-mail regarding LEVY – EIS Scoping (4 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/RAP2	05200029 05200030

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1/6/2009	ML090060936	209/1/06 - Comment (32) E-mail regarding LEVY – EIS Scoping (4 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
1/6/2009	ML090060937	209/1/06 - Comment (33) E-mail regarding LEVY – EIS Scoping (4 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
1/6/2009	ML090060302	Public Outreach Meeting on Levy County Power Station Unit 1 and 2 Combined License Application. (16 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO/DN RL/NWE1		05200029 05200030
1/12/2009	ML090120781	209/1/12 - Comment (34) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
1/12/2009	ML090120793	209/1/12 - Comment (35) E-mail regarding LEVY – EIS Scoping (3 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
1/12/2009	ML090150212	Levy Nuclear Power Plant, Units 1 & 2 - Response to Request for Additional Information Letter No. 003 Related to Information Systems Important to Safety. (6 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/12/2009	ML090480669	Florida DEP Final Staff Analysis Report for the Levy Nuclear Plant SCA. (300 Pages)	Report, Technical	State of FL, Dept of Environmental Protection	NRC/NRO	05200029 05200030
1/13/2009	ML090920333	Levy, Units 1 and 2, Attachment 1 - UMAM Scores for Wetlands Located Within 300 Feet of Primary Wetland Impact Areas. (5 Pages)	Graphics incl Charts and Tables	Bioloical Research Associates	NRC/NRO Progress Energy Co Progress Energy Florida, Inc	05200029 05200030

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1/13/2009	ML090920332	Levy, Units 1 and 2, Wetland Mitigation Plan Progress Energy - Levy Nuclear Plant & Transmission Line, 5A. (4 Pages)	Graphics incl Charts and Tables Report, Technical	Bioloical Research Associates	NRC/NRO Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
1/13/2009	ML092570311	Wetland Mitigation Plan for the Progress Energy Levy Nuclear Plant and Associated Transmission Lines. (79 Pages)	Operating Plan	Biological Research Associates	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/16/2009	ML101930582	Levy DEIS - Ch 2 Reference NMFS 2009 Night Shark. (4 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
1/16/2009	ML090610055	Levy COLA Review USACE Letter Concerning Elimination of Inglis Lock Structure. (9 Pages)	Drawing Letter Map	US Dept of the Army, Corps of Engineers	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/16/2009	ML101930580	Levy DEIS - Ch 2 Reference NMFS 2009 Salt Marsh Top Minnow. (3 Pages)	Environmental Impact Statement	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
1/16/2009	ML090070233	Letter to Mary Olson Re: Levy Nuclear Plant Environmental Scoping Comment Period. (6 Pages)	Letter	NRC/NRO/DSER	Nuclear Information & Resource Service (NIRS)	05200029 05200030
1/22/2009	ML111920483	Hernando County, Florida, Federally Listed Species, January 22, 2009, U.S. Fish	Environmental Report	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030

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		and Wildlife Service. (1 Pages)				
1/23/2009	ML090230724	209/1/23 - Comment (36) E-mail regarding LEVY – EIS Scoping (6 Pages)	General FR Notice Comment Letter	Public Commenter	NRC/NRO/DSER/ RAP2	05200029 05200030
1/23/2009	ML090291010	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 004 Related to Initial Plant Test Program. (3 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/23/2009	ML090291012	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 005 Related to Initial Plant Test Program. (4 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/28/2009	ML090330159	Levy Nuclear Power Plant, Units 1 & 2 - AP1000 Combined License Application Departure Report Update. (2 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/30/2009	ML091260537	338884-PI-03-14, Revision 0, "Supplemental 316(b) Information on Potential Impacts to Aquatic Biota at LNP." (60 Pages)	Environmental Monitoring Report Memoranda	CH2M Hill	NRC/NRO	05200029 05200030
1/30/2009	ML091260539	338884-PI-03-14, Revision 0, "Levy, Units 1 & 2, Aquatic Ecology Sampling Report," Page 1 of 48 - A7 of A211, Continue. (240 Pages)	Environmental Monitoring Report Memoranda	CH2M Hill	NRC/NRO	05200029 05200030

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1/30/2009	ML091260543	338884-PI-03-14, Revision 0, "Levy, Units 1 & 2, Aquatic Ecology Sampling Report," A-2, CFBC Surface Water Field Parameter Data, Page A8 of A211 - End. (204 Pages)	Environmental Monitoring Report Memoranda	CH2M Hill	NRC/NRO	05200029 05200030
1/31/2009	ML102040292	Levy EIS Reference - NMFS 2009 - Recovery Plan for Smalltooth Sawfish. (102 Pages)	Environmental Monitoring Report	US Dept of Commerce, National Marine Fisheries Service US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
2/2/2009	ML090370447	Levy, Unit 1 and 2, Supplement 1, Response to Request for Additional Information Letter No. 003 Related to Information Systems Important to Safety. (6 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/3/2009	ML090610058	Levy COLA Review USACE Letter Concerning No Permit Required Request for Roller Compacted Test Pad. (19 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers	05200029 05200030
2/4/2009	ML090400618	Shearon Harris, Units 2 & 3 and Levy, Units 1 & 2 - Contracts for Disposal of High-Level Radioactive Waste. (2 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030

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2/5/2009	ML090610047	Levy COLA Review USACE Letter Concerning Roller Compacted Test Pad. (7 Pages)	Letter	US Dept of the Army, Corps of Engineers	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
2/9/2009	ML101930617	Levy DEIS Reference - NMFS 2009 Leatherback Turtle. (6 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
2/9/2009	ML090720063	Levy COL Application - U.S. Fish and Wildlife Response to Scoping Letter. (2 Pages)	Letter	US Dept of Interior, Fish & Wildlife Service	NRC/NRO/DSER	05200029 05200030
2/13/2009	ML090260352	2/13/2009 Summary of Meeting with the AP1000 Design-centered Working Group to Discuss the Status of Items of Interest. (9 Pages)	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0763
2/17/2009	ML090620074	Notification and Request for Consultation and Participation in the Scoping Process for Unit 1 and 2, Combined License Application Review for the Levy County Nuclear Plant	Letter	US Advisory Council On Historic Preservation	NRC/NRO/DSER/RAP3	05200029 05200030

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		Near Inglis, Florida. (2 Pages)				
2/18/2009	ML090350045	Levy County Nuclear Power Plant Units 1 and 2 Combined License Application Review Schedule. (3 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Co	05200029 05200030
2/19/2009	ML090550910	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 006 Related to Fire Protection Program. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/19/2009	ML090550912	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 007 Related to Fire Protection Program. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/24/2009	ML090360596	Request for Additional Information (RAI) for Levy County. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Carolinas, Inc	05200029 05200030
2/24/2009	ML090500793	Enclosure 1 - Levy RAIs. (32 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER	Progress Energy Carolinas, Inc	05200029 05200030
2/24/2009	ML090500833	Enclosure 2 - Levy RAIs for Combined Operating License Application. (6 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER	Progress Energy Carolinas, Inc	05200029 05200030
2/26/2009	ML101310097	Notice of Final AIR Construction Permit for the Crystal River Energy Complex to Satisfy the	Letter	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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		Requirements of Best Available Retrofit Technology. (20 Pages)				
3/2/2009	ML090640914	Levy Nuclear Power Plant Units 1 & 2, Response to Request for Additional Information Letter No. 008 Related to Control Room Habitability System. (6 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/11/2009	ML091260533	338884-PI-03-14, Revision 0, "Assessment of Community Services Near Proposed Levy Nuclear Plant, Florida." (28 Pages)	Memoranda Report, Technical	CH2M Hill	NRC/NRO	05200029 05200030
3/12/2009	ML090890334	Progress Energy, Levy COL, Units 1 & 2, Florida DEP, Proposed Conditions of Certification, 4th Amended Final. (91 Pages)	Environmental Monitoring Report	State of FL, Dept of Environmental Protection	NRC/NRO/DSER	05200029 05200030
3/13/2009	ML090610165	Addendum to Request for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Co	05200029 05200030
3/13/2009	ML090610172	USACE RAI Request for Levy LEDPA Analysis. (2 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3	Progress Energy Co	05200029 05200030
3/16/2009	ML090830369	Levy Nuclear Power Plant, Units 1 and 2 - Submittal of Site Selection Study in	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Accordance with 10 CFR 2.390. (4 Pages)				
3/16/2009	ML090890419	Progress Energy, Levy COL, Units 1 & 2, USACE Public Notice. (26 Pages)	Letter Map	US Dept of the Army, Corps of Engineers	NRC/NRO	05200029 05200030
3/17/2009	ML090830690	Levy Nuclear Power Plant, Units 1 and 2 - Supplemental Meteorological Data in Support of Combined License Application - Second Year of Data. (4 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/18/2009	ML090790313	Shearon Harris, Units 2 and 3, Levy Nuclear, Units 1 and 2 - 10 CFR 50.46 Annual Report for the AP1000 Standard Plant Design. (3 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
3/23/2009	ML091230014	Levy COL, Units 1 & 2, Response to USACE Public Notice from the National Oceanic and Atmospheric Administration. (2 Pages)	Letter	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
3/27/2009	ML090920334	Levy, Units 1 and 2, UMAM Scores for Wetland Mitigation Areas. (11 Pages)	Graphics incl Charts and Tables	Progress Energy Co Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/27/2009	ML090910125	Levy Nuclear Units 1 & 2, Supplemental Information for Environmental Review: Native Files - Cooling Tower	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Plume and Thermal Plume Modeling. (7 Pages)				
3/27/2009	ML090920287	Levy, Units 1 and 2, Response to USACE Request for Additional Information Regarding the Environmental Review. (29 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/31/2009	ML090970104	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 010 Related to Quality Assurance Program Description. (39 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/31/2009	ML091230015	Levy COL, Units 1 & 2, Response to USACE Public Notice from Ross Hammock Ranch. (5 Pages)	Letter	Ross Hammock Ranch, Inc	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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3/31/2009	ML090900316	4/9/2009 Meeting Notice, Meeting with AP1000 Design-Centered Working Group. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0763
3/31/2009	ML091260548	Levy, Units 1 & 2, "Traffic Study." (266 Pages)	Report, Miscellaneous	Kimley-Horn & Associates, Inc	NRC/NRO Shaw Group, Inc	05200029 05200030
4/1/2009	ML090930718	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 012 Related to Health Physics. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/1/2009	ML090960342	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 013 Related to Environmental Radiation Standards. (5 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/1/2009	ML090960343	Levy Nuclear Power Plant, Units 1 and 2 - Response to Request for Additional Information Letter No. 015 Related to Health Physics. (15 Pages)	Letter	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030

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4/1/2009	ML090960345	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 016 Related to General Climate. (22 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/1/2009	ML090960348	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 011 Related to Disproportionate Number of Calm Winds. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/1/2009	ML090960351	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 014 Related to Potential Recirculation Pathway. (3 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/6/2009	ML091000136	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 019 Related to Long Term Atmospheric Dispersion Estimates for Routine Releases. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/6/2009	ML091000137	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 021 Related to Accidental Release of Radioactive Liquid Effluents in Ground and Surface Waters. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/6/2009	ML091000138	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 018 Related to Short	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Term Atmospheric Dispersion Estimates for Accident Release. (12 Pages)				
4/6/2009	ML091000139	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 017 Related to Onsite Meteorological Measurements Programs. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/6/2009	ML091000140	Levy Nuclear Power Plant, Unit 1 and 2, Response to Request for Additional Information Letter No. 022 Related to Emergency Planning. (9 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/6/2009	ML091030063	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 020 Related to Identification of Potential Hazards in Site Vicinity. (21 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/9/2009	ML091070009	Progress Energy, Levy COL, Units 1 & 2, Florida Fish & Wildlife Conservation Commission Correspondence with U.S. Army Corps of Engineers. (2 Pages)	Letter	State of FL, Fish and Wildlife Conservation Commision	NRC/NRO/DSER US Dept of the Army	05200029 05200030
4/9/2009	ML090990105	Press Release-09-068: Licensing Board to Hear Oral Argument April 20-21 in Levy County New Nuclear	Press Release	NRC/OPA		05200029 05200030

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		Reactor Application. (2 Pages)				
4/10/2009	ML090980269	Levy Nuclear Power Plant, Units 1 & 2 - Response to Request for Additional Information Letter No. 009 Related to Stability of Subsurface Materials and Foundations.	Letter (Package)	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/13/2009	ML091070118	Progress Energy, Levy COL, Units 1 & 2, U.S. Army Corps of Engineers Jurisdictional Determination for Triangle Parcel. (20 Pages)	Environmental Monitoring Report Letter Map Photograph	US Dept of the Army, Corps of Engineers, Jacksonville District	Hopping, Green & Sams NRC/NRO	05200029 05200030
4/13/2009	ML091070494	Levy, Units 1 & 2, Supplement 2 to Response to Request for Additional Information Letter No. 003 Related to Information Systems Important to Safety. (8 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/13/2009	ML091230011	Levy COL, Units 1 & 2, Response to USACE Public Notice from the U.S. Environmental Protection Agency. (3 Pages)	Letter	US Environmental Protection Agency (EPA)	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
4/17/2009	ML091130422	Levy, Units 1 and 2, XOQDOQ Input File for the Period February 1, 2007 - January 31, 2009 in ASCII Text Data Format. (3 Pages)	Database File	Progress Energy Co Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/17/2009	ML091130423	Levy, Units 1 and 2, XOQDOQ Output file for the Period February 1, 2007 - January 31, 2009 in ASCII Text Data Format. (19 Pages)	Database File	Progress Energy Co Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/17/2009	ML091130424	Levy, Units 1 and 2, Draft Revision 1 of Environmental Report Tables 2.7-58 and 2.7-61, Long-Term X/Q Calculations for February 1, 2007 - January 31, 2009, Which Will Be Submitted in a Future COLA Revision. (16 Pages)	Environmental Report Graphics incl Charts and Tables	Progress Energy Co Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/17/2009	ML091130404	Levy, Units 1 and 2, Supplemental Meteorological Data in Support of Combined License Application - Two Year Chi Over Q Data. (3 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/23/2009	ML091180670	Levy Nuclear Plant, Units 1 and 2 - Supplemental Information in Support of Combined License Application - Purpose and Need Statement. (1 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/23/2009	ML091260532	Levy, Units 1 & 2 - Supplemental Information in Support of Combined License Application, Environmental Review. (1 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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4/27/2009	ML091200384	Shearon Harris, Units 2 & 3, Levy, Units 1 & 2, Summary Identification of Concurrence with Standard Content in Response to Requests for Additional Information. (10 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
4/28/2009	ML091200571	Levy Units 1 & 2, Changes to Fitness for Duty Program Information, Physical Security During Construction, and Physical Security Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC). (11 Pages)	Letter License-Fitness for Duty (FFD) Performance Report	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/28/2009	ML092600399	Trip Report - U.S. Nuclear Regulatory Commission Geotechnical and Geology Site Visit April 28-29, 2009 February 18, 2009 - Site Overview. (34 Pages)	Slides and Viewgraphs Trip Report	Progress Energy Co	NRC/NRO	05200029 05200030
4/30/2009	ML091040203	Progress Energy Corporation - Request for Withholding of Proprietary Information Related to Shearon Harris Nuclear Power Plant Units 2 and 3 and Levy Nuclear Power Plant Units 1 and 2. (13 Pages)	Letter Proprietary Information Review	NRC/NRO/DSER	Progress Energy Co	05200022 05200023 05200029 05200030
5/1/2009	ML091250350	Levy, Units 1 & 2, Notification to Withdrawal Request for a Limited Work Authorization. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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5/4/2009	ML091280261	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 023 Related to General and Financial Information. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/4/2009	ML091340502	Levy, Units 1 & 2, Submittal of Site Selection Study - Redacted Version. (2 Pages)	Letter (Package)	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/5/2009	ML091290001	Progress Energy, Levy COL, Units 1 & 2, Socioeconomic Field Notes for Levy County Visits August 20-21, 2007 and December 2-3, 2008. (11 Pages)	- No Document Type Applies	NRC/NRO/DSER		05200029 05200030
5/7/2009	ML091380291	Levy, Units 1 and 2, Crystal River Energy Complex Discharge Canal: Water Quality Sampling January and February 2009. (18 Pages)	Environmental Report	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
5/8/2009	ML091330202	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 026 Related to Administrative Procedures. (4 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/11/2009	ML101930583	Levy DEIS - Ch 2 Reference NMFS 2009 Sand Tiger Shark. (3 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
5/12/2009	ML091350200	Levy, Units 1 & 2, Supplemental Information -	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Water Quality Sampling Data. (1 Pages)				
5/12/2009	ML091320700	Progress Energy, Levy COL, Units 1 & 2, Correspondence with EPA Regarding December 2008 Scooping Letter.	Letter (Package)	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/12/2009	ML091320681	Progress Energy, Levy COL, Units 1 & 2, National Marine Fisheries Service Comments to Corps Public Notice.	Letter Map (Package)	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO/DSER/ RAP3 US Dept of the Army, Corps of Engineers, Jackson District	05200029 05200030
5/13/2009	ML091350065	Progress Energy, Levy COL, Units 1 & 2, Letter from USEPA to USACE. (7 Pages)	Letter	US Environmental Protection Agency (EPA)	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
5/13/2009	ML091320050	Levy, Units 1 and 2 - Response to Request for Additional Information Regarding the Environmental Review.	Letter (Package)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/19/2009	ML101930581	Levy DEIS - Ch 2 Reference NMFS 2009 Dusky Shark. (4 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030

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5/21/2009	ML091100248	April 9, 2009 Summary of Category 1 Public Meeting with the AP1000 Design-Centered Working Group to Discuss the Status of Items of Interest. (8 Pages)	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041 PROJ0763
5/27/2009	ML091490691	Letter - FEMA Final Requests for Additional Information (RAIs) for the Levy Nuclear Plant, Units 1 and Units 2 (LNP 1 and 2) Combined License (COL) Application. (1 Pages)	Letter	US Dept of Homeland Security US Federal Emergency Mgmt Agency (FEMA)	NRC/NSIR Progress Energy Carolinas, Inc	05200029 05200030
5/28/2009	ML091260469	Scoping Summary Report Related to the Environmental Scoping Process for the Levy Nuclear Power Plant, Units 1 and 2 Combined License Application. (109 Pages)	Environmental Impact Statement Memoranda	NRC/NRO/DSER/RAP3	NRC/NRO/DSER/RAP3	05200029 05200030
5/28/2009	ML091530134	Levy, Units 1 and 2, Supplement 1 to Response to Request for Additional Information Letter No. 014 Related to Potential	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Recirculation Pathway. (5 Pages)				
5/29/2009	ML091490750	Enclosure - FEMA's Final Response for Requests for Additional Information on Levy Combined License Application. (48 Pages)	Graphics incl Charts and Tables	US Dept of Homeland Security US Federal Emergency Mgmt Agency (FEMA)	NRC/NSIR	05200029 05200030
5/30/2009	ML111930503	Progress Energy, (16 Pages)	Annual Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
5/31/2009	ML092470589	Exhibit 8 - Simulated Incremental Surficial and Upper Floridan Aquifer Drawdown, ft; 60 years; 1.58 mgd (Color Version). (1 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
6/3/2009	ML091610300	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 024 Related to Management and Technical Support Organization. (18 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/3/2009	ML091610301	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 025 Related to Operating Organization. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/3/2009	ML091610302	Levy Units 1 & 2, Response to Request for Additional Information Letter No. 027 Related to Emergency Planning - Inspections,	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Tests, Analyses, and Acceptance Criteria. (38 Pages)				
6/8/2009	ML091340646	Letter to Mr. Harold Ross, President, Ross Hammock Ranch, Inc., regarding proposed Levy Nuclear Power Plant sited for Levy County, Florida. (3 Pages)	Letter	NRC/NRO/DSER/RAP3	Ross Hammock Ranch, Inc	05200029 05200030
6/8/2009	ML091630394	Levy County, Units 1 & 2, Response to Request for Additional Information Letter No. 029 Related to Stability of Subsurface Materials and Foundations. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/9/2009	ML091630393	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 030 Related to Stability of Subsurface Materials and Foundations. (15 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/9/2009	ML091630395	Levy County Nuclear Power Plant, Units 1 & 2, Partial Response to Request for Additional Information Letter No. 034 Related to Basic Geologic and Seismic Information. (30 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/10/2009	ML111930534	Warsaw Grouper (Epinephelus nigritus), Species of Concern, NOAA National Marine Fisheries Service. (3 Pages)	Environmental Monitoring Report	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030

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6/10/2009	ML091670291	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 028 Related to Emergency Planning - Evacuation Time Estimate. (128 Pages)	Evacuation Time Estimate/Report (ETE) Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/10/2009	ML091610441	Map - Figure 10-3, "Evacuation Routes for Citrus County. (1 Pages)	Evacuation Time Estimate/Report (ETE) Map	KLD Associates, Inc	NRC/NRO	05200029 05200030
6/10/2009	ML091610442	Figure 10-2, "Evacuation Routes for Marion and Levy Counties. (1 Pages)	Evacuation Time Estimate/Report (ETE) Map	KLD Associates, Inc	NRC/NRO	05200029 05200030
6/10/2009	ML091670293	ETE-2, Figure 1-2 - Levy Nuclear Plant Link-Node Network. (1 Pages)	Evacuation Time Estimate/Report (ETE) Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
6/10/2009	ML091670294	ETE-13, Figure 1. Population Loading within the Levy Nuclear Plant EPZ. (1 Pages)	Evacuation Time Estimate/Report (ETE) Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
6/15/2009	ML091680037	Levy Nuclear Power Plant, Units 1 and 2 - Response to Request for Additional Information Letter No. 036 Related to Hydrologic Engineering. (13 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/15/2009	ML091680038	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 038 Related to Potential Dam Failures. (14 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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6/17/2009	ML091480079	Levy, Units 1 and 2, Request for Withholding Information from Public Disclosure. (6 Pages)	Letter Proprietary Information Review	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
6/19/2009	ML092080465	Fax re: Questions to be discussed for the June 23 Teleconference for Levy. (8 Pages)	Facsimile	NRC/NRO/DSER/RAP3	Progress Energy Carolinas, Inc	05200029 05200030
6/21/2009	ML091720002	209/6/21 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 057 RELATED TO SRP SECTION 14.02 FOR THE LEVY COUNTY NUCLEAR PLANT UNITS 1 AND 2 COMBINED LICENSE APPLICATION (6 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/NWE1	05200029 05200030
6/23/2009	ML091560100	Levy, Units 1 and 2, Supplemental Request for Additional Information Regarding the Environmental Review of the Combined License Application. (9 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Carolinas, Inc	05200029 05200030
6/23/2009	ML091760622	Levy, Units 1 and 2, Response to Request for Additional Information- Letter No. 051 Related to Equipment and Floor Drainage System. (6 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091760625	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 054 Related to Turbine	Letter	Progress Energy Carolinas, Inc Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Building Closed Cooling Water System. (4 Pages)		Progress Energy Florida, Inc		
6/23/2009	ML091760626	Levy County, Units 1 and 2 - Response to Request for Additional Information Letter No. 045 Related to Probable Maximum Flood (PMF) on Streams and Rivers. (25 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091760672	Levy County Nuclear Power Plant, Units 1 and 2 - Supplemental Information for Environmental Audit Calculation Native Files. (3 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091770629	Levy Nuclear Power Plant, Unit 1 & 2, Response to Request for Additional Information Letter No. 041 Related to Electric Power System. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091770630	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 033 Related to Stability of Subsurface Material and Foundations. (6 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091810081	Levy County, Units 1 and 2 - Supplement 1 to Response to Request for Additional Information Letter No. 030 Related, to Stability of Subsurface Materials and Foundations. (10 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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6/23/2009	ML091810082	Levy County, Units 1 and 2 - Response to Request for Additional Information Letter No. 035 Related to Surface Faulting. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091810083	Levy County, Units 1 and 2 - Partial Response to Request for Additional Information Letter No. 034 Related to Basic Geologic and Seismic Information. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091810091	Levy County Nuclear Power Plant, Units 1 and 2 - Response to Request for Additional Information Letter No. 039 Related to Emergency Planning. (76 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091810094	Levy County, Units 1 and 2, Response to Request for Additional Information Letter No. 029 Related to Stability of Subsurface Materials and Foundations. (6 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091830343	Levy, Units 1 & 2, Submittal of Supplemental Information Related to Hydrologic Engineering - Calculation Native Files. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2009	ML091560113	Enclosure 1 of Addendum for Request for Additional Information for Levy County, Units 1 and 2 - Combined Operating License Application - Round 3. (5 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3		05200029 05200030

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6/23/2009	ML091560117	Enclosure 2 - Addendum to Encl. 2, U.S. Army Corps of Engineers Request for Additional Information for Levy Nuclear Plants, Units 1 and 2, Combined License Application. (3 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3		05200029 05200030
6/25/2009	ML091760494	Presentation by David Matthews at the June 4, 2009 Public Meeting with New Plant Working Group. (11 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO/DNRL		05200012 05200013 05200014 05200015 05200016 05200017 05200018 05200019 05200023 05200024 05200025 05200026 05200027 05200028 05200029 05200030 PROJ0689
6/25/2009	ML091830342	338884-PI-03-14, Rev 1, "Summary of Levy Nuclear Units 1 and 2 (LNP) Section 404(b)(1) Alternatives Analysis." (58 Pages)	Report, Technical	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
6/26/2009	ML091830341	Levy County, Units 1 and 2, Response to Request for Additional Information Letter No. ER-USACE-RAI Addendum Related to	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Review of the Environmental Report. (4 Pages)				
6/26/2009	ML091830842	209/6/26-Comment (2) of John Dwyer on Behalf of Stone Crab Alliance on Proposed Rule PR-50 and PR-52, Enhancements to Emergency Preparedness Regulations. (4 Pages)	Rulemaking-Comment	Stone Crab Alliance	NRC/SECY/RAS	05200029 05200030 05200040 05200041 06300001 07007001 07007002 PROJ0763
6/30/2009	ML091880203	Levy Nuclear Power Plant, Units 1 and 2 - Supplement 1 to Response to Request for Additional Information Letter No. 022 Related to Emergency Planning. (10 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/30/2009	ML091880501	Levy, Units 1 & 2 - Submittal of Updated Quality Assurance Program Description (QAPD). (59 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/1/2009	ML091880281	Levy County Nuclear Power Plant, Units 1 and 2 - Response to Request for Additional Information Letter No. 035 Related to Surface Faulting. (22 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/1/2009	ML091880284	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 032 Related to Vibratory Ground Motion. (14 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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7/1/2009	ML091880942	Levy County, Units 1 and 2, Response to Request for Additional Information Letter No. 034 Related to Basic Geologic and Seismic Information. (73 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/1/2009	ML091880943	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 031 Related to Vibratory Ground Motion. (37 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/1/2009	ML103130035	Wildlife Survey Results, Tarmac King Road Limestone Mine, Levy County, Florida. (29 Pages)	Report, Miscellaneous	Entrix, Inc State of FL, Fish & Wildlife Research Institute US Dept of the Army, Corps of Engineers	NRC/NRO	05200029 05200030
7/6/2009	ML091900143	Levy Nuclear Power Plant, Units 1 and 2, Response to Request for Additional Information Letter No. 053 Related to Circulating Water System. (5 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/6/2009	ML091900144	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 050 Related to Station Service Water System. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/6/2009	ML091740487	Levy County, Units 1 and 2 - Supplement 1 to Response to Request for Additional Information Regarding the Environmental Review.	Package			

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7/7/2009	ML091910286	Levy, Units 1 and 2, Submittal of Loss of Large Areas of the Plant Due to Explosions or Fire - Mitigative Strategies Description and Plans. (4 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/8/2009	ML091940129	Levy Nuclear Power Plant, Units 1 & 2, Supplement 2 to Response to Request for Additional Information Letter No. 035 Related to Surface Faulting. (10 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/13/2009	ML091950612	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 037 Related to Floods. (21 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/13/2009	ML091950613	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 042 Related to Onsite AC Power Systems. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/13/2009	ML091950614	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 043 Related to Electric Power - Introduction. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/13/2009	ML091960270	Levy Nuclear Site, Units 1 and 2, Proposed Revision 01 to Physical Security Plan. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO NRC/NSIR	05200029 05200030

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7/13/2009	ML091960625	Levy, Units 1 & 2, Supplement 3 to Response to Request for Additional Information Letter No. 034 Related to Basic Geologic and Seismic Information. (70 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/14/2009	ML091950039	Trip Report for Levy County Units 1 and 2 Combined License Application Department of Homeland Security Consultation. (7 Pages)	Meeting Agenda Memoranda Trip Report	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200029 05200030
7/16/2009	ML092030130	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 035 Related to Surface Faulting. (44 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/17/2009	ML092240693	Levy, Units 1 and 2 - Response to Supplemental Request for Additional Information Regarding the Environmental Review - Native Figure Files. (13 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/20/2009	ML092030127	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 058 Related to Isaac for Foundation Drilled Shafts for Non-safety Related Buildings. (4 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/20/2009	ML092030128	Levy Nuclear Plant, Unit 1 and 2 - Response to Request for Additional Information Letter No. 040	Letter	Progress Energy Carolinas, Inc Progress	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Related to Probable Maximum Surge and Seiche Flooding. (21 Pages)		Energy Florida, Inc		
7/20/2009	ML092030441	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 060 Related to Onsite Meteorological Measurements Programs. (4 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/20/2009	ML092030442	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 056 Related to Communications Systems. (14 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/20/2009	ML091760424	Progress Energy Corporation - Request for Withholding of Proprietary Information Related to Levy Nuclear Power Plant Units 1 and 2. (7 Pages)	Letter Proprietary Information Review	NRC/NRO/DSER/RAP3	Progress Energy Co	05200029 05200030
7/22/2009	ML092050071	Levy, Units 1 & 2, Response to Request for Additional Information Related to LNP COLA. (2 Pages)	Letter	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/22/2009	ML092050072	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 052 Related to Station Service Water System. (30 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/22/2009	ML092050073	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 057	Letter	Progress Energy Co Progress	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Related to Initial Test Program. (3 Pages)		Energy Florida, Inc		
7/22/2009	ML092050074	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 059 Related to Regional Climatology. (11 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/22/2009	ML092050161	Levy, Units 1 and 2 - Supplemental Response to Request for Additional Information Letter No. 017 Related to Onsite Meteorlogical Measurements Programs. (79 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/22/2009	ML092080076	Levy, Units 1 and 2, Response to Supplemental Request for Additional Information Regarding the Environmental Review - RAI USACE-12 and RAI USACE-13. (12 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/22/2009	ML092080077	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 047 Related to Probable Maximum Tsunami Flooding. (29 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/22/2009	ML092080078	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 044 Related to Accidental Release of Radioactive Liquid Effluents in Ground and Surface Waters. (48 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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7/24/2009	ML091250294	Levy Nuclear Plant, Units 1 and 2, Summary of the Environmental Site Audit and Alternative Site Visit Related to the Review of the Combined License Application. (94 Pages)	Audit Report Memoranda Trip Report	NRC/NRO/DSER/RAP3	NRC/NRO/DSER/RAP3	05200029 05200030
7/24/2009	ML092100297	Levy Units 1 & 2, Supplement 2 to Response to Request for Additional Information Regarding the Environmental Review. (76 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092150336	Levy Nuclear Power Plant, Units 1 and 2, Supplemental Information - Water Quality Sampling Data - Spring 2009. (18 Pages)	Environmental Monitoring Report Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092190647	Levy Nuclear Plant Summary of Groundwater Levels within the Plant Area 2007_2008. (1 Pages)	Graphics incl Charts and Tables	Progress Energy Co Progress Energy Florida, Inc	NRC/NRR	05200029 05200030
7/29/2009	ML092120059	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 049 Related to Probabilistic Risk Assessment and Severe Accident Evaluation. (14 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092120060	Levy, Units 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 013 Related to Environmental	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Radiation Standards. (5 Pages)				
7/29/2009	ML092120090	Levy, Units 1 and 2 - Supplement 1 to Response to Request for Additional Information Letter No. 015 Related to Health Physics. (13 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092150334	Levy Nuclear Plant, Units 1 and 2, Response to Request for Additional Information Letter No. 018 Related to Short Term Atmospheric Dispersion Estimates for Accident Releases. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092150335	Levy, Units 1 and 2, Supplement 1 to Response to Request for Additional Information Letter No. 020 Related to Identification of Potential Hazards in Site Vicinity. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092150337	Levy, Units 1 & 2, Response to Request for Additional Information Regarding the Environmental Review - Hydrology 5.3.2.1-2. (12 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092150960	Levy Units 1 & 2, Response to Request for Additional Information Letter No. 048 Related to Groundwater. (86 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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7/29/2009	ML092180974	Levy Nuclear Plant, Units 1 and 2 - Response to Request for Additional Information Letter No. 048 Related to Groundwater - Native Spreadsheet Files. (2 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2009	ML092190646	Levy Nuclear Power Plant Groundwater Pressure Transducer 2007_2008 Data. (24 Pages)	Spreadsheet File	Progress Energy Co Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
7/30/2009	ML092190924	The Federal Emergency Management Agency's Final Request for Additional Information for the Levy Nuclear Plant Units 1 and 2 Combined License Application - Enclosure (REVISED). (48 Pages)	Graphics incl Charts and Tables Request for Additional Information (RAI)	US Dept of Homeland Security US Federal Emergency Mgmt Agency (FEMA)	NRC/NSIR Progress Energy Carolinas, Inc	05200029 05200030
7/30/2009	ML092190321	Federal Emergency Management Agency's Final Request for Additional Information for the Levy Nuclear Plant Units 1 and 2 Combined License Application - Letter (REVISED). (1 Pages)	Letter	US Dept of Homeland Security US Federal Emergency Mgmt Agency (FEMA)	NRC/NSIR Progress Energy Carolinas, Inc	05200029 05200030
7/31/2009	ML110100608	Wildlife Survey Results Tarmac King Road Limestone Mine, Levy County, Florida (29 Pages)	Environmental Monitoring Report	Entrix, Inc	NRC/NRO State of FL, Fish & Wildlife Research Institute US Dept of the Army, Corps of Engineers	05200029 05200030

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8/3/2009	ML092190243	Levy Nuclear Plant, Units 1 and 2 - Loss of Large Areas of the Plant Due to Explosions or Fire - Mitigative Strategies Description and Plans. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/3/2009	ML090750823	Levy, Units 1 and 2 - Supplemental Information for Environmental Audit - Information Needs with Attachments. (270 Pages)	Letter (Package)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/6/2009	ML092220165	Levy, Unit 1 & 2, AP1000 Combined License Application Departure Report Update. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/6/2009	ML092220166	Levy, Units 1 & 2, Supplement 1, Response to Request for Additional Information Letter No. 001 Related to Design Basis Accidents Radiological Consequence Analyses. (19 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/6/2009	ML092220167	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 063 Related to Offsite Power System. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/10/2009	ML092260203	Levy, Units 1 and 2, Cyber Security Plan and Proposed Implementation Schedule. (14 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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8/10/2009	ML092260764	Floodplain Evaluation Bounding Analysis for the Levy Nuclear. Power Plant Units 1 and 2, Cover through Page 98 of 153. (98 Pages)	Report, Technical	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
8/10/2009	ML092260765	Floodplain Evaluation Bounding Analysis for the Levy Nuclear. Power Plant Units 1 and 2, Cover through Page 99 of 153 through End. (55 Pages)	Report, Technical	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
8/12/2009	ML092260580	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 062 Related to Interfaces. (10 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/12/2009	ML092260763	Levy, Units 1 and 2, Response to Supplemental Request for Additional Information Regarding the Environmental Review - Hydrology 4.1.1-1. (6 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/19/2009	ML092360171	Levy, Unit 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 016 Related to General Climate. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/19/2009	ML092360192	Levy Nuclear Plant, Units 1 and 2, Response to FEMA Request for Additional Information Letter Related to Offsite Emergency Response Plans. (9 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/NRO US Dept of Homeland Security US Federal Emergency Mgmt Agency (FEMA)	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
8/19/2009	ML092360422	Levy Nuclear Plant, Units 1 & 2 - Response to Request for Additional Information Letter No. 034 Re Basic Geologic and Seismic Information. (3 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/19/2009	ML092540311	Attachment to Letter NPD-NRC-2009-196 - Supplemental Information to NRC Request for Additional Information Letter No. 034 re SRP Section 2.5.1 for COL Application, Dated May 8, 2009. Well Log Numbers W-6903 to W-7538. (64 Pages)	Report, Miscellaneous	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
8/19/2009	ML092540314	Attachment to Letter NPD-NRC-2009-196 - Supplemental Information to NRC Request for Additional Information Letter No. 034 re SRP Section 2.5.1 for COL Application, Dated May 8, 2009. Well Log Numbers W-170 to W-3342. (157 Pages)	Report, Miscellaneous	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
8/19/2009	ML092540318	Attachment to Letter NPD-NRC-2009-196 - Supplemental Information to NRC Request for Additional Information Letter No. 034 re SRP Section 2.5.1 for COL Application, Dated May 8, 2009. Well Log Numbers W-7543 to W-15075. (73 Pages)	Report, Miscellaneous	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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8/20/2009	ML092240661	Levy, Units 1 and 2 - Supplement 3 to Response to Request for Additional Information Regarding the Environmental Review.	Package	Progress Energy Florida, Inc		05200029 05200030
8/21/2009	ML101960361	Levy EIS Reference - USCB 2009 Marion County, Florida Fact Finder. (2 Pages)	Database File	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030
8/21/2009	ML101960356	Levy EIS Reference - USCB 2009 Levy County FactFinder. (2 Pages)	Environmental Impact Statement	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030
8/21/2009	ML101960358	Levy EIS Reference - USCB 2009 Citrus County, Florida FactFinder. (2 Pages)	Environmental Impact Statement	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030
8/24/2009	ML092390068	Levy, Units 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 053 Related to Circulating Water System. (4 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/24/2009	ML092390078	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 061 Related to Wind Loading. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/25/2009	ML092120229	Response to Scoping Process Comments to Support Development of an Environmental Impact Statement for the Combined License Application for the Levy Nuclear Plant Units 1 &	Letter	NRC/NRO/DSER/RAP3	Miccosukee Indian Tribe	05200029 05200030

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		2 Levy County, Florida. (10 Pages)				
8/26/2009	ML092450133	Levy, Units 1 and 2 - Replacement Fast WEB Viewable Figure Disc. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/31/2009	ML101960354	Levy DEIS Reference - FWS 2010 Florida Salt Marsh Vole Species Account. (4 Pages)	Database File	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
8/31/2009	ML092120271	Request for Information for the Environmental Review of the Levy Nuclear Plant Units 1 & 2 Combined License Application. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	Perdido Bay Tribe of Lower Muscogee Creeks	05200029 05200030
8/31/2009	ML092460205	Levy, Units 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 062 Related to Interfaces. (10 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/31/2009	ML092460206	Levy, Unit 1 & 2, Supplement 4 to Response to Request for Additional Information Regarding the Environmental Review. (10 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/31/2009	ML092470542	Levy, Units 1 and 2 - Supplemental Information Related to Environmental Review - Figure Native Files and CREC 1993/1994	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Annual Salt Drift Report. (4 Pages)				
8/31/2009	ML092470588	Exhibit 8 - Simulated Incremental Surficial and Upper Floridan Aquifer Drawdown, ft; 60 years; 1.58 mgd. (1 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
9/3/2009	ML092240046	12/2/08 - 12/4/08 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 & 2. (37 Pages)	Conference/Symposium/Workshop Paper Graphics incl Charts and Tables Letter Meeting Summary	NRC/NRO/DSER	Progress Energy Co	05200029 05200030
9/3/2009	ML092530406	Levy, Units 1 and 2, Supplement 2 to Response to Request for Additional Information Letter No. 030 Related to Stability of Subsurface Materials and Foundations. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/3/2009	ML092530460	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 064 Related to Radiation Protection Design Features. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/3/2009	ML092570297	Levy, Units 1 and 2 - Supplement 5 to Response to Request for Additional	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Information Regarding the Environmental Review.				
9/8/2009	ML12073A199	Letter from Florida Department of Environmental Protection to the U.S. Army Corps of Engineers, regarding Progress Energy Florida Levy Nuclear Plant Water Quality Certification (401 Certification), September 8, 2009. (1 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
9/9/2009	ML092540278	Levy, Units 1 & 2, Submittal of Proposed Revision to Physical Security Plan. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO NRC/NSIR	05200029 05200030
9/11/2009	ML092240694	Levy, Units 1 & 2 - Replacement Fast WEB Viewable Figure Disc.	Package	Progress Energy Florida, Inc		
9/14/2009	ML102230083	Levy Nuclear Plant, Units 1 & 2, Response to Request for Additional Information Letter No. 065 Related to Onsite Meteorological Measurements Programs. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/16/2009	ML092400041	Levy County, Units 1 and 2, Combined License Application - Revised Review Schedule. (7 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Co	05200029 05200030
9/17/2009	ML101930604	Levy DEIS Reference - USCB 2007 Census Bureau 2007. (42 Pages)	Database File	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030

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9/17/2009	ML092600064	Trip Report - April 28-29, 2009 - Seismology And Geotechnical Site Visit In Support Of The Levy County Units 1 And 2 Combined License Application. (5 Pages)	Meeting Agenda Memoranda Trip Report	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200029 05200030
9/18/2009	ML092640648	Levy, Unit 1 & 2, Supplement 2 to Response to Request for Additional Information Letter No. 015 Related to Health Physics. (14 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/23/2009	ML092680814	Levy Nuclear Plants Units 1 & 2 (LNP)- LEDPA Notes. (17 Pages)	- No Document Type Applies	US Dept of the Army, Corps of Engineers, Jackson District	NRC/NRO	05200029 05200030
9/25/2009	ML092650175	Levy, Units 1 and 2, Supplemental Request for Additional Information Regarding the Environmental Review of the Combined License Application. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Co	05200029 05200030
9/25/2009	ML092650208	Enclosure 1 - Levy, Units 1 and 2, Supplemental Request for Additional Information Regarding the Environmental Review of the Combined License Application. (6 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3		05200029 05200030

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9/25/2009	ML092650223	Enclosure 2 - Levy, Units 1 and 2, Supplemental Request for Additional Information Regarding the Environmental Review of the Combined License Application. (1 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3		05200029 05200030
10/2/2009	ML092861041	Progress Energy Levy Units 1 and 2 COLA (Generic DCD Departures Report), Rev. 1 - Departures Report and Exemptions (9 Pages)	Generic DCD Departures Report License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/2/2009	ML092861063	Progress Energy Levy Units 1 and 2 COLA (ITAAC), Rev. 1 - Proposed License Conditions including ITAAC (47 Pages)	Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/2/2009	ML092861043	Progress Energy Levy Units 1 and 2 COLA (Safeguards and Security Plans), Rev. 1 - Safeguard Security Plans - Cover Page (1 Pages)	Letter License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/2/2009	ML092860284	Progress Energy Levy Units 1 and 2 COLA (General and Admin Information), Rev. 1 - General and Financial Information (526 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/2/2009	ML092861065	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 1 - Information Incorporated by Reference - Cover Page (1 Pages)	License-Application for Combined License (COLA) Quality Assurance Program	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/2/2009	ML092861066	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 1 - Quality Assurance Program Description - Parts I - IV (58 Pages)	License-Application for Combined License (COLA) Quality Assurance Program	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/2/2009	ML092860998	Progress Energy Levy Units 1 and 2 COLA (Technical Specifications), Rev. 1 - Technical Specifications (820 Pages)	License-Application for Combined License (COLA) Technical Specifications	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/2/2009	ML092860995	Progress Energy Levy Units 1 and 2 COLA (Environmental Report), Rev. 1.	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/5/2009	ML092890651	US Dept. of the Army, Jacksonville District Corps of Engineers, USACE Jurisdictional Wetlands Verification, "Approved" and "Preliminary," (PEF/LNP Site - North and South Parcels). (25 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/RGN-I Progress Energy Florida, Inc	05200029 05200030
10/12/2009	ML092890169	Levy, Unit 1 & 2, RoadMap of Changes in Combined License Application, Rev. 1. (95 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/13/2009	ML092920052	New Public Notice to Fill Inglis Lock Near LNP- Levy. (12 Pages)	Drawing Letter Map	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO	05200029 05200030
10/13/2009	ML092890091	Levy Nuclear Plant Units 1 & 2 - Schedule for Response to Environmental Request	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		for Additional Information for COLA. (1 Pages)				
10/13/2009	ML092861038	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 1.	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/14/2009	ML092920176	Levy Nuclear Plant, Units 1 & 2, Supplemental Information for Response to Request for Additional Information Letter No. 009 Related to Stability of Subsurface Materials and Foundations. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/21/2009	ML092920466	Levy Nuclear Plant, Units 1 & 2 - Response to Supplemental Request for Additional Information re Environmental Review - Hydrology 4.1.1-1.	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/22/2009	ML093010265	Levy, Units 1 & 2, Submittal of Supplemental Information on Discharge Canal: Radiological Water Quality Sampling Data August 2009. (13 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/22/2009	ML093010266	Levy Nuclear Plant, Units 1 & 2, Response to Request for Additional Information Letter No. 067 Related to Raw Water System. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/22/2009	ML093010267	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 066	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Related to Physical Security. (21 Pages)				
10/22/2009	ML093010541	Levy Nuclear Plant, Units 1 & 2, Supplemental Information Related to Environmental Review - Figure Native Files. (3 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/22/2009	ML093010549	Levy Nuclear Plant, Units 1 and 2, Map of Limits of Construction and Potential Habitat Impacts on the Levy Nuclear Plant Site. (1 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
10/22/2009	ML093010550	Levy Nuclear Plant, Units 1 and 2 - Wetland Map with Simulated Incremental Drawdown Contours in Surficial Aquifer Revised Wellfield Layout. (1 Pages)	Map	Progress Energy Carolinas, Inc	NRC/NRO	05200029 05200030
10/22/2009	ML093010551	Levy Nuclear Plant, Units 1 and 2, Wetlands & Potential Areas of Disturbance on the Levy Nuclear Plant Site. (1 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
10/26/2009	ML093070175	Progress Energy Florida Correspondence to USACE Addressing Comments Raised by NMFS and U.S. EPA. (109 Pages)	Letter Report, Technical	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers	05200029 05200030
10/27/2009	ML093060389	Levy Nuclear Plant, Units 1 & 2 - Supplement 2 to Response to Request for Additional Information Letter No. 029 Related to Stability	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		of Subsurface Materials and Foundations. (7 Pages)				
10/28/2009	ML093270307	Request for Additional Information Letter No. 69 Related to SRP Section 19.0 For the Levy County Units 1 and 2 COL Application. (3 Pages)	Letter Request for Additional Information (RAI)	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
10/28/2009	ML093280674	Request for Additional Information Letter No. 068 Related to SRP Section 19.0, Probabilistic Risk Assessment And Severe Accident for the Levy County, Units 1 & 2 Combined License Application. (3 Pages)	Letter Request for Additional Information (RAI)	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
10/31/2009	ML101930616	Levy DEIS Reference - USBLS 2010 Incidence Rates of Nonfatal Occupational Injuries in 2004, 2008. (43 Pages)	Graphics incl Charts and Tables	US Dept of Labor, Bureau of Labor Statistics	NRC/NRO	05200029 05200030
11/2/2009	ML093100110	Levy, Units 1 & 2, Supplement 1 to Response to Acceptance Review Request for Additional Information. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/2/2009	ML093100357	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 046 Related to Seismic Design Parameters. (57 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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11/5/2009	ML093170196	Levy Nuclear Plant, Units 1 & 2 - Supplement 3 to Response to Request for Additional Information Letter No. 030 Related to Stability of Subsurface Materials and Foundations. (4 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/9/2009	ML110830412	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Drawings. (21 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/9/2009	ML110830422	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Drawings. (21 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/9/2009	ML110830436	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Drawings. (23 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/9/2009	ML110830449	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened &	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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		Endangered Species Assessment. Drawings. (21 Pages)				
11/9/2009	ML110830451	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Drawings. (15 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/9/2009	ML110830454	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Drawings. (15 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/9/2009	ML110830465	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Drawing. (21 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/10/2009	ML101930597	Levy DEIS Reference - FWS 2010 Whooping Crane Fact Sheet. (7 Pages)	Database File	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
11/10/2009	ML101930613	Levy DEIS Reference - FWS 2009 Florida County Index of Listed Species - Levy, Citrus, Marion, Sumter,	Environmental Impact Statement	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030

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		Pinella, Hernando, Lake, and Hillsborough Counties. (23 Pages)				
11/13/2009	ML092860737	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 1.	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/17/2009	ML093270041	Levy, Unit 1 & 2, Response to Request for Additional Information Letter No. 055 Related to Foundations. (28 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/18/2009	ML093441131	Tech Memo 338884-TMEM-106, Rev 2, "Floodplain Evaluation Bounding Analysis for Levy Nuclear Plant Site," Attachment B, Map 38 through Attachment C. (38 Pages)	Report, Technical	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
11/18/2009	ML093441230	Tech Memo 338884-TMEM-106, Rev 2, "Floodplain Evaluation Bounding Analysis for Levy Nuclear Plant Site," Attachment D, Map 1 through 24. (25 Pages)	Report, Technical	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
11/19/2009	ML101930592	NOAA Website Tampa Bay Climate - Less Than 32 Degrees. (15 Pages)	Environmental Report	US Dept of Commerce, National Oceanic & Atmospheric Admin, National Weather Service	NRC/NRO	05200029 05200030

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11/19/2009	ML093230345	209/11/19 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 074RELATED TO SRP SECTION 13.3 FOR THE LEVY COUNTY NUCLEAR PLANT, UNITS 1 AND 2 COMBINED LICENSE APPLICATION (10 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030
11/20/2009	ML100621091	Notice of Intent to Modify Conditions of Certification. (6 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
11/23/2009	ML093380309	Levy Nuclear Plant, Unit 1 & 2 - Supplement 6 to Response to Request for Additional Information Regarding the Environmental Review. (12 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/24/2009	ML093280825	Trip Report - September 22-23, 2009 - Seismology and Geotechnical Site Visit In Support of The Levy County Units 1 and 2 Combined License Application. (4 Pages)	Meeting Agenda Memoranda Trip Report	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/ NWE1	05200029 05200030
11/30/2009	ML093340451	209/11/30 Levy County RAI for SER - Request for Additional Information Letter No. 075 Related To SRP Section 09.05.02 for The Levy County Nuclear Plant Units 1 and 2 Combined	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030

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		License Application (7 Pages)				
12/1/2009	ML093421413	Levy, Units 1 & 2, Response to Request for Additional Information Letter Nos. 068 and 069 Related to Probabilistic Risk Assessment and Severe Accidents. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/1/2009	ML110840158	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, 12/1/09 Letter through FNAI's Biodiversity Matrix Online. (65 Pages)	Letter Map	Florida Natural Areas Inventory Progress Energy Florida, Inc	Golder Associates, Inc NRC/NRO	05200029 05200030
12/3/2009	ML092820445	Enclosure 6: September 11, 2009 Summary of Teleconference to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (2 Pages)	- No Document Type Applies Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030

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12/3/2009	ML092820044	Letter re: Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (3 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Co	05200029 05200030
12/3/2009	ML093450354	Levy Nuclear Plant, Units 1 & 2, Response to Request for Additional Information Letter No. 072 Related to Stability of Subsurface Materials and Foundations. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/3/2009	ML092820201	Enclosure 2: July 30, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (2 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML092820212	Enclosure 3: August 6, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030

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		Application for the Levy Nuclear Power Plant Units 1 and 2. (2 Pages)				
12/3/2009	ML092820221	Enclosure 3a: August 6, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (4 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML092820263	August 13, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (3 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML092820421	Enclosure 5a: August 20, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (1 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
12/3/2009	ML092820469	Enclosure 7: September 17, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (2 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML092820485	Enclosure 8: September 24, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (1 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML092860087	Enclosure 1: July 23, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (2 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030

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12/3/2009	ML092860143	Enclosure 5: August 20, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (2 Pages)	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML092820318	August 13, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (7 Pages)	Note to File incl Telcon Record, Verbal Comm Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML092820510	Enclosure 8a: September 24, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (2 Pages)	Note to File incl Telcon Record, Verbal Comm Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030

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12/3/2009	ML092820305	August 13, 2009 Summary of Teleconferences to Discuss Responses to Requests for Additional Information Regarding the Environmental Review of the Combined License Application for the Levy Nuclear Power Plant Units 1 and 2. (1 Pages)	Note to File incl Telcon Record, Verbal Comm Spreadsheet File	NRC/NRO/DSER/RAP3	Progress Energy Co Progress Energy Florida, Inc	05200029 05200030
12/3/2009	ML093370290	209/12/03 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 076 RELATED TO SRP SECTION 3.3.1 FOR THE LEVY COUNTY NUCLEAR PLANT, UNITS 1 and 2 COMBINED LICENSE APPLICATION (6 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/NWE1	05200029 05200030
12/4/2009	ML093450352	Levy Nuclear Plant, Units 1 & 2, Supplement 6 to Response to Request for Additional Information Letter No. 034 Related to Basic Geologic and Seismic Information. (6 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/4/2009	ML093450353	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 073 Related to Solid Waste Management System. (6 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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12/7/2009	ML093450351	Levy, Units 1 & 2, Summary Identification of Concurrence with Standard content in Response to Requests for Additional Information:'- Supplement 2. (9 Pages)	Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
12/11/2009	ML093560442	Levy, Units 1 and 2, Supplement 1 to Response to Request for Additional Information Letter No. 067 Related to Raw Water System. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/11/2009	ML093441186	Levy, Units 1 & 2 - Response to Supplemental Request for Additional Information Regarding the Environmental Review - Hydrology 4.1.1-1.	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/14/2009	ML093491037	Levy Nuclear Plant, Units 1 & 2 - Response to Request for Additional Information Letter No. 070 re Basic Geologic & Seismic Information. (23 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/18/2009	ML093580048	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 075 Related to Communications Systems. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/18/2009	ML093580054	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 074 Related to Emergency Planning. (56 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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12/23/2009	ML093520590	1/14/2010 Notice of Teleconference With Progress Energy Florida to Discuss Responses to Request for Additional Information Related to the Levy Project. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DSER/RAP3	NRC/NRO/DSER/RAP3	05200029 05200030
12/29/2009	ML093620186	Levy, Units 1 and 2 - Response to Supplemental Request for Additional Information Regarding the Environmental Review	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/7/2010	ML100070449	M100107 - Affirmation Session: I. - SECY-09-0117 (Summer); II. 09-0135 (Levy County); III. 09-0139 (Fermi); IV. 09-0141 (GE-Hitachi); V. 09-0142 (Vogtle); VI. 09-0145 (Bellefonte); VII. 09-0158 (Bell Bend); VIII. 09-0171 (Shieldalloy). (8 Pages)	Commission Meeting Transcript/Exhibit	NRC/OCM		05000438 05000439 05200025 05200026 05200027 05200028 05200029 05200030 05200033 05200039 07001113

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1/7/2010	ML100070349	SRM-M100107 - Affirmation Session: I. - SECY-09-0117 (Summer); II. 09-0135 (Levy County); III. 09-0139 (Fermi); IV. 09-0141 (GE-Hitachi); V. 09-0142 (Vogtle); VI. 09-0145 (Bellefonte); VII. 09-0158 (Bell Bend); VIII. 09-0171 (Shieldalloy). (3 Pages)	Commission Staff Requirements Memo (SRM)	NRC/SECY	NRC/OCAA NRC/OGC	04007102 05200011 05200014 05200015 05200025 05200026 05200027 05200028 05200029 05200030 05200039 07007016 07200072
1/8/2010	ML100621134	Notice of Intent to Modify Conditions of Certification (B). (5 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/11/2010	ML100190086	Levy, Units 1 & 2, Response To Request for Additional Information Letter No. 076 Related to Wind Loading. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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1/11/2010	ML092880776	9/3/2009 Summary of Category II Public Meeting with AP1000 Design-Centered Working Group to Discuss The Implementation of DC/COL-ISG-8, "Necessary Content of Plant-Specific Technical Specifications. (9 Pages)	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
1/12/2010	ML100621098	Final Order Modifying Conditions of Certification. (20 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/14/2010	ML100200160	Levy, Unit 1 & 2, Response to Request for Additional Information Letter No. 077 Related to Probabilistic Risk Assessment and Severe Accident Evaluation. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/19/2010	ML100250140	Levy Nuclear Plant, Unit 1 & 2 - Response to Request for Additional Information Letter No. 071 Related to Stability of Subsurface Materials and Foundations. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/19/2010	ML100250141	Levy, Units 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 009	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Related to Stability of Subsurface Materials and Foundations. (11 Pages)				
1/20/2010	ML100070638	Levy County Nuclear Power Plant Units 1 and 2 Combined License Application - Revised Environmental Review Schedule. (11 Pages)	Letter Schedule and Calendars	NRC/NRO/DNRL	Progress Energy Co	05200029 05200030
1/25/2010	ML100250002	2/4/2010 Notice of Teleconference with Progress Energy Florida to Discuss Responses to Request for Additional Information for the Levy Project, Units 1 and 2, Environmental Review. (11 Pages)	Conference/Symposium/Workshop Paper Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DSER/RAP3	NRC/NRO/DSER/RAP3	05200029 05200030
1/27/2010	ML100330401	Levy Nuclear Plant, Units 1 & 2, AP1000 Combined License Application Departure Report Update. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/27/2010	ML100330403	Levy Nuclear Plant, Units 1 & 2, Response to Request for Additional Information Letter No. 078 Related to Long-Term Atmospheric Dispersion Estimates for Routine Releases. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/29/2010	ML100470892	Levy, Units 1 and 2, Figure 17 - Revised TMR Model Water Budget With LNP Withdrawing 1.58 mgd. (1 Pages)	Graphics incl Charts and Tables	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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1/29/2010	ML100350220	Levy, Units 1 and 2, Supplement 2 to Response to Request for Additional Information Letter No. 009 Related to Stability of Subsurface Materials and Foundations. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/29/2010	ML100470865	Levy, Units 1 & 2, Supplement 1 to Response to Supplemental Request for Additional Information Regarding Environmental Review. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/29/2010	ML100470866	Levy, Units 1 and 2, Supplemental Information Related to Environmental Review - Figure Native Files. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/29/2010	ML100470867	Levy, Units 1 & 2, Supplement 7 to Response to Request for Additional Information Regarding the Environmental Review. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/29/2010	ML100470891	Levy, Units 1 and 2, Figure 2 - Location of TMR Model Grid, TMR Model Adjacent Permitted User Withdrawal Points & Nearby Springs. (1 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
1/29/2010	ML100470893	Levy, Units 1 and 2, Figure 30 - Simulated Incremental SAS Drawdown & Wetlands; 1 Year; 1.58 mgd. (1 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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1/29/2010	ML100470894	Levy, Units 1 and 2, Figure 31 - Simulated Incremental SAS Drawdown & Wetlands; 60 Year, 1.58 mgd. (1 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
2/1/2010	ML100621195	Levy Nuclear Plant and Crystal River Energy Complex Combined Discharge Survey and Monitoring Plan. (39 Pages)	Environmental Protection Plan	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
2/3/2010	ML100621018	Transmittal of Levy, Cross Florida Barge Canal and Withlacoochee River Survey and Monitoring Plan. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO State of FL, Fish and Wildlife Conservation Commision	05200029 05200030
2/3/2010	ML100621181	Levy Nuclear Plant, Conditions of Certification: Plant and Associated Facilities and Transmission Lines - Modified January 12, 2010. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO State of FL, Fish and Wildlife Conservation Commision	05200029 05200030
2/5/2010	ML100470585	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 079 Related to Offsite Power System. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/12/2010	ML100621187	Cross Florida Barge Canal and Withlacoochee River Survey and Monitoring Plan - Levy Nuclear Plant. (40 Pages)	Environmental Protection Plan	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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2/16/2010	ML100500662	Supplement 2 to Response to Supplemental Request for Additional Information Regarding the Environmental Review of the Combined, License Application for the Levy Nuclear Power Plant, Units 1 and 2. (11 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/16/2010	ML100470480	2010/2/16 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 080 RELATED TO SRP SECTION 2.4.6 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION (7 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030
2/16/2010	ML100470481	2010/2/16 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 081 RELATED TO SRP SECTION 2.5.2 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION (7 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030
2/22/2010	ML100560115	Levy, Units 1 & 2, Supplement 3 to Response to Supplemental Request for Additional Information Regarding the Environmental Review. (10 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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2/23/2010	ML101930569	Levy DEIS - Chapter 2 Reference, NMFS 2009. (29 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
2/23/2010	ML101930572	Levy DEIS - Ch 2 Reference NMFS 2007a. (4 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
2/23/2010	ML100621142	Final Order Modifying Conditions of Certification (B). (5 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
2/23/2010	ML111930422	Ivory Tree Coral (Oculina varicosa), Species of Concern, NOAA National Marine Fisheries Service. (4 Pages)	Report, Miscellaneous	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
2/25/2010	ML100610278	Levy, Units 1 & 2, Submittal of Supplemental Information Related to NRC Review of Final Safety Analysis Report - Section 2.5.2 Figure Native Files. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/28/2010	ML100621031	Crystal Bay Surface Water Monitoring Plan. (30 Pages)	Environmental Monitoring Report	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
3/3/2010	ML101300256	Letter from Florida Fish and Wildlife Commission to Progress Energy Florida for	Letter	State of FL, Fish and Wildlife	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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		Request for Additional Information. (10 Pages)		Conservation Commision		
3/3/2010	ML100340232	Progress Energy Corporation - Request for Withholding Information From Public Disclosure For Levy Nuclear Power Plant Units 1 and 2. (6 Pages)	Letter Proprietary Information Review	NRC/NRO/DNRL/NWE1	Progress Energy Co	05200029 05200030
3/5/2010	ML100620272	Inspection of Progress Energy, Levy County and Harris, Quality Assurance Program Implementation. (2 Pages)	Letter	NRC/NRO/DCIP/CQVP	Progress Energy Co	05200022 05200023 05200029 05200030
3/5/2010	ML100710419	Shearon Harris, Units 2 & 3, Levy, Units 1 & 2, NRC Regulatory Issue Summary 2010-01, Process for Scheduling Acceptance Reviews of New Reactor Licensing Applications and Process for Determining Budget Needs for Fiscal Year 2012. (2 Pages)	Letter	Progress Energy Carolinas, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
3/5/2010	ML100750254	Army Corps of Engineers Response to PEF Alternatives Analysis for LNP. (13 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
3/11/2010	ML100750298	Correction to Army Corps of Engineers Response to PEF Alternatives Analysis for LNP. (2 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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3/19/2010	ML100780287	Trip Report Levy County, Safety Site Visit November 03-07, 2008. (5 Pages)	Trip Report	NRC/NRO/DSER/RSAC		05200029 05200030
3/22/2010	ML100840572	Shearon Harris, Units 2 & 3, Levy, Units 1 & 2 - Submittal of Annual Report for AP1000 Standard Plant Design. (9 Pages)	Annual Operating Report Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200006 05200022 05200023 05200029 05200030
3/22/2010	ML100840574	Levy, Units 1 and 2, Supplement 1 to Response to Request for Additional Information Letter No. 069 Related to Probabilistic Risk Assessment and Severe Accidents. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/25/2010	ML100910299	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 080 Related to Probable Maximum Tsunami Flooding. (22 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/26/2010	ML100910091	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 082 Related to Physical Security - Fitness for Duty. (12 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/26/2010	ML100910092	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 083 Related to Emergency Planning. (31 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/29/2010	ML100910088	Shearon Harris Units 2 & 3, Levy Units 1 & 2, NRC Correspondence Distribution List Update. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030

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3/29/2010	ML100880414	2010/3/29 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 088 RELATED TO SRP SECTION 2.5.4 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION (6 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030
3/31/2010	ML110830151	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Tables A and B - Wetland Descriptions. (250 Pages)	- No Document Type Applies	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2010	ML110830155	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Baseline Transmission Program. (85 Pages)	- No Document Type Applies	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2010	ML100900218	USACE Response to PEC on Confidentiality Request for Levy Alternative Sites. (2 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jackson District	NRC/NRO Progress Energy Carolinas, Inc	05200029 05200030
3/31/2010	ML100910089	Levy Units 1 & 2, Endorsement of Vogtle R-COLA Response to BLN	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		SER Confirmatory Item CI 04.04-01. (1 Pages)				
3/31/2010	ML110830147	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 1 through Figure 5, Page 3 of 10. (29 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2010	ML110830148	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5 through Figure 7, Page 10 of 10. (28 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/1/2010	ML110830121	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 2 of 2, Cover Through Page 327. (492 Pages)	- No Document Type Applies	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800350	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Cover Letter through	Letter Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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		Figure 2, Page 13 of 13. (17 Pages)				
4/1/2010	ML110800373	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 3, Index through Figure 3, Page 24 of 84. (25 Pages)	Letter Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800334	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 5, Page 125 of 178 through Page 152 of 178. (28 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800336	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 5, Page 153 of 178 through Page 178 of 178. (26 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/1/2010	ML110800338	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 6, Index Through Page 24 of 29. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800340	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 6, Page 25 of 29 Through Figure 7, Page 22 of 22. (28 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800342	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Page 1 of 22 Through Sheet 22 of 89. (50 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800344	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Sheet 23 of 89 Through Sheet 44 of 89. (22 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/1/2010	ML110800346	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Sheet 45 of 89 Through Sheet 66 of 89. (22 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800356	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 3, Page 50 of 84 Through Page 74 of 84. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800358	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 3, Page 75 of 84 through Figure 4, Page 11 of 36. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800360	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 4, Page 12 of 36 through Page 36 of 36. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/1/2010	ML110800362	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 5, Index through Figure 5, Page 24 of 178. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800364	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 5, Page 25 of 178 through Page 48 of 178. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800366	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 5, Page 50 of 178 through Page 74 of 178. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800368	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 5, Page 75 of 178 through Page 99 of 178. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/1/2010	ML110800370	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 5, Page 100 of 178 through Page 124 of 178. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110800376	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Sheet 67 of 89 Through Sheet 89 of 89. (23 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110830122	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 2 of 2, Figure Cover Sheet Through Figure 30 of 180. (32 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110830124	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application, Volume 2 of 2, Figure 31 of 180 Through Figure 60 of 180. (30 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/1/2010	ML110830126	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application, Volume 2 of 2, Figure 61 of 180 Through Figure 90 of 180. (30 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110830128	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application, Volume 2 of 2, Figure 91 of 180 Through Figure 118 of 180. (28 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110830136	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application, Volume 2 of 2, Figure 119 of 180 Through Figure 148 of 180. (30 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2010	ML110830138	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application, Volume 2 of 2, Figure 149 of 180 Through Figure 170 of 180. (22 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/1/2010	ML110830139	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application, Volume 2 of 2, Figure 171 of 180 Through Figure 180 of 180. (16 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/5/2010	ML100910533	U.S. Nuclear Regulatory Commission Staff Review of the Department of Homeland Security Consultation Reports. (2 Pages)	Memoranda	NRC/NSIR/DSP/DDRSR/RSPLB	NRC/NSIR/DSP/DDRSR/RSPLB	05200029 05200030
4/6/2010	ML100640699	Trip Report regarding 2010 The International Conference on Simulation Technology for Power Plants February 22-25, 2010 Handout - Regulatory Guide 1.149 Update. (26 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs Trip Report	NRC/NRO/DCIP		05200029 05200030

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4/8/2010	ML101930599	Levy DEIS Reference - FWS 2008 Federally Listed Species in Levy County, Florida. (3 Pages)	Environmental Impact Statement	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
4/12/2010	ML101050114	Levy, Units 1 and 2, Supplement 8 to Response to Request for Additional Information Regarding the Environmental Review. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/14/2010	ML101120083	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 084 Related to Physical Security. (22 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/19/2010	ML101090320	5/4/2010 Notice of Meeting with Levy County Re. Seismic Design Parameters, Seismic System Analysis, and Foundation. (9 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200029 05200030
4/21/2010	ML101180077	Levy, Units 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 074 Related to Emergency Planning. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/23/2010	ML102150208	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan. (262 Pages)	Environmental Protection Plan	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/23/2010	ML102560494	Comment (2) of Charles J. Smith, on Behalf of Robinson Estates, Inc, Opposing Progress Energy Florida's Proposed Levy Nuclear Plant Draft	General FR Notice Comment Letter	Progress Energy Florida, Inc	NRC/ADM/DAS/RDEB	05200029 05200030

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		Environmental Impact Statement, Exhibit # 4: Revised Wetland Mitigation Plan. (96 Pages)				
4/23/2010	ML102560500	Comment (2) of Charles J. Smith, on Behalf of Robinson Estates, Inc, Opposing Progress Energy Florida's Proposed Levy Nuclear Plant Draft Environmental Impact Statement, Exhibit # 4: Section 3 of Wetland Mitigation Plan. (49 Pages)	General FR Notice Comment Letter	Progress Energy Florida, Inc	NRC/ADM/DAS/RDEB	05200029 05200030
4/23/2010	ML102560508	Comment (2) of Charles J. Smith, on Behalf of Robinson Estates, Inc, Opposing Progress Energy Florida's Proposed Levy Nuclear Plant Draft Environmental Impact Statement, Exhibit # 4: Section 4 of Wetland Mitigation Plan. (117 Pages)	General FR Notice Comment Letter	Progress Energy Florida, Inc	NRC/ADM/DAS/RDEB	05200029 05200030
4/26/2010	ML101250478	Shearon Harris, Units 2 & 3, Levy, Units 1 & 2, Review of Safety Evaluation Report Open Item Response for Applicability. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
4/29/2010	ML101230331	Levy, Units 1 & 2, Notification of Modification Submitted for LNP SCA. (3 Pages)	Letter Photograph	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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4/29/2010	ML101190142	5/4/2010 Notice of Forthcoming Closed Conference Call With AP1000 Combined License Applicants to Discuss Physical Security Open Items. (14 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030
4/30/2010	ML110840156	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment - Wetland Determination Data Forms - Atlantic and Gulf Coastal Plain Region. (70 Pages)	- No Document Type Applies	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML101930600	Levy DEIS Reference - BEA 2010 Personal Income Summary Estimates. (4 Pages)	Database File	US Dept of Commerce, Bureau of Economic Analysis	NRC/NRO	05200029 05200030
4/30/2010	ML110810984	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Polk-Hillsborough-Pinellas Transmission Line, Volume 2 of 2, Cover through Section B. (889 Pages)	Environmental Monitoring Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110811184	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Substations: Center Florida South, Citrus, Crystal River Energy Complex & Kathleen, Part 3 of 4. (77 Pages)	Environmental Report Letter Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/30/2010	ML110811186	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Substations: Center Florida South, Citrus, Crystal River Energy Complex & Kathleen, Part 1 of 4. (32 Pages)	Environmental Report Letter Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/30/2010	ML110811189	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Substations: Center Florida South, Citrus, Crystal River Energy Complex & Kathleen, Part 4 of 4. (62 Pages)	Environmental Report Letter Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/30/2010	ML110811210	Levy, Units 1 and 2, Supporting Documents - Central Florida South	Environmental Report Letter	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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		Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Brookridge - Brooksville West Transmission Line, Figure 6, Page 1 of 6 - FNAI's Online Biodiversity. (27 Pages)	Map Photograph			
4/30/2010	ML110820326	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Common Route Transmission Line, 12/9/09 Letter - Common Route from CR40 South to Citrus Wetland Impact. (58 Pages)	Environmental Report Letter Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110810999	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 71 of 189 Through Figure 87 of 189. (17 Pages)	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110811001	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 25 of	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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		189 through Figure 53 of 189. (29 Pages)				
4/30/2010	ML110811013	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 54 of 189 Through Figure 70 of 189. (17 Pages)	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110811160	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 88 of 189 Through Figure 116 of 189. (29 Pages)	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110811188	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Substations: Center Florida South, Citrus, Crystal River Energy Complex & Kathleen, Part 2 of 4. (145 Pages)	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110840094	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Citrus - Brookridge Transmission Line, Figure 3, Page 27 of 52 - Figure 3, Page 52 of 52. (26 Pages)	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840097	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Citrus - Brookridge Transmission Line, Figure 4 - Figure 4, Page 20 of 20. (22 Pages)	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840102	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Citrus - Brookridge Transmission Line, Figure 3 Index - Figure 3, Page 26 of 52. (27 Pages)	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840103	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened &	Environmental Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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		Endangered Species Assessment, Citrus - Brookridge Transmission Line, Figure 5 Index - Figure 5, Page 25 of 206. (26 Pages)				
4/30/2010	ML110811164	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 117 of 189 through Figure 141 of 189. (25 Pages)	Environmental Report Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110811166	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 142 of 189 through Figure 166 of 189. (25 Pages)	Environmental Report Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110811168	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 167 of 189 through Figure 189 of 189. (42 Pages)	Environmental Report Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110811203	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Brookridge - Brooksville West Transmission Line, Figure 5, Pages (1 - 24). (24 Pages)	Environmental Report Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110811206	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Brookridge - Brooksville West Transmission Line, Figure 1 - Figure 5. (14 Pages)	Environmental Report Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110820344	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Common Route Transmission Line, Figure 6 (Page 1-3) - Part II - Quantification of Assessment Area. (103 Pages)	Environmental Report Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML101310616	PEF Filing in Response to Nuclear Cost Recovery Clause. (43 Pages)	Letter	- No Known Affiliation	NRC/NRO State of FL, Office of the Comission Clerk	05200029 05200030

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4/30/2010	ML110830206	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 3 through Figure 3, Page 65 of 91 through Figure 4. (31 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830210	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 1 through Figure 3, Page 2 of 91 through 3 of 91. (23 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830214	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 3 through Figure 3, Page 33 of 91. (31 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830219	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 3	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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		through Figure 3, Pages 34 of 91 through 64 of 91. (31 Pages)				
4/30/2010	ML110830311	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 4 through Figure 4 through Page 27 of 34. (27 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830314	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 4 through Figure 5 through Page 20 of 368. (28 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830316	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5 through Figure 5, Page 50 of 368. (30 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110830317	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5 through Figure 5, Page 80 of 368. (30 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830323	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5 through Figure 5 Page 110 of 368. (30 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830325	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5 through Figure 5, Page 141 of 368. (31 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830327	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5 through Figure 5, Page 172 of 368. (31 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110830328	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5 through Figure 5, Page 202 of 368. (30 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830340	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 5, Page 203 of 368 - Page 230 of 368. (28 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830342	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 5, Page 231 of 368 - Page 257 of 368. (27 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830344	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 5, Page 258 of 368. (28 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110830345	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 5, Page 286 of 368 - Page 314 of 368. (29 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830351	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 5, Page 315 of 368 - Page 344 of 368. (30 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830358	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 6, Page 6 of 62 - Page 36 of 62. (31 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830359	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 6, Page 37 of 62 through Figure 7, Page 1 of 34. (28 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110830363	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 5, Page 345 of 368 - Figure 6, Page 5 of 62. (30 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830366	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Table A, Page 1 of 57 thru Drawing. (84 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830370	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 7, Page 2 of 34 - Page 17 of 34. (16 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110830372	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Drawings (24 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110830393	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment. Figure 7, Page 18 of 34 - Page 34 of 34. (17 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840100	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Citrus - Brookridge Transmission Line, Figure 1 - Figure 2, Page 11 of 11. (14 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840105	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5, Page 76 through 101 of 206. (26 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840112	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5,	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110840114	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5, Page 51 through 75 of 206. (25 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840115	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5, Page 129 through 156 of 206. (28 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840129	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 6, Citrus - Brookridge Listed Species Map, Page 1 though 20 of 20. (21 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110840130	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 7, Citrus - Brookridge FEMA 100 Year Floodplain Map, Page 1 through 11 of 11. (21 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840135	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5, Page 157 through 185 of 206. (29 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840136	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5, Page 186 through 206 of 206. (21 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840139	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Sheet 54	Map	MACTEC Engineering & Consulting, Inc	Golder Associates, Inc NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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		through 80 of 139. (27 Pages)				
4/30/2010	ML110840141	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Sheet 81 through 110 of 139. (30 Pages)	Map	MACTEC Engineering & Consulting, Inc	Golder Associates, Inc NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/30/2010	ML110840145	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Citrus - Brookridge Transmission Line. (27 Pages)	Map	MACTEC Engineering & Consulting, Inc	Golder Associates, Inc NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/30/2010	ML110840147	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Sheet 27 through 53 of 139. (27 Pages)	Map	MACTEC Engineering & Consulting, Inc	Golder Associates, Inc NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/30/2010	ML110840155	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Sheet 111 though 139 of 139. (59 Pages)	Map	MACTEC Engineering & Consulting, Inc	Golder Associates, Inc NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/30/2010	ML110840157	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figures 1 through 23 of 114. (25 Pages)	Map	Golder Associates, Inc Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840163	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figures 24 through 50 of 114. (27 Pages)	Map	Golder Associates, Inc Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840165	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figures 51 through 75 of 114. (25 Pages)	Map	Golder Associates, Inc Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/30/2010	ML110840171	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figures 76 through 99 of 114. (24 Pages)	Map	Golder Associates, Inc Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110840175	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figures 100 through 114 of 114. (18 Pages)	Map	Golder Associates, Inc Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110820314	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Common Route Transmission Line, Figure 1 - Figure 5 (Page 1-11). (28 Pages)	Map Photograph	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/30/2010	ML110810980	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Polk-Hillsborough-Pinellas	Report, Miscellaneous	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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		Transmission Line Wetlands 37 - 43. (338 Pages)				
4/30/2010	ML110810982	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Green Swamp - Group A/Full Fee/Less-Than-Fee. (31 Pages)	Report, Miscellaneous	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
5/4/2010	ML101270079	Levy Nuclear Plant Units 1 & 2 - Supplement 1 to Response to Request for Additional Information Letter No. 010 re Quality Assurance Program Description. (68 Pages)	Letter Quality Assurance Program	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/11/2010	ML101410224	Levy, Units 1 & 2, Supplemental Response to Supplemental Request for Additional Information Regarding the Environmental Review - Hydrology 5.3.2.1-2. (6 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/11/2010	ML101300691	5/11/2010-Notice of Forthcoming Closed Conference Call with AP1000 Combined License Applicants Regarding	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030

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		Physical Security Open Items. (13 Pages)				
5/11/2010	ML101310156	5/13/2010-Notice of Forthcoming Closed Meeting with AP1000 Combined License Applicants Regarding Loss of Large Areas Due to Fire or Explosions. (13 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030
5/17/2010	ML101370631	Letter from PEF to FDEP - Responses to the Determination of Incompleteness - Main Site and Associated Facilities for the LNP. (391 Pages)	Letter Report, Miscellaneous	Progress Energy Co	NRC/NRO/DSER State of FL, Dept of Environmental Protection	05200029 05200030
5/17/2010	ML101370185	5/18/2010 Notice of Forthcoming Closed Conference Call with AP1000 Combined License Applicants Regarding Physical Security and Loss of Large Areas Due to Explosion or Fire, Open Items. (13 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030
5/19/2010	ML101370576	Levy, Units 1 & 2, Part 3, Environmental Report, Figure 2.1-1. (3 Pages)	Environmental Monitoring Report Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
5/21/2010	ML101930590	Personal Communication between Emily Wilson and William Mendez, May 21,	Note to File incl Telcon Record, Verbal Comm	NRC/NRO/DSER/RAP2		05200029 05200030

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		2010, Waterborne Disease Outbreaks. (1 Pages)				
5/27/2010	ML101310622	Request for Comment on the Environmental Review of the Levy, Units 1 & 2 Combined License Application. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Seminole Nation of Oklahoma	05200029 05200030
5/27/2010	ML101370530	Request for Comment from the Muscogee Nation of Florida. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Muscogee Nation of Florida	05200029 05200030
5/27/2010	ML101450279	5/25/2010 - Notice of Closed Conference Call with AP1000 Combined License Applicants Regarding Physical Security and Loss of Large Areas Due to Explosion or Fire, Open Items (13 Pages)	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030
6/1/2010	ML101520572	6/01, 08, 15, 22, & 29, 2010, Notice of Recurring Closed Conference Calls with AP1000 Combined Applicants Regarding Physical Security, Loss of Large Areas Due to Explosion or Fire, and Cyber Security Open Items. (13 Pages)	Conference/Symposium/Workshop Paper Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030
6/3/2010	ML101540547	5/27/2010 - Notice of a Forthcoming Closed Meeting with AP1000 Combined License Applicants Regarding Loss of Large Areas Due to Fire or Explosions. (13 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030

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6/3/2010	ML101540589	6/3/2010 Notice of Forthcoming Closed Meeting With AP1000 Combined License Applicants Regarding Loss of Large Areas Due to Fire or Explosions. (13 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200025 05200026 05200027 05200028 05200029 05200030
6/8/2010	ML101650098	Levy, Unit 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 055 Related to Foundations. (32 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/8/2010	ML101650107	Levy, Units 1 & 2, Supplement 3 to Response to Request for Additional Information letter No. 003 Related to Information Systems Important to Safety. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/8/2010	ML101650108	Levy, Units 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 064 Related to Radiation Protection Design Features. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/10/2010	ML101650100	Levy, Units 1 and 2, SSI Analysis - Scope Description. (4 Pages)	Letter	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/10/2010	ML101650531	Levy, Units 1 & 2 - Supplement 1 to Response to Request for Additional Information Letter No. 068 Related to Probabilistic Risk	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Assessment and Severe Accidents. (2 Pages)				
6/10/2010	ML101650533	Levy, Units 1 & 2, Supplement 2 to Response to Request for Additional Information Letter No. 069 Related to Probabilistic Risk Assessment and Severe Accidents. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/11/2010	ML101200253	IR 05200029-10-201, IR 05200030-10-201, on 4/12/10 - 4/16/10, Levy Units 1 and 2. (25 Pages)	Inspection Report	NRC/NRO/DCIP/CQVP	Progress Energy Carolinas, Inc	05200029 05200030
6/14/2010	ML100960542	Summary of Teleconferences with PEF to Discuss RAIs Associated with the Environmental Review of the COLA for LNP Units 1 and 2. (10 Pages)	Conference/Symposium/Workshop Paper Letter Meeting Summary	NRC/NRO/DSER	Progress Energy Florida, Inc	05200029 05200030
6/14/2010	ML100960553	Teleconference Summary for October 15, 2009, and Additional Clarifying Questions to be Discussed October 22, 2009, Levy, Units 1 & 2 Combined License Application. (4 Pages)	Conference/Symposium/Workshop Paper Meeting Summary	NRC/NRO/DSER		05200029 05200030
6/14/2010	ML100960558	Teleconference Summary for Levy, Units 1 & 2 Combined License Application October 22, 2009. (3 Pages)	Conference/Symposium/Workshop Paper Meeting Summary	NRC/NRO/DSER		05200029 05200030

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6/14/2010	ML100960563	Teleconference Summary for Levy, Units 1 & 2 Combined License Application October 30, 2009. (6 Pages)	Conference/Symposium/Workshop Paper Meeting Summary	NRC/NRO/DSER		05200029 05200030
6/14/2010	ML100960567	Teleconference Summary for Levy, Units 1 & 2 Combined License Application November 9, 2009. (2 Pages)	Conference/Symposium/Workshop Paper Meeting Summary	NRC/NRO/DSER		05200029 05200030
6/14/2010	ML100960582	Teleconference Summary for Levy, Units 1 & 2 Combined License Application January 14, 2010. (4 Pages)	Conference/Symposium/Workshop Paper Meeting Summary	NRC/NRO/DSER		05200029 05200030
6/15/2010	ML101930586	EPA Website on Nonattainment Areas for All Criteria Pollutants. (3 Pages)	Environmental Report	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
6/16/2010	ML101690453	Levy Nuclear Plant, Units 1 & 2 - Supplement 1 to Response to Request for Additional Information Letter No. 079 Re Offsite Power System. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/18/2010	ML101740490	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 089 Related to Probable Maximum Flood on Streams and Rivers. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/18/2010	ML101740491	Levy, Units 1 & 2 - Response to Request for Additional Information Letter No. 090 Related to Probable	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Maximum Surge and Seiche Flooding. (5 Pages)				
6/19/2010	ML101930602	Levy DEIS Reference - BLS 1995 Local Area Unemployment Statistics 1995 Annual Averages. (36 Pages)	Database File	US Dept of Labor, Bureau of Labor Statistics	NRC/NRO	05200029 05200030
6/19/2010	ML101930603	Levy DEIS Reference - BLS 2005 Local Area Unemployment Statistics 2005 Annual Averages. (36 Pages)	Environmental Impact Statement	US Dept of Labor, Bureau of Labor Statistics	NRC/NRO	05200029 05200030
6/20/2010	ML101930605	Levy DEIS Reference - USCB 2000 Profile of General Demographic Characteristics 2000 Florida Counties. (4 Pages)	Environmental Impact Statement	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030
6/21/2010	ML101740492	Levy, Units 1 & 2 - Response to Request for Additional Information Letter No. 091 Related to Groundwater. (12 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2010	ML101940491	Levy Nuclear Plant, Detailed Floodplain Analysis Submittal. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
6/24/2010	ML101930593	Levy DEIS Reference - USGS 2008 USGS Groundwater Data for the Nation. (3 Pages)	Environmental Impact Statement	US Dept of Interior, Geological Survey (USGS)	NRC/NRO	05200029 05200030

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6/28/2010	ML101930608	Levy Nuclear, Units 1 and 2 (LNP) Section 404(b)(1) Alternatives Analysis. (103 Pages)	Report, Technical	CH2M Hill	NRC/NRO/DSER Progress Energy Florida, Inc	05200029 05200030
6/30/2010	ML101820645	Levy, Units 1 and 2, Response to Comments Received on Section 404 (b)(1) Alternatives Analysis, Revision 3. (25 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers	05200029 05200030
6/30/2010	ML102280151	Letter re: PEF Response to Comments on 404(b)(1) Analysis. (25 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers	05200029 05200030
6/30/2010	ML101930610	Figure 3.2.3-3, "LNP Site Area Location Map Transmission Line Corridor Extent." (3 Pages)	Map	CH2M Hill	NRC/NRO	05200029 05200030
6/30/2010	ML101930611	Figure 3.2.3-6, "Dixie 1 Site Area Location Map Transmission Line Corridor Extent." (3 Pages)	Map	CH2M Hill	NRC/NRO	05200029 05200030
6/30/2010	ML101930612	Figure 3.2.3-9, "Highlands Site Area Location Map Transmission Line Corridor Extent." (4 Pages)	Map	CH2M Hill	NRC/NRO	05200029 05200030
6/30/2010	ML101930614	Figure 4.1.4-1, "LNP Site Impaired Waters Map Pipeline and Transportation Corridor Extent." (67 Pages)	Map	CH2M Hill	NRC/NRO	05200029 05200030
6/30/2010	ML101930615	Appendix A - Data Sources. (35 Pages)	Report, Technical	CH2M Hill	NRC/NRO	05200029 05200030
7/1/2010	ML101820643	Electric Power Annual: Electric Power Industry	Annual Report	US Dept of Energy, Energy	NRC/NRO	05200029 05200030

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		2008: Year in Review. (16 Pages)		Information Administration (EIA)		
7/1/2010	ML101820644	Net Generation by Energy Source: All Sources. (5 Pages)	Annual Report	US Dept of Energy (DOE)	NRC/NRO	05200029 05200030
7/2/2010	ML101830254	FERC Final EIS for FGT Phase VII. (3 Pages)	- No Document Type Applies	US Federal Energy Regulatory Commission	NRC/NRO	05200029 05200030
7/2/2010	ML101830272	Crystal River Nuclear Power Plant At a Glance. (3 Pages)	Database File	US Dept of Energy, Energy Information Administration (EIA)	NRC/NRO	05000302 05200029 05200030
7/2/2010	ML101830285	Facility Detail Report from EPA on CEMEX Inglis Quarry. (3 Pages)	Database File	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/2/2010	ML101830292	Facility Detailed Report from EPA on Crystal River Limestone Quarry. (2 Pages)	Database File	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/2/2010	ML101830295	Facility Detail Report Crystal River - Lecanto Facility. (4 Pages)	Database File	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/2/2010	ML101830297	Facility Detailed Report from EPA Florida Rock Industries - Gulf H. (2 Pages)	Database File	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/2/2010	ML101830301	EPA Database Results for Anderson Materials, Inc. (2 Pages)	Database File	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030

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7/2/2010	ML101830302	EPA Database Results for Bell Concrete. (2 Pages)	Database File	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/7/2010	ML101890568	Levy County Nuclear Power Plant, Phone/Conference Call Record. (1 Pages)	Conference/Symposium/Workshop Paper Note to File incl Telcon Record, Verbal Comm	Battelle Memorial Institute, Pacific Northwest National Lab	NRC/NRO	05200029 05200030
7/9/2010	ML101940386	Levy Nuclear Plant, Units 1 and 2, Response to Request for Additional Information Letter No. 088 Related to Stability of Subsurface Materials and Foundations. (6 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/12/2010	ML101930589	EPA Website Greenhouse Gas Emission. (10 Pages)	Environmental Report	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/13/2010	ML101930594	Levy DEIS Reference - EPA 2007 Western Ecology Division - Ecoregions of Florida. (1 Pages)	Environmental Impact Statement	Mantech Environmental Technology, Inc US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/13/2010	ML101930595	Levy DEIS Reference - EPA 2009 Sole Source Aquifers in the Southeast. (9 Pages)	Environmental Impact Statement Map	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/13/2010	ML101930596	Levy DEIS Reference - FWS 2010 Atlantic Flyaway. (1 Pages)	Environmental Monitoring Report Map	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030

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7/14/2010	ML101960272	RIMS II Multipliers (206/2006) from U.S. Bureau of Economic Analysis. (3 Pages)	Graphics incl Charts and Tables	US Dept of Commerce, Bureau of Economic Analysis	NRC/NRO	05200029 05200030
7/14/2010	ML101970027	Levy Nuclear Plant, Units 1 & 2 - 10 CFR 50.46 Thirty Day Report for the AP1000 Standard Plant Design. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/15/2010	ML101960350	Levy EIS Reference - FWS 2009 Migratory Birds and Habitat Program. (2 Pages)	Environmental Impact Statement	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
7/16/2010	ML101940184	Section 6.2 of Draft Environmental Impact Statement, Transportation Impacts (26 Pages)	Environmental Impact Statement	NRC/NRO/DSER	Progress Energy Florida, Inc	05200029 05200030
7/16/2010	ML101970020	Section 9.3 of Draft Environmental Impact Statement, Alternative Sites (211 Pages)	Environmental Impact Statement	NRC/NRO/DSER	Progress Energy Florida, Inc	05200029 05200030
7/16/2010	ML101940360	Progress Energy Corporation Proprietary Review of Sections of the Draft Environmental Impact Statement Associated with Alternative Sites for Levy Nuclear Power Plant Units 1 and 2. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Florida, Inc	05200029 05200030
7/19/2010	ML102030026	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 087 Related to Seismic Design Parameters. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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7/19/2010	ML102030027	Levy, Units 1 and 2, Supplement 1 to Response to Request for Additional Information Letter No. 080 Related to Probable Maximum Tsunami Flooding. (12 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/19/2010	ML102210385	8/26/2010 - Revised Meeting Notice - Notice of Forthcoming Public Meeting with the AP1000 Design-Centered Working Group to Discuss Guidance Associated with Complying with 10 CFR 52.79(a)(31) Regarding Construction Impacts. (20 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
7/19/2010	ML102000359	8/12/10 - Meeting Notice for Design-Centered Working Group (DCWG), Re: Discuss Guidance Associated with Complying with 10 CFR 52.79(a)(31) Regarding Construction Impacts. (15 Pages)	Meeting Agenda Meeting Summary	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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7/20/2010	ML102030028	Levy, Units 1 and 2, Response to Progress Energy Corporation Proprietary Review of Sections of the Draft Environmental Impact Statement Associated with Alternative Sites for Levy Nuclear Plant. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/23/2010	ML102100045	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 085 Related to Seismic System Analysis. (13 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/23/2010	ML102100475	Levy Nuclear Plant, Unit 1 & 2, Cyber Security Plan Revision 1. (7 Pages)	Letter Security Plan	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/23/2010	ML102040531	EPA 2010K - Hard Rock Facility Location (1 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)		05200029 05200030
7/23/2010	ML102040613	EPA 2010J - Puntnam Plant Facility Report (6 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/23/2010	ML102040696	EPA 2010H - Kaiser Facility Report (1 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030

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7/23/2010	ML102040699	EPA 2010G Bryan Farms Facility Report (2 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/23/2010	ML102040701	EPA 2010F - Anderson Materials Facility Information (2 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/23/2010	ML102040707	EPA 2010E - Bell Concrete Facility Information (2 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/23/2010	ML102040712	EPA 2009B - Environmental Justice Geographic Assessment Mapper - Dixie Low Income (1 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/23/2010	ML102040716	EPA 2009A - Clean Energy Municipal Solid Waste (5 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/23/2010	ML102040717	EPA 2008 - Municipal Solid Waste Combustion (1 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/23/2010	ML102040720	EPA 2006 24 Hour PM 2.5 Standards Region 4 Final Designations, October 2009 (6 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
7/28/2010	ML102160291	Levy, Units 1 and 2, AP1000 Combined License Application Departure Report Update. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/3/2010	ML102150191	Cover Letter - Conditions of Certification: Plant and Associated Facilities and Transmission Lines -	Letter	Progress Energy Co	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030

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		Modified February 23, 2010 (PEF Letter NPD-LNP-COC-2010-003). (2 Pages)				
8/4/2010	ML102430279	Wetland Mitigation Plan Request for Additional Information Response Site Certification No. PA08-51B. (13 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
8/5/2010	ML101890052	Federal Register Notice of Availability of the Draft Environmental Impact Statement for the Combined License for Levy Nuclear Plant Units 1 and 2.Federal Register Notice of Availability of the Draft Environmental Impact Statement for the Combined License (4 Pages)	Federal Register Notice	NRC/NRO/DSER		05200029 05200030
8/5/2010	ML101960003	Consultation Letter to the Advisory Council on Historic Preservation Notifying the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (12 Pages)	Letter	NRC/NRO/DSER/RAP3	US Advisory Council On Historic Preservation	05200029 05200030
8/5/2010	ML101960105	Letter to Progress Energy Notifying the Issuance of the Draft Environmental Impact Statement for Levy Nuclear Plant Units 1 and 2. (11 Pages)	Letter	NRC/NRO/DSER	Progress Energy Florida, Inc	05200029 05200030

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8/5/2010	ML101970275	Consultation Letter to Miccosukee Tribe Notifying the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (12 Pages)	Letter	NRC/NRO/DSER/RAP3	Miccosukee Indian Tribe	05200029 05200030
8/5/2010	ML101980002	Consultation Letter to the Seminole Nation of Oklahoma Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application. (12 Pages)	Letter	NRC/NRO/DSER/RAP3	Seminole Nation of Oklahoma	05200029 05200030
8/5/2010	ML101980003	Consultation Letter to the Muscogee Nation of Florida Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (12 Pages)	Letter	NRC/NRO/DSER/RAP3	Muscogee (Creek) Nation	05200029 05200030
8/5/2010	ML101980004	Consultation Letter to the Seminole Tribe of Florida Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (12 Pages)	Letter	NRC/NRO/DSER/RAP3	Seminole Tribe of Florida	05200029 05200030

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8/5/2010	ML101980005	Consultation Letter to the Perdido Tribe Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (13 Pages)	Letter	NRC/NRO/DSER/RAP3	Perdido Bay Tribe of Lower Muscogee Creeks	05200029 05200030
8/5/2010	ML101980006	Consultation Letter to the Florida SHPO Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (12 Pages)	Letter	NRC/NRO/DSER/RAP3	State of FL, Div of Historical Resources	05200029 05200030
8/5/2010	ML102000616	Letter to the Florida Fish and Wildlife Conservation Commission Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	State of FL, Fish and Wildlife Conservation Commision	05200029 05200030
8/5/2010	ML102000649	Levy, Units 1 and 2, Letter to the Florida Department of Environmental Protection Regarding the Availability of the Draft Environmental Impact Statement for Combined License Application Review. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	State of FL, Dept of Environmental Protection	05200029 05200030

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8/5/2010	ML102020483	Levy Nuclear Plant, Units 1 and 2, Letter to Fish and Wildlife Service Regarding the DEIS and BA. (12 Pages)	Letter	NRC/NRO/DSER/RAP3	US Dept of Interior, Fish & Wildlife Service	05200029 05200030
8/5/2010	ML102020516	Letter to National Marine and Fisheries Service Regarding the Levy Nuclear Plant DEIS, EFH, and BA. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	State of FL, National Marine Fisheries Services	05200029 05200030
8/6/2010	ML101960008	Levy, Units 1 and 2, Letter to the U.S. Environmental Protection Agency Transmitting the Draft Environmental Impact Statement for Combined License Application Review. (11 Pages)	Letter	NRC/NRO/DSER	US Environmental Protection Agency, Office of Federal Activities	05200029 05200030
8/9/2010	ML102290085	Levy, Nuclear Plant, Units 1 and 2, Revision to Final Safety Analysis Report (FSAR) Section 2.4.5, Probable Maximum Surge and Seiche Flooding, and Section 2.4.6, Probable Maximum Tsunami Hazards. (91 Pages)	Final Safety Analysis Report (FSAR) Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/9/2010	ML102210113	Press Release-10-138: NRC Seeks Public Input On Draft Environmental Impact Statement for Levy County Peak New Reactors; Meetings Scheduled Sept. 23. (2 Pages)	Press Release	NRC/OPA		05200029 05200030

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8/10/2010	ML102290035	Shearon Harris, Units 2 and 3 and Levy Nuclear Plant, Units 1 and 2 - Endorsement of Vogtle R-Cola Response to SER Open Item for Final Safety Analysis Report Chapter 16. (1 Pages)	Letter	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
8/10/2010	ML102220109	8/12/2010 - Notice of Cancellation of Forthcoming Public Meeting with AP1000 Design-Centered Working Group to Discuss Guidance Associated with Complying with 10 CFR 52.79(a)(31) Regarding Construction Impacts. (15 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
8/10/2010	ML102220269	8/26/2010 Notice of Forthcoming Meeting With the AP1000 Design-Centered Working Group to Discuss Guidance Associated With Complying With 10 CFR 52.79(a)(31) Regarding Construction Impacts. (20 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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8/11/2010	ML102000185	Levy Units 1 and 2 Combined License Application Review - Letter to the AF Knotts Public Library Regarding the Availability of the Draft Environmental Impact Statement. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	Yankeetown, FL, AF Knotts Public Library	05200029 05200030
8/11/2010	ML102000223	Letter to the Bronson Public Library Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	Levy County, FL, Bronson Public Library	05200029 05200030
8/11/2010	ML102000249	Letter to the Coastal Regional Library Regarding the Availability of the Draft Environmental Impact Statement for Levy Units 1 and 2 Combined License Application Review. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	Citrus County, FL. Coastal Region Library	05200029 05200030
8/11/2010	ML102000410	Maintenance of Reference Materials at the Dunnellon Branch Library Regarding the Availability of the Draft Environmental Impact	Letter	NRC/NRO/DSER/RAP3	Dunnellon, FL	05200029 05200030

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		Statement for Levy Units 1 and 2 Combined License Application Review. (11 Pages)				
8/11/2010	ML102500351	Levy Nuclear Plant, Units 1 and 2, Environmental Report to AF Knotts Public Library in Yankeetown, Florida. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO Yankeetown, FL, AF Knotts Public Library	05200029 05200030
8/11/2010	ML102500429	Levy Nuclear Plant, Units 1 and 2, Environmental Report to Coastal Region, Bronson, and Dunnellon Branch Libraries. (3 Pages)	Letter	Progress Energy Florida, Inc	Citrus County, FL. Coastal Region Library Dunnellon, FL Levy County, FL, Bronson Public Library NRC/NRO	05200029 05200030
8/12/2010	ML102500438	Request for Bound Copy of DEIS for Combined Licenses for Levy Nuclear Pant, Units 1 and 2. (2 Pages)	Letter	- No Known Affiliation	NRC/NRO/DSER/ RAP3	05200029 05200030
8/15/2010	ML102350160	Comment (1) of Farouk D. Baxter on Environmental Impact Statement for Two AP1000 Units at Levy County Site. (14 Pages)	General FR Notice Comment Letter	- No Known Affiliation	NRC/ADM/DAS/R DEB	05200029 05200030
8/18/2010	ML102320579	Levy, Units 1 and 2 - Response to Request for Additional Information Letter	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		No. 086 Related to Foundations. (131 Pages)				
8/30/2010	ML102450216	Levy, Units 1 & 2 - Response to Request for Additional Information Letter No. 081 Related to Vibratory Ground Motion. (33 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/31/2010	ML102140231	NUREG-1941, Vol 1, DFC, "Draft Environmental Impact Statement for Combined Licenses (COLs) for Levy Nuclear Plant Units 1 and 2," (Draft for Comment). (738 Pages)	NUREG	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District		05200029 05200030
8/31/2010	ML102140235	NUREG-1941, Vol, 2 DFC, " Draft Environmental Impact Statement for Combined Licenses (COLs) for Levy Nuclear Plant Units 1 and 2" (Draft for Comment). (740 Pages)	NUREG	NRC/NRO US Dept of the Army, Corps of Engineers, Jackson District		05200029 05200030
9/1/2010	ML102560367	Comment (2) of Charles J. Smith, on Behalf of Robinson Estates, Inc, Opposing Progress Energy Florida's Proposed Levy Nuclear Plant Draft Environmental Impact Statement. (89 Pages)	General FR Notice Comment Letter	Robinson Estates, Inc	NRC/ADM/DAS/RDEB US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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9/7/2010	ML102450020	Slides - Summary of the August 26, 2010, Public Meeting With AP1000 Design-Centered Working Group to Discuss Guidance Associated With Complying With 10 CFR 52.79(a)(31) Regarding Construction Impacts. (17 Pages)	Meeting Summary Slides and Viewgraphs	NRC/NRO/DNRL/NRGA		05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
9/7/2010	ML102440473	8/26/2010 Summary of Public Meeting With AP1000 Design-Centered Working Group to Discuss Guidance Associated With Complying With 10 CFR 52.79(a)(31) Regarding Construction Impacts. (3 Pages)	Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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9/8/2010	ML102280223	9/23/2010 Notice of Forthcoming Public Meeting to Discuss Draft Environmental Impact Statement for Levy Nuclear Plant Units 1 and 2 Combined Licenses. (13 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DSER/RAP3	NRC/NRO/DSER/RAP3	05200029 05200030
9/13/2010	ML102560416	Press Release-II-10-062: NRC Schedules Meetings for Public to Comment on Draft Environmental Statement for Proposed Levy County Reactors. (1 Pages)	Press Release	NRC/OPA/RGN-II/FO		05200029 05200030
9/16/2010	ML102640042	Levy, Units 1 & 2 - Soil Structure Interaction (SSI) Analysis - Updated Scope Description. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/20/2010	ML102740568	Comment (4) of Scott M. Stroh on Behalf of Florida Department of State on Draft Environmental Impact Statement (DEIS) for the Combined Licenses for Levy Nuclear Plant Units 1 and 2. (1 Pages)	General FR Notice Comment Letter	State of FL, Div of Historical Resources	NRC/ADM/DAS/RDEB	05200029 05200030

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9/20/2010	ML102630491	Powerpoint Presentation for Levy DEIS Public Meeting. (23 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO/DSER/RAP3		05200029 05200030
9/21/2010	ML102640005	Blowdown Aerial Photo USACE Mapbook.	Package	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
9/23/2010	ML102740219	Levy, Summary Identification of Concurrence with Standard Content in Response to Request for Additional Information - Supplement 3. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
9/23/2010	ML102800375	Transcript from the Levy Nuclear Plant DEIS Public Meeting: Afternoon Session. Pages 1-110. (111 Pages)	Meeting Transcript	NRC/NRO		05200029 05200030
9/23/2010	ML102800378	Transcript from the Levy Nuclear Plant DEIS Public Meeting: Evening Session. Pages 1-112. (112 Pages)	Meeting Transcript	NRC/NRO		05200029 05200030
10/4/2010	ML102770009	9/23/2010 Attendee List for Levy Nuclear Plant Units 1 and 2 Draft EIS Public Meetings. (1 Pages)	- No Document Type Applies	NRC/NRO		05200029 05200030
10/4/2010	ML102870839	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Section 1.0 - Appendix 8 (168 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870840	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Section A - Figure A-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870841	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Section A - Figure A-2 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870842	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Section A - Figure A-3 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870844	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Appendix 6 - Figure A6-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870846	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Appendix 6 - Figure A6-2 (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870847	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Section B - Figure B-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870848	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Section B - Figure B-2 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870849	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Section B - Figure B-3 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870850	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Introduction - Figure Intro-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870851	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Introduction - Figure Intro-2 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870852	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Introduction - Figure Intro-3 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870853	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Introduction - Figure Intro-4 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870854	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - KLD Levy ETE (337 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870855	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - REGULATORY CROSS-REFERENCE (63 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870856	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Units 1 and 2 EAL Basis Document (150 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870857	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Citrus County - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870858	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Citrus Memorial Hospital - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870860	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Dept. of Public Safety - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870861	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Florida DEM - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870862	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Levy County - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870863	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Marion County - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870864	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Nature Coast EMS - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870865	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Seven Rivers Medical - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870866	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Citrus County Emergency Plan (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870867	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - State of Florida REMP - Annex A (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870868	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - State of Florida REMP - Annex A - Appendix VI (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870869	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - State of Florida REMP - Annex A - Appendix VI - NUREG-0654 Cross-Reference (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870871	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Levy County Emergency Plan (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870873	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 2 - Supplemental - Marion County Emergency Plan (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML103500011	Progress Energy Levy Units 1 and 2 COLA, Rev. 2 - Citrus County Emergency Plan Part 01 - Draft [REDACTED]. (310 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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10/4/2010	ML102870836	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 2.	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA) (Package)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870899	Progress Energy Levy Units 1 and 2 COLA (ITAAC), Rev. 2 - Proposed License Conditions including ITAAC (58 Pages)	Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870982	Levy Nuclear Plant, Units 1 & 2 - Submittal of COL Application, Revision 2. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870352	Progress Energy Levy Units 1 and 2 COLA (General and Admin Information), Rev. 2 - General and Financial Information (526 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870878	Progress Energy Levy Units 1 and 2 COLA, Rev. 2 - Citrus County Emergency Plan Part 03 - Draft (120 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870879	Progress Energy Levy Units 1 and 2 COLA, Rev. 2 - Citrus County Emergency Plan Part 04 - Draft (109 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870880	Progress Energy Levy Units 1 and 2 COLA, Rev. 2 - Citrus County Emergency Plan Part 05 - Draft (69 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870882	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - Levy County Emergency Plan Part 01 - Draft (174 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870884	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - Levy County Emergency Plan Part 03 - Draft (142 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870886	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - Levy County Emergency Plan Part 04 - Draft (88 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870888	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - Levy County Emergency Plan Part 05 - Draft (69 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870891	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - Marion County Emergency Plan Part 01 - Draft (244 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870893	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - Marion County Emergency Plan Part 02 - Draft (110 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
10/4/2010	ML102870894	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - Marion County Emergency Plan Part 03 - Draft (49 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870895	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - State of Florida REMP - Annex A - Appendix VI - NUREG-0654 Cross-Reference (17 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870896	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - State of Florida REMP - Annex A - Appendix VI (92 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870897	Progress Energy Levy Units 1 and 2 COLA (Sensitive Material), Rev. 2 - State of Florida REMP - Annex A (415 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML103500013	Progress Energy Levy Units 1 and 2 COLA, Rev. 2 - Citrus County Emergency Plan Part 02 - Draft [REDACTED] (121 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
10/4/2010	ML102870901	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 2 - Cyber Security Plan (2 Pages)	License-Application for Combined License (COLA) Quality Assurance Program	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/4/2010	ML102870902	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 2 - Information Incorporated by Reference - Cover Page (2 Pages)	License-Application for Combined License (COLA) Quality Assurance Program	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML102870903	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 2 - Quality Assurance Program Description - Parts I - IV (61 Pages)	License-Application for Combined License (COLA) Quality Assurance Program	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2010	ML110190667	Levy, Units 1 and 2, COLA (Sensitive Material), Rev. 2 - Levy County Emergency Plan Part 02 - Draft [Redacted]. (244 Pages)	License-Application for Combined License (COLA) Report, Technical	Progress Energy Florida, Inc	NRC/NRO	05000302 05200029 05200030
10/4/2010	ML102870837	Progress Energy Levy Units 1 and 2 COLA (Technical Specifications), Rev. 2 - Technical Specifications (824 Pages)	License-Application for Combined License (COLA) Technical Specifications	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/6/2010	ML102871136	Comment (3) of James J. Golden on Behalf of South Florida Water Management District Regarding Draft Environmental Impact Statement for Combined License Application Review. (4 Pages)	General FR Notice Comment Letter	South Florida Water Management District	NRC/ADM/DAS/RDEB	05200029 05200030
10/6/2010	ML102980009	South Florida Water Management District, Progress Energy Levy Nuclear Plant, Units 1 and 2 Draft Environmental Impact Statement Combined	Letter	South Florida Water Management District	NRC/ADM/DAS/RDEB	05200029 05200030

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		License Application Review. (4 Pages)				
10/7/2010	ML103120096	Previous Commercial RCC Testing Results. (33 Pages)	Report, Miscellaneous	Paul C. Rizzo Associates, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102810030	Attachment A: NRC DEIS Hearing. (15 Pages)	- No Document Type Applies	Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102810045	Attachment C: Species-Specific Distribution and Habitat Characteristics of Shark Nurseries in Gulf of Mexico Waters off Peninsular Florida and Texas. (1 Pages)	- No Document Type Applies	- No Known Affiliation	NRC/NRO	05200029 05200030
10/8/2010	ML102810445	Attachment L (contd): Coastal Currents in the Northern Gulf of Mexico. (3 Pages)	- No Document Type Applies	- No Known Affiliation	NRC/NRO	05200029 05200030
10/8/2010	ML102810461	Attachment P: 2010 Regional Water Supply Plan. (142 Pages)	- No Document Type Applies	Southwest Florida Water Management District	NRC/NRO	05200029 05200030
10/8/2010	ML102810473	Attachment Q: An Alternative Water Source for the Northern Planning Area. (5 Pages)	- No Document Type Applies	Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102810494	Submission by Dan Hilliard. (3 Pages)	- No Document Type Applies	Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030

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10/8/2010	ML102810511	Submission by Betty Berger. (8 Pages)	- No Document Type Applies	- No Known Affiliation	NRC/NRO	05200029 05200030
10/8/2010	ML102810521	Submission by Charles J. Smith and Ellen Avery-Smith. (10 Pages)	- No Document Type Applies	Robinson Estates, Inc	NRC/ADM/DAS NRC/NRO State of FL, Dept of Environmental Protection US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
10/8/2010	ML102810525	Submission by Beth Foley. (2 Pages)	- No Document Type Applies	- No Known Affiliation	NRC/NRO	05200029 05200030
10/8/2010	ML102810519	Submission by Emily Casey. (8 Pages)	- No Document Type Applies News Article	- No Known Affiliation	NRC/NRO	05200029 05200030
10/8/2010	ML102810032	Attachment B: Site-Specific Information in Support of Establishing Numeric Nutrient Criteria in Suwannee Estuary/Suwannee Sound/Cedar Keys, Waccasassa Bay, and Withlacoochee Bay. (108 Pages)	Environmental Report	State of FL, Dept of Environmental Protection Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102810410	Proposed Research/Management Plan for Crystal River Manatees Vols. 1- 3. (668 Pages)	Environmental Report	Univ of Florida Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030

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10/8/2010	ML102810427	Attachment G: Florida Fish and Wildlife Conservation Commission: Wildlife 2060. (29 Pages)	Environmental Report	State of FL, Fish and Wildlife Conservation Commission Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102810442	Attachment L: Coastal Currents in the Northern Gulf of Mexico. (124 Pages)	Environmental Report	US Dept of Interior, Mineral Management Services	NRC/NRO	05200029 05200030
10/8/2010	ML102810448	Attachment N: Cross Florida Greenway: Watershed Evaluation - Evaluation of Alternative Flow Scenarios. (187 Pages)	Environmental Report	Withlacoochee Area Residents, Inc	NRC/NRO Southwest Florida Water Management District	05200029 05200030
10/8/2010	ML102810453	Attachment O: West Terminus Cross-Florida Greenway Assessment Work Orders 1 and 2. (186 Pages)	Environmental Report	Southwest Florida Water Management District Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102861193	Attachment J: Thermal Imaging of the Waccasassa Bay Preserve: Image Acquisition and Processing. (83 Pages)	Environmental Report	US Dept of Interior, Geological Survey (USGS) Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102860155	Attachment C: Species-Specific Distribution and Habitat Characteristics of	Journal Article	Mote Marine Lab	NRC/NRO/DSER/ RAP3	05200029 05200030

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		Shark Nurseries in Gulf of Mexico Waters off Peninsular Florida and Texas. (193 Pages)				
10/8/2010	ML102810447	Attachment M: Tarmac King Road, Limestone Mine - Levy County, Florida. (443 Pages)	Letter	Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102870124	Shearon Harris, Units 2 and 3, and Levy, Units 1 and 2, Review of Vogtle Request for Additional Information Response for Applicability. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
10/8/2010	ML102810424	Attachment E: Withlacoochee CFBC and Estuaries. (2 Pages)	Map	Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102861142	Attachment K: Map of Sample Sites. (2 Pages)	Map	- No Known Affiliation	NRC/NRO	05200029 05200030
10/8/2010	ML102810438	Attachment F: Waccasassa Bay Preserve State Park Unit Management Plan. (150 Pages)	Operating Plan	State of FL, Dept of Environmental Protection	NRC/NRO	05200029 05200030
10/8/2010	ML102810437	Attachment I: 17 Nov Springs CFBC; Barge Canal Springs. (44 Pages)	Photograph	Withlacoochee Area Residents, Inc	NRC/NRO	05200029 05200030
10/8/2010	ML102810441	Attachment K: Water Quality Data. (1 Pages)	Spreadsheet File	- No Known Affiliation	NRC/NRO	05200029 05200030
10/8/2010	ML102860837	Submission by Norman Hopkins and David Hopkins. (19 Pages)	Technical Paper	- No Known Affiliation	NRC/NRO	05200029 05200030
10/11/2010	ML103000302	Comment (5) of Robert E. Fetrow, on Levy County Nuclear Power Plant Limited	General FR Notice Comment Letter	- No Known Affiliation	NRC/ADM/DAS/RDEB	05200029 05200030

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		Work Authorization. (1 Pages)				
10/15/2010	ML102930105	Levy, Units 1 and 2, Roadmap of Changes in Combined License Application, Revision 2. (83 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/20/2010	ML103000303	Comment (6) of Charles J. Smith, on Behalf of Robinson Estates, Inc., re: Concerns About Potential Contamination and Surface and Subsurface Waters on Property of Planned Nuclear Plant in Levy County, Florida. (3 Pages)	General FR Notice Comment Letter	Robinson Estates, Inc	NRC/ADM/DAS/RDEB US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
10/22/2010	ML103050294	Comment (7) of Robert E. Fetrow, on Behalf of Gator Engineering Services, Inc, on Levy County Nuclear Power Plant Discharge into Existing Florida Barge Canal. (4 Pages)	General FR Notice Comment Letter	Gator Engineering Services, Inc	NRC/ADM/DAS/RDEB	05200029 05200030
10/22/2010	ML102810005	9/23/2010 Summary of Public Meetings Conducted for the Draft Environmental Impact Statement for Levy Nuclear Plant Units 1 and 2, Combined License Application. (8 Pages)	Memoranda	NRC/NRO/DSER/RAP3	NRC/NRO/DSER/RAP3	05200029 05200030
10/25/2010	ML103010056	Comments on Draft Environmental Impact Statement for the Levy Nuclear Plant, Units 1 & 2	Letter	Progress Energy Florida, Inc	NRC/ADM/DAS/RDEB	05200029 05200030

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		(75 fr 49539 - August 13, 2010). (11 Pages)				
10/26/2010	ML103080057	Comment (8) of Miles M. Croom on Behalf of US Dept. of Commerce, NOAA, on Draft Environmental Impact Statement and Essential Fish Habitat Assessment for Levy, Units 1 & 2 Proposed Construction by Progress Energy Florida. (7 Pages)	General FR Notice Comment Letter	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/ADM/DAS/RDEB US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
10/26/2010	ML103080058	Comment (9) of Heinz J. Mueller on Behalf of EPA, on Draft Environmental Impact Statement for Levy, Units 1 & 2, Combined License Application for Construction Permits & Operating License (NUREG-1941). (9 Pages)	General FR Notice Comment Letter	US Environmental Protection Agency (EPA)	NRC/ADM/DAS/RDEB	05200029 05200030
10/26/2010	ML103050063	Letter re: Request for 60-day Extension to Submit Comments and Preliminary Comments on DEIS of Proposed Combined Licenses for Levy Nuclear Plant Units 1 and 2. (4 Pages)	Letter	- No Known Affiliation	NRC/NRO/DSER/RAP3 US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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11/2/2010	ML103000009	Response to Nuclear Information Services, et.al., Request to Extend Comment Period on Levy Nuclear Plant Draft Environmental Impact Statement. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Nuclear Information & Resource Service (NIRS)	05200029 05200030
11/2/2010	ML103120095	Information in Support of the EPRI Materials Reliability Program (MRP): Pressurized Water Reactor Internals Inspection and Evaluation Guidelines (MPR-227-Rev 0) Review. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/3/2010	ML103200270	Comment (11) of Norman Hopkins, on Behalf of the Amy H. Remley Foundation, Inc., re: Additional Submission Following the Review of Draft NUREG-1941 on September 23, 2010. (2 Pages)	General FR Notice Comment Letter	The Amy H. Remley Foundation, Inc	NRC/NRO	05200029 05200030
11/3/2010	ML103070278	Press Release-10-200: Licensing Board to Hear Oral Argument Nov. 17 in Rockville, MD., on Levy County New Nuclear Reactor Application. (1 Pages)	Press Release	NRC/OPA		05200029 05200030
11/8/2010	ML103160268	Comment (10) of Emily Casey, Reply to Levy COLEIS, to Address Areas of Concern Which Are Not Obvious in the Draft EIS. (4 Pages)	General FR Notice Comment Letter	- No Known Affiliation	NRC/NRO	05200029 05200030

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11/10/2010	ML103080027	Response to Request from Dr. Bacchus to Extend Comment Period on Levy Nuclear Plant Draft Environmental Impact Statement. (8 Pages)	Letter	NRC/NRO/DSER/RAP3	- No Known Affiliation	05200029 05200030
11/10/2010	ML103200399	Levy, Units 1 and 2 - Supplement 1 to Response to Request for Additional Information Letter No. 085 Related To Seismic System Analysis. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/10/2010	ML103200400	Levy, Units 1 and 2, Supplement 1 To Response To Request For Additional Information Letter No. 087 Related To Seismic Design Parameters. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/11/2010	ML110390366	Enclosure: Cross Florida Barge Canal and Withlacoochee River Survey and Monitoring Plan, Levy Nuclear Plant. (42 Pages)	Environmental Monitoring Report	CH2M Hill	NRC/NRO/DSER/RAP3 Progress Energy Florida, Inc	05200029 05200030
11/16/2010	ML103260240	Levy, Units 1 & 2, Supplement 1 to Response to Request for Additional Information Letter No. 046 Related to Seismic Design Parameters. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/16/2010	ML103300096	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 093 Related to Probable Maximum Flood (PMF) on Streams and Rivers. (99 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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11/18/2010	ML110320198	Levy, Units 1 & 2, Crystal Bay Surface Water Monitoring Plan, Site Certification No. PA08-51A, Section B XXVII.K. (32 Pages)	Environmental Monitoring Report Letter	Progress Energy Florida, Inc	NRC/NRO State of FL, Dept of Environmental Protection	05200029 05200030
11/18/2010	ML110320186	Progress Energy Florida Tech Memo, Cross Florida Barge Canal and Withlacoochee River Survey and Monitoring Plan; and Levy Nuclear Plant and Crystal River Energy Complex Combined Discharge Survey and Monitoring Plan. (87 Pages)	Environmental Monitoring Report Letter Memoranda	Progress Energy Florida, Inc	NRC/NRO State of FL, Fish and Wildlife Conservation Commission	05200029 05200030
11/27/2010	ML103340103	Dr. Bacchus Supplemental Comment Letter. (21 Pages)	Letter	- No Known Affiliation	NRC/NRO/DSER/ RAP3 US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
11/30/2010	ML103420645	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 094 Related to Probable Maximum Tsunami Flooding. (32 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/30/2010	ML103150010	Levy County Nuclear Plant, Units 1 and 2 Combined License Application Revised Review Schedule. (7 Pages)	Letter Schedule and Calendars	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030

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12/3/2010	ML103420056	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 096 Related to Regional Climatology. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/6/2010	ML110320233	Florida Fish and Wildlife Conservation Commission Review of Progress Energy Florida Cross Barge Canal and Withlacoochee River Survey and Monitoring Plan. (2 Pages)	Letter	State of FL, Fish and Wildlife Conservation Commission	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
12/10/2010	ML110120632	Interim Response to Essential Fish Habitat Conservation Recommendations Regarding the Proposed Levy Nuclear Plant Units 1 and 2, and Associated Facilities. (2 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO State of FL, National Marine Fisheries Services	05200029 05200030
12/14/2010	ML103500241	Shearon Harris, Units 2 & 3, and Levy, Units 1 & 2, NRC Regulatory Issue Summary 2010-10 Process for Scheduling Acceptance Reviews of New Reactor Licensing Applications and Process for Determining Budget Needs for Fiscal Year 2013. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030

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12/20/2010	ML103610254	Levy Nuclear Plant, Units 1 & 2, Response to Request for Additional Information for Crystal River Plant Manatee Protection Plan. (11 Pages)	Letter Operating Plan	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/21/2010	ML103610137	Shearon Harris, Units 2 & 3, Levy, Units 1 & 2, Voluntary Response Related to Emergency Operations Facility (EOF) Design. (60 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
12/22/2010	ML103190723	Interim Response to Essential Fish Habitat Conservation Recommendations Regarding Proposed Levy Nuclear Plant Units 1 and 2. (13 Pages)	Letter	NRC/NRO/DSER	US Dept of Commerce, National Marine Fisheries Service	05200029 05200030
12/22/2010	ML103420004	Renewed Request by Dr. Bacchus to Extend Public Comment Period on the Levy DEIS. (11 Pages)	Letter	NRC/NRO/DSER/RAP3		05200029 05200030
12/31/2010	ML11304A211	GCT-H2 - Florida: General Housing, 2010 Census Summary File 1. (3 Pages)	- No Document Type Applies	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030
12/31/2010	ML11304A216	Florida Department of Education (FDOE), Table 3: PK-12 Student Membership by Grade, Fall 2010. (1 Pages)	- No Document Type Applies	State of FL, Dept of Education	NRC/NRO	05200029 05200030

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1/3/2011	ML110060190	U.S. Army Corps of Engineers Jurisdictional Verification Letter for an "Approved" Jurisdictional Determination for the Blowdown Pipeline Route 2. (19 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/5/2011	ML110050289	2011/1/05 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 097 RELATED TO SRP SECTION 2.4.12 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION (6 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030
1/10/2011	ML110700543	Response from Progress Energy Florida Regarding, "Letter from Jamie Hunter (PEF) to Gordan A. "Don" Hambrick, III, US Army Corps of Engineers, dated June 1, 2010, Subject": Levy Nuclear Plant - Transmission Lines Submittals. (2 Pages)	Letter	Progress Energy Co	NRC/NRO/DSER/ RAP3 US Dept of Interior, Fish & Wildlife Service	05200029 05200030
1/18/2011	ML120180347	Levy Nuclear Plants Units 1 and 2 Detailed Floodplain Analysis for the Site. (145 Pages)	Environmental Monitoring Report	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/25/2011	ML110310018	Levy, Unit 1 & 2, Supplement 2 to Response To Request For Additional Information Letter No. 055	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Related to Foundations. (8 Pages)				
1/25/2011	ML110310019	Levy, Units 1 & 2, Supplement 2 to Response to Request for Additional Information Letter No. 085 Related to Seismic System Analysis. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/25/2011	ML110310020	Levy, Units 1 & 2, Supplement 2 to Response to Request for Additional Information Letter No. 086 Related to Foundations. (31 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/25/2011	ML110340074	Letter re: Final Order Modifying Conditions of Certification, Levy Nuclear Plant Units 1 and 2. (105 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/25/2011	ML110340086	Florida Department of Environmental Protection, Conditions of Certification, Modified January, 25, 2011, Levy Nuclear Plant Units 1 and 2. (105 Pages)	Report, Miscellaneous	State of FL, Dept of Environmental Protection	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/26/2011	ML110260136	2011/1/26 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 098 RELATED TO SRP SECTION 2.3.4 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030

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		LICENSE APPLICATION (7 Pages)				
1/27/2011	ML110340018	Levy Nuclear Plant, Units 1 & 2 - Response to Request for Additional Information Letter No. 095 Related to Probable Maximum Surge and Seiche Flooding. (40 Pages)	Letter Report, Miscellaneous	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/28/2011	ML110340017	Levy Nuclear Plant, Units 1 and 2 - AP1000 Combined License Application Departure Report Update. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/8/2011	ML113080074	The 2005-2009 American Community Service (ACS) 5-Year Summary File Technical Documentation, Version 2, U.S. Census Bureau, February 8, 2011. (83 Pages)	Report, Technical	US Dept of Commerce, Bureau of Census	NRC/NRO/DSER	05200029 05200030
2/9/2011	ML110490215	LNG-1000-S2R-804-NP, Rev. 0, "AP1000 Levy Nuclear Island and RCC Bridging Mat - 3D SASSI SSI Evaluation Report." (116 Pages)	Report, Technical	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
2/9/2011	ML110400429	2011/2/09 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 099 RELATED TO SRP SECTION 16.0 FOR THE LEVY COUNTY NUCLEAR	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/NWE1	05200029 05200030

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		PLANT, UNITS 1 AND 2 COMBINED LICENSE APPLICATION (6 Pages)				
2/10/2011	ML110700560	Response from Progress Energy Florida Reading, "CDs Containing the Permitting Support Files for the Citrus to Brookridge Project." (1 Pages)	Letter	Progress Energy Co	NRC/NRO/DSER/RAP3 US Dept of Interior, Fish & Wildlife Service	05200029 05200030
2/11/2011	ML110410728	2/25/2011, Notice of Forthcoming Public Meeting With Progress Energy Florida, Inc. To Discuss The Tsunami Flooding Review of The Levy County Units 1 And 2 COLA. (4 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200029 05200030
2/14/2011	ML110200098	Response to Comments Received on the Biological Assessment for Proposed Levy Nuclear Plant Units 1 and 2. (5 Pages)	Letter	NRC/NRO/DSER	US Dept of Interior, Office of Environmental Policy and Compliance	05200029 05200030
2/14/2011	ML110490061	Levy Nuclear Plant, Units 1 & 2, Submittal of Voluntary Revision to Final Safety Analysis Report (FSAR) Chapter 10 Related to Seismic Margin. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/14/2011	ML110490214	Levy, Units 1 and 2, Supplement 3 to Response to Request for Additional Information Letter No. 085 Related to Seismic System Analysis. (9 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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2/15/2011	ML110400476	Response to Environmental Protection Agency Request for Cross Florida Barge Canal and withlacoochee River Survey and Monitoring Plan, Levy Nuclear Plant, Units 1 & 2. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	US Environmental Protection Agency (EPA)	05200029 05200030
2/18/2011	ML12073A198	Letter from Florida Department of Environmental Protection to the U.S. Army Corps of Engineers Regarding Progress Energy Florida Levy Nuclear Plant Water Quality Certification (401 Certification), February 18, 2011. (1 Pages)	Letter	State of FL, Dept of Environmental Protection	NRC/NRO US Dept of the Army, Corps of Engineers, Jackson District	05200029 05200030
2/22/2011	ML110530374	Draft Document: Table Outlining Optimal Survey Periods for Threatened and Endangered Plant Species Along Transmission Lines, Levy Nuclear Plants Units 1 and 2, (1 Pages)	- No Document Type Applies	NRC/NRO		05200029 05200030
2/22/2011	ML110530381	Draft Document: Table of Threatened and Endangered Species Along Transmission Lines, Levy Nuclear Plants Units 1 and 2. (1 Pages)	Graphics incl Charts and Tables	NRC/NRO		05200029 05200030
2/22/2011	ML110530385	Draft Document: Flow Chart for Identifying Habitat for Threatened and Endangered Plant Species Along Transmission Lines, Levy Nuclear Plants Units 1 and 2. (1 Pages)	Graphics incl Charts and Tables	NRC/NRO		05200029 05200030

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2/22/2011	ML110560275	Levy COL Supplemental BA Table 2 22 11 AD Comments. (13 Pages)	Graphics incl Charts and Tables	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
2/22/2011	ML110530402	Draft Document: Figure of Wood Stork Nesting Colonies and Core Foraging Areas Along Transmission Line Corridors, Levy Nuclear Plants Units 1 and 2. (1 Pages)	Map	NRC/NRO		05200029 05200030
2/22/2011	ML110560299	Levy COL Updated Map, 2/22/2011. (1 Pages)	Map	Battelle Memorial Institute, Pacific Northwest National Lab	NRC/NRO	05200029 05200030
2/28/2011	ML110600566	Progress Energy Florida Presentation, Meeting with U.S. Fish and Wildlife Service, February 28, 2011, Levy Nuclear Plant Units 1 and 2. (20 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	Progress Energy Co	NRC/NRO	05200029 05200030
2/28/2011	ML110591146	2011/2/28 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 101 RELATED TO SRP SECTION 2.4.6 FOR THE LEVY COUNTY UNITS 1 AND 2 COMBINED LICENSE APPLICATION (7 Pages)	Request for Additional Information (RAI)	NRC/NRO	NRC/NRO/DNRL/ NWE1	05200029 05200030

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3/1/2011	ML110630112	Levy Nuclear Plant, Units 1 & 2 - Supplement 4 to Response to Request for Additional Information Letter No. 085 Related to Seismic System Analysis. (24 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/1/2011	ML110680414	Levy, Unit 1 & 2, Endorsement of Changes to the Standard Content of the Vogtle R-COLA and Departure to the AP1000 Certified Design Control Document. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/1/2011	ML110800348	Levy, Units 1 and 2, Response to Request for Information Supporting Environmental Review. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/2/2011	ML110660186	Part 1 - Binder 1 for JD March 2011. (20 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
3/2/2011	ML110660192	Part 2 - Binder 1 for JD March 2011. (20 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
3/2/2011	ML110660197	Part 3 - Binder 1 for JD March 2011. (20 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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3/2/2011	ML110660208	Part 4 - Binder 1 for JD March 2011. (20 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
3/2/2011	ML110660217	Part 5 - Binder 1 for JD March 2011. (20 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
3/7/2011	ML111030370	The Significance of Lake Rousseau for Wading Birds and Difficulties Encountered During Nesting Season. (19 Pages)	Environmental Monitoring Report	Marion County Audubon Society	NRC/NRO	05200029 05200030
3/7/2011	ML110700092	Levy Nuclear Plant, Units 1 and 2 - Endorsement of Changes to the Standard Content of the Vogtle R-COLA - Final Safety Analysis Report Chapters 6, 14 & 15. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/7/2011	ML110750051	Levy Nuclear Plant, Units 1 and 2 - Loss of Large Areas of the Plant Due to Explosions or Fire - Mitigative Strategies Description and Plans - Revision 1. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/11/2011	ML110700676	Letter: CDs GIS Shape Files for Transmission Line Corridors; Transmission Lines preferred Right of Way; Permitting Support Information for the Brooksville-Brooksville West	Letter	Progress Energy Co	NRC/NRO/DSER/ RAP3 US Dept of Interior, Fish & Wildlife Service	05200029 05200030

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		(BBW) preferred right of way and Crystal River Energy Complex. (2 Pages)				
3/11/2011	ML110750042	Levy Nuclear Plant, Units 1 and 2 - Voluntary Response to LNP COLA Information Concerning Onsite Toxic Chemicals. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/11/2011	ML110750043	Levy, Units 1 & 2 - Voluntary Response to Request for Change Related to LNP FSAR Section 9.5.2.2.5. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/15/2011	ML110800089	Levy Nuclear Plant, Units 1 and 2 - Endorsement of Changes to the Standard Content of the Vogtle R-COLA - Cyber Security Plan. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/15/2011	ML110800090	Levy, Units 1 & 2 - Response to Request for Additional Information Letter No. 097 Related to SRP Section 2.4.12. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/15/2011	ML110800091	Levy, Units 1 & 2 - Response to Request for Additional Information Letter No. 099 Related to SRP Section 16.0. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/15/2011	ML110800092	Levy, Units 1 & 2 - Response to Request for Additional Information Letter No. 100 Related to	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Emergency Planning. (48 Pages)				
3/17/2011	ML110750563	Transmittal of Figures for Habitat Surveys Along Transmission Line Corridors, Levy Nuclear Plant, Unit 1 & 2. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Florida, Inc	05200029 05200030
3/23/2011	ML111030363	Critical Bird Nesting Habitat Near Levy Nuclear Plant Site. (1 Pages)	Letter	- No Known Affiliation	NRC/NRO/DSER	05200029 05200030
3/25/2011	ML110890430	Shearon Harris, Units 2 & 3 and Levy, Units 1 & 2 - 10 CFR 50.46 Annual Report for the AP1000 Standard Plant Design. (12 Pages)	Annual Operating Report Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200006 05200022 05200023 05200029 05200030
3/25/2011	ML110960336	Levy, Units 1 and 2, Response to Request for Information Supporting Environmental Review. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/25/2011	ML110960648	Levy, Units 1 and 2, Response To Request For Additional Information Letter No. 098 Related To Short Term Atmospheric Dispersion Estimates For Accident Releases. (21 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/29/2011	ML110620587	Levy Nuclear Power Plant Units 1 And 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 4, "Reactor." (6 Pages)	Letter	NRC/NRO/DNRL	Progress Energy Florida, Inc	05200029 05200030

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3/29/2011	ML110620595	3/29/11 Letter - Levy Nuclear Power Plant Units 1 And 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 5, "Reactor Coolant System And Connected Systems." (6 Pages)	Letter	NRC/NRO/DNRL/BWR	Progress Energy Florida, Inc	05200029 05200030
3/29/2011	ML110620604	Levy Nuclear Power Plant, Units 1 & 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 10, "Steam And Power Conversion System." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
3/29/2011	ML110620664	Letter - Levy Nuclear Power Plant Units 1 And 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 18 "Human Factors Engineering." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
3/29/2011	ML100621198	Levy County Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 4, "Reactor" (6 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
3/29/2011	ML100670476	Levy County Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 5, "Reactor Coolant Systems And Connected Systems" (58 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030

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3/29/2011	ML101100014	Levy County Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 10, "Steam and Power Conversion System" (36 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
3/29/2011	ML101250013	Levy County Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 18, "Human Factors". (23 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO		05200029 05200030
3/30/2011	ML110620619	Levy Nuclear Power Plant, Units 1 & 2 Combined License Application-Advanced Safety Evaluation Without Open Items for Chapter 6, "Engineered Safety Features". (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
3/30/2011	ML110660027	Levy Nuclear Power Plant Units 1 and 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 4, "Reactor." (3 Pages)	Memoranda	NRC/NRO	NRC/ACRS	05200029 05200030
3/30/2011	ML110660028	Levy Nuclear Power Plant Units 1 and 2 Combined License Application - Advanced Safety Evaluation without Open Items for Chapter 5, "Reactor Coolant System and Connected Systems." (3 Pages)	Memoranda	NRC/NRO	NRC/ACRS	05200029 05200030

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3/30/2011	ML110660033	3/30/11 Memo Regarding Levy Nuclear Power Plant Units 1 and 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 10, "Turbine Generator." (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
3/30/2011	ML110660048	3/30/11 Memo Regarding Levy Nuclear Power Plant Units 1 and 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 6, "Engineered Safety Features." (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
3/30/2011	ML110660080	3/30/11 Memo Regarding Levy Nuclear Power Plant Units 1 and 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 18, "Human Factors Engineering." (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
3/30/2011	ML110250040	Levy County Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 6, "Engineered Safety Features" (39 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
3/31/2011	ML111230088	Brookridge to Brooksville West T&E Report - Final. Listed Species Assessment. (108 Pages)	Environmental Report	Progress Energy Carolinas, Inc	NRC/NRO/DSER	05200029 05200030

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3/31/2011	ML111430899	Progress Energy - Levy Nuclear - Listed Species Assessment Citrus to Brookridge Transmission Line, Cover through Figure 3, Page 173 of 206. (224 Pages)	Environmental Report	Golder Associates, Inc	NRC/NRO Progress Energy Co	05200029 05200030
3/31/2011	ML111790039	Citrus Substation T&E Report - Final. (109 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111790105	Common Route T&E Report - Final. (109 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111790787	Kathleen Substation T&E Report - Final. (104 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111791316	LCR T&E Report - Final. (154 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111791558	CFS Substation T&E Report - Final. (98 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111791671	LCFS T&E Report - Final (Part 1 of 2). (244 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111791676	LCFS T&E Report - Final (Part 2 of 2). (245 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111791733	PHP T&E Report - Final (Part 1 of 3). (230 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111791740	PHP T&E Report - Final (Part 3 of 3). (231 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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3/31/2011	ML111791753	PHP T&E Report - Final (Part 2 of 3). (232 Pages)	Environmental Report	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
3/31/2011	ML111790713	CREC Substation T&E Report - Final. (66 Pages)	Report, Miscellaneous	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/1/2011	ML113530603	Florida Gas Transmission Company, Phase VII Expansion Project, Docket No. CP09-17-000, Notification of Commencement of Service. (2 Pages)	Letter	Florida Gas Transmission Company, LLC	NRC/NRO US Federal Energy Regulatory Commission	05200029 05200030
4/1/2011	ML110800354	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line Environmental Resource Permit Application. Volume 1 of 2, Figure 3, Page 25 of 84 through Page 49 of 84. (25 Pages)	Map	Golder Associates, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/1/2011	ML110840126	Levy, Units 1 and 2, Supporting Documents - Central Florida South Transmission Line, Wetland Delineation/Threatened & Endangered Species Assessment, Figure 5, Page 102 through 128 of 206. (27 Pages)	Map	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/12/2011	ML110970593	Hoehn: Transmittal of Figures for Habitat Surveys Along Transmission Line Corridors, Levy Nuclear	Letter	NRC/NRO/DSER	State of FL, Fish and Wildlife Conservation Commission	05200029 05200030

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		Plant Units 1 and 2. (7 Pages)				
4/12/2011	ML110970618	Steele: Transmittal of Figures for Habitat Surveys Along Transmission Line Corridors, Levy Nuclear Plant Units 1 and 2. (7 Pages)	Letter	NRC/NRO/DSER	Seminole Tribe of Florida	05200029 05200030
4/12/2011	ML110970624	Levy Nuclear Plants Units 1 and 2, Transmittal of Figures for Habitat Surveys Along Transmission Line Corridors. (7 Pages)	Letter	NRC/NRO/DSER/RAP1	Seminole Tribe of Florida	05200029 05200030
4/14/2011	ML11112A087	Levy Nuclear Plant, Units 1 and 2, Voluntary Supplemental Response to Request for Additional Information Letter No. 073 Related to Solid Waste Management System. (10 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/19/2011	ML11111A125	Shearon Harris, Units 2 and 3, and Levy, Units 1 and 2, Summary Identification of Concurrence with Standard Content in Response to Requests for Additional Information - Supplement 4. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030

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4/19/2011	ML11112A033	Levy, units 1 & 2, Submittal of Revision 3 to Physical Security Plan. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/19/2011	ML11119A203	Levy Nuclear Plant, Units 1 and 2 - Loss of Large Areas of the Plant Due to Explosions or Fire - Mitigative Strategies Description and Plans - Revision 1. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/19/2011	ML111370583	Levy, Units 1 and 2, 56-Day Report, Phase II Mix Design Program, Revision 1. (63 Pages)	Report, Technical	Paul C. Rizzo Associates, Inc	NRC/NRO	05200029 05200030
4/25/2011	ML111790029	Letter from Progress Energy Florida to the US Fish and Wildlife Service Regarding a Follow-up to the April 6, 2011 meeting in Jacksonville, Florida to Discuss Listed Species Assessments. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of Interior, Fish & Wildlife Service	05200029 05200030
4/30/2011	ML111990196	Cultural Resources Work Plan for the Proposed Levy Nuclear Plant Project, Levy, Citrus, Marion, Hernando, Sumter, Polk, Hillsborough, and Pinellas Counties, Florida, Progress Energy Florida. (132 Pages)	Environmental Protection Plan	Southeastern Archaeological Research, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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4/30/2011	ML111990184	Cultural Resources Work Plan - Appendix B (2 of 2). (19 Pages)	Map	Southeastern Archaeological Research, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
4/30/2011	ML111990178	Cultural Resources Work Plan - Appendix B (1 of 2). (18 Pages)	Map Photograph	Southeastern Archaeological Research, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
5/2/2011	ML11129A049	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 103 Request for Modflow Input Files. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/4/2011	ML11129A059	Levy, Units 1 & 2, Final Safety Analysis Report Chapter 14 - Corrections to Conformance With Standard Content of the Vogtle R-COLA. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/4/2011	ML11129A060	Levy Nuclear Plant, Units 1 & 2, Voluntary Submittal Related to the Liquid Waste Management System Described in Chapter 11 of the Final Safety Analysis Report. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/4/2011	ML11130A106	Levy, Units 1 and 2, Response to Request for Additional Information No. 102 Related to Physical Security. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/4/2011	ML11131A028	Levy, Units 1 & 2 - Supplement 1 to Response to Request for Additional	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Information Letter No. 066 Related to Physical Security. (3 Pages)				
5/10/2011	ML111260408	5/24/2011 Notice of Forthcoming Meeting with AP1000 Design-Centered Working Group (DCWG) to Discuss the Closure Plan for the AP1000 Piping Design Acceptance Criteria. (9 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
5/10/2011	ML111390647	5/24/2011 Revised Notice of Meeting With AP1000 Design-Centered Working Group (DCWG). (9 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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5/12/2011	ML11136A264	Levy, Units 1 and 2, Supplement 3 to Response to Request for Additional Information Letter No. 086 Related to Foundations. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/12/2011	ML11143A089	Levy Nuclear Plant, Units 1 & 2, Response to Request for Information Supporting FSAR Section 3.7 Confirmatory Analysis. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/13/2011	ML111990147	Letter to L. Kammerer on Levy Nuclear Plant Units 1 and 2 Cultural Resources. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO State of FL, Div of Historical Resources	05200029 05200030
5/16/2011	ML111240408	Supplemental Request for Additional Information Regarding the Environmental Review of the Combined License Application for Levy Nuclear Plants Units 1 and 2. (10 Pages)	Letter	NRC/NRO/DSER/RAP3	Progress Energy Florida, Inc	05200029 05200030

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5/16/2011	ML111240416	Supplemental RAI for Thermal Plume Analysis. (1 Pages)	Request for Additional Information (RAI)	NRC/NRO/DSER/RAP3	Progress Energy Florida, Inc	05200029 05200030
5/23/2011	ML111430901	Progress Energy - Levy Nuclear - Listed Species Assessment Citrus to Brookridge Transmission Line, Figure 3, Page 174 of 206 through End. (224 Pages)	Environmental Report	Golder Associates, Inc	NRC/NRO Progress Energy Co	05200029 05200030
5/24/2011	ML111721679	Letter to Mr. Willard Steele, Seminole Tribe of Florida, from U.S. Army Corps of Engineers, Jacksonville District. (2 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Tribal Historic Preservation Office Ah Tha Thi Ki Museum	05200029 05200030
5/24/2011	ML111460093	AP1000 DCWG Meeting to Discuss Piping DAC and Initial Test Program License Conditions. (3 Pages)	Meeting Briefing Package/Handouts	NRC/NRO/DNRL/NWE1		05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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5/24/2011	ML111460096	Meeting Handouts for 5/24/11 - AP1000 DCWG Meeting to Discuss Piping DAC and Initial test Program License Conditions - Staff Handouts Draft Inspection Procedure 65001.20. (8 Pages)	Meeting Briefing Package/Handouts	NRC/NRO/DNRL/NWE1		05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
5/24/2011	ML111460082	5/24/11 - AP1000 DCWG Meeting to Discuss Piping DAC and Initial Test Program License Conditions. (6 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	NRC/NRO/DNRL/NWE1		05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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5/24/2011	ML111460084	Meeting Handouts for 5/24/11 - AP1000 DCWG Meeting to Discuss Piping DAC and Initial Test Program License Conditions. (29 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	Southern Co Southern Nuclear Operating Co, Inc	NRC/NRO	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
5/25/2011	ML11153A114	Levy Nuclear Plant, Units 1 and 2 - Response to Request for Information Supporting FSAR Section 3.7 Confirmatory Analysis. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/27/2011	ML11152A216	LNG-1000-S2R-808 Rev. 0, "Levy Nuclear Island and RCC Bridging Mat - 3D SASSI SSI Evaluation Report." (124 Pages)	- No Document Type Applies	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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5/27/2011	ML11152A205	Levy, Units 1 and 2, Supplement 4 Response to Request for Additional Information Letter No. 086 Related to Foundations. (94 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/27/2011	ML11152A215	Levy Nuclear Plant, Units 1 & 2, Supplement 5 Response to Request for Additional Information Letter No. 085 Related to Seismic System Analysis. (41 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/31/2011	ML11168A114	Attachment 1 - Summary of Spring Federal Listed Plants Survey. (3 Pages)	- No Document Type Applies	Florida Power Corp Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
5/31/2011	ML11168A115	Attachment 2 - Discussion of USFWS Listed Plant and Animals and the Potential Occurrence of Mitigation Sites. (6 Pages)	- No Document Type Applies	Florida Power Corp Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
5/31/2011	ML11168A116	Attachment 3 - The Additional Florida Land Use, Cover and Forms Classification System (FLUCFCS) Analysis for the Transmission Lines. (7 Pages)	- No Document Type Applies	Florida Power Corp Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
5/31/2011	ML11168A118	Cover Letter for Follow-Up to Progress Energy Florida April 25, 2011 Letter to FWS, Serial: NPD-MISC-2011-007. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of Interior, Fish & Wildlife Service	05200029 05200030

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5/31/2011	ML11168A117	Attachment 4 - Wood Stork Foraging Habitat Assessment in Accordance with the USFWS/USACE Wood Stork Key for Central and North Florida (2008). (58 Pages)	Report, Miscellaneous	Florida Power Corp Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
6/3/2011	ML11160A203	Levy, Units 1 and 2, Revision To Physical Security Plan For The Levy Nuclear Plant (Revision 4). (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/8/2011	ML110620636	Levy Nuclear Power Plant, Units 1 and 2 Combined License Application - Advanced Safety Advanced Safety Evaluation without Open Items for Chapter 7, "Instrumentation and Controls." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
6/8/2011	ML110620656	Levy Nuclear Power Plant, Units 1 And 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 12, "Radiation Protection." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
6/8/2011	ML110840561	Ltr. Levy County Chapter 15, "Accident Analysis." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
6/8/2011	ML110840567	Ltr. - Levy County Chapter 16, "Technical Specification." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030

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6/8/2011	ML111040476	Ltr - Levy County Chapter 17 "Quality Assurance." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
6/8/2011	ML101170825	ASE - Levy Nuclear Plant, 12.0 Radiation Protection. (38 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
6/8/2011	ML101370732	ASE - LEVY County Chapter 7 CLEAN Master. (8 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
6/8/2011	ML102600161	Levy Nuclear Plant, Units 1 & 2, ASE Chapter 16 Clean Master. (13 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
6/8/2011	ML110180232	Levy Nuclear Plant ASE - Levy ASE Chapter 17, Quality Assurance (Related to RG 1.206, Section C.III.1, Chapter 17, C.I.17, "Quality Assurance and Reliability Assurance") CLEAN Master. (42 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
6/8/2011	ML110280070	ASE - Levy County, Chapter 15, Accident Analysis, CLEAN Master. (26 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
6/9/2011	ML111470482	5/24/2011 Summary of Public Meeting with the AP1000 Design Centered Working Group (DCWG) To Discuss the Closure Plan for AP1000 Piping Design Acceptance Criteria (DAC) and Initial Test Program (ITP) License Conditions. (12 Pages)	Meeting Summary Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200014 05200015 05200018 05200019 05200022 05200023 05200026 05200027 05200028 05200029

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						05200030 05200040 05200041
6/9/2011	ML110660062	Memo - Levy Chapter 12 ACRS Memo. (3 Pages)	Memoranda	NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030
6/9/2011	ML111040332	Levy ASE Ch 15 Memo. (3 Pages)	Memoranda	NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030
6/9/2011	ML111040387	Levy, Units 1 and 2, Advanced Safety Evaluation without Open Items for Chapter 16, "Technical Specification," Memo. (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
6/9/2011	ML111040478	Memo - Levy Nuclear Power Plant, Units 1 and 2 Combined License Application - Advanced Safety Evaluation without Open Items for Chapter 17, "Quality Assurance". (3 Pages)	Memoranda	NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030

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6/10/2011	ML11171A294	Levy Nuclear Plant Units 1 And 2 re: Response To Supplemental Request For Additional Information Regarding The Environmental Review - Thermal Plume Analysis. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/10/2011	ML11171A295	Levy Nuclear Plant, Units 1 And 2 re: Supplemental 1 To Response To Request For Additional Information Letter No. 100 Related To Emergency Planning. (20 Pages)	Letter	Progress Energy Co	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/10/2011	ML110660146	6/10/11 Memo Regarding Levy Nuclear Power Plant, units 1 and 2 Combined License Application - Advanced Safety evaluation Without Open items for chapter 7, "Instrumentation and Controls." (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
6/21/2011	ML11175A300	Levy, Units 1 & 2 - Response to Request for Additional Information Letter No. 104 Related to Probable Maximum Surge and Seich Flooding. (19 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/21/2011	ML11175A301	Levy, Units 1 and 2, Final Safety Analysis Report Chapter 3 - Corrections to Conformance with Standard Content of the Vogtle R-COLA. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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6/23/2011	ML111751510	U.S. Army Corps of Engineers Position Letter for a Department of the Army Permit for the Levy Nuclear Power Plant Site. (61 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO/DSER Progress Energy Florida, Inc	05200029 05200030
6/23/2011	ML11175A299	Levy Nuclear Plant, Units 1 & 2, Response to Request for Additional Information Letter No. 105 Related to SRP Sections 2.3.1 and 2.3.3 for the Levy Nuclear Units 1 and 2 Combined Operating License Related to Regional Climatology. (13 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/23/2011	ML11200A057	Levy, Units 1 and 2 - Submittal of Special Nuclear Material Physical Protection Plan, Revision 0. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/25/2011	ML111930450	Florida Rock Industries Inc. Gulf Hammock Quarry, Facility Location Information, U.S. Environmental Protection Agency. (1 Pages)	Report, Miscellaneous	US Environmental Protection Agency (EPA)	NRC/NRO	05200029 05200030
6/27/2011	ML113540216	Progress Energy Provides Update on Crystal River Nuclear Plant Outage, 6/27/2011. (3 Pages)	Press Release	Progress Energy Co	NRC/NRO	05200029 05200030
6/30/2011	ML11304A213	U.S. Census Bureau, Local Employment Dynamics, High Growth Industries, Top 10 Industry Sectors Ranked on	Database File Graphics incl Charts and Tables	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030

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		the Greatest Employment. (26 Pages)				
6/30/2011	ML110660018	Ltr - Levy Nuclear Power Plant, Units 1 & 2 Combined Licensee Application - Advanced Safety Evaluation without Open Items for Chapter 9, "Auxiliary Systems". (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
6/30/2011	ML110840551	Ltr. - Levy Nuclear Power Plant Units 1 & 2 Combined License Application - Advanced Safety Evaluation Without Open Items for Chapter 8, "Electric Power." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
6/30/2011	ML111460138	U.S. Nuclear Regulatory Commission PowerPoint Presentation Given at the Meeting with the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers. (16 Pages)	Meeting Briefing Package/Handouts Slides and Viewgraphs	Battelle Memorial Institute, Pacific Northwest National Lab ISL, Inc NRC/NRO		05200029 05200030
6/30/2011	ML110660345	Memo - Levy Nuclear Power Plant, Units 1 & 2 Combined License Application - Advanced Safety Evaluation Without Open Items for Chapter 9, "Auxiliary Systems." (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
6/30/2011	ML110840552	Levy County Chapter 8 ACRS Memo. (3 Pages)	Memoranda	NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030

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6/30/2011	ML111430812	3/14/2011 Summary of Nuclear Regulatory Commission Meeting with the U.S. Fish and Wildlife Service and the Army Corps of Engineers. (13 Pages)	Memoranda	NRC/NRO/DSER/RAP3	NRC/NRO/DSER/RAP3	05200029 05200030
6/30/2011	ML110450401	ASE - Levy County Chapter 9 Auxiliary Systems. (88 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
6/30/2011	ML11165A212	Levy Co. Ch 08 ASE CLEAN.docx (39 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
7/5/2011	ML11194A036	Comment (2) of C. Theresa Supporting Shut Down of Nuclear Power Plants in Florida & Opposing License for License of Crystal River Plant. (1 Pages)	General FR Notice Comment Letter	- No Known Affiliation	NRC/ADM/DAS/RDEB	05000302 05200029 05200030
7/12/2011	ML111930466	Mean Sea Level Trend 8727520, Cedar Key, Florida, Tides and Currents, National Oceanic and Atmospheric Association (NOAA). (2 Pages)	Database File	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO	05200029 05200030
7/14/2011	ML11199A010	Levy, Units 1 & 2, Voluntary Submittal Related to the Pipeline Hazards Analysis Described in Chapter 2 of the Final Safety Analysis Report. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/14/2011	ML11202A024	Levy, Units 1 and 2, Response to Request for Additional Information Letter No. 101 Related to Probable	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Maximum Tsunami Flooding. (2 Pages)				
7/14/2011	ML11202A026	Levy, Units 1 and 2, Response to NRC Request for Additional Information Letter No. 101 Related to SRP Section 2.4.6 for the Combined License Application, Dated February 28, 2011. (138 Pages)	Report, Technical	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
7/14/2011	ML11202A027	Levy, Units 1 and 2, Response to NRC Request for Additional Information Letter No. 101 Related to SRP Section 2.4.6 for the Combined License Application, Dated February 28, 2011. (321 Pages)	Report, Technical	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
7/22/2011	ML11208C694	Levy, Units 1 and 2 - Voluntary Submittal Related to the Pipe Break Hazard Analysis Described in Chapter 3 of the Final Safety Analysis Report. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/22/2011	ML112200023	Progress Energy Florida Response to U.S. Army Corps of Engineers Position Letter for a Department of the Army Permit for the Levy Nuclear Plant Site. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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7/27/2011	ML11213A049	AP1000 Combined License Application Departure Report Update. (5 Pages)	Letter	Progress Energy Co Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/27/2011	ML112140120	Levy Nuclear Plant, Units 1 and 2 AP1000 Combined License Application Departure Report Update. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/RGN-II	05200029 05200030
7/28/2011	ML11213A096	Levy, Units 1 and 2, Submittal of Endorsements of Changes to the Standard Content of the Vogtle R-COLA Part 2 - COLA Part 2 (FSAR) and Part 11 Related to 10 CFR Parts 30, 40 and 70 Licenses. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/29/2011	ML110270027	ASE - Levy County Chapter 14 CLEAN Master. (67 Pages)	Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Letter NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
7/29/2011	ML110840557	Levy County Chapter 14 Letter re Combined License Application - Advanced Safety Evaluation Without Open Items. (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030

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7/29/2011	ML110840575	Levy Nuclear Power Plant, Units 1 & 2 Combined License Application-Advanced Safety Evaluation Without Operates for Chapter 19, "Probabilistic Risk Assessment". (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
7/29/2011	ML111230797	Ltr, Levy County ASE Chapter 19 "Loss of Large Areas of the Plant Due to Explosions or Fires (LOLA). (6 Pages)	Letter NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
7/29/2011	ML111320428	ASE - Levy County Nuclear Plant Units 1 & 2 Appendix 19.A Loss of Large Areas of the Plant Due to Explosions or Fires (PUBLIC). (5 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
7/31/2011	ML11304A214	United States Department of Labor, Bureau of Labor Statistics, Labor Force by County, Not Seasonally Adjusted, July 2010-August 2011(p). (1 Pages)	Database File	US Dept of Labor, Bureau of Labor Statistics	NRC/NRO	05200029 05200030
8/1/2011	ML11304A215	US Department of Commerce, Bureau of Economic Analysis, CA1-3 - Per Capita Personal Income 2. (4 Pages)	- No Document Type Applies	US Dept of Commerce, Bureau of Economic Analysis	NRC/NRO	05200029 05200030
8/1/2011	ML11304A210	Alachua County QuickFacts from the US Census Bureau, Alachua County, Florida. (36 Pages)	FACT Sheet	US Dept of Commerce, Bureau of Census	NRC/NRO	05200029 05200030

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8/1/2011	ML110840559	Memo - Levy Nuclear Power Plant, Units 1 And 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 14, "Initial Test Programs And ITAAC - Design Certification". (3 Pages)	Memoranda	NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030
8/1/2011	ML11122A078	Memo - Levy Nuclear Power Plant, Units 1 & 2 - Combined License Application-Safety Evaluation without Open Items for Chapter 19, "Probabilistic Risk Assessment". (2 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
8/1/2011	ML111240024	Memo, Levy Nuclear Power Plant, Units 1 And 2 - Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 19, Appendix 19.A "Loss Of Large Areas Of The Plant Due To Explosions Or Fires" And Attachment A To Appendix 19.A. (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
8/1/2011	ML110290004	ASE - Levy County Chapter 19 Probabilistic Risk Analysis CLEAN Master (PUBLIC) (28 Pages)	NRO Safety Evaluation Report (SER)-Delayed Probabilistic Risk Assessment	NRC/NRO/DNRL/NWE1		05200029 05200030

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8/9/2011	ML11116A140	Letter - Levy Nuclear Power Plant, Units 1 and 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 13, "Conduct Of Operations." (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
8/9/2011	ML110320002	Levy County ASE Chapter 13 FULL CLEAN. (297 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
8/10/2011	ML110840555	Levy County Nuclear Power Plant, Units 1 and 2 Chapter 11 Cover Letter. (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
8/10/2011	ML110840556	Memo - Levy County Chapter 11 ACRS Memo. (3 Pages)	Memoranda	NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030
8/10/2011	ML11116A151	Levy Ch. 13 ACRS Memo. (3 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
8/10/2011	ML101050411	Levy County SER Chapter 11 CLEAN Master. (48 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
8/12/2011	ML11277A183	Letter from Progress Energy to U.S. Army Corps of Engineers - Transmission Line Wetland Jurisdictional Submittal. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers	05200029 05200030
8/19/2011	ML11236A147	Levy, Units 1 & 2, Revisions to COLA Part 10, Proposed License Conditions (Including ITAAC), Appendix B, Tables 3.8-3 and 3.8-4. (29 Pages)	Graphics incl Charts and Tables Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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8/22/2011	ML11241A198	Levy Nuclear Plant, Units 1 and 2 - Revisions to COLA Part 1, General and Financial Information, Section 2.0 - Financial Qualifications. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/22/2011	ML11236A148	Levy Nuclear Plant, Units 1 & 2, Voluntary Submittal - Preliminary Evaluation of Impact on SSI Due to Time History Input Error. (30 Pages)	Letter Memoranda Report, Technical	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/26/2011	ML112360228	9/21/2011 Notice of Forthcoming Meeting with AP1000 Design-Centered Working Group (DCWG) to Discuss Piping Systems Design Acceptance Criteria (DAC). (9 Pages)	Meeting Notice Memoranda	NRC/NRO/DCIP/CIPB	NRC/NRO/DCIP/CIPB	05200006 05200014 05200015 05200018 05200019 05200022 05200023 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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9/1/2011	ML110350029	ASE - Levy County ASE Chapter 03 CLEAN Master - Design of Structures, Components, Equipment and Systems. (115 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
9/1/2011	ML112430010	ASE - Levy Nuclear Plant Chapter 2, Site Characteristics. (199 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
9/1/2011	ML112550268	ASE - Levy County - Levy Nuclear Plant Units 1 and 2 Advvanced Safety Evaluation Without Open Items Section 2.4, "Hydrologic Engineering" (137 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200006 05200029 05200030
9/2/2011	ML110840546	Memo - Levy County Chapter 2 ACRS Memo. (2 Pages)	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
9/2/2011	ML110840550	Levy Nuclear Power Plant Units 1 And 2 Combined License Application - Advanced Safety Evaluation Without Open Items For Chapter 3, "Design Of Structures, Components,	Memoranda	NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030

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		Equipment, And Systems". (3 Pages)				
9/7/2011	ML113070724	338884-TMEM-129 Rev. 2, Evaluation and Management of Materials Dredged from the Cross Florida Barge Canal for the Construction of Barge Slip, Intake Structure, and Pipeline Facilities Associated with the Levy Nuclear Plant, Florida. (28 Pages)	Environmental Report	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
9/7/2011	ML113070740	338884-TMEM-131 Rev. 1, Effects of Temporary Dewatering on Wetlands for the Construction of the Levy Nuclear Plant, Levy County, Florida. (36 Pages)	Environmental Report	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
9/9/2011	ML112790415	U.S. Army Corps of Engineers Interim Letter and Request for Additional Information for Levy Nuclear Plant Units 1 and 2. (3 Pages)	Letter Request for Additional Information (RAI)	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
9/13/2011	ML112550321	Letter - Levy Nuclear Power Plant Units 1 and 2 Combined License Application - Advanced Safety Evaluation without Open Items for Section 2.4, "Hydrologic Engineering". (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
9/14/2011	ML11276A013	Attachment 1 to NDP-MISC 2011-013, Summary of Summer Federal Listed Plants Survey. (5 Pages)	- No Document Type Applies	Progress Energy Florida, Inc	NRC/NRO US Dept of Interior, Fish & Wildlife Service	05200029 05200030

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9/14/2011	ML113070730	338884-TMEM-130 Rev. 1, Functional Evaluation of Wetlands for the Alternative Sites, Levy Nuclear Plant, Florida. (85 Pages)	Environmental Report	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
9/14/2011	ML11263A015	Levy Nuclear Plant, Units 1 and 2, Supplement 5 to Response to Request for Additional Information Letter No. 086 Related to Foundations. (6 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/14/2011	ML11276A012	Cover Letter from Progress Energy to U.S. Fish and Wildlife Service. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of Interior, Fish & Wildlife Service	05200029 05200030
9/14/2011	ML11276A014	Attachment 2 to NDP-MISC 2011-013, Transmission Line Preferred Rights-of-Way and Substations - Wood Stork Foraging Habitat Assessment. (83 Pages)	Report, Miscellaneous	Progress Energy Florida, Inc	NRC/NRO US Dept of Interior, Fish & Wildlife Service	05200029 05200030
9/15/2011	ML110830346	Ltr. - Levy County Chapter 1 Cover Letter (6 Pages)	Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
9/15/2011	ML112210054	ASE - Levy County ASE Chapter 01 Clean. (57 Pages)	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
9/20/2011	ML112630623	9/26/2011 Commission Meetings - FRN. (2 Pages)	Federal Register Notice	NRC/SECY/OPS		05000424 05000425 05000445 05000446 05200029 05200030

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9/20/2011	ML112550297	Memo to Edwin Hackett re: Levy Nuclear Power Plant, Units 1 and 2 Combined License Application - Advanced Safety Evaluation without Open Items for Section 2.4, "Hydrologic Engineering" (3 Pages)	Memoranda	NRC/NRO/DNRL NRC/NRO/DNRL/NWE1	NRC/ACRS	05200029 05200030
9/22/2011	ML11313A205	LNG-1000-S2R-808, Rev. 3, "AP1000 Levy Nuclear Island and RCC Bridging Mat - 3D SASSI SSI Evaluation Report." (124 Pages)	Report, Technical	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
9/27/2011	ML112700306	M110927A - Affirmation Session 1: SECY-11-0116- Progress Energy Florida, SECY-11-0099- Luminant Generating Company LLC- Comanche Peak Power Plant, Units 3 & 4, SECY-11-0026- Southern Nuclear Co. Vogtle Electric Generating Plant Units 3 and 4. (5 Pages)	Commission Meeting Transcript/Exhibit	NRC/ACRS NRC/OCM		05200025 05200026 05200029 05200030 05200034 05200035
9/30/2011	ML11308A067	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 3.0 Waccasassa and Withlacoochee Watersheds - Levy Nuclear Plant Site Section 3. 0 through 3.10. (42 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/RAP3 Progress Energy Florida, Inc	05200029 05200030

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9/30/2011	ML11308A068	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, Section 3.11 Engineering Detail Drawings through Sheet 1 of 22. (23 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11308A069	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 4.0 Withlacoochee and Hillsborough Watersheds - Boarshead Ranch through Exceedance Probability. (40 Pages)	Operating Plan	Environmental Services, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11308A070	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 4.6 UMAM Score through Proposed Planting Plan - Activity Area 3 Boarshead Ranch, Passco County, Florida. (47 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11308A071	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, Section 5.0 Upper Coastal Watershed - Five Mile Creek Site. (51 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030

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9/30/2011	ML11308A072	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 6.0 Upper Coastal Watershed - Homosassa Tract, Withlacoochee State Forest through Section 6.6, Table 6-10. (62 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11308A073	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 6.7 Engineering through Section 6.9 Monitoring and Maintenance Requirements. (42 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11308A074	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 7.0 Tampa Bay Watershed - Brooker Creek Preserve Site through Section 7.4 Mitigation Plan. (19 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11308A075	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 7.0 Tampa Bay Watershed - Brooker Creek Preserve Site through Section 7.4	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030

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		Mitigation Plan, Page 390 through Figure 7.33. (38 Pages)				
9/30/2011	ML11308A077	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document, 7.6 UMAM Score through Page End. (35 Pages)	Operating Plan	Environmental Services, Inc Taylor Engineering, Inc	NRC/NRO/DSER/ RAP3 Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11290A198	Transmittal of 338884-TMEM-129, "Evaluation and Management of Materials Dredged from the Cross Florida Barge Canal for the Constriction of Barge Slip, Intake Structure, and Pipeline Facilities Associated with the Levy Nuclear Plant, Florida". (28 Pages)	Report, Miscellaneous	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11290A199	Transmittal of 338884-TMEM-130, Rev 1, "Functional Evaluation of Wetlands for the Alternative Sites, Levy Nuclear Plant, Florida," Cover Page through Figure 4.2.8-18. (54 Pages)	Report, Miscellaneous	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
9/30/2011	ML11290A200	338884-TMEM-130, Rev 1, "Functional Evaluation of Wetlands for the Alternative Sites, Levy Nuclear Plant, Florida," Attachment B, Aerial Photographs from	Report, Miscellaneous	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030

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		LEDPA (3388-TMEM-102, Rev 4). (31 Pages)				
9/30/2011	ML11290A201	Transmittal of 338884-TMEM-131, Rev 1, "Effects of Temporary Dewatering on Wetlands for the Construction of the Levy Nuclear Plant, Levy County, Florida". (36 Pages)	Report, Miscellaneous	CH2M Hill	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
10/1/2011	ML112430014	Figures 2 for Levy Nuclear Plant, Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 2, "Site Characteristics". (11 Pages)	Graphics incl Charts and Tables NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
10/4/2011	ML11308A011	Levy, Units 1 and 2, Submittal of COL Application, Revision 3. (10 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2011	ML11313A203	Levy, Units 1 & 2, Supplement 6 to Response to Request for Additional Information Letter No. 085 Related to Seismic System Analysis. (30 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/4/2011	ML11308A062	Response #2 to Corps Position Letter dated June 23, 2011, Levy Nuclear Plant Units 1 and 2, Cover. (25 Pages)	Letter Report, Technical	Progress Energy Florida, Inc	NRC/NRO/DSER/RAP3	05200029 05200030
10/4/2011	ML11308A066	Levy Nuclear Plant and Associated Transmission Lines Wetland Mitigation	Operating Plan	Environmental Services, Inc Taylor	NRC/NRO/DSER/RAP3	05200029 05200030

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		Plan, Comprehensive Design Document, September 2011. (74 Pages)		Engineering, Inc	Progress Energy Florida, Inc	
10/5/2011	ML112780203	10/25/11 Notice of Category 2 Public Meeting With AP1000 Design-Centered Working Group (DCWG) to Discuss Digital Instrumentation and Control (DI&C) Systems Design Acceptance Criteria (DAC). (9 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DCIP/CIPB	NRC/NRO/DCIP/CIPB	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
10/5/2011	ML113010107	Appendix E - Avoidance and Minimization Analysis for the Levy Nuclear Plant, Tech Memo No.: 338884-TMEM-132 (1 of 2). (20 Pages)	Report, Technical	CH2M Hill	NRC/NRO/DSER/RAP3 Progress Energy Florida, Inc	05200029 05200030

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10/7/2011	ML11285A240	Levy, Units 1 & 2, Revision to Construction Workforce Estimate. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/10/2011	ML11286A085	Levy, Units 1 and 2, Roadmap of Changes in Combined License Application, Revision 3. (91 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/11/2011	ML112430013	Figures 1 for Levy Nuclear Plant, Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 2, "Site Characteristics. (11 Pages)	Graphics incl Charts and Tables Map	NRC/NRO/DNRL/NWE1		05200029 05200030
10/11/2011	ML112430016	Figures 3 for Levy Nuclear Plant, Units 1 and 2 Advanced Safety Evaluation Without Open Items for Chapter 2, "Site Characteristics". (12 Pages)	Graphics incl Charts and Tables NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/NWE1		05200029 05200030
10/11/2011	ML112800542	9/21/11 Summary of Meeting with AP1000 Design-Centered Working Group (DWCG) re: AP1000 Piping Design Acceptance Criteria memo. (9 Pages)	Meeting Summary	NRC/NRO/DCIP/CIPB	NRC/NRO/DCIP/CIPB	05200006 05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030

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						05200040 05200041
10/11/2011	ML112430018	Tables for Levy Nuclear Plant, Units 1 and 2 Advanced Saety Evaluation Without Open Items for Chapter 2, "Site Characteristics." (6 Pages)	Slides and Viewgraphs	NRC/NRO/DNRL/NWE1		05200029 05200030
10/20/2011	ML112900062	Response to the Ecology Party of Florida Request for GIS Shape Files Associated with the Proposed Levy Nuclear Plant Project. (11 Pages)	Letter	NRC/NRO/DSER/RAP3	Ecology Party of Florida	05200029 05200030
10/20/2011	ML113010087	Response #3 to Corps Position Letter Dated June 23, 2011, Levy Nuclear Plant Units 1 and 2 (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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10/20/2011	ML112940761	10/25/2011 Public Meeting - DAC Inspection Process Flowchart (Draft). (2 Pages)	Meeting Briefing Package/Handouts	NRC/NRO/DCIP/CIPB		05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
10/27/2011	ML11308B248	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Section 1.0 - Appendix 8 (170 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B249	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Section A - Figure A-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/27/2011	ML11308B250	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Section A - Figure A-2 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B251	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Section A - Figure A-3 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B252	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Appendix 6 - Figure A6-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B253	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Appendix 6 - Figure A6-2 (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B255	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Section B - Figure B-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/27/2011	ML11308B256	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Section B - Figure B-2 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B257	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Section B - Figure B-3 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B258	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Introduction - Figure Intro-1 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B261	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Introduction - Figure Intro-2 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B262	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Introduction - Figure Intro-3 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/27/2011	ML11308B263	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Introduction - Figure Intro-4 (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B265	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - KLD Levy ETE (337 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B267	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - REGULATORY CROSS-REFERENCE (63 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B268	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Units 1 and 2 EAL Basis Document (150 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B270	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Citrus County - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/27/2011	ML11308B271	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Citrus Memorial Hospital - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B274	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Dept. of Public Safety - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B276	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Florida DEM - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B277	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Levy County - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B278	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Marion County - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/27/2011	ML11308B279	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Nature Coast EMS - Cert. Letter (2 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B282	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Seven Rivers Medical - Cert. Letter (3 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B283	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Citrus County Emergency Plan (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B284	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - State of Florida REMP - Annex A (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B285	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - State of Florida REMP - Annex A - Appendix VI (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B286	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - State of Florida REMP - Annex A - Appendix VI -	Emergency Preparedness-Emergency Plan License-Application	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		NUREG-0654 Cross-Reference (1 Pages)	for Combined License (COLA)			
10/27/2011	ML11308B287	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Levy County Emergency Plan (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B288	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 3 - Supplemental - Marion County Emergency Plan (1 Pages)	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B290	Progress Energy Levy Units 1 and 2 COLA (Departures Report and Exemptions), Rev. 2 - Departures Report and Exemptions (15 Pages)	Generic DCD Departures Report License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B315	Progress Energy Levy Units 1 and 2 COLA (ITAAC), Rev. 3 - Proposed License Conditions including ITAAC (60 Pages)	Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/27/2011	ML11308A010	Levy, Units 1 and 2, Revised Files for COL Application, Revision 3. (5 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B292	Progress Energy Levy Units 1 and 2 COLA (Safeguard Security Plans), Rev. 3 - Safeguard Security Plans - Cover Page (2 Pages)	Letter License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308A675	Progress Energy Levy Units 1 and 2 COLA (General and Admin Information), Rev. 3 - General and Financial Information (17 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B296	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Citrus County Emergency Plan Part 03 - Draft. (120 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B297	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Citrus County Emergency Plan Part 04 - Draft. (109 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B298	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Citrus County Emergency Plan Part 05 - Draft. (69 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B299	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Levy	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		County Emergency Plan Part 01 - Draft. (174 Pages)				
10/27/2011	ML11308B301	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Levy County Emergency Plan Part 03 - Draft. (142 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B302	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Levy County Emergency Plan Part 04 - Draft. (88 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B303	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Levy County Emergency Plan Part 05 - Draft. (69 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B307	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Marion County Emergency Plan Part 01 - Draft. (244 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B308	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Marion County Emergency Plan Part 02 - Draft. (110 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B309	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - Marion County Emergency Plan Part 03 - Draft. (49 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B310	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - State of Florida REMP - Annex A - Appendix VI - NUREG-0654 Cross-Reference. (17 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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10/27/2011	ML11308B311	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - State of Florida REMP - Annex A - Appendix VI. (92 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B312	Progress Energy Levy Units 1 and 2 COLA, Rev. 3 - State of Florida REMP - Annex A. (415 Pages)	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B246	Progress Energy Levy Units 1 and 2 COLA (Technical Specifications), Rev. 3 - Technical Specifications (849 Pages)	License-Application for Combined License (COLA) Technical Specifications	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B227	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 3.	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/27/2011	ML11308B324	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 4.	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/30/2011	ML113010093	Appendix A - Transmission Lines, Alternatives Analysis, and Avoidance and Minimization, October 2011. (23 Pages)	- No Document Type Applies	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
10/30/2011	ML113010096	Appendix B - North and South Parcels, Conceptual Geology Based on Pre-COLA Investigations with Limited Boring Data. (1 Pages)	- No Document Type Applies	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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10/30/2011	ML113010102	Appendix D - Transmission Preliminary Construction Drawings (1 of 2). (288 Pages)	Drawing	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
10/30/2011	ML113010104	Appendix D - Transmission Preliminary Construction Drawings (2 of 2). (288 Pages)	Drawing	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
10/30/2011	ML113010109	Appendix E - Avoidance and Minimization Analysis for the Levy Nuclear Plant, Tech Memo No.: 338884-TMEM-132 (2 of 2). (16 Pages)	Drawing	Progress Energy Florida, Inc	NRC/NRO/DSER/ RAP3	05200029 05200030
11/1/2011	ML113080025	Tables of Preferred Transmission Line Right-of-Ways and Substations Jurisdictional Determination Summary. (25 Pages)	- No Document Type Applies Graphics incl Charts and Tables	Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/1/2011	ML113080020	Letter for Approved Jurisdictional Verification, Levy Nuclear Plant - Transmission Lines. (7 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
11/1/2011	ML11314A025	Letter re: Response #4 to Corps Position Letter Dated June 23, 2011. (90 Pages)	Letter Report, Technical	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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11/1/2011	ML113080022	Figure 1, "Proposed Transmission Lines". (1 Pages)	Map	Golder Associates, Inc Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
11/1/2011	ML113040531	11/15/2011 - Forthcoming Public Teleconference to Discuss Issues Related To Levy County Nuclear Plant, Units 1 And 2 Combined License Application. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/NWE1	NRC/NRO/DNRL/NWE1	05200029 05200030
11/4/2011	ML113080814	Summary of Fall Federal Listed Plant Survey, Levy Nuclear Plant Project. (8 Pages)	Environmental Monitoring Report Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of Interior, Fish & Wildlife Service	05200029 05200030
11/4/2011	ML113080816	Table 7. Hired Farm Labor - Workers and Payroll: 2007, 2007 Census of Agriculture - County Data, USDA, National Agricultural Statistics Service. (9 Pages)	Graphics incl Charts and Tables	NRC/NRO/DSER/RAP3		05200029 05200030
11/7/2011	ML11280A202	Status of the Environmental Review for Levy Nuclear Plant Units 1 and 2 Combined License Application. (11 Pages)	Letter	NRC/NRO/DSER	Progress Energy Florida, Inc	05200029 05200030
11/8/2011	ML11311A131	Agenda - 589th ACRS Meeting, December 1-3, 2011. (4 Pages)	Meeting Agenda	NRC/ACRS		05200029 05200030
11/10/2011	ML11318A312	Levy Nuclear Plant (LNP) Units 1 and 2, Information to Address ACRS Follow-up Items. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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11/14/2011	ML112370003	Levy Nuclear Plant, Units 1 and 2 Repeat FRN Cover Letter. (6 Pages)	Federal Register Notice Letter	NRC/NRO/DNRL/NWE1	Progress Energy Florida, Inc	05200029 05200030
11/14/2011	ML11321A201	Levy, Units 1 and 2 - Status of the Environmental Review for Combined License Application. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/16/2011	ML11320A209	Press Release-11-215: NRC Advisory Committee on Reactor Safeguards to Meet Dec. 1-3 in Rockville, MD. (1 Pages)	Press Release	NRC/OPA	NRC/NRO	05200029 05200030
11/17/2011	ML11329A039	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 106 Related to Probabilistic Risk Assessment and Severe Accident Evaluation. (11 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/21/2011	ML11236A136	Second 50.43a FRN for Lee-Harris-Levy-Turkey Point. (3 Pages)	Federal Register Notice	NRC/NRO/DNRL/NWE1		05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041

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11/28/2011	ML11236A137	Third 50.43a FRN for Lee-Harris-Levy-Turkey Point. (3 Pages)	Federal Register Notice	NRC/NRO/DNRL/NWE1		05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
12/1/2011	ML113530504	Biological Opinion for Levy Nuclear Power Plant Units 1 and 2, Application for Combined Licenses for Construction Permits and Operating Licenses (NUREG-1941). (28 Pages)	Letter	US Dept of Interior, Fish & Wildlife Service	NRC/NRO	05200029 05200030
12/1/2011	ML11347A248	Transcript of 589th ACRS Meeting, December 1, 2011, Pages 1-308. (476 Pages)	Meeting Transcript	NRC/ACRS		05200029 05200030
12/5/2011	ML11236A139	Fourth 50.43a FRN for Lee-Harris-Levy-Turkey Point. (4 Pages)	Federal Register Notice	NRC/NRO/DNRL/NWE1		05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041

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12/5/2011	ML113400117	ACS FL CBG Data B02001 Race and Ethnicity, with FIPS Codes (Public). (582 Pages)	Spreadsheet File	NRC/NRO/DNRL NRC/NRO/DSER		05200029 05200030
12/6/2011	ML113410262	Low Income Data For Levy/Alternative Site - Putnam. (199 Pages)	Report, Miscellaneous	NRC/NRO/DSER		05200029 05200030
12/6/2011	ML113410263	Low Income Data For Levy/Alternative Sites - Highland. (199 Pages)	Report, Miscellaneous	NRC/NRO/DSER		05200029 05200030
12/6/2011	ML113410264	Low Income Data For Levy/Alternative Sites - Dixie. (199 Pages)	Report, Miscellaneous	NRC/NRO/DSER		05200029 05200030
12/6/2011	ML113410265	Low Income Data For Levy/Alternative Sites - Levy and Crystal River. (199 Pages)	Report, Miscellaneous	NRC/NRO/DSER		05200029 05200030
12/6/2011	ML113410267	Low Income Data For Levy/Alternative Sites: Ratio of Income To Poverty Level in Past Twelve Mos. (199 Pages)	Report, Miscellaneous	NRC/NRO/DSER		05200029 05200030
12/7/2011	ML11339A126	Report on the Safety Aspects of the Progress Energy Florida, Inc. Combined License Application for Levy Nuclear Plant, Units 1 and 2. (9 Pages)	Committee Letter Report	NRC/ACRS	NRC/Chairman	05200029 05200030

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12/7/2011	ML11343A569	Levy, Units 1 & 2 - Voluntary Submittal Related to the Liquid Waste Management System Described in Chapter 11 of the Final Safety Analysis Report - Supplement 1. (4 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/13/2011	ML120120323	Letter from Progress Energy to the U.S. Army Corps of Engineers, Wetland Mitigation Plan Implementation on Government Lands. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
12/14/2011	ML113530213	Levy, Units 1 and 2, Cultural Resource Assessment Survey Reports. (1 Pages)	Letter	Progress Energy, Inc	NRC/NRO State of FL, Dept of State	05200029 05200030
12/14/2011	ML120120238	Letter - Levy Nuclear Plant, Units 1 and 2 Cultural Resource Assessment Survey Reports. (1 Pages)	Letter	Progress Energy, Inc	NRC/NRO State of FL, Div of Historical Resources	05200029 05200030
12/15/2011	ML112521239	Levy - Notice of Availability of COLA to Federal Energy Regulatory Commission. (6 Pages)	Letter	NRC/NRO/DNRL/LB4	US Federal Energy Regulatory Commission	05200029 05200030
12/15/2011	ML112521258	Levy - Notice of Availability of COLA to Florida Public Service Commission. (6 Pages)	Letter	NRC/NRO/DNRL/LB4	State of FL, Public Service Commission	05200029 05200030
12/16/2011	ML113500270	Press Release-11-223: Licensing Board Solicits Statements Regarding Levy	Press Release	NRC/OPA		05200029 05200030

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		County New Nuclear Reactor Application, Public Session Jan 12, 2012. (2 Pages)				
12/19/2011	ML113540200	Florida Gas Transmission Company, Phase VIII Expansion Project Description. (2 Pages)	- No Document Type Applies	Florida Gas Transmission Company, LLC Panhandle Energy Southern Union Co	NRC/NRO	05200029 05200030
12/19/2011	ML113530041	State of Florida, Department of Environmental Protection, Formal Determination of the Landward Extent of Wetlands and Other Surface Waters of the State. (2 Pages)	- No Document Type Applies Letter	State of FL, Dept of Environmental Protection	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
12/19/2011	ML113530595	Florida Department of Transportation, Five Year Work Program, 2012-2015 AD, Citrus County, I tem Number 405822-3. (1 Pages)	Database File	State of FL, Dept of Transportation	NRC/NRO	05200029 05200030
12/19/2011	ML113530198	Letters from Progress Energy, Wetland Mitigation Plan Implementation on Government Lands, Levy Nuclear Plant Units 1 and 2 (5 Pages)	Letter	Progress Energy Florida, Inc		05200029 05200030
12/19/2011	ML11356A265	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 107 Related to Regional Climatology. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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12/31/2011	ML120120163	Cultural Resource Assessment Survey Of the Progress Energy Florida Blowdown Pipeline Preferred Right-Of-Way Citrus County, Florida. (69 Pages)	Report, Technical	Southeastern Archaeological Research, Inc	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
12/31/2011	ML12075A176	Cultural Resource Assessment Survey of the Progress Energy Florida Accessory Parcels, Levy County, Florida. (Public). (95 Pages)	Report, Technical	Southeastern Archaeological Research, Inc	NRC/NRO	05200029 05200030
1/5/2012	ML12012A062	Transcript of Telephone Conference of Progress Energy Florida, Inc. Levy County Nuclear Power Plant, Thursday, January 5, 2012, Pages 654-697. (46 Pages)	Meeting Transcript	NRC/ASLBP		05200029 05200030
1/17/2012	ML12017A152	Technical Letter Report for Levy Nuclear Plant to the U.S. Nuclear Regulatory Commission JCN Q-4151, Task Order No. 10. (139 Pages)	Report, Technical	US Dept of Interior, Geological Survey (USGS)	NRC/NRO	05200029 05200030
1/18/2012	ML120180294	Morris, V. 2011, Personal Communication between V. Morris, Withlacoochee State Forest Ecology Unit Leader, and DW Baber, ICF International on March 1, 2011. (2 Pages)	Note to File incl Telcon Record, Verbal Comm	ICF International	NRC/NRO/DNRL	05200029 05200030
1/23/2012	ML12025A269	Levy Nuclear Plant, Units 1 and 2, AP1000 Combined License Application Departure Report Update. (1 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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1/24/2012	ML113560065	G20110859/LTR-11-0648/EDATS: SECY-2011-0661 - Enclosure: Staff Response to Recommendations in the Report from the Advisory Committee on Reactor Safeguards on the Combined License Application for Levy Nuclear Plant, Units 1 and 2. (3 Pages)	- No Document Type Applies	NRC/EDO	NRC/ACRS	05200029 05200030
1/24/2012	ML11350A105	G20110859/LTR-11-0648/EDATS: SECY-2011-0661 - Ltr Said Abdel-Khalik re: Report on the Safety Aspects of the Progress Energy Florida, Inc. Combined License Application for Levy Nuclear Plant, Units 1 and 2. (10 Pages)	Letter	NRC/ACRS	NRC/Chairman	05200029 05200030
1/24/2012	ML113550501	G20110859/LTR-11-0648/EDATS: SECY-2011-0661 - Ltr to Said Abdel-Khalik from R. W. Borchardt re: Report on the Safety Aspects of the Progress Energy Florida, Inc. Combined License Application for Levy Nuclear Plant, Units 1 and 2. (3 Pages)	Letter	NRC/EDO	NRC/ACRS	05200029 05200030

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1/25/2012	ML120240414	Levy Memo: Safeguards Evaluation Report Transmittal Memorandum for Progress Energy Florida Transportation and Physical Security Plans. (2 Pages)	Memoranda	NRC/NSIR/DSP/DDMS/FCTSB	NRC/NRO/DNRL/LB1	05200029 05200030
1/31/2012	ML12044A048	Letter to Progress Energy from Florida Department of State, Division of Historical Resources, Regarding May 2011 Archeological and Historical Phase I Survey. (2 Pages)	Letter	State of FL, Dept of State	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
1/31/2012	ML12045A088	Letter to Progress Energy from Florida Department of State, Division of Historical Resources, Regarding Cultural Resource Assessment Survey of the Progress Energy Florida Blowdown Pipeline Preferred Right-of-Way, Citrus County, Florida. (1 Pages)	Letter	State of FL, Dept of State	NRC/NRO Progress Energy Florida, Inc	05200029 05200030
2/2/2012	ML12046A150	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 4 (1 Pages)	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/2/2012	ML120460974	Levy Nuclear Plant Units 1 and 2 - Submittal of COL Application, Revision 4. (8 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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2/2/2012	ML12046A795	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 4 - Appendix 02 AA - Earthquake Log (1 Pages)	Package	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/3/2012	ML113540593	Progress Energy Florida, Inc., Levy County, Units 1 and 2 MC&A Program Description Safeguards Evaluation Report and Transmittal Memorandum. (2 Pages)	Memoranda	NRC/NSIR/DSP	NRC/NRO/DNRL/LB4	05200029 05200030
2/8/2012	ML12039A198	U.S. Army Corps of Engineers Letter To The Seminole Tribe of Florida In Regard To Conditioning of a Department of Army Permit for the Levy Nuclear Plant Project. (3 Pages)	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	NRC/NRO Seminole Tribe of Florida	05200029 05200030
2/8/2012	ML12045A492	Levy Nuclear Plant, Units 1 and 2, Roadmap of Changes in Combined License Application, Revision 4. (7 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/20/2012	ML12055A418	Levy Nuclear Plant Units 1 and 2 - Letter from Progress Energy to the U.S. Army Corps of Engineers Responding To Proposed Special Conditions For Groundwater Withdrawal. (3 Pages)	Letter	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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2/23/2012	ML120540950	3/7/2012-Notice of Forthcoming Public Meeting With Progress Energy Regarding Levy Units 1 and 2 COL Application and RAIs In Response To Lessons Learned From Fukushima Earthquake and Tsunami. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200029 05200030
2/27/2012	ML12072A114	Letter to U.S. Army Corps of Engineers from Progress Energy, Response to Corps Position Letter Checklist Provided for January 19, 2012 Meeting. (9 Pages)	Letter Memoranda	Progress Energy Florida, Inc	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
3/1/2012	ML120610118	3/7/2012-Notice of Cancelled Forthcoming Public Meeting With Progress Energy Regarding Levy Units 1 and 2 COL Application and RAIs In Response To Lessons Learned From Fukushima Earthquake and Tsunami. (7 Pages)	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200029 05200030
3/12/2012	ML120940659	Letter - Bacchus LNP DEIS Supplemental Comment Letter. (4 Pages)	Letter	Applied Environmental Services	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030

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3/15/2012	ML120550146	Requests for Additional Information Concerning Implementation of Fukushima Near-Term Task Force Recommendations. (5 Pages)	Letter Request for Additional Information (RAI)	NRC/NRO/DNRL/LB4	Progress Energy Florida, Inc	05200029 05200030
3/28/2012	ML12090A051	Levy, Units 1 and 2, Planned Response to NRC RAI Letter 108 - Implementation of Fukushima NTTF Recommendations. (2 Pages)	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/4/2012	ML12097A166	Letter from National Marine Fisheries Service to U. S. Army Corps of Engineers Regarding Essential Fish Habitat Conservation Recommendations and Satisfying Consultation Procedures. (2 Pages)	Letter	US Dept of Commerce, National Oceanic & Atmospheric Admin (NOAA)	NRC/NRO US Dept of the Army, Corps of Engineers, Jacksonville District	05200029 05200030
4/5/2012	ML12096A079	4/18/2012-Notice of Forthcoming Public Meeting With Progress Energy Regarding Levy Units 1 and 2 COL Application and Non-Seismic Requests For Information In Response To Lessons Learned From Fukushima Earthquake and Tsunami. (6 Pages)	Meeting Notice	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200029 05200030

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4/9/2013	ML13093A353	4/18/2013 - Revised - Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center COL Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
4/9/2013	ML13098A056	5/2/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
4/9/2013	ML13098A060	5/16/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
4/9/2013	ML13098A083	5/30/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
4/11/2013	ML13100A313	5/1/2013 Notice of Forthcoming Public Meeting to Discuss Levy Units 1 and	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022

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		2 Combined License Application Request for Information Related to Bulletin 2012-01.	Memoranda			05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
4/12/2013	ML13098B018	3/27/2013-Summary of Public Meeting - Levy Nuclear Plant, Units 1 and 2 COL Application-Containment Building Design Change.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
4/12/2013	ML13100A302	4/4/2013-Summary of Public Teleconference Meeting Regarding Levy Nuclear Plant, Units 1 and 2 Combined License Application.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
4/15/2013	ML13109A046	Levy Nuclear Plant, Units 1 & 2, Description of Combined License Application (COLA) Changes Resulting form Upcoming Corporate Name Change from Progress Energy	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Florida, Inc. to Duke Energy Florida, Inc.				
4/17/2013	ML13107B407	Revised-5/1/2013-Notice of Forthcoming Public Meeting to Discuss Approach to Address Electrical System Vulnerability Related to Bulletin 2012-01 for AP1000 Combined License Applicants and Licensees.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
4/18/2013	ML13109A533	Levy Nuclear Plant, Units 1 and 2, Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Revision 19 to Address Containment Condensate Return Cooling Design.	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/22/2013	ML13108A337	CANCELLED-4/18/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Notice	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
4/26/2013	ML13120A013	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 112 Related to Radioactive Waste Management.	Letter Response to Request for Additional Information (RAI)	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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4/26/2013	ML13120A012	Levy, Units 1 and 2, Submittal of Supplemental Response to NRC RAI Letter 111 Related to SRP Section 13.3.	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/29/2013	ML13120A653	2013/4/29 Levy County COL - APOG Presentation Slides - Electrical Bulletin 2012-01	E-Mail	- No Known Affiliation	NRC/NRO/DNRL/LB4	05200029 05200030
4/30/2013	ML13109A429	Shearon Harris, Units 2 & 3, Levy, Units 1 and 2, Submittal of 10 CFR 50.46 Annual Report for the AP1000 Standard Plant Design.	Annual Operating Report Letter	Progress Energy Carolinas, Inc	NRC/Document Control Desk NRC/NRO	05200022 05200023 05200029 05200030
5/1/2013	ML13121A555	NRC Staff's Forty Fourth Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
5/6/2013	ML13128A019	Levy, Units 1 and 2, Submittal of Revision 8 to QAPD and Response to Request for Additional Information Letter No. 113 Related to Management and Technical Support Organization.	Letter Response to Request for Additional Information (RAI)	Duke Energy Corp Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/9/2013	ML13128A306	Enclosure - NRC Staff Regulatory Audit Plan Review of Levy Nuclear Plant, Units 1 and 2 Design Change Related to the Containment Condensate Return Pathway.	Audit Plan	NRC/NRO/DSRA/SCVB	NRC/NRO/DNRL/LB4	05200029 05200030
5/13/2013	ML13135A174	Levy, Units 1 & 2, Supplement 7 to Response to NRC RAI Letter 108 -	Letter	Duke Energy Florida, Inc	NRC/Document Control	05200029 05200030

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		Implementation of Fukushima Near-Term Task Force Recommendations.			Desk NRC/NRO	
5/20/2013	ML13136A365	5/1/2013-Summary of Public Meeting For Levy Units 1 and 2 Electrical Bulletin.	Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200027 05200028 05200029 05200030
5/20/2013	ML13140A112	Memorandum and Order (Providing Proposed Questions for Evidentiary Hearing on Contention 4A).	Legal-Order	NRC/ASLBP		05200029 05200030
5/29/2013	ML13149A150	6/13/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
5/29/2013	ML13149A287	6/27/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
5/30/2013	ML13149A509	5/30/2013 Notice of Cancelled Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
5/30/2013	ML13136A154	Environmental Request For Additional Information 7107 Related To The Exemption Request And Design	Letter Request for	NRC/NRO/DNRL/EPB1	Duke Energy Florida, Inc	05200029 05200030

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		Change Description For A Departure From AP1000 Design Certification Document Revision 19 For The Combined License Application Review For Levy Nuclear Plant.	Additional Information (RAI)			
6/3/2013	ML13156A007	Levy, Units 1 & 2 - Supplement to Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Review 19 to Address Containment Condensate Return Cooling Design.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/4/2013	ML13157A025	Levy, Units 1 & 2, Supplement 1 to Response to NRC RAI Letter 109 - Stability of Offsite Power Systems.	Letter	Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/6/2013	ML13155A561	5/16/2013-Levy Combined License Units 1 and 2 Summary of Public Teleconference.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
6/6/2013	ML13157A130	45th Status Report in the Matter of Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2).	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030

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6/6/2013	ML13155A532	Levy Combined License, Units 1 and 2 Summary of May 2, 2013 Public Teleconference.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200022 05200023 05200029 05200030 05200040 05200041
6/6/2013	ML13161A176	Levy Nuclear Plant, Units 1 & 2, Revised Response to Request for Additional Information Letter No. 112 Related to Radioactive Waste Management.	Letter Response to Request for Additional Information (RAI)	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/19/2013	ML13169A088	7/11/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
6/19/2013	ML13169A091	7/25/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
6/19/2013	ML13175A265	William States Lee III, Units 1 & 2, Levy, Units 1 & 2, Submittal of Revision 9 to Quality Assurance Program Description (QAPD).	Letter Quality Assurance Program	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200018 05200019 05200029 05200030

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6/25/2013	ML13163A272	Levy Units 1 and 2 Combined License Application, Revised Review Schedule.	Letter	NRC/NRO/DNRL	Duke Energy Florida, Inc	05200029 05200030
6/27/2013	ML13177A394	6/27/2013-CANCELLED-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
6/27/2013	ML13182A471	Levy Nuclear Plant, Units 1 and 2 - Response to Environmental Request for Additional Information 7107.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/27/2013	ML13182A472	William States Lee III, Units 1 & 2, Shearon Harris, Units 2 & 3 and Levy, Units 1 & 2 - Response to NRC Regulatory Issue Summary (RIS) 2013-08.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200018 05200019 05200022 05200023 05200029 05200030
7/1/2013	ML13176A365	6/13/2013-Meeting Summary For Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
7/1/2013	ML13189A286	Levy, Units 1 and 2, Revised Response to Request for Additional Information Letter No. 112 re Radioactive Waste Management.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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7/3/2013	ML13184A169	46th Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
7/9/2013	ML13193A223	2013/7/09 Levy County COL - Duke Energy Comments - ASER Chapter 20	E-Mail	- No Known Affiliation	NRC/NRO/DNRL/LB4	05200029 05200030
7/23/2013	ML13193A206	7/11/2013-Cancelled Notice of Forthcoming Public Teleconference to Discuss AP1000 Design Center Combined License Review Issues.	Meeting Notice Meeting Agenda Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
7/24/2013	ML13205A225	8/8/2013 - Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Notice Meeting Agenda Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
7/24/2013	ML13205A252	8/22/2013 - Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Notice Meeting Agenda Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041 05200022 05200023
7/25/2013	ML13218A153	Levy, Units 1 & 2, Submittal of COL Application, Revision 6.	Legal-Affidavit Letter License-Application for Facility Operating License (Amend/Renewal) DKT 50	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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7/25/2013	ML13218B185	Progress Energy Levy Units 1 and 2 COLA (Departures Report and Exemptions), Rev. 6 - Departures Report and Exemptions	License-Application for Combined License (COLA) Generic DCD Departures Report	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B154	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Appendix 6 - Figure A6-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B155	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Appendix 6 - Figure A6-2	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B159	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Introduction - Figure Intro-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B160	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Introduction - Figure Intro-2	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B161	Progress Energy Levy Units 1 and 2 COLA (Emergency	Emergency Preparedness-	Duke Energy Florida, Inc	NRC/Document	05200029 05200030

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		Plan), Rev. 6 - Introduction - Figure Intro-3	Emergency Plan License-Application for Combined License (COLA)	Progress Energy Florida, Inc	Control Desk NRC/NRO	
7/25/2013	ML13218B162	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Introduction - Figure Intro-4	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B150	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Section 1.0 - Appendix 8	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B151	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Section A - Figure A-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B152	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Section A - Figure A-2	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B153	Progress Energy Levy Units 1 and 2 COLA (Emergency	Emergency Preparedness-Emergency Plan	Duke Energy Florida, Inc	NRC/Document Control	05200029 05200030

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		Plan), Rev. 6 - Section A - Figure A-3	License-Application for Combined License (COLA)	Progress Energy Florida, Inc	Desk NRC/NRO	
7/25/2013	ML13218B156	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Section B - Figure B-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B157	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Section B - Figure B-2	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B158	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Section B - Figure B-3	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B167	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Supplemental - Citrus County - Cert. Letter	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B168	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Supplemental	Emergency Preparedness-Emergency Plan	Duke Energy Florida, Inc Progress	NRC/Document Control Desk	05200029 05200030

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		- Citrus Memorial Hospital - Cert. Letter	License-Application for Combined License (COLA)	Energy Florida, Inc	NRC/NRO	
7/25/2013	ML13218B169	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Supplemental - Dept. of Public Safety - Cert. Letter	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B170	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Supplemental - Florida DEM - Cert. Letter	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B172	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Supplemental - Levy County - Cert. Letter	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B173	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Supplemental - Marion County - Cert. Letter	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/25/2013	ML13218B174	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 6 - Supplemental - Nature Coast EMS - Cert. Letter	Emergency Preparedness-Emergency Plan License-Application	Duke Energy Florida, Inc Progress	NRC/Document Control Desk	05200029 05200030

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			for Combined License (COLA)	Energy Florida, Inc	NRC/NRO	
7/26/2013	ML13207A165	2013/7/26 Levy County COL - FW: Radwaste Building License Condition Language	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
7/26/2013	ML13207A400	2013/7/26 Levy County COL - Levy Draft RAI Related to Branch Technical Position 08-03, Stability of Offsite Power Systems	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
7/30/2013	ML13214A039	Levy Nuclear Plant, Units 1 & 2, AP1000 Combined License Application Departure Report Update.	Letter	Duke Energy Corp Progress Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/31/2013	ML13212A024	8/13/2013 Notice of Forthcoming Public Meeting with AP1000 Design Center Applicants and Licensees to Discuss Levy Unit 1 and 2 Combined License Application Passive Core Cooling System Condensate Return Exemption Request and Departure from the AP1000.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
8/1/2013	ML13213A088	NRC Staff's Forty-Seventh Status Report in the Matter of Levy County, Units 1 and 2.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
8/6/2013	ML13220A037	Levy, Units 1 & 2 - Roadmap of Changes in Combined License Application, Rev. 6.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk	05200029 05200030

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					NRC/NRO	
8/8/2013	ML13218A259	7/25/2013-Summary of Public Teleconference with AP1000 Design Center Combined License Applicants To Discuss Application Review Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
8/8/2013	ML13219A353	8/8/2013-CANCELLED-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
8/14/2013	ML13226A124	Request For Additional Information Letter No. 114 Related To SRP Chapter 8.0 "Electrical Power," for the Levy County Nuclear Plant, Units 1 and 2 COL Application.	Letter Request for Additional Information (RAI)	NRC/NRO/DNRL/LB4	Progress Energy Florida, Inc	05200029 05200030
8/15/2013	ML13255A080	Enclosure 2 - Westinghouse APP-GW-GLY-010, Slides of 8/13/2013 Meeting Entitled, Overview of Calculations Supporting Levy COLA Exemption, "Changes to Passive Core Cooling System Condensate Return."	Meeting Briefing Package/Handouts Slides and Viewgraphs	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
8/19/2013	ML13226A135	9/12/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030

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						05200040 05200041
8/19/2013	ML13226A139	9/26/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
8/23/2013	ML13239A053	Levy, Units 1 and 2 - Revised Response to Request for Additional Information Letter No. 112 Related to Radioactive Waste Management.	Letter Response to Request for Additional Information (RAI)	Duke Energy Corp Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/26/2013	ML13235A170	8/22/2013-CANCELLED-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
8/27/2013	ML13246A292	Levy, Units 1 and 2 - Voluntary Submittal to Address NRC Question on Drilled Shaft Foundation Design Criteria for Annex and Turbine Buildings.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/5/2013	ML13248A188	NRC Staff's Forty-Eighth Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030

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9/10/2013	ML13255A079	Levy, Units 1 and 2, Submittal of August 13, 2013 Presentation Materials to Address Containment Condensate Return Cooling Design and Request for Withholding Information from Public Disclosure.	Legal-Affidavit Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/10/2013	ML13234A499	Request For Withholding Information From Public Disclosure In Response To Transmittal of Levy Nuclear Plant, Units 1 and 2 COL Application, Revision 6 (Part 9-Withheld Information).	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Progress Energy Florida, Inc	05200029 05200030
9/11/2013	ML13253A419	Levy, Units 1 and 2, Combined License Application, Response To Proprietary Withholding Request for Supplement 5 Response to NRC RAI No. 108.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Progress Energy Florida, Inc	05200029 05200030
9/12/2013	ML13253A201	10/10/2013 Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200029 05200030
9/12/2013	ML13253A222	10/24/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041

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9/12/2013	ML13255A341	CANCELLED-9/12/2013-Notice of Forthcoming Public Teleconference to Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
9/12/2013	ML13259A147	Levy, Units 1 and 2 - Revised Response to Request for Additional Information Letter No. 112 Related to Radioactive Waste Management.	Graphics incl Charts and Tables Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/18/2013	ML13261A046	2013/9/18 Levy County COL - FW: Language for SFP Instrumentation License Condition	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
9/18/2013	ML13261A183	2013/9/18 Levy County COL - LNP SER Tracking	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
9/25/2013	ML13269A421	Levy, Units 1 & 2, Supplement 8 to Response to NRC RAI Letter 108-Implementation of Fukushima Near-term Task Force Recommendations.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/26/2013	ML13269A212	9/26/2013-CANCELLED-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029

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		Combined License Review Issues.				05200030 05200040 05200041
9/26/2013	ML13262A342	Request For Withholding Information From Public Disclosure, Slides of August 13, 2013, Meeting Entitled Overview of Calculations Supporting Levy COLA Exemption, "Changes To Passive Core Cooling System Condensate Return."	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Westinghouse Electric Co, LLC	05200029 05200030
9/30/2013	ML13262A346	8/13/2013 - Summary of a Public Meeting to Discuss Levy Units 1 and 2 COL Application Passive Core Cooling System Condensate Return Exemption Request and Departure From the AP1000 Certified Design and Supporting Calculations.	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
9/30/2013	ML14003A229	Crystal River Energy Complex Discharge Canal Plume Modeling.	Environmental Report	CH2M Hill	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/1/2013	ML13098A324	Levy Nuclear Plant, Units 1 and 2 Combined License Application, Advanced Safety Evaluation Section 20.3, Recommendation 7.1, Spent Fuel Pool Instrumentation.	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/LB4		05200029 05200030

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10/3/2013	ML13276A143	2013/10/03 Levy County COL - Levy Section 20.3 SE Without Open Items and Transmittal Cover Letter	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
10/3/2013	ML13270A373	Letter To Applicant - Levy Combined License Application ASE For Section 20.3, "Spent Fuel Pool Instrumentation".	Letter	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
10/3/2013	ML13270A322	Memorandum To ACRS: Levy Advanced Safety Evaluation, Section 20.3, "Spent Fuel Pool Instrumentation."	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
10/3/2013	ML13276A292	NRC Staff's 49th Status Report, in the Matter of Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2).	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
10/9/2013	ML13281A899	10/10/2013-CANCELLED-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center COL Review Issues.	Meeting Notice	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
10/21/2013	ML13296A034	Supplement 2 to Submittal of Exemption Request and Change Description for Departure from AP100 DCD Revision 19 to Address Containment Condensate Return Cooling Design.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/23/2013	ML13295A314	10/24/2013-Cancelled Notice of Forthcoming Public	Meeting Agenda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019

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		Teleconference to Discuss AP1000 Design Center Combined License Review Issues.	Meeting Notice Memoranda			05200022 05200023 05200029 05200030 05200040 05200041
10/24/2013	ML13298A020	Levy Nuclear Plant, Unit 1 & 2, Combined License Application, Voluntary Submittal of Changes to be Made in a Future Revision.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/24/2013	ML13301A018	Levy, Units 1 and 2 - Response to NRC RAI Letter 114 - SRP Chapter 8.0, Electrical Power.	Drawing Graphics incl Charts and Tables Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/7/2013	ML13311A437	Status Report	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
11/22/2013	ML13353A577	Westinghouse Letter-Identification and Resolution of Passive Core Cooling System Condensate Return Design Issue For The AP1000 Plant.	Letter	Westinghouse Electric Co	NRC/NRO/DNRL/LB4	05200006 05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
11/26/2013	ML13329A451	12/12/2013-Notice of Forthcoming Public Teleconference To Discuss AP1000 Design Center	Meeting Agenda Meeting Notice	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022

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		Combined License Review Issues.	Memoranda			05200023 05200029 05200030 05200040 05200041
11/26/2013	ML13330B333	2013/11/26 Levy County COL - NRC License Condition and ITAAC	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
12/4/2013	ML13338A228	2013/12/04 Levy County COL - RE: NRC License Condition and ITAAC	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
12/6/2013	ML13340A170	12/18/2013-Notice of Forthcoming Public Meeting with AP1000 Design Center Combined License Applicants and Licensees to Discuss Levy Units 1 and 2 Containment Design Change.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
12/13/2013	ML13350A403	2013/12/13 Levy County COL - Discussion Topics for 12-18-13 public meeting with Levy	E-Mail	NRC/NRR		05200029 05200030
12/13/2013	ML13347B297	2013/12/13 Levy County COL - Levy COL Emergency Preparedness License Condition 11.E	E-Mail	NRC/NRR	NRC/NRO/ DNRL/LB4	05200029 05200030
12/16/2013	ML13352A020	Levy Nuclear Plant, Unit 1 & 2 - Levy Cola Exemption Changes to Passive Core Cooling System Condensate Return.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk	05200029 05200030

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					NRC/NRO	
12/17/2013	ML13350A221	12/18/2013-REVISED-Notice of Forthcoming Public Meeting With AP1000 Design Center COL Applicants and Licensees to Discuss Levy Units 1 and 2 COL License Application Issues.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
12/18/2013	ML13352A167	12/18/2013-Levy COL Units 1 and 2, Duke Presentation for Public Meeting.	Meeting Briefing Package/Handouts Slides and Viewgraphs	Duke Energy Corp	NRC/NRO/ DNRL/LB4	05200029 05200030
12/18/2013	ML14009A046	Enclosure 2 to Serial: NPD-NRC-2014-003 - AP1000 Containment Condensate Return to IRWST: December 18 Meeting to Discuss Approach / Status.	Meeting Briefing Package/Handouts Slides and Viewgraphs	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
12/20/2013	ML14003A228	Levy, Units 1 & 2, Voluntary Submittal of Environmental Impacts from Retirement of CR3.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/30/2013	ML13364A269	2013/12/30 Levy County COL - Draft RAI 7353 for Levy COL Related to 10 CFR Part 37	E-Mail	NRC/NRO		05200029 05200030

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1/2/2014	ML14002A468	2014/1/02 Levy County COL - RAI Letter 115 for Levy Units 1 and 2	E-Mail	NRC/NRO		05200029 05200030
1/2/2014	ML14002A352	2014/1/02 Levy County COL - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 115 RELATED TO SRP SECTION 1.5 FOR THE LEVY NUCLEAR PLANT, UNITS 1 AND 2 COMBINED LICENSE APPLICATION	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/2/2014	ML14002A334	2014/1/02 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 115 RELATED TO SRP SECTION 1.5 FOR THE LEVY NUCLEAR PLANT, UNITS 1 AND 2 COMBINED LICENSE APPLICATION	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/2/2014	ML14002A101	NRC Staff's Fifty-Second Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
1/3/2014	ML14007A065	2014/1/03 Levy County COL - FW: Documents Available for Condensate Return Audit	E-Mail	- No Known Affiliation	NRC/NRO/ DNRL/LB4	05200029 05200030
1/6/2014	ML14007A067	2014/1/06 Levy County COL - FW: Condensate Return Audit	E-Mail	- No Known Affiliation	NRC/NRO/ DNRL/LB4	05200029 05200030
1/7/2014	ML13351A277	12/12/2013 Summary of a Public Teleconference on December 12, 2013, With AP1000 Design Center Combined License	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030

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		Applicants To Discuss Application Review Issues.				05200040 05200041
1/7/2014	ML14007A102	Audit Plan for Levy Nuclear Plant Units 1 and 2, Design Change Related to the Containment Condensate Return Pathway.	Audit Plan	NRC/NRO/DSRA/SCVB	NRC/NRO/DNRL/LB4	05200029 05200030
1/9/2014	ML14010A421	Levy Nuclear Plant, Units 1 & 2, Supplement 1 Response to NRC RAI Letter 114 - SRP Chapter 8.0, Electrical Power.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/10/2014	ML14009A045	Levy Nuclear Plant, Unit 1 & 2 - Submittal of December 18, 2013 Presentation Materials to Address Containment Condensate Return Cooling Design and Request For Withholding Information From Public Disclosure.	Letter	Duke Energy Carolinas, LLC Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/10/2014	ML14013A197	Levy Nuclear Plant, Units 1 and 2 - Emergency Planning Impacts from Retirement of CR3 Supplement.	Emergency Preparedness-Emergency Plan Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/29/2014	ML14029A072	2014/1/29 Levy County COL - RE: NRC Audit Kickoff - Condensate Return Design Change	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
1/30/2014	ML14034A090	Levy, Units 1 & 2, AP1000 Combined License Application Departure Report Update.	Letter	Duke Energy Corp	NRC/Document Control Desk	05200029 05200030

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					NRC/NRO	
1/31/2014	ML14028A162	Proprietary Determination Letter For Duke Presentation For 12/18/2013 Public Meeting For Levy Combined License Units 1 and 2.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Carolinas, LLC	05200029 05200030
2/5/2014	ML14083A259	US Army Corps of Engineer Letter to Duke Energy Florida (DEF) on the use of the cross Florida Greenway (CFG).	Letter	US Dept of the Army, Corps of Engineers, Jacksonville District	Duke Energy Corp Duke Energy Florida, Inc NRC/NRO	05200029 05200030
2/6/2014	ML14037A429	Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
2/7/2014	ML14042A034	Levy, Units 1 & 2, Supplement 3 to Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Revision 19 to Address Containment Condensate Return Cooling Design.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/7/2014	ML14042A035	Westinghouse APP-GW-GLR-607, Revision 1.	Report, Technical	Duke Energy Florida, Inc Westinghouse Electric Co	NRC/NRO	05200029 05200030
2/11/2014	ML14043A399	Levy Nuclear Plant, Units 1 and 2 Combined License Application, Response to	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk	05200029 05200030

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		NRC RAI Letter 115, Related to SRP Section 1.5.			NRC/NRO	
2/14/2014	ML14045A287	2/24/2014 Notice of Forthcoming Category 2 Public Teleconference to Discuss AP1000 Design Center Combined License Review Issues. Superseded by ML14050A328.	Meeting Agenda Meeting Notice	NRC/NRO		05200018 05200019 05200029 05200030 05200040 05200041
2/17/2014	ML14051A700	Levy, Units 1 & 2 - Revised AP1000 Combined License Application Departure Report Update.	Letter License-Application for Facility Operating License (Amend/Renewal) DKT 50	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/18/2014	ML14043A472	January 22, 2014 Summary Of Category 2 Meeting With Southern Nuclear, South Carolina Electric & Gas, Westinghouse And The General Public To Discuss Topics Related To The AP1000 Shield Building (Lower Sections) Detailed Design.	Meeting Summary Memoranda	NRC/NRO/DCIP/CIPB	NRC/NRO/DCIP/CIPB	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
2/19/2014	ML14050A328	2/27/2014 Meeting Notice with Public to Discuss AP100 Design Center Combined License Review Issues. Supersedes ML14045A287.	Meeting Agenda Meeting Notice	NRC/NRO		05200018 05200019 05200025 05200026 05200027 05200028

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						05200029 05200030 05200040 05200041
2/24/2014	ML14055A353	3/13/2014 Notice of Forthcoming Category 2 Public Teleconference with Duke Energy to Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice	NRC/NRO		05200018 05200019 05200029 05200030 05200040 05200041
2/26/2014	ML14057A470	2/5/2014 Summary of Category 2 Meeting with Southern Nuclear, South Carolina Electric & Gas, Westinghouse and the General Public to Discuss Topics Related to AP1000 Instrumentation and Control Systems Testing.	Meeting Summary Memoranda	NRC/NRO/DCIP/CIPB	NRC/NRO/DCIP/CIPB	05200014 05200015 05200018 05200019 05200022 05200023 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
2/26/2014	ML14057A845	2014/2/26 Levy County COL - Bulletin 2012-01 ITAAC Language	E-Mail	NRC/NRO		05200029 05200030
2/27/2014	ML14058A678	Petition to Suspend Reactor Licensing Decisions and Reactor Re-Licensing Decisions Pending Completion of Rulemaking Proceeding Regarding Environmental Impacts of High-Density Pool Storage	Legal-Pleading	- No Known Affiliation Bellefonte Efficiency & Sustainability Team (BEST)	NRC/OCM	05200029 05200030

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		of Spent Fuel and Mitigation Measures.		Beyond Nuclear Blue Ridge Environmental Defense League Citizens Environmental Alliance of Southwestern Ontario Citizens for Alternatives to Chemical Contamination Don't Waste Michigan Ecology Party of Florida Friends of the Coast Friends of the Earth Green Party of Ohio Harmon, Curran, Spielberg &		

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				Eisenberg, LLP Hudson River Sloop Clearwater, Inc National Parks Conservation Association New England Coalition, Inc Nuclear Information & Resource Service (NIRS) Public Citizen, Inc San Luis Obispo Mothers for Peace Sierra Club, Michigan Chapter Southern Alliance for Clean Energy Springer & Steinberg P C		

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				Sustainable Energy & Economic Development Coalition Turner Environmental Law Clinic		
3/4/2014	ML14063A634	Order of the Secretary Regarding Suspension of Reactor Licensing Actions.	Legal-Order	NRC/SECY		05200029 05200030
3/5/2014	ML14064A489	3/20/2014 Notice of Forthcoming Category 2 Public Teleconference with Duke Energy to Discuss AP1000 Design Center Combined License Review Issues.	Meeting Agenda Meeting Notice	NRC/NRO		05200018 05200019 05200029 05200030 05200040 05200041
3/5/2014	ML14064A567	2014/3/05 Levy County COL - Levy ITAAC - Electrical Bulletin	E-Mail	- No Known Affiliation	NRC/NRO/ DNRL/LB4	05200029 05200030
3/6/2014	ML14064A447	3/18/2014-Notice of Forthcoming Closed Meeting To Discuss AP1000 Condensate Return Design Change For Levy Nuclear Plant, Units 1 and 2 Combined License Application.	Meeting Agenda Meeting Notice Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200029 05200030
3/6/2014	ML14065A362	Levy Nuclear Plant, Units 1 and 2 COL, Request For Additional Information Letter No. 116.	Letter	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030

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3/6/2014	ML14065A073	Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
3/7/2014	ML14066A310	2014/3/07 Levy County COL - Draft RAI 7444 for Levy COL Related to Part 37 Management of Radioactive Material	E-Mail	NRC/NRO		05200029 05200030
3/10/2014	ML14069A492	Levy Combined License Application Units 1 and 2 Proprietary Withholding Letter - APP-GW-GLR-161.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
3/18/2014	ML14077A608	2014/3/18 Levy County COL - Info: Levy FSAR Changes	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
3/18/2014	ML14077A609	2014/3/18 Levy County COL - Levy COL RAI_7439 and 7440 Nonproprietary Rev.2.docx	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
3/21/2014	ML14080A014	4/3/2014 Notice of Public Teleconference to Discuss AP1000 Design Center COL Regulatory Issues with the Nuclear Regulatory Commission (NRC).	Meeting Agenda Meeting Notice	NRC/NRO		05200018 05200019 05200029 05200030 05200040 05200041
3/21/2014	ML14080A271	Answer of Progressive Energy Florida, Inc., Opposing Petition to Suspend Licensing Proceedings.	Legal-Pleading	Pillsbury, Winthrop, Shaw, Pittman, LLP Progress Energy Florida, Inc	NRC/OCM	05200029 05200030
3/21/2014	ML14086A656	Levy Units 1 & 2, Supplement 2 to Response to NRC RAI Letter 114 -	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk	05200029 05200030

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		SRP Chapter 8.0, Electrical Power.			NRC/NRO	
3/21/2014	ML14080A296	NRC Staff Answer Opposing Suspension Petition.	Legal-Pleading	NRC/OGC	NRC/OCM	05200029 05200030
3/25/2014	ML14072A352	1/14/2014 - Summary of Public Teleconference Meeting For Levy Units 1 and 2 COL Regarding AP1000 COL Applicants - Part 37.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200029 05200030
3/26/2014	ML14072A346	12/18/2013-Summary of Levy COL Units 1 and 2 Public Meeting - Staff Questions for Design Change.	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
3/27/2014	ML14090A003	Levy CR3 RAI_7470.	Request for Additional Information (RAI)	NRC/NRO/DNRL/EPB1	Duke Energy Florida, Inc	05200029 05200030
3/28/2014	ML14087A093	2014/3/28 Levy County COL - Staff-Provided License Condition for Discussion Safety-Security Interface	E-Mail	NRC/NRO		05200029 05200030
3/31/2014	ML14085A431	3/20/2014 Summary of Public Teleconference with AP1000 Design Center COL Applicants to Discuss Application Review Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041

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3/31/2014	ML14115A334	Attachment 1 - Letter from Paul A. Russ, Westinghouse Electric Company (WEC), to the Nuclear Regulatory Commission (NRC), 10 CFR 50.46 Annual Report for the AP1 000 Standard Plant Design, Letter No. DCP_NRC_003262, dated March 31, 2014.	Annual Report Letter	Westinghouse Electric Co, LLC	NRC/Document Control Desk NRC/NRO	05200018 05200019 05200022 05200023 05200029 05200030
4/1/2014	ML14091A121	2014/4/01 Levy County COL - Duke Response to NRC RAI Letter 116	E-Mail	- No Known Affiliation	NRC/NRO/DNRL/LB4	05200029 05200030
4/1/2014	ML14091A123	2014/4/01 Levy County COL - FW: Duke Response to NRC RAI Letter 116	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
4/2/2014	ML14083A396	2/27/2014 - Summary of Public Teleconference for Levy Combined License, Units 1 and 2.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
4/3/2014	ML14097A365	2014/4/03 Levy County COL - Draft RAI 7475 for Levy COL Related to Condensate Return Design Change	E-Mail	NRC/NRO		05200029 05200030
4/3/2014	ML14093B332	NRC Staff's Fifty-Fifth Status Report, in the Matter of Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2).	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
4/10/2014	ML14100A672	2014/4/10 Levy County COL - Duke Response to NRC RAI Letter 116	E-Mail	- No Known Affiliation	NRC/NRO/DNRL/LB4	05200029 05200030

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4/10/2014	ML14100A204	2014/4/10 Levy County COL - RAI Letter 117 for Levy Units 1 and 2	E-Mail	NRC/NRO		05200029 05200030
4/10/2014	ML14100A040	2014/4/10 Levy County RAI for SER - Request for Additional Information Letter No. 117 Related to SRP Section 6.3, ECCS, for the Levy Nuclear Plant COL	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
4/10/2014	ML14065A522	Levy Units 1 and 2 Combined License Application, Revised Review Schedule.	Letter Schedule and Calendars	NRC/NRO/DNR L	Duke Energy Florida, Inc	05200029 05200030
4/17/2014	ML14112A371	Levy, Units 1 & 2 - Partial Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Legal-Affidavit Letter	Duke Energy Florida, Inc	NRC/Docu ment Control Desk NRC/NRO	05200029 05200030
4/22/2014	ML14112A128	2014/4/22 Levy County COL - Draft RAI 7484 for Levy COL Related to Condensate Return Design Change	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
4/23/2014	ML14114A553	Levy Units 1 & 2, Response to Environmental Request for Additional Information 2 (eRAI 7470) Related to the Retirement of Crystal River Unit 3.	Letter	Duke Energy Florida, Inc	NRC/Docu ment Control Desk NRC/NRO	05200029 05200030
4/23/2014	ML14115A335	William States Lee III Nuclear Station (WLS), Units 1 & 2 and Levy Nuclear Plant (LNP), Units 1 and 2 - 10 CFR 50.46 Annual Report.	Letter	Duke Energy Carolinas, LLC	NRC/Docu ment Control Desk NRC/NRO	05200018 05200019 05200022 05200023 05200029 05200030

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4/24/2014	ML14114A050	2014/4/24 Levy County RAI for SER - RAI Letter No. 118 Related to SRP Section 6.3, Emergency Core Cooling System, for the Levy Nuclear Plant Units 1 and 2 COL Application	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
4/28/2014	ML14094A244	Withdrawal of Request for Additional Information Letter No. 115 Related to SRP Section 1.5 for the Levy Nuclear Plant Units 1 and 2, Combined License Application.	Proprietary Information Review	NRC/NRO/DNR L/LB4		05200029 05200030
5/5/2014	ML14126A699	Levy, Units 1 and 2 - Partial Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Letter Report, Miscellaneous	Duke Energy Corp Duke Energy Florida, Inc	NRC/Docu ment Control Desk NRC/NRO	05200029 05200030
5/9/2014	ML14119A414	4/3/2014-Levy COL Units 1 and 2 Public Teleconference Meeting Summary.	Meeting Summary Memoranda	NRC/NRO/DNR L/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200022 05200023 05200029 05200030 05200040 05200041
5/15/2014	ML14133A652	Levy Combined License, Units 1 and 2 Proprietary Determination For Partial Response To NRC RAI Letter 116.	Letter Proprietary Information Review	NRC/NRO/DNR L/LB4	Duke Energy Florida, Inc	05200029 05200030
5/16/2014	ML14135A335	5/1/2014-Summary of Public Meeting For Levy COL, Units 1 and 2.	Meeting Summary	NRC/NRO/DNR L/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200029

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						05200030 05200040 05200041
5/16/2014	ML120120387	ASE Revised Levy County Chapter 08.	- No Document Type Applies NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL		05200029 05200030
5/16/2014	ML14126A381	Letter to Applicant-Levy County Nuclear Plant, Units 1 and 2 ASE Without Open Items For Revised chapter 8, "Electrical Power" Combined License.	Letter	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
5/19/2014	ML14141A015	Levy, Units 1 and 2 - Partial Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/22/2014	ML14142A076	2014/5/22 Levy County COL - NRC Staff Clarification Question for 5/22 Levy Public Teleconference	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
5/22/2014	ML14141A504	Levy Combined License, Units 1 and 2, Request for Withholding Information from Public Disclosure for Transmittal of Responses to Request for Additional Information Nos. 06.03-1 and 06-.03-6 on Condensate Return.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Carolinas, LLC	05200029 05200030
5/23/2014	ML14143A060	2014/5/23 Levy County COL - License Condition for	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030

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		Emergency Preparedness Communications and Staffing				
5/27/2014	ML14149A263	Levy Nuclear Plant, Unit 1 & 2, Response To NRC Withdrawal Of Request for Information Letter No. 115 For Levy Nuclear Plant, Units 1 And 2 Combined License Application.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/28/2014	ML14148A515	2014/5/28 Levy County COL - Draft RAI 7541 for Levy COL Related to Safety-Security Interface	E-Mail	NRC/NRO		05200029 05200030
5/30/2014	ML14150A411	2014/5/30 Levy County RAI for SER - Request for Additional Information (RAI) Letter 119 Related to SRP 13.6, Physical Security, for Levy Nuclear Plant Units 1 and 2 COL	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/3/2014	ML14150A120	5/22/2014 Summary of Public Teleconference With AP1000 Design Center Combined License Applicants To Discuss Application Review Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
6/3/2014	ML14154A525	2014/6/03 Levy County COL - Fukushima License Conditions	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/3/2014	ML14155A419	Levy Nuclear Plant, Units 1 and 2 Combined License Application, Voluntary Submittal of Changes to be Made in a Future Revision.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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6/9/2014	ML14160B256	2014/6/09 Levy County COL - Additional Topic for NRC Public Call	E-Mail	NRC/NRO		05200029 05200030
6/12/2014	ML14164A444	Levy Nuclear Plant, Units 1 & 2, Partial Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Letter	Duke Energy Carolinas, LLC Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/13/2014	ML14164A651	2014/6/13 Levy County COL - Draft Responses and AP1000 DCD Mark-ups for Levy Condensate Return RAI Questions 06.03-10 through 06.03-12	E-Mail	- No Known Affiliation	NRC/NRO/DNRL/LB4	05200029 05200030
6/16/2014	ML14157A015	6/5/2014 Summary of a Public Meeting with Members of AP1000 Design Center to Discuss Request for Exemption and Departure Related to AP1000 Containment Condensate Return Design.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
6/19/2014	ML14168A260	June 10, 2014, Summary of Public Teleconference with Members of AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues, Levy Combined License Units, 1 and 2.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041

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6/19/2014	ML14171A453	Levy, Units 1 and 2, Partial Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/20/2014	ML14172A321	2014/6/20 Levy County COL - Discussion Topic for AP1000 Public Teleconference	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/27/2014	ML14178B543	2014/6/27 Levy County COL - Updated: Fukushima License Conditions	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/27/2014	ML14182A106	Levy, Units 1 & 2, Partial Response to NRC RAI Letters 116, 117, and 118 - SRP Sections 6.3 and 15.2.6.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/30/2014	ML14181B396	2014/6/30 Levy County COL - Draft RAI 7568 for Levy COL related to Special Nuclear Material Physical Protection Plan	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/30/2014	ML12013A076	ASE Revised Levy County Chapter 13 - Conduct of Operations.	NRO Safety Evaluation Report (SER)-Delayed	NRC/NRO/DNRL/LB4		05200029 05200030
6/30/2014	ML14168A130	Letter to Applicant - Levy, Units 1 and 2 COL Application, Revised ASE, Chapter 13, "Conduct of Operations."	Letter	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
7/1/2014	ML14183B342	Levy, Units 1 and 2, Partial Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Graphics incl Charts and Tables Letter	Duke Energy Florida, Inc	NRC/Document Control Desk	05200029 05200030

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					NRC/NRO	
7/1/2014	ML14168A120	Memorandum to ACRS - Levy Units 1 and 2 COL Application, Revised ASE, Chapter 13, "Conduct of Operations".	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030
7/2/2014	ML14181B301	Enclosure 2-Levy SGI RAI SLES No. NS113122.	- No Document Type Applies	NRC/NRO/DNRL/LB4		05200029 05200030
7/2/2014	ML14181B251	RAI-7568-Enclosure 1 - Request For Additional Information Letter No. 120 Related To SRP Section 1.05 - Other Regulatory Considerations For The Levy Nuclear Plant, Units 1&2.	Request for Additional Information (RAI)	NRC/NRO/DNRL/LB4		05200029 05200030
7/2/2014	ML14181B240	Transmittal Letter-Request For Additional Information Letter No. 120 Related To SRP Section 1.05 - Other Regulatory Considerations For The Levy Nuclear Plant, Units 1&2 (RAI-7568).	Letter	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
7/10/2014	ML14196A074	Levy, Units 1 and 2, Supplement 4 to Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Revision 19 to Address Containment Condensate Return Cooling Design.	Letter	Duke Energy Corp Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/17/2014	ML14198A113	Commission Memorandum and Order CLI-14-07.	Legal-Order	NRC/SECY	Ecology Party of Florida Nuclear	05200029 05200030

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					Information & Resource Service (NIRS)	
7/22/2014	ML14216A480	2014/7/22 Levy County COL - Draft Levy Supplemental Information	E-Mail	- No Known Affiliation	NRC/NRO/ DNRL/LB4	05200029 05200030
7/24/2014	ML14206A951	Levy, Units 1 & 2, Supplemental Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/24/2014	ML14206A953	Levy, Units 1 and 2 - Supplement to Partial Response to NRC RAI Letters 116, 117 and 118 - SRP Sections 6.3 and 15.2.6.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/28/2014	ML14189A036	Levy Combined License Units 1 and 2, Summary of June 17, 2014, Public Meeting.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
7/29/2014	ML14205A144	July 16, 2014 Summary of Public Teleconference With Licensees Concerning the Levy Combined License, Units 1 and 2.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029

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						05200030 05200040 05200041
7/30/2014	ML14213A015	Levy Units 1 & 2, Revised AP1000 Combined License Application Departure Report Update.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/1/2014	ML14189A042	July 1, 2014, Summary of Public Teleconference with Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
8/4/2014	ML14216A481	2014/8/04 Levy County COL - FW: Draft Levy Supplemental Information	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
8/4/2014	ML14205A131	July 10, 2014, Summary of Public a Public Teleconference With Members of AP1000 Design Center To Discuss AP1000 Licensing and Technical Issues	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
8/4/2014	ML14205A111	June 24, 2014, Summary of a Public Teleconference with Members of AP1000 Design Center to Discuss AP1000	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026

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		Licensing and Technical Issues.				05200027 05200028 05200029 05200030 05200040 05200041
8/7/2014	ML14219A451	NRC Staff's Fifty-Ninth Status Update.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
8/7/2014	ML14220A433	Revised Response To NRC RAI Letter 119- Related To Standard Review Plan Section 13.6, Physical Security, For The Levy Nuclear Plant, Units 1 And 2, Combined License Application.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/11/2014	ML14223A785	2014/8/11 Levy County COL - FW: Draft Levy Supplemental Information	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
8/19/2014	ML14210A383	July 23, 2014, Summary of Public Teleconference Regarding Levy Combined License, Units 1 and 2.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030
8/21/2014	ML14230A871	Letter to Applicant - LNP ASE without OIs for Chapter 6 3.	Letter	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
8/21/2014	ML14230A893	Memorandum to ACRS - LNP ASE without OIs for Chapter 6, Section 6.3.	Memoranda	NRC/NRO/DNRL	NRC/ACRS	05200029 05200030

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8/26/2014	ML14238A225	Commission Memorandum and Order CLI-14-08.	Legal-Order	NRC/SECY	Progress Energy Florida, Inc	05200029 05200030
8/26/2014	ML14232A303	Levy Combined License Units 1 and 2, Proprietary Letter Response To RAI 15.02.06-1 on Condensate Return.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Carolinas, LLC	05200029 05200030
8/27/2014	ML14239A529	2014/8/27 Levy County COL - FW: Action - Put matrix in ADAMS	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
8/27/2014	ML14239A524	2014/8/27 Levy County COL - FW: Main Control Room Operator Dose 08272014.pptx	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
8/28/2014	ML14258A955	Levy Nuclear Plant Units 1 & 2 Submittal of COL Application, Revision 7.	Letter License-Application for Combined License (COLA)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/28/2014	ML14258A916	Progress Energy Levy Units 1 and 2 COLA (Departures Report and Exemptions), Rev. 7 - Departures Report and Exemptions	Generic DCD Departures Report License-Application for Combined License (COLA)	Duke Energy Florida, Inc Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
8/29/2014	ML14245A386	NRDC v. NRC et. al., No. 13-1311 (Scheduled oral Argument November. 21, 2014).	Legal-Memorandum and Order Letter	NRC/OGC	US Federal Judiciary, US Court of Appeals for the District of Columbia Circuit	05000247 05000275 05000286 05000323 05000327 05000328 05000346 05000352 05000353

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						05000391 05000416 05000443 05000483 05000498 05000499 05200012 05200013 05200014 05200015 05200016 05200017 05200018 05200019 05200022 05200023 05200024 05200029 05200030 05200033 05200039 05200040 05200041 07200010
9/3/2014	ML14253A139	Levy, Units 1 & 2, Roadmap of Changes in Combined License Application, Revision 7.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/4/2014	ML14247A489	NRC Staff 60th Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
9/10/2014	ML14254A086	2014/9/10 Levy County COL - Levy ACRS - Closed	E-Mail	- No Known Affiliation	NRC/NRO/DNRL/LB4	05200029 05200030

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		Meeting Slides - REDACTED				
9/10/2014	ML14254A090	2014/9/10 Levy County COL - Levy ACRS - Slides for Public Session	E-Mail	- No Known Affiliation	NRC/NRO/ DNRL/LB4	05200029 05200030
9/11/2014	ML14254A092	2014/9/11 Levy County COL - Levy COL - Draft ACRS slides from applicant - public	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
9/11/2014	ML14254A383	Levy Nuclear Plant, Units 1 and 2, Combined License Application - Revised Section 6.3 ASE Redacted.	Safety Evaluation	NRC/NRO/DNRL/LB4		05200029 05200030
9/11/2014	ML14254A376	Levy Nuclear Plant, Units 1 and 2, Combined License Application - Revised Section 6.3 ASE-Public.	Safety Evaluation	NRC/NRO/DNRL/LB4		05200029 05200030
9/12/2014	ML14261A189	Levy ACRS Update for September 17, 2014 Meeting on Changes to Passive Core Cooling System Condensate Return and Westinghouse AP1000 Plant Condensate Return to IRWST.	Slides and Viewgraphs	Duke Energy Florida, Inc Westinghouse Electric Co	NRC/NRO	05200029 05200030
9/12/2014	ML14261A188	Levy Nuclear Plant, Units 1 & 2, Submittal of September 17, 2014 ACRS Presentation Materials to Address Containment Condensate Return Cooling Design and Request for Withholding Information From Public Disclosure.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/12/2014	ML14261A190	Westinghouse Meeting Presentation on Changes to AP1000 Passive Core	Slides and Viewgraphs	Westinghouse Electric Co	NRC/NRO	05200029 05200030

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		Cooling System Condensate Return for September 17, 2014 ACRS Meeting.				
9/16/2014	ML14219A169	Levy Combined License, Units 1 and 2, Summary of 2013 Audit.	Audit Report	NRC/NRO/DNRL/LB4		05200029 05200030
9/16/2014	ML14219A200	Levy Combined License, Units 1 and 2, Summary of 2014 Audit.	Audit Report	NRC/NRO/DNRL/LB4		05200029 05200030
9/16/2014	ML14248A306	Transmittal Memorandum for Audit Summary Of Levy Nuclear Plant Units 1 And 2 Combined License Application, Audit Related To Design Change Of Containment Condensate Return System.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB3	05200029 05200030
9/18/2014	ML14267A029	Levy Units 1 & 2, Response to NRC RAI Letter No. 120 Unclassified Enclosure Related to Standard Review Plan Section 1.05-Other Regulatory Considerations for Combined License Application (RAI 7568).	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/18/2014	ML14265A448	Response to NRC RAI Letter No. 120 Safeguards Enclosure, Related to Standard Review Plan Section 1.05 - Other Regulatory Considerations for the Levy Nuclear Plant Units 1 and 2 Combined License Application (RAI 7568).	Letter Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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9/19/2014	ML14262A282	2014/9/19 Levy County COL - Draft RAIs 7661 and 7667	E-Mail	NRC/NRO		05200029 05200030
9/24/2014	ML14259A106	Request For Additional Information (RAI) 7661.	Request for Additional Information (RAI)	NRC/NRO/DNRL/LB4		05200029 05200030
9/24/2014	ML14259A100	Request For Additional Information (RAI) 7667.	Request for Additional Information (RAI)	NRC/NRO/DNRL/LB4		05200029 05200030
9/24/2014	ML14259A096	Request For Additional Information Letter No. 121 Related To Standard Review Plan Sections 6.2.5 And 6.4 For The Levy Nuclear Plant, Units 1 And 2 Combined License Application.	Letter Request for Additional Information (RAI)	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
9/29/2014	ML14252A225	August 28, 2014, Summary of Public Teleconference with Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues Levy Combined License, Units 1 and 2, .	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
9/29/2014	ML14272A524	Ecology Party of Florida and Nuclear Information and Resource Services' Motion For Leave to File New Contention Concerning the Absence of Required Waste Confidence Safety Findings.	Legal-Pleading	Harmon, Curran, Spielberg & Eisenberg, LLP	NRC/ASLBP	05200029 05200030
9/29/2014	ML14272A522	Ecology Party of Florida and Nuclear Information and Resource Services' Motion to Reopen the Record.	Legal-Pleading	Harmon, Curran, Spielberg & Eisenberg, LLP	NRC/ASLBP	05200029 05200030

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9/29/2014	ML14272A527	Petition to Suspend Final Decisions in All Pending Reactor Licensing Proceedings Pending Issuance of Waste Confidence Safety Findings.	Legal-Pleading	Ecology Party of Florida Harmon, Curran, Spielberg & Eisenberg, LLP Nuclear Information & Resource Service	NRC/OCM	05200029 05200030
9/29/2014	ML14272A606	Petition to Suspend Final Decisions in All Pending Reactor Licensing Proceedings Pending Issuance of Waste Confidence Safety Findings.	Legal-Motion	Friends of the Coast New England Coalition, Inc	NRC/OCM	05000275 05000323 05000341 05000346 05000443 05000498 05000499 05200012 05200013 05200018 05200019 05200029 05200030 05200033 05200034 05200035 05200040 05200041
9/29/2014	ML14272A528	Petitioners' Certificate of Service.	Legal-Correspondence/Miscellaneous	Harmon, Curran, Spielberg & Eisenberg, LLP	NRC/ASLBP	05200029 05200030
10/1/2014	ML14274A214	Memorandum and Order Dismissing Environmental	Legal-Order	NRC/ASLBP		05200029 05200030

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		Waste Confidence Contention.				
10/2/2014	ML14275A073	Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
10/7/2014	ML14280A113	Commission Memorandum and Order (CLI-14-09).	Legal-Order	NRC/SECY		05200029 05200030
10/10/2014	ML14283A195	2014/10/10 Levy County COL - Draft RAI 7687 for Levy COL Related to Access to Proprietary and Safeguards Information	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
10/10/2014	ML14283A522	2014/10/10 Levy County RAI for SER - REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 122 RELATED TO SRP SECTION 6.4, CONTROL ROOM HABITABILITY, FOR THE LEVY NUCLEAR PLANT, UNITS 1 AND 2, COL APPLICATION	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
10/15/2014	ML14288A315	2014/10/15 Levy County COL - Duke Slides for MCR Dose Public Call 10-16-14.pptx	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
10/17/2014	ML14290A439	2014/10/17 Levy County RAI for SER - RAI LETTER NO. 123 RELATED TO SRP SECTION 1.5, OTHER REGULATORY CONSIDERATIONS, FOR THE LEVY NUCLEAR PLANT UNITS 1 AND 2 COMBINED LICENSE APPLICATION	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030

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10/31/2014	ML15054A047	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 1 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A057	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 10 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A048	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 2 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A049	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 3 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A050	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 4 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A051	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 5 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030

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10/31/2014	ML15054A052	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 6 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A054	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 7 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A055	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 8 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML15054A056	"Levy Nuclear Plant & Associated Transmission Lines Wetland Mitigation Plan, Comprehensive Design Document," Part 9 of 10.	Environmental Report	Environmental Services, Inc Taylor Engineering, Inc	Duke Energy Florida, Inc NRC/NRO	05200029 05200030
10/31/2014	ML14304A355	Answer of Progress Energy Florida, Inc., Opposing Petition to Suspend Licensing Proceedings and Related Contention.	Legal-Pleading	Pillsbury, Winthrop, Shaw, Pittman, LLP Progress Energy Florida, Inc	NRC/OCM	05200029 05200030
10/31/2014	ML14304A682	NRC Staff Consolidated Answer To Petitions To Suspend Final Reactor Licensing Decisions,	Legal-Pleading	NRC/OGC	NRC/OCM	05200029 05200030

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		Motions To Admit A New Contention, And Motions To Reopen The Record.				
10/31/2014	ML14304A663	Nuclear Energy Institute, Inc., Motion for Leave to File Amicus Curiae Brief.	Legal-Pleading	Nuclear Energy Institute (NEI)	NRC/OCM	05200029 05200030
11/3/2014	ML14307A046	NRC Staff 62nd Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
11/5/2014	ML14309A776	2014/11/05 Levy County COL - License Conditions for Discussion for Levy Special Nuclear Material	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
11/5/2014	ML14309A829	2014/11/05 Levy County COL - RE: Levy Public Call	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
11/6/2014	ML14310A284	2014/11/06 Levy County COL - FW: License Conditions for Discussion for Levy Special Nuclear Material	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
11/7/2014	ML14302A351	10/16/2014-Summary of Public Teleconference for Levy Combined License, Units 1 and 2.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
11/7/2014	ML14311A974	Petitioners' and Intervenors' Consolidated Reply to Answer to Petitions to Suspend Final Reactor Licensing Decisions, Motions to Admit a New Contention, and Motions to Reopen the Record.	Legal-Pleading	Ecology Party of Florida Harmon, Curran, Spielberg & Eisenberg, LLP Nuclear Information &	NRC/OCM	05200029 05200030

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				Resource Service		
11/14/2014	ML14231A467	06 03-5 and 15 02 06-2 Condensate Return Proprietary Letter for Levy COL Units 1 and 2.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Carolinas, LLC	05200029 05200030
11/17/2014	ML14323A286	Levy Units 1 & 2, Supplement 5 to Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Revision 19 to Address Containment Condensate Return Cooling Design.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/17/2014	ML14323A285	Levy, Units 1 & 2, Response to NRC RAI Letter 123 - Related to Standard Review Plan Section 1.5, Other Regulatory Considerations, Combined License Application.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/20/2014	ML14325A657	Levy, Unit 1 and 2, Supplemental Response to NRC RAI Letter No. 120 Safeguards Enclosure, Related to Standard Review Plan Section 1.05 - Other Regulatory Considerations Combined License Application (RAI 7568).	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/26/2014	ML14330A204	2014/11/26 Levy County COL - Draft RAI 7756 for Levy COL Related to Emergency Core Cooling System	E-Mail	NRC/NRO		05200029 05200030

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12/2/2014	ML14325A526	Use of Encryption Software for Electronic Transmission of Safeguards Information.	Letter	NRC/NRR/DORL/LPLII-1	Duke Energy Carolinas, LLC	05200029
12/3/2014	ML14323A073	11/6/2014 - Levy Combined License Units 1 and 2, Summary of Public Teleconference.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
12/4/2014	ML14338A358	NRC Staff 63rd Status Report in the Matter of Levy County Nuclear Power Plant, Units 1 and 2.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
12/4/2014	ML14323A318	Proprietary Determination for Responses to RAI 6.3-2 and 6.3-3 Levy Units 1 and 2 Combined License.	Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
12/5/2014	ML14341A003	2014/12/05 Levy County RAI for SER - RAI Letter No. 124 Related to SRP Section 6.3, Emergency Core Cooling System, for the Levy Nuclear Plant Units 1 and 2 COL Application	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
12/5/2014	ML14323A337	Request for Withholding Information From Public Disclosure in Response to Submittal of September 17, 2014, Advisory Committee on Reactor Safeguards Presentation Material to Address Containment Condensate Return Cooling Design (CAW-14-4003).	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Corp	05200029 05200030

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12/8/2014	ML14323A198	Levy, Units 1 and 2, Combined License Application - Schedule Letter To Applicant.	Letter	NRC/NRO/DNRL	Duke Energy Florida, Inc	05200029 05200030
12/12/2014	ML14352A047	Levy, Units 1 & 2 - Response to NRC Letter - Related to Combined License Application - Revised Review Schedule.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/15/2014	ML14323A297	Proprietary Determination for Responses to RAI 6.3-1 and 6.3-6 Levy Units 1 and 2 Combined License.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030
12/16/2014	ML15014A036	APP-GW-GLY-052, Rev. 1, "AP1000 IRWST Condensate Return Status," Enclosure 2 to NPD-NRC-2015-002.	Meeting Briefing Package/Handouts Slides and Viewgraphs	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
12/31/2014	ML14365A065	NRC Staff 64th Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030
1/6/2015	ML15055A400	Enclosures 3 & 4, Westinghouse Application for Withholding Information from Public Disclosure along with Affidavit and Proprietary Notice and Copyright Notice.	Letter	Westinghouse Electric Co	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/7/2015	ML15007A471	2015/1/07 Levy County COL - Draft RAI 7785 for Levy COL Related to Emergency Core Cooling System	E-Mail	NRC/NRO		05200029 05200030
1/7/2015	ML15014A035	Levy Nuclear Plant, Units 1 & 2 - Submittal Of December 16, 2014 Presentation Materials To Address	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk	05200029 05200030

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		Containment Condensate Return Cooling Design And Request For Withholding Information From Public Disclosure.			NRC/NRO	
1/7/2015	ML14349A036	Levy Nuclear Plant, Units 1 and 2, Combined License Application, Audit Plan For Condensate Return Electronic Calculation.	Audit Plan	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200029 05200030
1/12/2015	ML15007A268	12/11/2014 Meeting Summary with Members Of AP1000 Design Center To Discuss AP1000 Licensing And Technical Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB1	05200018 05200019 05200029 05200030 05200040 05200041
1/12/2015	ML15012A592	2015/1/12 Levy County COL - RE: NRC Public Call - Levy COLA	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/13/2015	ML15013A108	2015/1/13 Levy County COL - FW: ASER Chapters Tied to Standard Changes	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/13/2015	ML15013A500	2015/1/13 Levy County RAI for SER - Request for Additional Information Letter No. 125 Related to SRP Section 6.3, Emergency Core Cooling System, for the Levy Nuclear Plant Units 1 and 2 COL Application	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/21/2015	ML15023A036	Levy, Units 1 & 2 - Response to NRC RAI Letter 125 - SRP Section 6.3.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030

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1/22/2015	ML15026A131	Levy, Units 1 & 2, Supplemental Response to NRC RAI Letter 123 - Related to Standard Review Plan Section 1.5, Other Regulatory Considerations for the Levy Nuclear Plant, Units 1 and 2, Combined License Application.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/28/2015	ML15028A112	Petition To Supplement Reactor-Specific Environmental Impact Statements To Incorporate By Reference The Generic Environmental Impact Statement For Continued Spent Fuel Storage.	Legal-Pleading	Harmon, Curran, Spielberg & Eisenberg, LLP Nuclear Information & Resource Service	NRC/OCM	05200029 05200030
1/29/2015	ML15033A349	Levy Nuclear Plant, Units 1 & 2 - Revised AP1000 Combined License Appkication Departure Report Update.	Letter Report, Miscellaneous	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/29/2015	ML15029A709	Order of the Secretary Establishing Petition Answer and Response Due Dates.	Legal-Order	NRC/SECY		05200029 05200030
2/2/2015	ML15015A309	1/14/2015 - Summary of Meeting with Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
2/5/2015	ML15036A250	NRC Staff 65th Status Report.	Legal-Correspondence/Miscellaneous	NRC/OGC	NRC/ASLBP	05200029 05200030

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2/6/2015	ML15030A084	Levy Nuclear Plant, Units 1 and 2 Combined License Application - Proprietary Determination for AP1000 Condensate Return December 16, 2014, Closed Meeting Slides.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Corp Westinghouse Electric Co, LLC	05200029 05200030
2/6/2015	ML15040A470	Levy, Units 1 & 2 - Combined License Application, Partial Response to Request for Additional Information Letter No. 121 Related to SRP Sections 6.2.5 and 6.4.	Letter Response to Request for Additional Information (RAI)	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/12/2015	ML15043A604	Answer of Progress Energy Florida, Inc., Opposing Petition to Supplement Levy County Final Environmental Impact Statement.	Legal-Pleading	Duke Energy Florida, Inc Pillsbury, Winthrop, Shaw, Pittman, LLP	NRC/OCM	05200029 05200030
2/12/2015	ML15043A602	Change of Address - O'Neill.	Legal-Correspondence/Miscellaneous	Duke Energy Florida, Inc Pillsbury, Winthrop, Shaw, Pittman, LLP	NRC/OCM	05200029 05200030
2/12/2015	ML15049A195	Enclosure 5: Levy Emergent Issues Update.	Slides and Viewgraphs	Duke Energy Corp	NRC/NRO	05200029 05200030
2/12/2015	ML15049A194	Enclosures 2, 3 & 4: AP1000 MCR Dose, MCR Heat Up and Hydrogen Venting Status and Application for Withholding Proprietary Information from Public	Slides and Viewgraphs	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030

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		Disclosure and Westinghouse Proprietary Information Notice and Copyright Notice.				
2/12/2015	ML15049A193	Levy Nuclear Plant, Units 1 & 2, Submittal of February 17, 2015 Presentation Materials to Address Status of AP1000 MCR Dose, MCR Heat Up, And Hydrogen Venting RAI Responses and Request for Withholding Information from Public Disclosure.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/18/2015	ML15054A046	Levy Nuclear Plant, Units 1 And 2 - Information For The Environmental Review - Wetland Mitigation Plan.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/18/2015	ML15049A620	Petitioners' Reply to Oppositions to Petition to Supplement Reactor-Specific Environmental Impact Statements to Incorporate by Reference the Generic Environmental Impact Statement for Continued Spent Fuel Storage.	Legal-Pleading	Harmon, Curran, Spielberg & Eisenberg, LLP Nuclear Information & Resource Service	NRC/OCM	05200029 05200030
2/19/2015	ML15050A142	2015/2/19 Levy County COL - Duke Letter to OGC, Request for Guidance Clarifying Appropriate Methods for Resolving	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030

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		Generic Errors in Certified Design Information PUBLIC				
2/26/2015	ML15057A287	Commission Memorandum and Order CLI-15-04.	Legal-Order	NRC/SECY		05200029 05200030
2/26/2015	ML15078A144	Enclosure 4 to NPD-NRC-2015-012: AP1000 IRWST Condensate Return Status (Non-Proprietary).	Meeting Briefing Package/Handouts Slides and Viewgraphs	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
2/26/2015	ML15078A130	Enclosure 7 to NPD-NRC-2015-012: Levy Emergent Issues Update 02-26-15 (Non-Proprietary).	Meeting Briefing Package/Handouts Slides and Viewgraphs	Duke Energy Florida, Inc	NRC/NRO	05200029 05200030
2/26/2015	ML15078A127	Enclosures 2, 5, and 6 to NPD-NRC-2015-012: AP1000 MCR Dose, MCR Heat Up, and Hydrogen Venting Status (Non-Proprietary).	Meeting Briefing Package/Handouts Slides and Viewgraphs	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
3/3/2015	ML15062A375	Order (Terminating Proceeding) (LBP-15-8).	Legal-Order	NRC/ASLBP		05200029 05200030
3/17/2015	ML15078A126	Levy, Units 1 and 2 - Submittal of February 26, 2015 Presentation Materials to Address Status of AP1000 IRWST Condensate Return and MCR Dose, MCR Heat Up, and Hydrogen Venting RAI Responses and Request for Withholding Information from Public Disclosure.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/23/2015	ML15040A027	12/16/2014-Summary of Closed Meeting with Members of the AP1000	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025

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		Design Center to Discuss Changes to Proprietary Calculations Supporting AP1000 Condensate Return Design Change, Departure, and Exemption Request.				05200026 05200027 05200028 05200029 05200030 05200040 05200041
3/23/2015	ML15082A072	2015/3/23 Levy County COL - Condensate Return NRC Status 3-26-2015.pptx (a e)	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
3/26/2015	ML15089A193	Levy, Units 1 & 2, Response to Request for Additional Information Letter No. 122 Related to SRP Section 6.4, Control Room Habitability.	Letter Response to Request for Additional Information (RAI)	Duke Energy Corp Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/30/2015	ML15089A101	2015/3/30 Levy County COL - Condensate Return NRC Status 3-26-2015 (3-24-15)	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
4/7/2015	ML15092A287	3/26/2015-Meeting Summary With Members of The AP1000 Design Center To Discuss AP1000 Licensing and Technical Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
4/14/2015	ML15098A594	Levy Nuclear Plant, Units 1 and 2 Combined License Application - Proprietary Determination for Emerging Issue and Condensate Return 2/26/15 Meeting Slides.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Corp Westinghouse Electric Co	05200029 05200030
4/15/2015	ML15083A218	Letter to Mr. Fallon from Mr. Tracy reg. Response to Duke Energy Carolinas' Letter Requesting Guidance	Letter	NRC/NRO	Duke Energy Florida, Inc	05200018 05200019 05200029 05200030

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		Clarifying Appropriate Methods For Resolving Generic Errors in Certified Design Information (Levy and Lee COL Applications).				
4/16/2015	ML15119A012	William States Lee III Nuclear Station (WLS), Units 1 and 2, Levy Nuclear Plant (LNP), Units 1 and 2 & Shearon Harris Nuclear Power Plant (HAR), Units 2 and 3 - 10 CFR 50.46 Annual Report.	Annual Report Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200018 05200019 05200022 05200023 05200029 05200030
4/22/2015	ML15114A359	Levy Nuclear Plant, Units 1 And 2 - Supplement 9 To Response To NRC RAI Letter 108 - Implementation Of Fukushima Near-Term Task Force Recommendations.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/22/2015	ML15114A360	Westinghouse APP-GW-GLR-171 (Redacted),(NON-PROPRIETARY VERSION) (44 pages including cover page), Enclosure 3 to Serial: ND-NRC2015-016.	- No Document Type Applies	Duke Energy Carolinas, LLC	NRC/NRO	05200029 05200030
4/23/2015	ML15113A279	Commission Memorandum and Order CLI-15-10.	Legal-Order	NRC/SECY	Progress Energy Florida, Inc	05200029 05200030
4/27/2015	ML15131A312	Certificate of Liability Insurance (NRC Levy only).	Financial Assurance Document	Marsh USA, Inc	NRC/NRO	05200029 05200030
4/29/2015	ML15119A242	2015/4/29 Levy County COL - Levy FSER Table 13.3-1 (EP ITAAC)	E-Mail	NRC/NRO		05200029 05200030
4/29/2015	ML15119A586	NRC Staff Answer to Nuclear Information and	Legal-Pleading	NRC/OGC	NRC/OCM	05200029 05200030

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		Resource Service's Motion to Reopen the Record and Petition to Intervene.				
4/30/2015	ML15128A605	Westinghouse, APP-GW-GLR-607, Rev. 2, "Changes to Passive Core Cooling System Condensate Return."	Report, Technical	Westinghouse Electric Co	NRC/NRO	05200029 05200030
5/1/2015	ML15131A308	Levy Nuclear Plant, Units 1 and 2 - Combined License Application - 2015 Nuclear Liability Certificate of Insurance.	Letter	Marsh USA, Inc	NRC/Document Control Desk	05200029 05200030
5/5/2015	ML15132A101	Levy, Units 1 and 2 - Transmittal of Main Control Room Dose Calculation Files Supporting Response to Request for Additional Information Letter No. 121 Related to SRP Sections 6.25 and 6.4 for the Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/5/2015	ML15128A604	Levy, Units 1 and 2, Response to NRC RAI Letter 124 - SRP Section 6.3 and Supplement 6 to Submittal of Exemption Request and Design Change Description for Departure from AP1000 DCD Revision 19 to Address Containment Condensate Return Cooling Design.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/6/2015	ML15126A382	Reply By Beyond Nuclear, Blue Ridge Environmental Defense League, Nuclear	Legal-Pleading	Harmon, Curran, Spielberg &	NRC/SECY	05200029 05200030

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		Information And Resource Service, Seed Coalition And Southern Alliance For Clean Energy To Oppositions By Applicants And NRC Staff To Motions To Admit New Contentions.		Eisenberg, LLP Nuclear Information & Resource Service		
5/6/2015	ML15126A478	Reply By Beyond Nuclear, Blue Ridge Environmental Defense League, Nuclear Information And Resource Service, Seed Coalition And Southern Alliance For Clean Energy To Oppositions By Applicants And NRC Staff To Motions To Admit New Contentions.	Legal-Pleading	Blue Ridge Environmental Defense League	NRC/SECY	05000327 05000328 05000346 05000391 05000498 05000499 05200012 05200013 05200017 05200018 05200019 05200029 05200030 05200034 05200035
5/7/2015	ML15127A258	2015/5/07 Levy County COL - Draft RAI 7843	E-Mail	NRC/NRO		05200029 05200030
5/7/2015	ML15127A209	Duke Answer Opposing NIRS Continued Storage Rule Contention.	Legal-Pleading	Duke Energy Florida, Inc Pillsbury, Winthrop, Shaw, Pittman, LLP	NRC/OCM	05200029 05200030
5/7/2015	ML15127A251	Reply By Beyond Nuclear, Blue Ridge Environmental Defense League, Nuclear Information And Resource Service, Seed Coalition And	Legal-Pleading	Robert V. Eye Law Office, LLC	5/7/2015	05000017 05000327 05000328 05000346 05000391

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		Southern Alliance For Clean Energy To Oppositions By Applicants And NRC Staff To Motions To Admit New Contentions.				05000498 05000499 05200012 05200013 05200018 05200019 05200029 05200030 05200034 05200035
5/11/2015	ML15131A318	2015 Nuclear Liability Certificate of Insurance - Table 1 - COI Index	Graphics incl Charts and Tables	Marsh USA, Inc	NRC/NRO	05200029 05200030
5/11/2015	ML15131A458	2015/5/11 Levy County COL - Draft RAI 7863	E-Mail	NRC/NRO		05200029 05200030
5/11/2015	ML15131A390	2015/5/11 Levy County COL - List of Topics and Questions for Pending Meeting_AP1000 Condensate Return	E-Mail	NRC/NRO		05200029 05200030
5/11/2015	ML15131A391	2015/5/11 Levy County COL - Revised Question List for September 23 AP1000 Subcommittee Meeting	E-Mail	NRC/NRO		05200029 05200030
5/11/2015	ML15133A317	Levy Nuclear Plant, Units 1 And 2 - Identification Of Main Control Room Heat Load Calculation Files Supporting Levy Response To Request For Additional Information Letter No. 122 Related To SRP Section 6.4, Control Room Habitability.	Letter Response to Request for Additional Information (RAI)	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/11/2015	ML15133A161	Levy, Units 1 and 2 - Enclosure 2, Westinghouse Application for Withholding	Letter	Westinghouse Electric Co	NRC/Document Control	05200029 05200030

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		Proprietary Information from Public Disclosure (CAW-15-4135) With Affidavit and Enclosure 3, Westinghouse Proprietary Information Notice and Copyright Notice.			Desk NRC/NRO	
5/11/2015	ML15133A160	Levy, Units 1 and 2 - Enclosure 4, Condensate Return Submittal 05-14-15 Presentation (Non-Proprietary).	Meeting Briefing Package/Handouts	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/11/2015	ML15133A159	Levy, Units 1 and 2 - Submittal of May 14, 2015, Presentation Materials to Address AP1000 IRWST Condensate Return RAI Letter 124 Response and Request for Withholding Information From Public Disclosure.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/13/2015	ML15133A369	2015/5/13 Levy County COL - RAI Letter 126 for Levy Units 1 and 2 Related to Standard Review Plan Sections 6.4 and 16, RAIs 7843 and 7863	E-Mail	NRC/NRO		05200029 05200030
5/13/2015	ML15133A302	2015/5/13 Levy County RAI for SER - RAI No. 126 Related to SRP Sections 6.4, Control Room Habitability Systems, and 16, Technical Specifications, for the Levy Nuclear Plant Units 1 and 2 COL	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030

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5/14/2015	ML15134A186	2015/5/14 Levy County COL - Duke Energy Florida - Slide Presentation for 5/14/15 Public Meeting (Levy Condensate Return)	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
5/14/2015	ML15140A076	AP1000 IRWST Condensate Return.	Meeting Briefing Package/Handouts Slides and Viewgraphs	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
5/18/2015	ML15140A075	Levy Nuclear Plant, Unit 1 & 2 - Submittal of May 14, 2015 Presentation Materials to Address AP100 IRWST Condensate Return RAI Letter 124 Response.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/19/2015	ML15139A246	2015/5/19 Levy County COL - Levy COL Condensate Return Design Change 2015 Audit Plan 05-19-2015.docx	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
5/19/2015	ML15146A096	Levy, Units 1 and 2 - Identification of Main Control Room Heat Load Calculation Files Support Response to Request for Additional Information Letter No. 122 Related to SRP Section 6.4, Control Room Habitability.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/20/2015	ML15140A605	2015/5/20 Levy County COL - RAI Letter 127 for Levy Units 1 and 2 Related to Standard Review Plan Section 7.3, RAI 7904	E-Mail	NRC/NRO		05200029 05200030
5/20/2015	ML15140A475	2015/5/20 Levy County RAI for SER - RAI Letter No. 127 Related to SRP Section 7.3,	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030

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		Engineered Safety System Features, for the Levy Nuclear Plant Units 1 and 2 COLA				
5/26/2015	ML15148A574	Levy, Units 1 & 2, Combined Application, Transmittal of Main Control Room Dose Calculation Files Supporting Response to Request for Additional Information Letter No. 121 Related to SRP Sections 6.2.5 and 6.4.	Letter Response to Request for Additional Information (RAI)	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
5/27/2015	ML15147A036	2015/5/27 Levy County COL - RE: Levy/Lee Public Meeting	E-Mail	NRC/NRO		05200029 05200030
5/28/2015	ML15148A311	2015/5/28 Levy County COL - Question on APP-GW-GLR-161	E-Mail	NRC/NRO		05200029 05200030
5/29/2015	ML15149A345	2015/5/29 Levy County COL - FW: Reviewer Aid - DCD markup for Levy Condensate Return	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/1/2015	ML15124A044	Levy Nuclear Plant, Units 1 and 2 Combined License Application - Proprietary Determination for AP1000 FLEX Plan.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc Westinghouse Electric Co, LLC	05200029 05200030
6/5/2015	ML15156B062	2015/6/05 Levy County COL - Audit Plan for Levy COL Hydrogen Vent ITAAC Review	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/5/2015	ML15161A042	Levy Nuclear Plant Units 1 and 2 (LNP) Response to NRC Request for Additional	- No Document Type Applies	Duke Energy Florida, Inc	NRC/NRO	05200029 05200030

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		Information Letter No. 121 Question 06.04-2 (eRAI 7661), dated September 24, 2014.				
6/5/2015	ML15161A043	Levy Nuclear Plant Units 1 and 2 COLA Revisions.	- No Document Type Applies	Duke Energy Carolinas, LLC	NRC/NRO	05200029 05200030
6/5/2015	ML15161A041	Levy Nuclear Plant, Units 1 and 2 - Partial Response To Request For Additional Information Letter No. 121 Related To SRP Sections 6.2.5 And 6.4 For The Levy Nuclear Plant Units 1 And 2 Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
6/9/2015	ML15160A173	Commission Memorandum And Order (CLI-15-15).	Legal-Order	NRC/SECY		05200029 05200030
6/10/2015	ML15161A586	2015/6/10 Levy County COL - Audit Plan for Levy COL Application, Main Control Room Heatup Issue, June 2015	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
6/10/2015	ML15161A006	2015/6/10 Levy County COL - Levy Qs for 6-11-15 Public Teleconference.docx	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
6/11/2015	ML15162A524	2015/6/11 Levy County COL - Info: Levy Qs for 6-11-15 Public Teleconference-Clarification	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
6/11/2015	ML15166A020	Levy, Units 1 and 2 - Supplemental Response to NRC Letter 124 - SRP Section 6.3 and NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6 to Address	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
		Containment Condensate Return Cooling Design.				
6/15/2015	ML15154A593	Request for Withholding Information from Public Disclosure - Levy Nuclear Plant, Units 1 and 2 Combined License Application - Proprietary Information for Input and Output Files for Main Control Room Dose Calculations.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc Westinghouse Electric Co, LLC	05200029 05200030
6/15/2015	ML15154A627	Request for Withholding Information from Public Disclosure - Levy Nuclear Plant, Units 1 and 2 Combined License Application - Proprietary Information for Main Control Room Dose Calculation Particulate Input and Output Files in PDF Format (Data Disc).	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc Westinghouse Electric Co, LLC	05200029 05200030
6/23/2015	ML15149A138	5/14/2015-Summary of Meeting With Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
6/23/2015	ML15174A060	2015/6/23 Levy County COL - Revised License Conditions for Levy	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030

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6/26/2015	ML15154B450	5/27/2015-Summary of Meeting with Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
6/26/2015	ML15169A199	6/11/2015 - Summary of Meeting with Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
6/26/2015	ML15176A260	6/18/2015-Summary of Meeting with Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
6/26/2015	ML15232A384	2015/6/26 Levy County COL - [External_Sender] FW: Revised License Conditions for Levy	E-Mail	- No Known Affiliation	NRC/NRO/DNRL/LB4	05200029 05200030
6/29/2015	ML15180A275	2015/6/29 Levy County RAI for SER - RAI Letter No. 128 Related to SRP Section 6.4, Control Room Habitability, for the Levy Nuclear Plant COL Application	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
6/30/2015	ML15187A049	Levy Nuclear Plant, Units 1 and 2, Partial Response to Request for Additional Information Letter No. 121	Letter Response to Request for	Duke Energy Florida, Inc	NRC/Document Control Desk	05200029 05200030

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		Related to SRP Section 6.2.5, Combustible Gas Control in Containment.	Additional Information (RAI)		NRC/NRO	
6/30/2015	ML15187A051	Levy Nuclear Plant, Units 1 and 2, Supplemental Response to NRC RAI Letter 124 - SRP Section 6.3 to Address Containment Condensate Return Cooling Design.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/1/2015	ML15189A248	Enclosure 2 - Request for Exemption Regarding Main Control Room Dose & Enclosure 3 - Tier 1 and Tier 2 Licensing Basis Documents - Proposed Changes. Part 1 of 2.	Response to Request for Additional Information (RAI)	Duke Energy Carolinas, LLC	NRC/NRR	05200029 05200030
7/1/2015	ML15189A250	Enclosure 2 - Request for Exemption Regarding Main Control Room Dose & Enclosure 3 - Tier 1 and Tier 2 Licensing Basis Documents - Proposed Changes. Part 2 of 2.	Response to Request for Additional Information (RAI)	Duke Energy Carolinas, LLC	NRC/NRO	05200029 05200030
7/1/2015	ML15189A251	Levy Nuclear Plant Units 1 and 2 COLA Revisions.	Response to Request for Additional Information (RAI)	Duke Energy Carolinas, LLC	NRC/NRO	05200029 05200030
7/1/2015	ML15187A039	Levy Nuclear Plant, Units 1 & 2 Transmittal Of Supplemental Information For Request For Additional Information Letter No. 122 Re SRP Sections 6.4, Control Room Habitability Systems.	Letter Response to Request for Additional Information (RAI)	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030

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7/1/2015	ML15189A247	Levy Nuclear Plant, Units 1 And 2 - Revised Response To Request For Additional Information Letter No. 121 Related To SRP Sections 6.2.5 And 6.4 For The Levy Nuclear Plant Units 1 And 2 Combined License Application.	Letter	Duke Energy Carolinas, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/10/2015	ML15197A245	APP-GW-GLR-607, Rev 3, "Changes to Passive Core Cooling System Condensate Return".	Design Control Document (DCD)	Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
7/13/2015	ML15194A263	2015/7/13 Levy County RAI for SER - RAI Letter No. 129 Related to SRP Section 6.4, Control Room Habitability System, and Section 15.00.03. DBA Radiological Consequence Analyses, For LNP Units 1 and 2 COLA	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
7/14/2015	ML15197A244	Levy Nuclear Plant, Units 1 and 2 - Submittal of Revised Documents Addressing Containment Condensate Return Cooling Design.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/15/2015	ML15198A061	Levy, Unit 1 and 2 - Revised AP1000 Combined License Application Departure Report Update.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/16/2015	ML15201A542	Levy Nuclear Plant, Units 1 and 2 - Response to Request for Additional	Letter Response to	Duke Energy Florida, Inc	NRC/Document Control	05200029 05200030

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		Information Letter No. 127 Related to SRP Section 7.3, Engineered Safety System Features, for the Levy Nuclear Plant, Units 1 and 2, Combined License Application.	Request for Additional Information (RAI)		Desk NRC/NRO	
7/16/2015	ML15201A129	Levy Nuclear Plant, Units 1 and 2 - Supplemental Response to NRC RAI Letter 124 - SRP Section 6.3 to Address Containment Condensate Return Cooling Design.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/17/2015	ML15198A351	2015/7/17 Levy County COL -	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
7/17/2015	ML15201A540	Levy Nuclear Plant, Units 1 and 2 - Response to Request for Additional Information Letter No. 126 Related to SRP Sections 6.4, Control Room Habitability System, and 16, Technical Specifications, for the Levy Nuclear Plant, Units 1 and 2, Combined	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
7/20/2015	ML15202A431	Levy, Units 1 and 2, Resubmittal of Condensate Return DCD Figures.	Letter	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/5/2015	ML15217A627	2015/8/05 Levy County COL - FW: ISG-11 Trip - Summary Description	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030

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8/5/2015	ML15219A202	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 128 Related to SRP Sections 6.4, Control Room Habitability System Regarding Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/7/2015	ML15219A536	2015/8/07 Levy County RAI for SER - RAI Letter No. 130 Related to SRP Section 12.03-12.04, Radiation Protection Design Features, for the Levy Nuclear Plant Units 1 and 2 COL Application	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
8/18/2015	ML15230A283	2015/8/18 Levy County COL - MCR Heat-up Question	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
8/18/2015	ML15176A345	Consideration of New Information Regarding the Impacts of the Continued Storage of Spent Fuel for the Levy Nuclear Plant Units 1 and 2 Combined License Application.	- No Document Type Applies	NRC/NRO/DSEA/RENV		05200029 05200030
8/19/2015	ML15231A003	2015/8/19 Levy County COL - Audit Plan for Levy MRC Dose Calculations	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
8/20/2015	ML15232A385	2015/8/20 Levy County COL - Revised License Conditions for Levy	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
8/20/2015	ML15226A282	Letter to Applicant - Levy COL, Units 1 and 2 Section 6.3 Condensate Return.	Letter	NRC/NRO/DNRL/LB4	Duke Energy Florida, Inc	05200029 05200030

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8/22/2015	ML15234A005	2015/8/22 Levy County COL - Additional MCR Heat-up Questions	E-Mail	NRC/NRO		05200029 05200030
8/26/2015	ML15240A077	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 129 Related to Standard Review Plan Section 6.4, Control Room Habitability System, and Section 15.00.03. Design Basis Accidents, Radiological Consequence Analyses for....	Legal-Affidavit Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
8/27/2015	ML15239A655	2015/8/27 Levy County COL - RE: Levy/Lee Public Meeting (MCR Heatup and Condensate Return)	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
8/31/2015	ML15225A435	7/16/2015-Summary of Meeting with Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
9/1/2015	ML15244A827	2015/9/01 Levy County COL - FW: FW: Revised License Conditions for Levy	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
9/1/2015	ML15247A153	Levy, Units 1 and 2 - Submittal of Exemption Request and Design Change Description for Departure From AP1000 DCD Revision 19 to Address Compliance With IEEE 603-1991.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/2/2015	ML15245A738	2015/9/02 Levy County RAI for SER - RAI Letter No. 131	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030

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		Related to SRP Section 12.03-12.04, Radiation Protection Design Features, for the Levy Nuclear Plant Units 1 and 2 COL Application				
9/3/2015	ML15246A083	2015/9/03 Levy County COL - FW: Question about Moisture in VES Air	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
9/14/2015	ML15257A186	2015/9/14 Levy County RAI for SER - RAI Letter No. 132 Related to SRP Section 9.4.1, Control Room Area Ventilation System, for the Levy Nuclear Plant Units 1 AND 2 COL Application	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
9/18/2015	ML15265A562	Levy, Units 1 and 2 - Submittal of September 23, 2015, Presentation Materials to Address AP1000 Safe Shutdown Analysis and Request for Withholding Information From Public Disclosure.	Legal-Affidavit Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
9/21/2015	ML15264B122	2015/9/21 Levy County COL - 2015-09-23 Open Meeting Slides - Levy Condensate Return	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
9/28/2015	ML15271A137	2015/9/28 Levy County COL - Levy Combined License Units 1 and 2 10-19-2015 Audit Plan.docx	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
9/29/2015	ML15259A111	9/10/2015-Meeting Summary With Members of the AP1000 Design Center to Discuss AP1000	Meeting Agenda Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200029 05200030

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		Licensing and Technical Issues.	Memoranda			05200040 05200041
9/30/2015	ML15254A261	8/27/2015 - Summary of Meeting With Members of the AP1000 Design Center To Discuss AP1000 Licensing and Technical Issues.	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
9/30/2015	ML15275A171	Levy, Units 1 and 2 - Basis for Deferral of ACRS Subcommittee Hearing on Containment Condensate Return Cooling Design.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/1/2015	ML15275A000	2015/10/01 Levy County RAI for SER - RAI Letter No. 133 Related to SRP Section 7.1, Instrumentation and Controls, Introduction, for the Levy Nuclear Plant Units 1 and 2 COL Application	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
10/2/2015	ML15187A248	Levy Combined License Units 1 and 2 Summary of 2015 Audit for Condensate Return Design Change Departure.	Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200029 05200030
10/2/2015	ML15244B194	Levy Combined License Units 1 and 2, Transmittal Memo for Summary of 2015 Audit for Condensate Return Design Change Departure.	Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200029 05200030
10/7/2015	ML15280A353	2015/10/07 Levy County RAI for SER - RAI Letter No. 134 Related to SRP Section 16, Technical Specifications, for the Levy Nuclear Plant Units	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030

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		1 and 2 Combined License Application				
10/13/2015	ML15289A228	Levy, Units 1 and 2 - Revised Response to Request for Additional Information Letter No. 129 Related to Standard Review Plan Section 6.4, Control Room Habitability System, and Section 15.00.03, Design Basis Accidents, Radiological Consequence Analyses....	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/13/2015	ML15289A224	Levy, Units 1 and 2 - Submittal of October 15, 2015 Presentation Materials to Address Hydrogen Venting and Request for Withholding Information From Public Disclosure.	Letter	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/14/2015	ML15287A158	2015/10/14 Levy County COL - 2015-10-15 Levy COL - H2 Vent Open Meeting Slides.pptx	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
10/14/2015	ML15289A237	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 132 Related to Standard Review Plan Section 9.4.1, Control Room Area Ventilation System, for the Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/15/2015	ML15288A568	2015/10/15 Levy County COL - H2 Vent Public Meeting Slides - Revised	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030

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10/19/2015	ML15294A205	Levy, Units 1 and 2 - Transmittal of Wetland Mitigation Plan.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
10/29/2015	ML15272A200	9/17/2015-Meeting Summary With Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
10/29/2015	ML15288A142	9/23/2015-Summary of Meeting With Members of the AP1000 Design Center to Discuss AP1000 Licensing and Technical Issues.	Meeting Agenda Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200004 05200018 05200019 05200025 05200027 05200028 05200029 05200030 05200040 05200041
11/2/2015	ML15306A130	2015/11/02 Levy County COL - NRC Staff Questions for Levy MCR Heatup (for 11/12 public teleconference)	E-Mail	NRC/NRO		05200029 05200030
11/2/2015	ML15308A383	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 130 Related to Standard Review Plan Section 12.03-12.04, Radiation Protection Design Features Regarding the Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030

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11/2/2015	ML15308A002	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 131 Related to Standard Review Plan Section 12.03-12.04, Radiation Protection Design Features Regarding the Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/10/2015	ML15314A840	2015/11/10 Levy County COL - Staff Questions Related to Levy 9-1-15 Departure/Exemption Request on IEEE 603 Compliance	E-Mail	NRC/NRO		05200029 05200030
11/12/2015	ML15316A246	2015/11/12 Levy County COL - FW: Levy Public Call	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
11/12/2015	ML15320A026	Levy, Units 1 and 2 - Attachment A, Response to NRC RAI Question 07.01-1 (Non-Proprietary).	Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/NRO	05200029 05200030
11/12/2015	ML15320A028	Levy, Units 1 and 2 - Response to Request for Additional Information Letter No. 134 Related to SRP Section 16, Technical Specifications, for the Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/12/2015	ML15322A009	Levy, Units 1 and 2 - Revised Response to Request for Additional Letter No. 122 and Letter No. 126 Related to SRP Sections 6.4, Control Room Habitability System, and 16,	Legal-Affidavit Letter Response to Request for	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		Technical Specifications, for the Combined License Application.	Additional Information (RAI)			
11/12/2015	ML15320A025	Levy, Units 1 and 2 - Transmittal of Response to Request for Additional Information Letter No. 133 Related to SRP Section 7.1, Instrumentation and Controls, Introduction, for the Combined License Application.	Legal-Affidavit Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
11/20/2015	ML15324A141	2015/11/20 Levy County COL - Draft RAIs 8399 and 8404	E-Mail	NRC/NRO		05200029 05200030
11/25/2015	ML15329A055	2015/11/25 Levy County RAI for SER - RAI Letter 135 related to SRP Section 7.2, Reactor Trip System, and Section 16, Technical Specifications, for the Levy Nuclear Plant Units 1 and 2 COL application	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
12/2/2015	ML15336A719	2015/12/02 Levy County COL - RE: Levy MCR moisture analysis	E-Mail	NRC/NRO		05200029 05200030
12/7/2015	ML15349A656	Levy, Units 1 and 2 - Submittal of COL Application, Revision 8.	Letter License-Application for Combined License (COLA)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/7/2015	ML15349A754	Progress Energy Levy Units 1 and 2 COLA (Departures Report and Exemptions),	Generic DCD Departures Report License-Application	Duke Energy Florida, Inc Progress	NRC/NRO	05200029 05200030

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		Rev. 8 - Departures Report and Exemptions	for Combined License (COLA)	Energy Florida, Inc		
12/8/2015	ML15342A492	2015/12/08 Levy County COL - FW: Information for Levy Call 12/10/15 re Condensate Return	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
12/10/2015	ML15345A420	Levy, Units 1 & 2, Roadmap of Changes in Combined License Application, Revision 8.	Letter License-Application for Combined License (COLA)	Duke Energy Corp	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/11/2015	ML15349A952	Levy, Units 1 and 2 - Updated Response to Request for Additional Information Letter No. 122 and Letter No. 126 Related to SRP Sections 6.4, Control Room Habitability System, and 16, Technical Specifications for Combined License Application.	Legal-Affidavit Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/11/2015	ML15355A035	Levy, Units 1 and 2, Enclosure 1: Updated Response to NRC Request for Additional Information Letter 126 re SRP Sections 6.4, Control Room Habitability and 16, Technical Specification.	Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/NRO	05200029 05200030
12/17/2015	ML15351A085	2015/12/17 Levy County COL - FW: Topics for Thursday Levy Teleconference	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
12/22/2015	ML15358A014	Levy, Units 1 and 2 - Revised Response to	Legal-Affidavit	Duke Energy Florida, LLC	NRC/Document	05200029 05200030

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		Request for Additional Information Letter No. 132 Related to Standard Review Plan Section 9.4.1, Control Room Area Ventilation System, for Combined License Application.	Letter Response to Request for Additional Information (RAI)		Control Desk NRC/NRO	
12/22/2015	ML15358A013	Levy, Units 1 and 2 - Supplemental Response to Request for Additional Information Letter No. 130 Related to Standard Review Plan Section 12.03-12.04, Radiation Protection Design Features, for the Combined License Application.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
12/23/2015	ML15363A112	Levy, Units 1 and 2 - Transmittal of Response to Request for Additional Information Letter No. 135 Related to IEEE 603 and Source Range Nuclear Instrumentation Flux Doubling.	Legal-Affidavit Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/7/2016	ML16008A083	Levy, Units 1 and 2 - Transmittal of Department of the Army Permit No. SAJ-2008-00490-SP-EPS.	Letter	Duke Energy Florida, Inc	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/11/2016	ML16042A176	Certificate of Liability Insurance for Duke Energy Corp's Plants.	Legal-Insurance/Indemnity Document	Marsh USA, Inc	NRC/Document Control Desk NRC/NRO	05000261 05000269 05000270 05000287 05000302 05000324

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					NRC/NRR	05000325 05000369 05000370 05000400 05000413 05000414 05200029 05200030
1/12/2016	ML16012A440	2016/1/12 Levy County COL - Levy Public Teleconference this Thursday re: LLC name change	E-Mail	NRC/NRO		05200029 05200030
1/14/2016	ML15357A536	11/12/2015 - Summary of Meeting with Members of the AP1000 Design Center To Discuss AP1000 Licensing and Technical Issues.	Meeting Agenda Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
1/14/2016	ML16020A105	Levy, Units 1 and 2 - Supplemental Response to NRC RAI Letter 124 -SRP Section 6.3 to Address Containment Condensate Return Cooling Design.	Legal-Affidavit Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/15/2016	ML16021A188	Levy, Units 1 and 2 - Supplement 2 Response to NRC RAI Letter 116 - SRP Sections 6.3 and 15.2.6.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/19/2016	ML16019A244	Levy, Units 1 and 2, Certification of Liability Insurance for 2016.	Financial Assurance Document	Acord Corporation	NRC/NRO	05200029 05200030

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1/20/2016	ML16020A297	2016/1/20 Levy County COL - FW: [External_Sender] RE: Levy Public Teleconference this Thursday re: LLC name change	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/20/2016	ML16020A353	2016/1/20 Levy County COL - Question on Flux Doubling Logic Departure	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/20/2016	ML16020A355	2016/1/20 Levy County COL - Take-Away for Levy Control Room Dose Audit	E-Mail	NRC/NRO		05200029 05200030
1/25/2016	ML16025A275	2016/1/25 Levy County COL - FW: RE: Question on Flux Doubling Logic Departure	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/26/2016	ML16026A545	2016/1/26 Levy County COL - Audit Plan for Levy Units 1 and 2 Combined License Condensate Return Design Change Ambient Heat Loss Considerations January 13 2016	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
1/26/2016	ML16028A118	Levy, Units 1 and 2 - Second Supplemental Response to NRC RAI Letter 124, SRP Section 6.3 to Address Containment Condensate Return Cooling Design.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
1/26/2016	ML16028A119	Westinghouse Request for Information, APP-FSAR-GF-008, Revision 0.	Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/NRO	05200029 05200030
1/28/2016	ML16028A257	2016/1/28 Levy County COL - FW: RE: Clarification from Monday Public Teleconference	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030

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1/31/2016	ML16020A106	Levy, Units 1 and 2 - Enclosure 2, APP-GW-GLR-607, Revision 4, Changes to Passive Core Cooling System Condensate Return, Non-Proprietary. Part 1 of 2.	Topical Report	Westinghouse Electric Co	NRC/NRO	05200029 05200030
1/31/2016	ML16020A104	Levy, Units 1 and 2 - Enclosure 2, APP-GW-GLR-607, Revision 4, Changes to Passive Core Cooling System Condensate Return, Non-Proprietary. Part 2 of 2.	Topical Report	Westinghouse Electric Co	NRC/NRO	05200029 05200030
2/1/2016	ML16053A093	Certificate of Liability Insurance.	Financial Assurance Document	Marsh USA, Inc	NRC/Document Control Desk NRC/NRO NRC/NRR	05000261 05000269 05000270 05000287 05000302 05000324 05000325 05000369 05000370 05000400 05000413 05000414 05200018 05200019 05200029 05200030
2/1/2016	ML16034A223	Levy, Units 1 and 2 - Supplement to Serial NPD-NRC-2015-038: Submittal of Correction to Exemption Request and Design Change Description for Departure From AP1000 DCD Revision	Letter	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030

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		19 to Address Compliance With IEEE 603-1991.				
2/1/2016	ML16034A331	Levy, Units 1 and 2 - Voluntary Supplemental Response to Request for Additional Information Letter No. 30 Related to Standard Review Plan Section 12.03-12.04, Radiation Protection Design Features Questions 12.03-2, 12.03-6 and 12.03-9.	Letter Response to Request for Additional Information (RAI)	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
2/4/2016	ML15327A381	Consideration of New Information Regarding the Revised Wetland Mitigation Plan Dated August 2015 for Levy Nuclear Plants 1 and 2	- No Document Type Applies	NRC/NRO/DSEA/RENV		05200029 05200030
2/4/2016	ML15327A354	Memo-Consideration of New Information Regarding the Revised Wetland Mitigation Plan Dated August 2015 for Levy Nuclear Plants 1 and 2	Memoranda	NRC/NRO/DSEA/RENV	NRC/NRO/DNRL/EPB	05200029 05200030
2/5/2016	ML16036A389	2016/2/05 Levy County COL - Question regarding MCR Heatup	E-Mail	NRC/NRO	NRC/NRO/DNRL/LB4	05200029 05200030
2/9/2016	ML16039A033	SER H2 for Levy Nuclear Stations 1 and 2.	Safety Evaluation Report	NRC/NRO/DSRA/SCVB		05200029 05200030
2/9/2016	ML16039A016	Transmittal Memo for SER related to Exemption Request for Levy Nuclear Stations 1 and 2.	Memoranda	NRC/NRO/DEIA/SEB NRC/NRO/DSRA/SCVB	NRC/NRO/DNRL/LB4	05200029 05200030
2/12/2016	ML16013A339	12/10/2015 - Summary of Meeting with Members of the AP1000 Design Center to	Meeting Agenda Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200018 05200019 05200029 05200030

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		Discuss AP1000 Licensing and Technical Issues.	Memoranda			05200040 05200041
2/23/2016	ML16054A043	2016/2/23 Levy County COL - FW: New Pipeline near Levy	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
2/25/2016	ML16056A079	2016/2/25 Levy County COL - Minor Edits to Levy COL Application	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
2/25/2016	ML16062A036	Levy, Units 1 and 2 - Revised Request for Exemption Regarding Main Control Room Habitability for the Combined License Application.	Letter	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/1/2016	ML16043A492	1/25/2016-Summary of Meeting With Members of the AP1000 Design Center To Discuss AP1000 Licensing and Technical Issues	Meeting Agenda Meeting Summary Memoranda	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
3/1/2016	ML16043A519	2/26/2015 - Summary of Meeting with Members of the AP1000 Design Center to Discuss AP1000 Design Matters for the Levy Nuclear Plant, Units 1 and 2 COL-Estimated Dose to Main Control Room Operators, MCR Heatup, and Hydrogen Vent Location, ITAAC.	Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200018 05200019 05200025 05200026 05200027 05200028 05200029 05200030 05200040 05200041
3/1/2016	ML16055A279	Levy Nuclear Plant, Units 1 and 2 Combined License Application Revised Review Schedule.	Letter	NRC/NRO/DNRL	Duke Energy Florida, LLC	05200029 05200030

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3/2/2016	ML16062A021	2016/3/02 Levy County COL - FW: AP1000 Generic License Conditions	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
3/2/2016	ML16062A020	2016/3/02 Levy County COL - FW: RE: AP1000 Generic License Conditions	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200018 05200019 05200029 05200030 05200040 05200041
3/7/2016	ML16019A296	Letter to Applicant - Levy, Units 1 and 2 - Chapter 21, "Design Changes Proposed In Accordance With ISG-11."	Letter	NRC/NRO/DNR L/LB4	Florida Power & Light Co	05200029 05200030
3/7/2016	ML16019A260	Memorandum to ACRS - Levy, Units 1 and 2 - Chapter 21, "Design Changes Proposed In Accordance With ISG-11."	Memoranda	NRC/NRO/DNR L	NRC/ACRS	05200029 05200030
5/17/2016	ML12108A259	Transmittal Letter, Final Safety Evaluation Report For The Levy County Nuclear Plant, Units 1 and 2 COL Application.	Letter	NRC/NRO/DNR L	Duke Energy Florida, LLC	05200029 05200030
5/17/2016	ML12108A259	Transmittal Letter, Final Safety Evaluation Report For The Levy County Nuclear Plant, Units 1 and 2 COL Application.	Letter	NRC/NRO/DNR L	Duke Energy Florida, LLC	05200029 05200030
5/17/2016	ML12108A259	Transmittal Letter, Final Safety Evaluation Report For The Levy County Nuclear Plant, Units 1 and 2 COL Application.	Letter	NRC/NRO/DNR L	Duke Energy Florida, LLC	05200029 05200030
5/17/2016	ML12108A259	Transmittal Letter, Final Safety Evaluation Report For The Levy County Nuclear	Letter	NRC/NRO/DNR L	Duke Energy Florida, LLC	05200029 05200030

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		Plant, Units 1 and 2 COL Application.				
3/17/2016	ML16077A006	2016/03/17 Levy County COL - Financial Assurance License Conditions for Levy	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
3/22/2016	ML16081A127	Levy, Units 1 and 2, ASE Chapter 21 Public.	Safety Evaluation Report	NRC/NRO/DNR L/LB4		05200029 05200030
3/22/2016	ML16082A477	2016/03/22 Levy County COL - FW: FW: Excerpted Pages from NF-0354 Liability Policy	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
5/17/2016	ML16083A052	Inimicality Review Letter: Levy Nuclear Plant, Units 1 and 2 Combined License Application.	Memoranda	NRC/NSIR	NRC/NRO	05200029 05200030
3/22/2016	ML16084A099	Levy, Units 1 and 2, William States Lee, Units 1 and 2 - Acceptance of NRC License Conditions.	Letter	Duke Energy Florida, LLC	NRC/Docu ment Control Desk NRC/NRO	05200018 05200019 05200029 05200030
3/22/2016	ML16084A100	Williams States Lee, Units 1 and 2, Levy, Units 1 and 2, Shearon Harris, Units 2 and 3 - Transmittal of 10 CFR 50.46 Annual Report for the AP1000 Standard Plant Design.	Annual Operating Report Letter	Duke Energy Carolinas, LLC	NRC/Docu ment Control Desk NRC/NRO	05200018 05200019 05200022 05200023 05200029 05200030
3/24/2016	ML16084A126	2016/03/24 Levy County COL - FW: RE: Financial Assurance License Conditions for Levy	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030
3/24/2016	ML16084B006	2016/03/24 Levy County COL - LNP R9 Roadmap	E-Mail	NRC/NRO	NRC/NRO/ DNRL/LB4	05200029 05200030

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		Final for Submittal - TW Edits 2016-03-23.xlsx				
5/13/2016	ML16091A415	Summary Report Of The Audit Of The Results Of The Duke Process For Identifying New And Potentially Significant Information Related To The Levy Nuclear Plants Project Units 1 and 2 And The William States Lee III Nuclear Station Units 1 and 2 Environmental	Audit Report Memoranda Report, Miscellaneous	NRC/NRO/DNRL/EPB	NRC/NRO/DNRL/EPB	05200018 05200019 05200029 05200030
3/30/2016	ML16092A121	Levy, Units 1 and 2 - Submittal of Presentation Materials for the April 7, 2016, Advisory Committee on Reactor Safeguards Meeting.	Letter Meeting Briefing Package/Handouts	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
3/23/2016	ML16111A044	Levy Nuclear Plant, Units 1 and 2 - Submittal of Presentation Materials for the April 5, 2016 Advisory Committee on Reactor Safeguards Meeting to Address AP1000 Condensate Return, Main Control Room Dose, Main Control Room Heat Up, Hydrogen Venting.	Legal-Affidavit Letter	Duke Energy Florida, LLC	NRC/Document Control Desk NRC/NRO	05200029 05200030
4/5/2016	ML16111A045	Enclosure 1 - Introduction and Condensate Return (Non-Proprietary).	Meeting Briefing Package/Handouts	Duke Energy Florida, LLC Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030

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4/5/2016	ML16111A046	Enclosure 3 APP-GW-GLY-088 Revision 0, Condensate Return Closed Session ACRS Presentation (Non-Proprietary).	Meeting Briefing Package/Handouts	Duke Energy Florida, LLC Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
4/5/2016	ML16111A047	Enclosure 4 - APP-GW-GLY-089 Revision 0 MCR Dose, Hydrogen Venting, PMS Flux Doubling, and MCR Heat Up Open Session ACRS Presentation (Non-Proprietary).	Meeting Briefing Package/Handouts	Duke Energy Florida, LLC Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
4/5/2016	ML16111A048	Enclosure 6 - APP-GW-GLY-091 Revision 0 MCR Heat Up - Closed Session ACRS Presentation (Non-Proprietary).	Meeting Briefing Package/Handouts	Duke Energy Florida, LLC Westinghouse Electric Co, LLC	NRC/NRO	05200029 05200030
4/6/2016	ML16111A178	Progress Energy Levy Units 1 and 2 COLA (General and Admin Information), Rev. 8 - General and Financial Information	License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A183	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Appendix 02 AA - Earthquake Log	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A188	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Appendix 02 BB - Geotechnical Boring Logs	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A194	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Appendix 02 CC - Soil and Rock Lab Test Results	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A199	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 01 - Introduction and General Description of the Plant - Sections 1.1 - Appendix 1AA	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A203	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 02 - Site Characteristics - Sections 2.0 - Appendix 2CC	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A206	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 03 - Design of Structures, Components, Equipment and Systems - Sections 3.1 - Appendix 3I	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A210	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 04 - Reactor - Sections 4.1 - 4.6	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A213	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 05 - Reactor Coolant System and Connected Systems - Sections 5.1 - 5.4	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A216	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 06 - Engineered Safety Features - Sections 6.0 - Appendix 6A	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A219	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 07 - Instrumentation and Controls - Sections 7.1 - 7.7	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A223	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 08 - Electrical Power - Sections 8.1 - 8.3	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A226	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 09 - Auxiliary Systems - Sections 9.1 - Appendix 9A	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A228	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 10 - Steam Power and Conversion - Sections 10.1 - 10.4	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A231	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 11 - Radioactive Waste Management - Sections 11.1 - 11.5	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A234	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 12 - Radiation Protection - Sections 12.1 - Appendix 12AA	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A238	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 13 - Conduct of Operations - Sections 13.1 - Appendix 13AA	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A241	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 14 - Initial Test Program - Sections 14.1 - 14.4	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A244	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 15 - Accident Analyses - Sections 15.0 - Appendix 15B	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A247	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 16 - Technical Specifications - Sections 16.1 - 16.3	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A251	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 17 - Quality Assurance - Sections 17.1 - 17.8	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A254	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 18 - Human Factors Engineering - Sections 18.1 - 18.14	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A257	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 19 - Probabilistic Risk Assessment - Sections 19.1 - Appendix 19F	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A260	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Master Table of Contents	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A264	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 01 - Figure 1.1-201	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A266	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 02 - Figure 2.1.1-201	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A270	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 02 - Figure 2.1.1-202	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A275	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 02 - Figure 2.1.1-203	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A278	Progress Energy Levy Units 1 and 2 COLA (Final Safety Analysis Report), Rev. 9 - Chapter 02 - Figure 2.1.3-201	Final Safety Analysis Report (FSAR) License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A962	Progress Energy Levy Units 1 and 2 COLA (Technical Specifications), Rev. 7 - Technical Specifications	License-Application for Combined License (COLA) Technical Specifications	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A964	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Section 1.0 - Appendix 8	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A965	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Section A - Figure A-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A966	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Section A - Figure A-2	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A967	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Section A - Figure A-3	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A968	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Appendix 6 - Figure A6-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A969	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Appendix 6 - Figure A6-2	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A970	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Section B - Figure B-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A971	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Section B - Figure B-2	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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4/6/2016	ML16111A972	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Section B - Figure B-3	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111A973	Progress Energy Levy Units 1 and 2 COLA (Emergency Plan), Rev. 7 - Introduction - Figure Intro-1	Emergency Preparedness-Emergency Plan License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111B025	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 7 - Cyber Security Plan - Cover Page	Quality Assurance Program License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111B026	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 7 - Information Incorporated by Reference - Cover Page	Quality Assurance Program License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111B027	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 7 - Loss of Large Areas - Mitigative Strategies Description - Cover Page	Quality Assurance Program License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
4/6/2016	ML16111B028	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 7 - New Fuel Shipping Plan	Quality Assurance Program License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111B029	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 7 - Supplemental Information in Support of 10 CFR Part 70 Special Nuclear Material License Application	Quality Assurance Program License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111B031	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 7 - Quality Assurance Program Description - Parts I - IV	Quality Assurance Program License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
4/6/2016	ML16111B032	Progress Energy Levy Units 1 and 2 COLA (Quality Assurance Program), Rev. 7 - Special Nuclear Material (SNM) Material Control and Accounting Program Description	Quality Assurance Program License-Application for Combined License (COLA)	Duke Energy Florida, LLC Progress Energy Florida, Inc	NRC/NRO	05200029 05200030
5/11/2016	ML16118A267	Levy COL, Units 1 and 2, Request For Withholding Proprietary Information From Public Disclosure In Response To Transmittals.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, LLC Westinghouse Electric Co	05200029 05200030
5/12/2016	ML16133A093	2016/05/12 Levy County COL - Proposed Levy COL License Condition	E-Mail	NRC	NRC/NRO/DNRL/LB4	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
5/20/2016	ML16138A365	Transmittal Letter - Levy COL Hydrogen Vent ITAAC Review.	Letter	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB1	05200029 05200030
5/23/2016	ML16138A832	Transmittal Letter for Levy COL MCR Dose Review Audit Summary.	Letter	NRC/NRO/DNRL/LB4	NRC/NRO/DNRL/LB4	05200029 05200030
5/23/2016	ML16139A531	Request for Withholding Proprietary Information from Public Disclosure in Response to Transmittals for the Levy Nuclear Plant Units 1 and 2 Combined License Application.	Letter Proprietary Information Review	NRC/NRO/DNRL/LB4	Duke Energy Florida, LLC Westinghouse Electric Co	05200029 05200030
5/20/2016	ML16141B281	2016/05/20 Levy County COL - FW: Additional Comments on Levy FSER	E-Mail	NRC	NRC/NRO/DNRL/LB4	05200029 05200030
5/20/2016	ML16141B283	2016/05/20 Levy County COL - FW: FSER Chap 2.5 Review Comments (JMMc).docx	E-Mail	NRC	NRC/NRO/DNRL/LB4	05200029 05200030
5/20/2016	ML16138A352	Levy Nuclear Plant, Units 1 and 2 Hydrogen Vent ITAAC Audit	Memorandum	NRC	NRC/NRO/DNRL/LB4	05200029
5/23/2016	ML16139A197	Levy Nuclear Plant Units 1 and 2 MCR Dose Review Audit.	Letter	NRC	NRC/NRO/DNRL/LB4	05200029 05200030
5/24/2016	ML16145A448	2016/05/24 Levy County COL - FW: Levy FSER Review Comments on Section 2.4	E-Mail	NRC	NRC/NRO/DNRL/LB4	05200029 05200030
5/24/2016	ML16145A449	2016/05/24 Levy County COL - FW: Duke Energy Comments on Levy FSER Chapter 21 - Condensate Return	E-Mail	NRC	NRC/NRO/DNRL/LB4	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
5/24/2016	ML16145A451	2016/05/24 Levy County COL - FW: Minor Editorial Question on MCR heat Load - Levy FSER Chapter 21	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
5/24/2016	ML16145A452	2016/05/24 Levy County COL - FW: Duke Review of Levy FSER Chapter 1, Subsection 1.5.5.1	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
5/24/2016	ML16145A292	LEVY COL FEMA Correspondence Pkg.	Letter	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
5/26/2016	ML16145A479	Request For Withholding Information From Public Disclosure in Response To Transmittals for the Levy Nuclear Plant, Units 1 and 2 COL, Revisions 8 and 9	Letter	NRC	Duke Energy Florida, LLC Westinghou se Electric Co	05200029 05200030
05/26/2016	ML16147A601	2016/05/26 Levy County COL - FW: Duke Energy Review Comment on Levy FSER Chapter 21, MCR Heat-up	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
05/26/2016	ML16147A602	2016/05/26 Levy County COL - FW: Duke Energy Comments on Levy FSER, Sections 2.0 through 2.4	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
05/26/2016	ML16145A479	Request For Withholding Information From Public Disclosure in Response To Transmittals for the Levy Nuclear Plant, Units 1 and 2 COL, Revisions 8 and 9.	Letter Proprietary Information Review	NRC/NRO/DNR L/LB4	Duke Energy Florida, LLC	05200029 05200030
05/26/2016	ML16147A598	2016/05/26 Levy County COL - FW: Duke Energy Comments on Levy FSER Sections 21.3 and 21.5	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030

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Document Date	Accession Number	Title	Document Type	Author Affiliation	Addressee Affiliation	Docket Number
05/26/2016	ML16147A603	2016/05/26 Levy County COL - FW: Completion of Levy FSER Proprietary and Technical Review	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
05/26/2016	ML16147A599	2016/05/26 Levy County COL - FW: Levy FSER Editorial Comments in Multiple Chapters	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
05/26/2016	ML16147A600	2016/05/26 Levy County COL - FW: Technical Comments on Levy FSER Chapter 18	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
05/26/2016	ML16147A597	2016/05/26 Levy County COL - FW: Duke Energy Technical Comments on Levy FSER	E-Mail	NRC	NRC/NRO/ DNRL/LB4	05200029 05200030
5/27/2016	ML16145A265	05/12/2016-Meeting Summary With Members of the AP1000 Design Center To Discuss AP1000 Licensing and Technical Issues	Meeting Summary	NRC/NRO/DNRL/LB4	NRC/NRO/ DNRL/LB4	05200029 05200030
5/31/2016	ML16084A664	Levy Nuclear Plant Units 1 and 2 FSER	Letter	NRC	Duke Energy Florida, LLC Westinghouse Electric Co	05200029 05200030

Appendix C
Electronic Request for Additional Information Database

Throughout the course of the review of the Levy Nuclear Plant (LNP) combined license (COL) application, the staff requested additional information (RAIs) of Duke Energy Florida, LCC (DEF). The following is a list of these RAIs and the responses.

As noted in Section 1.2.3 of this report, a design-centered review approach (DCRA) was used in the review of the LNP COL application. The first COL application submitted for NRC staff review in a design center is designated as the reference COL (RCOL), and the subsequent applications in the design center are designated as subsequent COL (SCOL) applications. The Bellefonte Nuclear Plant (BLN) Units 3 and 4 COL application was originally designated as the RCOL application for the AP1000 design center, and the staff issued a safety evaluation report (SER) with open items that documented its review of both standard and site-specific information (for all chapters except Sections 3.7, 3.8, 13.6, 13.7, and 13.8 and Appendix 19A). The RCOL for the AP1000 COL design center switched from the Bellefonte COL application to the Vogtle COL application after the issuance of the Bellefonte SER with open items. The LNP COL application has been designated as an SCOL. Therefore, in addition to the list of RAIs that follows that are based on site-specific information, DEF had to endorse RAI responses from the RCOLs (both Bellefonte and Vogtle) that were determined to be standard to the AP1000 COL design center. The endorsement of these standard RAIs can be found in the following letters:

- Summary Identification of Concurrence with Standard Content in Response to Requests for Additional Information, dated December 15, 2008, ADAMS accession number ML083590309. This letter provides endorsement of standard responses that were provided in a Tennessee Valley Authority (TVA) letter dated October 24, 2008.

- Summary Identification of Concurrence with Standard Content in Response to Requests for Additional Information, dated April 27, 2009, ADAMS accession number ML091200384. This letter provides endorsement of standard responses that were provided in a TVA letter dated April 15, 2009, which supplements the TVA letter dated October 24, 2008.

- Summary Identification of Concurrence with Standard Content in Response to Requests for Additional Information – Supplement 2, dated December 7, 2009, ADAMS accession number ML093450351. This letter provides endorsement of standard responses that were provided in a TVA letter dated November 16, 2009; an SNC letter dated November 20, 2009; a TVA letter dated October 24, 2008; and TVA letter dated April 15, 2009.

- Endorsement of Vogtle R-COLA Response to BLN SER Confirmatory Item CI 04.04-01, dated March 31, 2010, ADAMS accession number ML100910089. This letter provides endorsement to the response to Confirmatory Item 04.04-01 that was provided in an SNC letter dated January 8, 2010.

- Endorsement of Vogtle R-COLA Voluntary Revision to Final Safety Analysis Report Chapter 17, dated April 12, 2010, ADAMS accession number ML101050113. This letter provides endorsement of the voluntary revision to the Final Safety Analysis Report Chapter 17 and Chapter 1 that were provided in an SNC letter dated April 2, 2010.

- Endorsement of Vogtle R-COLA Response to SER Open Item for Final Safety Analysis Report Chapter 16, dated August 10, 2010, ML102290035. This letter provides endorsement of the standard response to SER Open Item 16.01-01 that was provided in an SNC letter dated May 21, 2010.

- Summary Identification of Concurrence with Standard Content in Response to Requests for Additional Information – Supplement 3, dated September 23, 2010, ADAMS accession number ML102740219. This letter provides endorsement of standard responses that were provided in a TVA letter dated August 16, 2010, and an SNC letter dated August 23, 2010.

- Review of Vogtle Request for Additional Information Response for Applicability to Shearon Harris Nuclear Power Plant Units 2 and 3 and Levy Nuclear Plant Units 1 and 2, dated October 8, 2010, ADAMS accession number ML102870124. This letter provides endorsement of portions of the response that was provided in an SNC letter dated September 3, 2010.

- Endorsement of Changes to the Standard Content of the Vogtle R-COLA and Departure to the AP1000 Certified Design Control Document, dated March 1, 2011, ADAMS accession number ML110680414. This letter provides endorsement of revisions to the standard content of the Vogtle R-COLA and a departure to the AP1000 DCD that was provided in SNC letters dated August 5, 2010; August 27, 2010; and October 15, 2010.

- Endorsement of Changes to the Standard Content of the Vogtle R-COLA – Final Safety Analysis Report Chapters 6, 14 & 15, dated March 7, 2011, ADAMS accession number ML110700092. This letter provides endorsement of changes to the standard content that were provided in SNC letters dated August 13, 2010; July 30, 2010; September 3, 2010; October 29, 2010; February 8, 2011; November 11, 2010; October 15, 2010; and October 8, 2010.

- Endorsement of Changes to the Standard Content of the Vogtle R-COLA – Cyber Security Plan, dated March 15, 2011, ADAMS accession number ML110800089. This letter provides endorsement of the revision that was provided in an SNC letter dated January 31, 2011.

- Summary Identification of Concurrence with Standard Content in Response to Requests for Additional Information – Supplement 4, dated April 19, 2011, ADAMS accession number ML11111A125. This letter provides endorsement of standard responses that were provided in an SNC letter dated March 31, 2011.

- Endorsement of Changes to the Standard Content of the Vogtle R-COLA – COLA Part 2 (FSAR) and Part 11 Related to 10 CFR Parts 30, 40, and 70 licenses, dated July 28, 2011, ADAMS accession number ML11213A096. This letter provides endorsement of the revisions that were provided in SNC letters dated May 6, 2011, and June 22, 2011.

The following notes pertain to the table on the following pages:

- The request for additional information (RAI) question numbers were assigned based on the section of the Standard Review Plan (SRP) that was associated with the question (e.g., question 02.01.02-1 was generated based on the staff's review of the application against Section 2.1.2 of the SRP).

- The NRC letter number is a unique number that was assigned to the letter that transmitted the RAIs to the applicant. For applicant submittals where the staff did not transmit a question to the applicant by an NRC letter (e.g., the applicant provided a "voluntary submittal" to address questions from the staff or to inform the staff of changes to the application as a result of changes to the AP1000 design control document) then the applicant's letter was added to the database for tracking purposes and assigned an RAI number. For these "tracking" RAIs, the RAI letter number is "0".

- The applicant's responses to security-related and sensitive information questions (e.g., physical security) are not publically available.

FSER Appendix C eRAI Report

Application Title: Levy County, Units 1 and 2 - Dockets 52-029 and 52-030

Question No.	NRC Letter No.	System RAI No.	SRP Section Title	RAI Issued Date	RAI Accession Number	Response Date	Response Accession Number
01.05-1	108	6349	Other Regulatory Considerations	3/15/12	ML120550146	8/1/12	ML122230155
01.05-2	115	7353	Other Regulatory Considerations	1/2/14	ML14002A334	2/11/14	ML14043A399
01.05-3	120	7568	Other Regulatory Considerations	9/8/14	ML14181B240	8/27/15	ML15224B618
01.05-4	123	7687	Other Regulatory Considerations	10/17/14	ML14290A439	1/22/15	ML15026A131
01-1	23	2229	Introduction and Interfaces	4/8/09	ML090980116	5/4/09	ML091280261
01-2	62	3210	Introduction and Interfaces	7/14/09	ML091950154	8/31/09	ML092460205
02.02.01-02.02.02-1	20	1957	2.02.02 - Identification of Potential Hazards in Site Vicinity	3/6/09	ML090650303	4/6/09	ML091030063
02.02.01-02.02.02-2	20	1957	2.02.02 - Identification of Potential Hazards in Site Vicinity	3/6/09	ML090650303	7/29/09	ML092150335
02.02.01-02.02.02-3	20	1957	2.02.02 - Identification of Potential Hazards in Site Vicinity	3/6/09	ML090650303	4/6/09	ML091030063
02.02.01-02.02.02-4	20	1957	2.02.02 - Identification of Potential Hazards in Site Vicinity	3/6/09	ML090650303	4/6/09	ML091030063
02.03.01-1	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-2	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-3	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-4	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-5	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-6	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-7	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-8	16	1892	Regional Climatology	3/4/09	ML090630479	8/19/09	ML092360171
02.03.01-9	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345

02.03.01-10	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-11	16	1892	Regional Climatology	3/4/09	ML090630479	4/1/09	ML090960345
02.03.01-12	59	3010	Regional Climatology	6/24/09	ML091700129	7/22/09	ML092050074
02.03.01-13	59	3010	Regional Climatology	6/24/09	ML091700129	7/22/09	ML092050074
02.03.01-14	59	3010	Regional Climatology	6/24/09	ML091700129	7/22/09	ML092050074
02.03.01-15	59	3010	Regional Climatology	6/24/09	ML091700129	7/22/09	ML092050074
02.03.01-16	59	3010	Regional Climatology	6/24/09	ML091700129	7/22/09	ML092050074
02.03.01-17	96	5145	Regional Climatology	11/9/10	ML103130152	12/3/10	ML103420056
02.03.01-18	96	5145	Regional Climatology	11/9/10	ML103130152	12/3/10	ML103420056
02.03.01-19	105	5828	Regional Climatology	6/7/11	ML11159A000	6/23/11	ML11175A299
02.03.01-20	107	6201	Regional Climatology	12/14/11	ML11348A089	12/19/11	ML11356A265
02.03.02-1	11	1893	Local Meteorology	3/3/09	ML090620466	4/1/09	ML090960348
02.03.03-1	17	1894	Onsite Meteorological Measurements Programs	3/6/09	ML090650298	4/6/09	ML091000139
02.03.03-2	17	1894	Onsite Meteorological Measurements Programs	3/6/09	ML090650298	4/6/09	ML091000139
02.03.03-3	17	1894	Onsite Meteorological Measurements Programs	3/6/09	ML090650298	4/6/09	ML091000139
02.03.03-4	17	1894	Onsite Meteorological Measurements Programs	3/6/09	ML090650298	7/22/09	ML092050161
02.03.03-5	60	3011	Onsite Meteorological Measurements Programs	6/24/09	ML091750131	7/20/09	ML092030441
02.03.03-6	65	3492	Onsite Meteorological Measurements Programs	8/25/09	ML092370559	9/14/09	ML102230083
02.03.03-7	105	5829	Onsite Meteorological Measurements Programs	6/7/11	ML11159A000	6/23/11	ML11175A299
02.03.03-8	105	5829	Onsite Meteorological Measurements Programs	6/7/11	ML11159A000	6/23/11	ML11175A299
02.03.04-1	18	1895	Short Term Atmospheric Dispersion Estimates for Accident Releases	3/6/09	ML090650299	7/29/09	ML092150334
02.03.04-2	18	1895	Short Term Atmospheric Dispersion Estimates for Accident Releases	3/6/09	ML090650299	4/6/09	ML091000138
02.03.04-3	18	1895	Short Term Atmospheric Dispersion Estimates for Accident Releases	3/6/09	ML090650299	4/6/09	ML091000138
02.03.04-4	98	5380	Short Term Atmospheric Dispersion Estimates for Accident Releases	1/26/11	ML110260136	3/25/11	ML110960648
02.03.04-5	98	5380	Short Term Atmospheric Dispersion Estimates for Accident Releases	1/26/11	ML110260136	3/25/11	ML110960648
02.03.05-1	19	1896	Long-Term Atmospheric Dispersion Estimates for Routine Releases	3/6/09	ML090650302	4/6/09	ML091000136
02.03.05-2	19	1896	Long-Term Atmospheric Dispersion Estimates for Routine Releases	3/6/09	ML090650302	4/6/09	ML091000136
02.03.05-3	19	1896	Long-Term Atmospheric Dispersion Estimates for Routine Releases	3/6/09	ML090650302	4/6/09	ML091000136
02.03.05-4	19	1896	Long-Term Atmospheric Dispersion Estimates for Routine Releases	3/6/09	ML090650302	4/6/09	ML091000136
02.03.05-5	19	1896	Long-Term Atmospheric Dispersion Estimates for Routine Releases	3/6/09	ML090650302	4/6/09	ML091000136
02.03.05-6	78	3976	Long-Term Atmospheric Dispersion Estimates for Routine Releases	1/4/10	ML100040242	1/27/10	ML100330403
02.04.01-1	36	2157	Hydrologic Description	5/15/09	ML091350224	6/14/09	ML091680037

02.04.01-2	36	2157	Hydrologic Description	5/15/09	ML091350224	6/23/09	ML091830343
02.04.01-3	36	2157	Hydrologic Description	5/15/09	ML091350224	6/15/09	ML091680037
02.04.02-1	37	2158	Floods	5/15/09	ML091350226	7/13/09	ML091950612
02.04.02-2	37	2158	Floods	5/15/09	ML091350226	7/13/09	ML091950612
02.04.02-3	37	2158	Floods	5/15/09	ML091350226	7/13/09	ML091950612
02.04.02-4	37	2158	Floods	5/15/09	ML091350226	7/13/09	ML091950612
02.04.03-1	45	2159	Probable Maximum Flood (PMF) on Streams and Rivers	5/19/09	ML091390664	6/23/09	ML091760626
02.04.03-2	45	2159	Probable Maximum Flood (PMF) on Streams and Rivers	5/19/09	ML091390664	6/23/09	ML091760626
02.04.03-3	45	2159	Probable Maximum Flood (PMF) on Streams and Rivers	5/19/09	ML091390664	6/23/09	ML091760626
02.04.04-1	38	2160	Potential Dam Failures	5/15/09	ML091350228	6/15/09	ML091680038
02.04.04-2	38	2160	Potential Dam Failures	5/15/09	ML091350228	6/15/09	ML091680038
02.04.04-3	38	2160	Potential Dam Failures	5/15/09	ML091350228	6/15/09	ML091680038
02.04.03-4	45	2159	Probable Maximum Flood (PMF) on Streams and Rivers	5/19/09	ML091390664	6/23/09	ML091760626
02.04.03-5	89	4628	Probable Maximum Flood (PMF) on Streams and Rivers	5/7/10	ML101270098	6/18/10	ML101740490
02.04.03-6	93	5106	Probable Maximum Flood (PMF) on Streams and Rivers	10/4/10	ML102770467	11/16/10	ML103300096
02.04.05-1	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	7/20/09	ML092030128
02.04.05-2	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	7/20/09	ML092030128
02.04.05-3	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	7/20/09	ML092030128
02.04.05-4	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	7/20/09	ML092030128
02.04.05-5	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	7/20/09	ML092030128
02.04.05-6	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	7/20/09	ML092030128
02.04.05-7	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	7/20/09	ML092030128
02.04.05-8	40	2161	Probable Maximum Surge and Seiche Flooding	5/19/09	ML091390232	8/9/10	ML102290085
02.04.05-9	90	4629	Probable Maximum Surge and Seiche Flooding	5/7/10	ML101270097	6/18/10	ML101740491
02.04.05-10	95	5107	Probable Maximum Surge and Seiche Flooding	10/4/10	ML102770470	1/27/11	ML110340018
02.04.05-11	104	5725	Probable Maximum Surge and Seiche Flooding	5/19/11	ML11139A156	6/21/11	ML11175A300
02.04.06-1	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-2	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-3	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-4	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-5	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-6	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-7	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-8	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-9	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077
02.04.06-10	47	2162	Probable Maximum Tsunami Flooding	5/20/09	ML091400616	7/22/09	ML092080077

02.04.06-11	80	4217	Probable Maximum Tsunami Flooding	2/16/10	ML100470481	3/25/10	ML100910299
02.04.06-12	80	4217	Probable Maximum Tsunami Flooding	2/16/10	ML100470481	3/25/10	ML100910299
02.04.06-13	80	4217	Probable Maximum Tsunami Flooding	2/16/10	ML100470481	3/25/10	ML100910299
02.04.06-14	80	4217	Probable Maximum Tsunami Flooding	2/16/10	ML100470481	3/25/10	ML100910299
02.04.06-15	80	4217	Probable Maximum Tsunami Flooding	2/16/10	ML100470481	7/19/10	ML102030027
02.04.06-16	94	4842	Probable Maximum Tsunami Flooding	10/4/10	ML102770469	11/30/10	ML103420645
02.04.06-17	101	5528	Probable Maximum Tsunami Flooding	2/28/11	ML110591146	7/14/11	ML112020068
02.04.12-1	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-2	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-3	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-4	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-5	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092190616
02.04.12-6	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-7	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-8	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-9	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-10	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-11	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-12	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-13	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-14	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-15	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-16	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-17	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-18	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-19	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-20	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-21	48	2164	Groundwater	5/26/09	ML091460224	7/29/09	ML092150960
02.04.12-22	91	4630	Groundwater	5/7/10	ML101270096	6/21/10	ML101740492
02.04.12-23	91	4630	Groundwater	5/7/10	ML101270096	6/21/10	ML101740492
02.04.12-24	91	4630	Groundwater	5/7/10	ML101270096	6/21/10	ML101740492
02.04.12-25	97	5316	Groundwater	1/5/11	ML110050289	3/15/11	ML110800090
02.04.12-26	103	5706	Groundwater	4/13/11	ML111040366	5/2/11	ML11129A049
02.04.13-1	21	2148	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	3/6/09	ML090650304	4/6/09	ML091000137
02.04.13-2	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-3	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-4	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-5	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078

02.04.13-6	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-7	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-8	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-9	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-10	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-11	44	2183	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/19/09	ML091390639	7/22/09	ML092080078
02.04.13-12	92	4631	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/7/10	ML101270101	6/23/10	ML101830016
02.04.13-13	92	4631	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	5/7/10	ML101270101	6/23/10	ML101830016
02.05.01-1	0	1399	Basic Geologic and Seismic Information	10/6/08	ML082760222	11/20/08	ML083460251
02.05.01-2	0	1399	Basic Geologic and Seismic Information	10/6/08	ML082760222	11/20/08	ML083460251
02.05.01-3	0	1399	Basic Geologic and Seismic Information	10/6/08	ML082760222	11/20/08	ML083460251
02.05.01-4	0	1399	Basic Geologic and Seismic Information	10/6/08	ML082760222	11/20/08	ML083460251
02.05.01-5	0	1399	Basic Geologic and Seismic Information	10/6/08	ML082760222	11/20/08	ML083460251
02.05.01-6	0	1399	Basic Geologic and Seismic Information	10/6/08	ML082760222	12/20/08	ML083460251
02.05.01-7	0	1399	Basic Geologic and Seismic Information	10/6/08	ML082760222	12/20/08	ML083460251
02.05.01-8	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-9	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-10	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-11	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-12	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-13	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/9/09	ML091630395
02.05.01-14	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-15	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/9/09	ML091630395
02.05.01-16	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-17	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-18	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-19	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-20	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/9/09	ML091630395
02.05.01-21	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422

02.05.01-22	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-23	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-24	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-25	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/9/09	ML091630395
02.05.01-26	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/9/09	ML091630395
02.05.01-27	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/9/09	ML091630395
02.05.01-28	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/9/09	ML091630395
02.05.01-29	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-30	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	12/4/09	ML093450352
02.05.01-31	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-32	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/23/09	ML091810083
02.05.01-33	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-34	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-35	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-36	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/1/09	ML091880942
02.05.01-37	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	6/23/09	ML091810083
02.05.01-38	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-39	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-40	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	8/19/09	ML092360422
02.05.01-41	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-42	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	9/19/09	ML092360422
02.05.01-43	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-44	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-45	34	2514	Basic Geologic and Seismic Information	5/8/09	ML091280308	7/13/09	ML091960625
02.05.01-46	70	3818	Basic Geologic and Seismic Information	11/2/09	ML093030441	12/14/09	ML093491037
02.05.01-47	70	3818	Basic Geologic and Seismic Information	11/2/09	ML093030441	12/14/09	ML093491037
02.05.01-48	70	3818	Basic Geologic and Seismic Information	11/2/09	ML093030441	12/14/09	ML093491037
02.05.01-49	70	3818	Basic Geologic and Seismic Information	11/2/09	ML093030441	12/14/09	ML093491037
02.05.01-50	70	3818	Basic Geologic and Seismic Information	11/2/09	ML093030441	12/14/09	ML093491037
02.05.02-1	0	1402	Vibratory Ground Motion	10/6/08	ML082760222	11/2/09	ML093100110
02.05.02-3	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-4	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-5	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-6	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-7	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943

02.05.02-8	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-9	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-10	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-11	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-12	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-13	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-14	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-15	31	2285	Vibratory Ground Motion	5/8/09	ML091280265	7/1/09	ML091880943
02.05.02-16	32	2474	Vibratory Ground Motion	5/8/09	ML091280297	7/1/09	ML091880284
02.05.02-17	32	2474	Vibratory Ground Motion	5/8/09	ML091280297	7/1/09	ML091880284
02.05.02-18	32	2474	Vibratory Ground Motion	5/8/09	ML091280297	7/1/09	ML091880284
02.05.02-19	32	2474	Vibratory Ground Motion	5/8/09	ML091280297	7/1/09	ML091880284
02.05.02-2	0	1402	Vibratory Ground Motion	10/6/08	ML082760222	11/20/08	ML083460251
02.05.02-20	32	2474	Vibratory Ground Motion	5/8/09	ML091280297	7/1/09	ML091880284
02.05.02-21	32	2474	Vibratory Ground Motion	5/8/09	ML091280297	7/1/09	ML091880284
02.05.02-22	81	4283	Vibratory Ground Motion	2/16/10	ML100470481	8/30/10	ML102450216
02.05.03-1	35	2516	Surface Faulting	5/8/09	ML091280309	6/23/09	ML091810082
02.05.03-2	35	2516	Surface Faulting	5/8/09	ML091280309	7/16/09	ML092030130
02.05.03-3	35	2516	Surface Faulting	5/8/09	ML091280309	7/1/09	ML091880281
02.05.03-4	35	2516	Surface Faulting	5/8/09	ML091280309	7/8/09	ML091940129
02.05.03-5	35	2516	Surface Faulting	5/8/09	ML091280309	7/16/09	ML092030130
02.05.03-6	35	2516	Surface Faulting	5/8/09	ML091280309	7/8/09	ML091940129
02.05.03-7	35	2516	Surface Faulting	5/8/09	ML091280309	7/16/09	ML092030130
02.05.03-8	35	2516	Surface Faulting	5/8/09	ML091280309	6/23/09	ML091810082
02.05.03-9	35	2516	Surface Faulting	5/8/09	ML091280309	6/23/09	ML091810082
02.05.03-10	35	2516	Surface Faulting	5/8/09	ML091280309	7/1/09	ML091880281
02.05.04-1	0	1413	Stability of Subsurface Materials and Foundations	10/6/08	ML082760222	11/20/08	ML083460251
02.05.04-2	0	1413	Stability of Subsurface Materials and Foundations	10/6/08	ML082760222	11/20/08	ML083460251
02.05.04-3	0	1413	Stability of Subsurface Materials and Foundations	10/6/08	ML082760222	11/20/08	ML083460251
02.05.04-4	9	1986	Stability of Subsurface Materials and Foundations	2/24/09	ML090550658	4/2/09	ML090980269
02.05.04-5	9	1986	Stability of Subsurface Materials and Foundations	2/24/09	ML090550658	1/19/10	ML100250141
02.05.04-6	9	1986	Stability of Subsurface Materials and Foundations	2/24/09	ML090550658	1/19/10	ML100250141
02.05.04-7	9	1986	Stability of Subsurface Materials and Foundations	2/24/09	ML090550658	1/29/10	ML100350220
02.05.04-8	9	1986	Stability of Subsurface Materials and Foundations	2/24/09	ML090550658	1/19/10	ML100250141
02.05.04-9	9	1986	Stability of Subsurface Materials and Foundations	2/24/09	ML090550658	4/2/09	ML090980269
02.05.04-10	29	2099	Stability of Subsurface Materials and Foundations	5/8/09	ML091280242	6/8/09	ML091630394
02.05.04-11	29	2099	Stability of Subsurface Materials and Foundations	5/8/09	ML091280242	10/27/09	ML093060389
02.05.04-12	29	2099	Stability of Subsurface Materials and Foundations	5/8/09	ML091280242	6/8/09	ML091630394
02.05.04-13	29	2099	Stability of Subsurface Materials and Foundations	5/8/09	ML091280242	6/8/09	ML091630394
02.05.04-14	29	2099	Stability of Subsurface Materials and Foundations	5/8/09	ML091280242	6/8/09	ML091630394
02.05.04-15	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	6/23/09	ML091810081

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02.05.04-16	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	6/9/09	ML091630393
02.05.04-17	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	6/9/09	ML091630393
02.05.04-18	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	6/9/09	ML091630393
02.05.04-19	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	11/5/09	ML093170196
02.05.04-20	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	6/9/09	ML091630393
02.05.04-21	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	6/9/09	ML091630393
02.05.04-22	30	2244	Stability of Subsurface Materials and Foundations	5/8/09	ML091280259	9/3/09	ML092530406
02.05.04-23	33	2495	Stability of Subsurface Materials and Foundations	5/8/09	ML091280299	6/23/09	ML091770630
02.05.04-24	71	3814	Stability of Subsurface Materials and Foundations	11/2/09	ML093030529	1/19/10	ML100250140
02.05.04-25	72	3821	Stability of Subsurface Materials and Foundations	11/2/09	ML093060266	12/3/09	ML093450354
02.05.04-26	88	4500	Stability of Subsurface Materials and Foundations	3/29/10	ML100880414	7/9/10	ML101940386
03.03.01-1	61	2775	Wind Loading	6/26/09	ML091770418	8/24/09	ML092390078
03.03.01-2	76	3748	Wind Loading	12/3/09	ML093370501	1/11/10	ML100190086
03.07.01-1	46	2318	Seismic Design Parameters	5/20/09	ML091400655	11/16/10	ML103260240
03.07.01-2	87	4361	Seismic Design Parameters	3/17/10	ML100760559	5/27/11	ML11152A186
03.07.02-1	85	4370	Seismic System Analysis	3/16/10	ML100750297	11/10/10	ML103200399
03.07.02-2	85	4384	Seismic System Analysis	3/16/10	ML100750297	10/4/11	ML113130557
03.08.05-1	0	1422	Foundations	10/6/08	ML082760222	11/20/08	ML083460251
03.08.05-2	55	2925	Foundations	6/9/09	ML091600714	1/25/11	ML110310018
03.08.05-3	55	2925	Foundations	6/9/09	ML091600714	1/25/11	ML110310018
03.08.05-4	86	4363	Foundations	3/16/10	ML100750545	5/27/11	ML11152A205
03.08.05-5	86	4363	Foundations	3/16/10	ML100750545	8/18/10	ML102320579
03.08.05-6	86	4363	Foundations	3/16/10	ML100750545	5/27/11	ML11152A205
03.08.05-7	86	4363	Foundations	3/16/10	ML100750545	1/25/11	ML110310020
06.02.05-1	121	7667	Combustible Gas Control in Containment	9/24/14	ML14259A094	1/6/16	ML16008A082
06.03-1	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	5/5/14	ML14126A699
06.03-2	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	6/12/14	ML14164A444
06.03-3	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	6/12/14	ML14164A444
06.03-4	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	7/1/14	ML14183B342
06.03-5	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	6/27/14	ML14182A106
06.03-6	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	6/11/15	ML15166A020
06.03-7	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	4/17/14	ML14112A371
06.03-8	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	4/17/14	ML14112A371
06.03-9	116	7439	Emergency Core Cooling System	3/6/14	ML14065A362	6/11/15	ML15166A020
06.03-10	117	7475	Emergency Core Cooling System	4/10/14	ML14000A040	6/27/14	ML14182A106
06.03-11	117	7475	Emergency Core Cooling System	4/10/14	ML14000A040	6/27/14	ML14182A106
06.03-12	118	7484	Emergency Core Cooling System	4/24/14	ML14114A050	6/27/14	ML14182A106

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06.03-13	124	7756	Emergency Core Cooling System	12/5/14	ML14341A003	5/5/15	ML15128A604
06.03-14	125	7785	Emergency Core Cooling System	1/13/15	ML15013A500	1/21/15	ML15023A036
06.04-1	8	1974	Control Room Habitability System	2/3/09	ML090340441	3/2/09	ML090640914
06.04-2	121	7661	Control Room Habitability System	9/24/14	ML14259A094	7/1/15	ML15189A247
06.04-2	121	7661	Control Room Habitability System	9/24/14	ML14259A094	6/5/15	ML15161A041
06.04-2	121	7661	Control Room Habitability System	9/24/14	ML14259A094	5/5/15	ML15132A101
06.04-2	121	7661	Control Room Habitability System	9/24/14	ML14259A094	5/26/15	ML15148A574
06.04-2	121	7661	Control Room Habitability System	9/24/14	ML14259A094	6/1/15	ML15189A247
06.04-3	121	7661	Control Room Habitability System	9/24/14	ML14259A094	7/1/15	ML15189A247
06.04-3	121	7661	Control Room Habitability System	9/24/14	ML14259A094	6/5/15	ML15161A041
06.04-3	121	7661	Control Room Habitability System	9/24/14	ML14259A094	5/5/15	ML15132A101
06.04-3	121	7661	Control Room Habitability System	9/24/14	ML14259A094	5/26/15	ML15148A574
06.04-3	121	7661	Control Room Habitability System	9/24/14	ML14259A094	6/1/15	ML15189A247
06.04-4	122	7669	Control Room Habitability System	10/10/14	ML14283A522	3/26/15	ML15089A193
06.04-5	126	7843	Control Room Habitability System	5/13/15	ML15133A302	11/12/15	ML15322A009
06.04-6	128	7989	Control Room Habitability System	6/29/15	ML15180A275	8/5/15	ML15219A202
06.04-7	129	8004	Control Room Habitability System	7/13/15	ML15194A263	10/13/15	ML15289A228
06.04-8	129	8004	Control Room Habitability System	7/13/15	ML15194A263	10/13/15	ML15289A228
06.04-9	129	8004	Control Room Habitability System	7/13/15	ML15194A263	10/13/15	ML15289A228
06.04-10	129	8004	Control Room Habitability System	7/13/15	ML15194A263	10/13/15	ML15289A228
06.04-11	129	8004	Control Room Habitability System	7/13/15	ML15194A263	10/13/15	ML15289A228
06.04-12	129	8004	Control Room Habitability System	7/13/15	ML15194A263	10/13/15	ML15289A228
07.01-1	133	7967	Instrumentation and Controls - Introduction	10/1/15	ML15275A000	12/12/15	ML15320A025
07.02-1	135	8286	Reactor Trip System	11/25/15	ML15329A055	12/23/15	ML15363A112
07.03-1	127	8404	Engineered Safety Features Systems	5/20/15	ML15140A475	7/16/15	ML15201A542
07.05-1	3	7904	Information Systems Important to Safety	12/12/08	ML083470374	6/8/10	ML101650107
08.01-1	43	2481	Electric Power - Introduction	5/19/09	ML091390300	7/13/09	ML091950614
08.01-2	43	2481	Electric Power - Introduction	5/19/09	ML091390300	7/13/09	ML091950614
08.01-3	43	2481	Electric Power - Introduction	5/19/09	ML091390300	7/13/09	ML091950614
08.02-1	41	2485	Offsite Power System	5/19/09	ML091390271	6/23/09	ML091770629
08.02-2	41	2485	Offsite Power System	5/19/09	ML091390271	6/23/09	ML091770629
08.02-3	41	2485	Offsite Power System	5/19/09	ML091390271	6/23/09	ML091770629
08.02-4	41	2485	Offsite Power System	5/19/09	ML091390271	6/23/09	ML091770629
08.02-5	41	2485	Offsite Power System	5/19/09	ML091390271	6/23/09	ML091770629
08.02-6	41	2485	Offsite Power System	5/19/09	ML091390271	6/23/09	ML091770629
08.02-7	63	3339	Offsite Power System	7/21/09	ML092020643	8/6/09	ML092220167
08.02-8	79	3934	Offsite Power System	1/7/10	ML100070307	2/5/10	ML100470585

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08.02-9	79	3934	Offsite Power System	1/7/10	ML100070307	6/16/10	ML101690453
08.03.01-1	42	2486	AC Power Systems (Onsite)	5/19/09	ML091390282	7/13/09	ML091950613
08.03.01-2	42	2486	AC Power Systems (Onsite)	5/19/09	ML091390282	7/13/09	ML091950613
08-1	109	6632	3 Branch Technical Position - Stability of Offsite Power Systems	8/15/12	ML12228A611	6/4/13	ML13157A025
08-1	109	6632	3 Branch Technical Position - Stability of Offsite Power Systems	8/15/12	ML12228A611	9/14/12	ML12261A402
08-1	109	6632	3 Branch Technical Position - Stability of Offsite Power Systems	8/15/12	ML12228A611	6/4/13	ML13157A025
08-2	114	7208	3 Branch Technical Position - Stability of Offsite Power Systems	8/14/13	ML13226A124	10/24/13	ML13301A018
09.02.01-1	50	2827	Station Service Water System	6/1/09	ML091520012	7/6/09	ML091900144
09.02.01-2	52	2878	Station Service Water System	6/1/09	ML091520221	7/22/09	ML092050072
09.02.01-3	52	2878	Station Service Water System	6/1/09	ML091520221	7/22/09	ML092050072
09.02.01-4	52	2878	Station Service Water System	6/1/09	ML091520221	7/22/09	ML092050072
09.02.01-5	52	2878	Station Service Water System	6/1/09	ML091520221	7/22/09	ML092050072
09.02.01-6	67	3737	Station Service Water System	9/21/09	ML092640101	12/11/09	ML093560442
09.02.02-1	54	2865	Reactor Auxiliary Cooling Water Systems	6/4/09	ML091550406	6/23/09	ML091760625
09.03.03-1	51	2832	Equipment and Floor Drainage System	6/1/09	ML091520076	6/23/09	ML091760622
09.04.01-1	132	8252	Control Room Area Ventilation System	9/14/15	ML15257A186	10/14/15	ML15289A237
09.05.01-1	6	1886	Fire Protection Program	1/22/09	ML090220311	2/19/09	ML090550910
09.05.01-2	7	1887	Fire Protection Program	1/22/09	ML090220321	2/19/09	ML090550912
09.05.02-1	56	2226	Communications Systems	6/16/09	ML091671865	7/20/09	ML092030442
09.05.02-2	56	2226	Communications Systems	6/16/09	ML091671865	7/20/09	ML092030442
09.05.02-3	56	2226	Communications Systems	6/16/09	ML091671865	7/20/09	ML092030442
09.05.02-4	56	2226	Communications Systems	6/16/09	ML091671865	7/20/09	ML092030442
09.05.02-5	56	2226	Communications Systems	6/16/09	ML091671865	7/20/09	ML092030442
09.05.02-6	56	2226	Communications Systems	6/16/09	ML091671865	7/20/09	ML092030442
09.05.02-7	56	2226	Communications Systems	6/16/09	ML091671865	7/20/09	ML092030442
09.05.02-8	75	3947	Communications Systems	11/30/09	ML093340451	12/18/09	ML093580048
09.05.02-9	75	3947	Communications Systems	11/30/09	ML093340451	12/18/09	ML093580048
09.05.02-10	75	3947	Communications Systems	11/30/09	ML093340451	12/18/09	ML093580048
10.04.05-1	53	2839	Circulating Water System	6/4/09	ML091550699	8/24/09	ML092390068
10.04.06-1	2	1601	Condensate Cleanup System	11/25/08	ML083300140	12/16/08	ML083540420
11.02-1	12	2149	Liquid Waste Management System	3/3/09	ML090620467	4/1/09	ML090930718
11.02-2	13	2150	Liquid Waste Management System	3/3/09	ML090620495	7/29/09	ML092120060
11.02-3	14	2151	Liquid Waste Management System	3/3/09	ML090620496	5/28/09	ML091530134
11.02-4	110	6957	Liquid Waste Management System	12/27/12	ML12362A126	2/11/13	ML13044A566
11.02-5	112	7050	Liquid Waste Management System	3/11/13	ML13070A176	7/1/13	ML13189A286
11.02-5	112	7050	Liquid Waste Management System	3/11/13	ML13070A176	8/23/13	ML13239A053
11.02-5	112	7050	Liquid Waste Management System	3/11/13	ML13070A176	9/12/13	ML13259A147
11.02-5	112	7050	Liquid Waste Management System	3/11/13	ML13070A176	4/26/13	ML13120A013

11.02-5	112	7050	Liquid Waste Management System	3/11/13	ML13070A176	6/6/13	ML13161A176
11.03-1	15	2152	Gaseous Waste Management System	3/3/09	ML090620497	9/18/09	ML092640648
11.04-1	73	3658	Solid Waste Management System	11/4/09	ML093080633	12/4/29	ML093450353
11.04-2	73	3657	Solid Waste Management System	11/4/09	ML093080633	12/4/29	ML093450353
12.03-10	131	8219	2.04 - Radiation Protection Design Features	9/2/15	ML15245A738	11/2/15	ML15308A002
12.03-12.04-1	64	2368	2.04 - Radiation Protection Design Features	8/12/09	ML092240465	6/8/10	ML101650108
12.03-2	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	11/2/15	ML15308A383
12.03-3	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	12/1/15	ML15358A013
12.03-4	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	12/22/15	ML15358A013
12.03-5	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	11/2/15	ML15308A383
12.03-6	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	11/2/15	ML15308A383
12.03-7	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	11/2/15	ML15308A383
12.03-8	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	11/2/15	ML15308A383
12.03-9	130	8028	2.04 - Radiation Protection Design Features	8/7/15	ML15219A536	11/2/15	ML15308A383
13.01.01-2	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-3	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-4	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-5	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-6	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-7	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-8	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-9	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-1	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-10	24	2297	Management and Technical Support Organization	4/9/09	ML090990720	6/3/09	ML091610300
13.01.01-11	113	7068	Management and Technical Support Organization	4/3/13	ML13093A285	5/6/13	ML13128A019
13.01.02-13.01.03-1	25	2298	3.01.03 - Operating Organization	4/9/09	ML090990728	6/3/09	ML091610301
13.01.02-13.01.03-2	25	2298	3.01.03 - Operating Organization	4/9/09	ML090990728	6/3/09	ML091610301
13.01.02-13.01.03-3	25	2298	3.01.03 - Operating Organization	4/9/09	ML090990728	6/3/09	ML091610301
13.03-1	22	1811	Emergency Planning	3/6/09	ML090650305	6/30/09	ML091880203
13.03-2	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-3	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-4	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-5	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-6	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-7	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292

13.03-8	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-9	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-10	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-11	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-12	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-13	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-14	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-15	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-16	28	2251	Emergency Planning	5/8/09	ML091280228	6/10/09	ML091670292
13.03-17	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-18	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-19	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-20	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-21	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-22	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-23	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-24	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-25	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-26	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-27	39	2405	Emergency Planning	5/19/09	ML091390185	6/23/09	ML091810091
13.03-28	74	3833	Emergency Planning	11/19/09	ML093230345	12/18/09	ML093580054
13.03-29	74	3833	Emergency Planning	11/19/09	ML093230345	12/18/09	ML093580054
13.03-30	74	3833	Emergency Planning	11/19/09	ML093230345	4/21/10	ML101180077
13.03-31	74	3833	Emergency Planning	11/19/09	ML093230345	12/18/09	ML093580054
13.03-32	74	3833	Emergency Planning	11/19/09	ML093230345	12/18/09	ML093580054
13.03-33	74	3833	Emergency Planning	11/19/09	ML093230345	12/18/09	ML093580054
13.03-34	74	3833	Emergency Planning	11/19/09	ML093230345	12/18/09	ML093580054
13.03-35	74	3833	Emergency Planning	11/19/09	ML093230345	12/18/09	ML093580054
13.03-36	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-37	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-38	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-39	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-40	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-41	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-42	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-43	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-44	83	4405	Emergency Planning	3/8/10	ML100670512	3/26/10	ML100910092
13.03-45	100	5245	Emergency Planning	2/16/11	ML110470340	6/10/11	ML11171A295
13.03-46	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-47	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-48	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-49	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-50	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-51	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-52	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-53	100	5245	Emergency Planning	2/16/11	ML110470340	6/10/11	ML11171A295
13.03-54	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-55	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092

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13.03-56	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-57	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-58	100	5245	Emergency Planning	2/16/11	ML110470340	3/15/11	ML110800092
13.03-59	111	6986	Emergency Planning	1/16/13	ML13016A265	2/21/13	ML13056A015
13.03-60	111	6986	Emergency Planning	1/16/13	ML13016A265	4/26/13	ML13120A012
13.03-61	111	6986	Emergency Planning	1/16/13	ML13016A265	2/21/13	ML13056A015
13.03-62	111	6986	Emergency Planning	1/16/13	ML13016A265	2/21/13	ML13056A015
13.03-63	111	6986	Emergency Planning	1/16/13	ML13016A265	4/26/13	ML13120A012
13.03-64	111	6986	Emergency Planning	1/16/13	ML13016A265	2/21/13	ML13056A015
13.03-65	111	6986	Emergency Planning	1/16/13	ML13016A265	2/21/13	ML13056A015
13.05.01.01-1	26	2316	Administrative Procedures - General	4/9/09	ML090990729	5/8/09	ML091330202
13.06.01-1	119	4234	Physical Security - Combined License	5/30/14	ML14150A411	8/7/14	ML14220A433
13.06.01-1	82	7541	Fitness for Duty (Future SRP Section)	3/1/10	ML100600426	3/26/10	ML100910091
13.06.01-2	82	4235	Fitness for Duty (Future SRP Section)	3/1/10	ML100600426	3/26/10	ML100810091
13.06.01-3	82	4236	Fitness for Duty (Future SRP Section)	3/1/10	ML100600426	3/26/10	ML100910091
13.06.01-4	82	4237	Fitness for Duty (Future SRP Section)	3/1/10	ML100600426	3/26/10	ML100910091
13.06-1	66	3411	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-2	66	3411	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-3	66	3411	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-4	66	3413	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-5	66	3413	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-6	66	3413	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-7	66	3414	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-8	66	3414	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-9	66	3414	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-10	66	3414	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-11	66	3418	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-12	66	3418	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-13	66	3418	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-14	66	3420	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-15	66	3420	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-16	66	3420	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-17	66	3420	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-18	66	3420	Physical Security	9/17/09	ML092600371	10/22/09	ML093010267
13.06-19	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083
13.06-20	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083
13.06-21	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083
13.06-22	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083

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13.06-23	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083
13.06-24	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083
13.06-25	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083
13.06-26	84	4211	Physical Security	3/8/10	ML100670607	4/14/10	ML101120083
13.06-27	102	5577	Physical Security	4/1/11	ML110910279	5/4/11	ML11130A106
14.02-1	4	1674	Initial Plant Test Program - Design Certification and New License Applicants	12/29/08	ML083640462	1/23/09	ML090291010
14.02-2	5	1629	Initial Plant Test Program - Design Certification and New License Applicants	12/29/08	ML083640520	1/23/09	ML090291012
14.02-3	5	1629	Initial Plant Test Program - Design Certification and New License Applicants	12/29/08	ML083640520	1/23/09	ML090291012
14.02-4	57	2487	Initial Plant Test Program - Design Certification and New License Applicants	6/21/09	ML091720002	7/22/09	ML092050073
14.03.02-1	58	2987	Structural and Systems Engineering - Inspections, Tests, Analyses, and Acceptance Criteria	6/22/09	ML091730438	7/20/09	ML092030127
14.03.10-1	27	2408	Emergency Planning - Inspections, Tests, Analyses, and Acceptance Criteria	5/8/09	ML091280225	6/3/09	ML091610302
14.03.12-1	84	4210	Physical Security Hardware - Inspections, Tests, Analyses, and Acceptance Criteria	3/8/10	ML100670607	4/14/10	ML101120083
14.03.12-2	84	4210	Physical Security Hardware - Inspections, Tests, Analyses, and Acceptance Criteria	3/8/10	ML100670607	4/14/10	ML101120083
14.03.12-3	84	4210	Physical Security Hardware - Inspections, Tests, Analyses, and Acceptance Criteria	3/8/10	ML100670607	4/14/10	ML101120083
15.00.03-1	1	1261	Design Basis Accidents Radiological Consequence Analyses for Advanced Light Water Reactors	11/25/08	ML083300112	8/6/09	ML092220166
15.00.03-2	129	8005	Design Basis Accidents Radiological Consequence Analyses for Advanced Light Water Reactors	7/13/15	ML15194A263	10/13/15	ML15289A228
15.00.03-3	129	8005	Design Basis Accidents Radiological Consequence Analyses for Advanced Light Water Reactors	7/13/15	ML15194A263	10/13/15	ML15289A228
15.00.03-4	129	8005	Design Basis Accidents Radiological Consequence Analyses for Advanced Light Water Reactors	7/13/15	ML15194A263	10/13/15	ML15289A228
15.02.06-1	116	7440	Loss of Non-Emergency AC Power to the Station Auxiliaries	3/6/14	ML14065A362	6/19/14	ML14171A453
15.02.06-2	116	7440	Loss of Non-Emergency AC Power to the Station Auxiliaries	3/6/14	ML14065A362	6/19/14	ML14182A106
15.02.06-3	116	7440	Loss of Non-Emergency AC Power to the Station Auxiliaries	3/6/14	ML14065A362	6/19/14	ML14171A453
16-1	99	5390	Technical Specifications	2/8/11	ML110400429	3/15/11	ML110800091
16-2	99	5390	Technical Specifications	2/8/11	ML110400429	3/15/11	ML110800091
16-3	126	7863	Technical Specifications	5/13/15	ML15133A302	7/17/15	ML15201A540
16-4	134	8287	Technical Specifications	10/7/15	ML15280A353	11/12/15	ML15320A028
16-5	135	8399	Technical Specifications	11/25/15	ML15329A055	12/23/15	ML15363A112

17.5-1	10	1914	Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants	2/27/09	ML090580609	3/31/09	ML090970104
17.5-2	10	1914	Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants	2/27/09	ML090580609	3/31/09	ML090970104
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17.5-4	10	1914	Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants	2/27/09	ML090580609	3/31/09	ML090970104
17.5-5	10	1914	Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants	2/27/09	ML090580609	3/31/09	ML090970104
17.5-6	10	1914	Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants	2/27/09	ML090580609	3/31/09	ML090970104
17.5-7	10	1914	Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants	2/27/09	ML090580609	3/31/09	ML090970104
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17.5-13	10	1914	Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants	2/27/09	ML090580609	3/31/09	ML090970104
18-1	0	5353	Human Factors Engineering	1/3/11	ML103610137	12/21/10	ML103610137
18-2	128	7924	Human Factors Engineering	6/29/15	ML15180A275	8/5/15	ML15219A202
19-1	49	2609	Probabilistic Risk Assessment and Severe Accident Evaluation	5/31/09	ML091550849	7/29/09	ML092120059
19-2	49	2609	Probabilistic Risk Assessment and Severe Accident Evaluation	5/31/09	ML091550849	7/29/09	ML092120059
19-3	69	3875	Probabilistic Risk Assessment and Severe Accident Evaluation	11/2/09	ML093270307	12/1/09	ML093421413

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19-70	69	3875	Probabilistic Risk Assessment and Severe Accident Evaluation	11/2/09	ML093270307	3/22/10	ML100840574
19-71	68	3876	Probabilistic Risk Assessment and Severe Accident Evaluation	11/2/09	ML092880707	12/1/09	ML093421413
19-72	68	3876	Probabilistic Risk Assessment and Severe Accident Evaluation	11/2/09	ML092880707	6/10/10	ML101650531
19-73	68	3876	Probabilistic Risk Assessment and Severe Accident Evaluation	11/2/09	ML092880707	12/1/09	ML093421413
19-74	77	4031	Probabilistic Risk Assessment and Severe Accident Evaluation	12/16/09	ML093560441	1/14/10	ML100200160
19-75	106	6143	Probabilistic Risk Assessment and Severe Accident Evaluation	10/28/11	ML11301A214	11/17/11	ML11329A039
EIS 2.3.1-1	2	7470	Hydrology	3/27/14	ML14090A003	4/23/14	ML14114A553
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APPENDIX D

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APPENDIX E

PRINCIPAL CONTRIBUTORS

Name	Responsibility
Ahmed, Sardar	Engineering Mechanics
Anderson, Brian	Project Management
Andrukat, Dennis	Fire Protection
Barss, Dan	Emergency Preparedness
Bieganousky, Wayne	Geotechnical Engineering
Bowers, Anthony	Emergency Preparedness
Boyce, Travis	Containment Systems
Chalk, Wayne	Fitness for Duty
Chapman, Greg	Nuclear Fuel Radiation Protection and Criticality Control
Chapman, Travis	Technical Specifications
Chen, Pei-Ying	Engineering Mechanics
Chien, Nan	Containment and Ventilation
Chopra, Om	Electrical Engineering
Cicotte, George	Radioactive Waste Management/Process & Effluent Monitoring Systems
Clinton, Ashley	Containment Systems
Coflin, Monika	Cyber Security
Comar, Manny	Project Management
Curran, Gordon	Plant Systems
Dehmel, Jean-Claude	Health Physics
DeMarshall, Joseph	Operating Procedures
Devlin-Gill, Stephanie	Seismology
Dinh, Thinh	Fire Protection
Dodson, Douglas	Plant Systems
Downey, Steven	Materials Engineering
Downs, James	Nuclear Fuel Fire Protection
Drzewiecki, Timothy	Reactor Systems
Dvir, Assaf	Containment Systems
Echols, Stan	Special Nuclear Material Safety Analysis
Fitzpatrick, Robert	Electrical Engineering and Equipment Qualification
Frost, John	Plant Security
Galletta, Thomas	Project Management

Name	Responsibility
Galletti, Greg	Quality Assurance
Goel, Raj	Containment Systems
Goetz, Sujata	Project Management
Grady, Anne-Marie	Containment and Severe Accidents
Graizer, Vladimir	Seismology
Habib, Donald	Project Management
Harbuck, Charles	Technical Specifications
Nicholas Hansing	Engineering Mechanics
Harris, Larry	Material Control and Accounting Fuel Cycles and Transportation
Harris, Paul	Fitness for Duty
Hart, Michelle	Accident Analysis
Hernandez, Raul	Plant Systems
Hinson, Charles	Health Physics
Hoellman, Jordan	Project Management
Honcharik, John	Component Integrity Performance Testing; Materials
Hsii, Yi-Hsiung	Reactor Systems
Hsu, Kaihwa	Engineering Mechanics
Huang, Jason	Engineering Mechanics
Hughes, Brian	Project Management
Jenkins, Joel	Materials Engineering
Jones, Henry	Hydrology
Kang, Peter	Electrical Engineering and Equipment Qualification
Kellum, James	Operator Training
Kelly, Glenn	Probabilistic Risk Assessment/Severe Accidents
Kleeh, Edmund	Inspections, Tests, Analyses, and Acceptance Criteria Quality/Inspectability
Lois, Kos	Financial, Foreign Ownership, Control, or Domination, Decommissioning Funding
LaVera, Ronald	Health Physics
Law, Yiu	Engineering Mechanics
Le, Hien	Technical Specifications
Le, Tuan	Engineering Mechanics
Li, Chang-Yang	Plant Systems
Li, Yueh Li (Renee)	Engineering Mechanics
Lintz, Mark	Operator Training

Name	Responsibility
Madni, Imtiaz	Containment Systems
Makar, Gregory	Materials Engineering
McBride, Mark	Ground Water Hydrology
McGovern, Denise	Project Management
McNally, Richard	Engineering Mechanics
Minarik, Anthony	Project Management, Reactor Systems
Misenhimer, David	Project Management
Morton, Wendell	Emergency Communications
Nolan, Ryan	Hurricane Missiles
O'Driscoll, James	Containment Systems
Olvera, Eric	Insurance/Indemnity
Patel, Pravin	Structural Engineering
Patterson, Malcolm	Probabilistic Risk Assessment/Severe Accidents
Pelton, Richard	Operator Training
Pederson, Perry	Cyber Security
Peng, Shie-Jeng	Containment Systems
Pham, Thomas	Material Control and Accounting Fuel Cycle Transportation
Pieringer, Paul	Human Factors
Plaza-Toledo, Meralis	Geology
Prescott, Peter	Plant Security
Pohida, Marie	Probabilistic Risk Assessment/Severe Accidents
Powell, Eric	Probabilistic Risk Assessment/Severe Accidents
Quinlan, Kevin	Meteorology
Radlinski, Robert	Plant Systems
Ray, Sheila	Electrical Engineering and Equipment Qualification
Reddy, Devender	Plant Systems
Reichelt, Eric	Component Integrity Performance Testing
Roach, Edward	Health Physics
Rodriguez, Ricardo	Geotechnical Engineering
Rycyna, John	Cyber Security
Sastre-Fuentes, Eduardo	Chemical Engineering
Scarbrough, Thomas	Component Integrity Performance Testing
Schaperow, Jason	Probabilistic Risk Assessment/Severe Accidents
Schaffer, Steven	Radioactive Waste Management/Process & Effluent Monitoring Systems
Schnetzler, Bonnie	Plant Security

Name	Responsibility
Scully, Derek	Technical Specifications
Shum, David	Plant Systems
Simms, Tanya	Project Management
Sisk, David	Site Hazards
Spicher, Terri	Engineering Mechanics
Steingass, Timothy	Materials Engineering
Stirewalt, Gerry	Geology
Strnisha, James	Component Integrity
Stubbs, Angelo	Plant Systems
Stutzcage, Edward	Health Physics
Swain, Patricia	Emergency Preparedness
Szabo, Aaron	Financial
Talbot, Frank	Initial Test Program
Tammara, Rao	Site Hazards
Tardiff, Albert	Physical Protection of Special Nuclear Material of Low Strategic Significance
Tatum, James	Plant Systems
Tegeler, Bret	Structural Engineering
Tetter, Keith	Probabilistic Risk Assessment/Severe Accidents
Thomas, Vaughn	Structural Engineering
Turtil, Richard	Financial, Decommissioning Funding, Indemnity, and Foreign Ownership, Control, or Domination
Tiruneh, Nebiyu	Surface Water Hydrology
Tjader, Theodore	Technical Specifications
Truong, Tung	Instrumentation & Controls
Travis, Boyce	Containment Systems
Tsirigotis, Alexander	Engineering Mechanics
Valentin-Olmeda, Milton	Structural Engineering
Vettori, Robert	Fire Protection
Wagage, Hanry	Containment Systems
Walker, Jacqwan	Human Factors
Wheeler, Larry	Plant Systems
White, Duncan	Byproduct, Source, and Non-Fuel Special Nuclear Materials
Wong, Yuken	Engineering Mechanics
Wray, Barry	Material Control and Accounting Fuel Cycles and Transportation

Name	Responsibility
Wu, Cheng-Ih	Engineering Mechanics
Xi, Zuhan	Geotechnical Engineering
Zhao, Jack	Instrumentation & Controls

APPENDIX F

REPORT BY THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

December 7, 2011

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: REPORT ON THE SAFETY ASPECTS OF THE PROGRESS ENERGY FLORIDA, INC. COMBINED LICENSE APPLICATION FOR LEVY NUCLEAR PLANT, UNITS 1 AND 2

Dear Chairman Jaczko:

During the 589th meeting of the Advisory Committee on Reactor Safeguards (ACRS), December 1-3, 2011, we reviewed the NRC staff's Advanced Safety Evaluation (ASE) for the pending Progress Energy Florida, Inc. (PEF) Combined License Application (COLA) for the Levy Nuclear Plant (LNP), Units 1 and 2. This application incorporates the Westinghouse Electric Company (WEC) AP1000 certified design, and it conforms to the design-centered review approach (DCRA).[1] The DCRA is Commission policy which allows the staff to perform one technical review and reach a decision for each COLA standard issue outside the scope of the design certification and to use this review and decision to support decisions on multiple COLAs.

The first COLA that receives a complete NRC staff review is designated as the reference COLA (RCOLA). Any subsequent application referencing the same design is designated as a subsequent COLA (SCOLA). We reviewed Southern Nuclear Operating Company's Vogtle Electric Generating Plant (VEGP), Units 3 and 4, RCOLA and issued a letter report on January 24, 2011. We reviewed South Carolina Electric and Gas Company's V.C. Summer Nuclear Station, Units 2 and 3, SCOLA and issued a letter report on February 17, 2011.

The LNP COLA is the second AP1000 SCOLA. Our AP1000 Subcommittee held a meeting on October 18-19, 2011, to review the SCOLA and the staff's ASE. During the meeting, we met with representatives of the NRC staff, PEF and its vendors, and with the public. We also had the benefit of the documents referenced. This report fulfills the requirement of 10 CFR 52.87 that the ACRS report on those portions of the application which concern safety.

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1 The DCRA is described in Regulatory Issue Summary (RIS) 2006-06, "New Reactor Standardization Needed to Support the Design-Centered Licensing Review Approach," as endorsed by the Commission's Staff Requirements Memorandum in response to SECY-06-0187, "Semiannual Update of the Status of New Reactor Licensing Activities and Future Planning for New Reactors," dated November 16, 2006.

The VCSNS COLA is an AP1000 SCOLA. Our AP1000 Subcommittee held two meetings (July 21-22, 2010, and January 10-11, 2011) to review various chapters of the SCOLA and the staff's ASER. During these meetings, we met with representatives of the NRC staff, SCE&G and its vendors, and with the public. We also had the benefit of the documents referenced. This report fulfills the requirement of 10 CFR 52.87 that the ACRS report on those portions of the application which concern safety.

CONCLUSIONS AND RECOMMENDATIONS

1. There is reasonable assurance that VCSNS, Units 2 and 3, can be built and operated without undue risk to the health and safety of the public. The SCOLA for VCSNS, Units 2 and 3, should be approved following its final revision.

2. Recommendations 2 through 5 in our January 24, 2011, letter concerning the VEGP, Units 3 and 4, RCOLA are also applicable to the VCSNS, Units 2 and 3, SCOLA.

3. The staff should limit the use of the current version of the HABIT code to neutral density gas dispersion modeling.

BACKGROUND

By letter dated March 27, 2008, SCE&G submitted a combined license application to the NRC for VCSNS, Units 2 and 3, in accordance with the requirements of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." In the application, SCE&G stated that VCSNS, Units 2 and 3, would be two Westinghouse AP1000 advanced pressurized water reactor units and would be located at the existing VCSNS site.

As an AP1000 SCOLA, SCE&G has organized and annotated its application to identify: a) sections that incorporate by reference the AP1000 DCD; b) sections that are standard for COL applicants in the AP1000 RCOLA; and c) sections that are site-specific and thus only apply to VCSNS, Units 2 and 3.

DISCUSSION

Our review of the VCSNS, Units 2 and 3, SCOLA was conducted in parallel with our review of both the AP1000 Design Certification Amendment application and the VEGP, Units 3 and 4, RCOLA. As a consequence, the RCOLA and SCOLA on which the staff's ASER is based reference Revision 17 of the DCD, whereas the current version is Revision 18, and there may be a further revision prior to certification rulemaking. Similarly, the SCOLA utilizes standard content in the RCOLA which may be revised prior to approval. Since the remaining licensing steps do not provide for further ACRS review of the DCD, RCOLA, or VCSNS Units 2 and 3 SCOLA revisions that incorporate changes in design and commitments made by applicants during our reviews, the staff should review with us any changes and commitments which deviate significantly from those presented during our review.

Since the VCSNS, Units 2 and 3, SCOLA relies on the standard information found in the RCOLA, the recommendations described in our January 24, 2011, letter concerning the VEGP, Units 3 and 4, RCOLA in the following areas are also applicable to our VCSNS, Units 2 and 3, SCOLA assessment: containment interior debris limitation, in-service inspection/ in-service testing program requirements for squib valves, power uncertainty measurement, and incorporation of DCD or COLA changes. Likewise, the discussion of site-specific probabilistic risk assessment in our January 24, 2011, letter is applicable.

The V. C. Summer Nuclear Station Site

VCSNS is located approximately 30 miles northwest of Columbia, in Jenkinsville, South Carolina. The site location is adjacent to, and elevated about 150 ft. above, the Parr Reservoir which is created by a dam on the Broad River. It is also adjacent to the Monticello Reservoir. A nearby pumped storage facility connects the two reservoirs. VCSNS Unit 1 began commercial operation in 1984. The site location relative to water courses and topography effectively precludes flooding as a hazard to the site. The expanded three-unit nuclear station, in addition to the pumped storage facility, will be served by twelve 230 kV transmission lines.

Offsite Hazards

The review of offsite hazards for VCSNS, Units 2 and 3, included toxic gas that might be released by a transportation accident on the Norfolk Southern rail line located approximately one mile from the plant. SCE&G used a public domain United States Environmental Protection Agency developed computer code, ALOHA, which treats appropriately the modeling of the dispersion of both heavy and neutral-density gases.

Analysis results using ALOHA showed that vapor cloud explosions do not pose a threat to safety-related structures, systems, and components at VCSNS, Units 2 and 3. The analysis was performed using conservative assumptions such as dispersion over flat terrain, whereas the plant is located well above possible release locations on the rail line. Shock pressures were well below 1 psi, which is considered the minimum pressure wave amplitude to cause damage. The analysis also showed that toxic vapor clouds would not lead to control room concentrations that would pose a threat to operators.

For its confirmatory calculations of toxic gas effects, the staff used the HABIT code. However, HABIT only models neutral density gas dispersion and does not consider heavy gas effects. The calculated concentrations are lower than those in the ALOHA analyses, which is to be expected in view of several postulated releases consisting of heavy gases, which disperse more slowly.

In our letter report dated September 16, 1999, we recommended that "the staff should document evidence of the validity and the capability of computer codes endorsed in regulatory guides such as the HABIT code." During our full committee meeting on February 10, 2011, the staff stated that it is pursuing validation of some aspects of the HABIT code. We recommend that use of the current version of HABIT be limited to neutral density gas dispersion modeling.

Seismic Source Model

SCE&G used source models provided by the Electric Power Research Institute. These were updated in light of more recent data and evolving knowledge, particularly for the Charleston and New Madrid Seismic Source Zones. No modifications to the Eastern Tennessee Seismic Source Zone were required. The VCSNS, Units 2 and 3, site-specific safe shutdown earthquake (SSE) was developed in accordance with Regulatory Guide 1.208, "A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion," and information that was used in the VEGP, Units 3 and 4, Early Site Permit review and approval. Following our initial subcommittee meeting in July 2010, the seismic source information was updated.

Seismic Design Parameters

The peak ground acceleration (PGA) values for horizontal and vertical ground motions are 0.23g and 0.22g, respectively. The input seismic design ground motion response spectra (GMRS) for the SSE in the free field at plant grade exceeds the standard AP1000 certified seismic design response spectra (CSDRS) at frequencies of about 15 to 80 Hz (horizontal) and 20 to 80 Hz (vertical). However, the VCSNS site meets the AP1000 DCD criteria for a hard rock site, and the site-specific GMRS is bounded by the AP1000 hard rock high frequency spectrum. The staff concluded that the technical bases described in the AP1000 DCD were applicable to VCSNS, Units 2 and 3, for justifying that high-frequency exceedances of the AP1000 CSDRS are considered to be non-damaging.

Monitoring for Leakage from the Radioactive Waste Discharge Line

Liquid radioactive waste is diluted to below allowable offsite discharge limits by onsite blending with cooling tower blowdown. It then flows offsite through approximately one mile of high density polyethylene (HDPE) pipe downgrade to an outfall at the Parr Reservoir. Piping connections at the onsite blending location will be accessible for inspection, but the downstream portion of the line will be buried along a rail spur and will not be readily accessible for inspection.

Although this material has excellent properties and is acceptable for its intended service, operating experience in nuclear power plants is limited. Localized lack of fusion can occur during the joining of HDPE piping segments in the field. Such defects, if not detected by initial inspection and hydrostatic testing and repaired, can propagate through the pipe wall by slow crack growth. Since many joints will be formed in the field with no provision to inspect them using volumetric (UT) methods, undetected defects may grow and cause leaks during the 60-year service life of the pipe.

Monitoring wells will be relied upon as the only method for detecting groundwater contamination. SCE&G's groundwater monitoring program should be designed to provide for early detection of any leaks that develop in the HDPE waste water discharge line. The monitoring wells should detect contamination close to the pipe along its entire run, before it becomes widespread, and well before compliance with 10 CFR 20.1406 is challenged.

Deviation from RCOLA Standard Approach

As compared to the VEGP RCOLA, the VCSNS, Units 2 and 3, SCOLA included only one additional departure or exemption of note from the DCD. There is a slight increase in the maximum, safety, non-coincident wet bulb temperature of 1.2°F above the AP1000 DCD value of 86.1°F. The effects of this increase were evaluated by the staff and determined to be acceptable.

In summary, we agree with the staff's conclusions as documented in the staff's ASER regarding the safety issues associated with the SCE&G COLA for VCSNS, Units 2 and 3. We conclude that there is reasonable assurance that VCSNS, Units 2 and 3, can be built and operated without undue risk to the health and safety of the public. The SCE&G COLA for VCSNS, Units 2 and 3, should be approved following its final revision.

Sincerely,

/RA/

Said Abdel-Khalik
Chairman

REFERENCES

1. Southern Carolina Electric and Gas Company (SCE&G) Letter, "Combined License Application for V.C. Summer Nuclear Station Units 2 and 3," dated March 27, 2008 (ML081300460)

2. SCE&G Letter, "Combined License Application for V.C. Summer Nuclear Station Units 2 and 3," Revision 2, dated January 28, 2010 (ML100350739) (Rev. 2 was used as the basis for the staff's ASER)

3. During the course of ACRS review, the staff provided the following ASER chapters:

Chapter	Chapter Title	Transmittal Memo to ACRS (Accession Numbers)	ASER (Accession Numbers)
1	Introduction and Interfaces	ML101550427	ML101370358
2	Site Characteristics (without Hydrology)	ML101550273	ML101390008
	Section 2.4 (Hydrology)	ML102450029	ML102140255
3	Design of Structures, Components, Equipment, and Systems	ML101550236	ML103070512
4	Reactor	ML101450515	ML100621218
5	Reactor Coolant System and Connected Systems	ML101550558	ML100670055
6	Engineered Safety Features	ML102080334	ML102980694
7	Instrumentation and Controls	ML101540411	ML101370712
8	Electric Power	ML101540620	ML102370262
9	Auxiliary Systems	ML101540643	ML102670044
10	Steam and Power Conversion Systems	ML101450456	ML101020031
11	Radioactive Waste Management	ML101550661	ML100700102
12	Radiation Protection	ML101550687	ML101820007
13	Conduct of Operations (without Emergency Planning)	ML103200058	ML100840174
	Section 13.3 (Emergency Planning)	ML101550691	ML102020681
14	Initial Test Programs	ML101550695	ML102660181
15	Accident Analysis	ML101550697	ML103070532
16	Technical Specifications	ML101550699	ML101890864
17	Quality Assurance	ML101550701	ML101890606
18	Human Factors Engineering	ML101550703	ML101250016
19	Probabilistic Risk Assessment	ML103010338	ML102950269
19 Appendix 19.A	Loss of Large Areas of the Plant due to Explosions or Fires (LOLA)	ML101590342	Public Version ML103350636 Non-Public Version ML103370008
Appendix A	License Conditions, ITAAC, and FSAR Commitments	ML101550427	ML103360056

4. ACRS Letter, "Report on the Final Safety Evaluation Report Associated with the Amendment to the AP1000 Design Control Document," dated December 13, 2010 (ML103410351)

5. ACRS Letter, "Long-Term Core Cooling for the Westinghouse AP1000 Pressurized Water Reactor," dated December 20, 2010 (ML103410348)

6. ACRS Letter, "Report on the Safety Aspects of the Southern Nuclear Operating Company Combined License Application for Vogtle Electric Generating Plant, Units 3 and 4," January 24, 2011 (ML110170006)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

April 18, 2016

The Honorable Stephen G. Burns
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: EXEMPTIONS TO THE AP1000 CERTIFIED DESIGN INCLUDED IN THE LEVY NUCLEAR PLANT UNITS 1 AND 2 COMBINED LICENSE APPLICATION

Dear Chairman Burns,

During the 633rd meeting of the Advisory Committee on Reactor Safeguards (ACRS), April 7-9, 2016, we reviewed five exemption requests for the Westinghouse Electric Company (WEC) AP1000 certified design which Duke Energy Florida, LLC (Duke Energy) has included in the combined license application (COLA) for the Levy Nuclear Plant (Levy) Units 1 and 2. We also reviewed the NRC staff's related Advanced Safety Evaluation Report (ASER), Chapter 21. The exemptions include changes that are grouped into six departures from the AP1000 Design Control Document (DCD), Revision 19. Our AP1000 Subcommittee held a meeting on April 5, 2016, to review the departures and the staff's ASER. The Subcommittee also met with Duke Energy, WEC, and the staff on April 9 and September 17, 2014, to review the development of the changes that are needed to achieve the intended design functions for passive residual heat removal (PRHR). These changes are included in the exemption concerning condensate return and PRHR.

During the meeting, we had the benefit of discussions with representatives of the staff, Duke Energy, and WEC, and we had input from members of the public. We also had the benefit of the referenced documents. This report fulfills the requirement of 10 CFR 52.87 that the ACRS report on those portions of the application which concern safety.

CONCLUSIONS AND RECOMMENDATION

1. Five exemptions to the AP1000 certified design have been included in the Levy combined license application. The five exemptions are needed to enable the certified design to perform intended functions and should be approved.

2. The causes for the exemptions have been identified and addressed for the AP1000 certification.

3. Generic lessons learned, relative to the reactor design process leading to certification, should be identified and further evaluated.

BACKGROUND

By letter dated July 28, 2008, Progress Energy Florida, Inc., now Duke Energy, submitted a COLA for Levy Units 1 and 2 to the NRC. On December 7, 2011, we issued a letter report to the Commission recommending approval following implementation of the stated recommendations. Subsequently, changes needed to achieve the intended design functions for PRHR were identified. Development of these changes was undertaken by WEC, with oversight from Duke Energy, and these changes are now required to be included in the COLA, pursuant to Interim Staff Guidance DC/COL-ISG-011. These departures are common to all COLAs referencing the AP1000 design, and similar changes will be necessary for AP1000 combined license holders.

Ongoing detailed design of the AP1000 units, and investigation into the extent of the condition that created the need for the PRHR-related changes, identified other needed changes requiring approval of exemptions in four additional areas. Duke Energy noted the areas requiring departures from the certified AP1000 design during our review of its William States Lee III Nuclear Station (Lee) Units 1 and 2 COLA in 2015. These were listed as follows in our letter, dated December 14, 2015, concerning the Lee COLA:

- Condensate return and PRHR
- Main control room operator dose
- Main control room heat load
- Plant monitoring system flux doubling to comply with IEEE 603
- Hydrogen vent in containment

DISCUSSION

The five exemptions and associated departures from the AP1000 certified design are needed to implement intended functions of the certified design. Each is distinct and separate from the others. The changes will be made for the common purpose of correcting errors and omissions in the certified design, which have been identified during licensing and detailed design development subsequent to certification. Therefore, we also reviewed elements that are common to the departures; in particular, the implementation of the quality assurance program requirements in 10 CFR Part 50, Appendix B during design. Finally, we also reviewed the staff's assessment of the effect of the departures on the previously completed probabilistic risk assessment.

Condensate Return and Passive Residual Heat Removal

The AP1000 design provides for closed-loop cooldown and passive heat removal under accident conditions not involving loss of coolant. Reactor coolant circulates naturally through a PRHR heat exchanger located within the in-containment refueling water storage tank (IRWST). The PRHR heat exchanger converts IRWST water to steam, and the subsequent condensation of this steam on the containment vessel interior surface passively transfers residual heat by conduction through the containment wall to the outside air. This closed-loop cooling requires that sufficient condensed water be returned to the IRWST to ensure the inventory needed to maintain the cooldown status and to continue the PRHR process for as long as necessary.

Features in the containment that are required to direct condensate back to the IRWST are described in AP1000 DCD, Revision 19. The rate of condensation varies with time, and the return of condensate to the IRWST is subject to some loss. A constant loss rate of 10 percent was assumed in the DCD analysis. Based on this assumption, DCD, Revision 19 states that (a) acceptance criteria associated with the Chapter 15 design basis safety analyses remain satisfied indefinitely, and (b) cooldown to 420°F can be achieved in 36 hours and maintained indefinitely, based on Chapter 19 assumptions and acceptance criteria.

Duke Energy has proposed for its Levy COLA an exemption seeking approval of two departures that concern cases (a) and (b) above. These departures involve physical changes in containment to increase condensate return. Downspouts, collection points, and connecting piping have been added to the polar crane girder and the internal stiffener, and many attachment plates on the containment inner surface have been eliminated. Additional testing was performed to estimate better the condensate collection on surfaces and losses at discontinuities such as attachment plates and to provide an improved basis for the estimation of condensate losses.

Based on testing and the additional features provided to return sufficient condensate back to the IRWST, a loss rate of 18 percent of the water that condenses on the containment vessel inner surface has now been assumed for cases (a) and (b) above. Water that condenses on other surfaces within containment is assumed to be entirely lost to the IRWST.

Analyses by WEC and the staff of PRHR performance were extensive. WEC used WGOTHIC and LOFTRAN with some confirmatory analyses using RELAP. Adiabatic and heat-loss models of the reactor coolant system, and the potential loss of subcooling in the reactor coolant system on heat transfer in the PRHR heat exchanger, were examined. The staff's confirmatory calculations used MELCOR and RELAP, and their results agreed well with the WEC calculations. The analyses included both the most limiting Chapter 15 non-loss-of-coolant-accident transient that credits the PRHR heat exchanger, which is the loss of normal feedwater coincident with the loss of AC power to the plant auxiliaries, and the safe shutdown analysis in Chapter 19. Based on these analyses, the duration for case (a) was extended to 72 hours, and the duration for case (b) was revised from an indefinite period to at least 14 days. Also, criteria for activation of the backup automatic depressurization system in order to establish open loop PRHR were updated.

Main Control Room Operator Dose

WEC identified several discrepancies in the certified design analyses supporting the determination of main control room (MCR) operator dose following a design basis accident (DBA). Specifically, (1) the analyses did not account for the direct dose from the MCR emergency ventilation system filter, (2) the normal ventilation system radiation monitor setpoints were not based upon all DBA release scenarios, and (3) the methodology used to estimate MCR dose contribution from direct radiation and skyshine was not up-to-date.

This exemption includes changes which add shielding for the ventilation filter, reduce the allowable secondary coolant iodine activity, update the radiation dose analyses, and revise the normal ventilation system radiation monitor logic and setpoints. The result of the changes provides a revised MCR dose for the DBA, which slightly increases the margin to the 5 rem limit.

Main Control Room Heat Load

Duke Energy identified that heat sources in the MCR had increased with detailed design development and now exceed those assumed in the certified design. Also, the design had not considered an event in which the MCR could be isolated and dependent on the emergency ventilation system, while offsite power remained available and powering certain MCR equipment. This event results in significantly higher heat loads than are considered in the certified design.

The exemption includes changes that add automatic, two-stage de-energization of select non-safety MCR heat loads. This load shed retains power for plant controls and parameter indications at the operators' normal work stations. Also, changes were made to establish limits, with surveillance requirements, for the initial MCR conditions and to ensure operation of the electrical load shedding functions.

With these changes, analysis projects that operators may remain in the MCR indefinitely, consistent with NUREG-0700 limits, following its isolation and resulting dependence on the emergency ventilation system.

Plant Monitoring System Compliance with IEEE 603

The source range neutron flux logic is a control system feature of the plant monitoring system that isolates dilute water sources to the reactor coolant system, in order to protect against inadvertent criticality due to boron dilution during shutdown conditions. Under some plant conditions, it is necessary to manually block or bypass the operation of this feature.

Operating bypasses are addressed in IEEE Standard 603-1991, and this standard is applicable to COLAs referencing the AP1000 certified design. WEC identified that, due to an omission, the certified design did not meet the requirements of the standard because this protection function could be blocked and would not be reset automatically when plant conditions require it. The exemption includes a change that will revise the plant monitoring system logic to comply with the standard and with regulatory requirements.

Hydrogen Vent Inspection, Tests, Analyses, and Acceptance Criteria (ITAAC)

WEC identified that changes in structural details internal to the containment have occurred which are inconsistent with the certified design ITAAC for one of the compartments, relative to the venting of any hydrogen accumulation in the compartment following a severe accident. The

departure change to the ITAAC recognizes the possibility of a standing hydrogen flame that is closer to the containment boundary than allowed by the current ITAAC. Although the possible standing flame is closer to the containment boundary, results from analyses indicate that the higher temperatures would not compromise the structural integrity of the containment wall or of the equipment hatch cover and seals, and therefore, is acceptable.

NRC Staff Review

On March 7, 2016, the ASER for the five exemptions included in the Levy COLA was transmitted to the ACRS for review. It documents the staff's very thorough and technically complete review of the changes as they were developed over the past three years. The staff has identified that each of the exemptions is necessary in order to perform the intended functions, and therefore, meet the underlying purposes of the AP1000 certification rule.

The concluding statement in ASER Section 21.0 is "The staff finds that the cumulative risk impact of these design changes and departures is negligible." The changes are necessary to perform the intended functions that were the basis for the DCD risk calculation. However, the risk has not been calculated for the condition without the changes. While it is clear that there has been no increase in risk, it should not be concluded that the actual reduction in risk achieved by these changes is negligible.

Design Certification Quality Assurance Program

Detailed development of a certified design, involving the increasing engagement of combined license holders and applicants, should be expected to identify needed design and analysis changes. However, there are lessons to be learned from the Levy COLA experience.

Following initial discussions with our Subcommittee in 2014, WEC, Duke Energy, and the staff performed thorough evaluations, including the quality assurance program implementation. The results were reflected in the April 2016 Committee presentations. We conclude that the causes of the errors and omissions that made these exemptions necessary were addressed and programmatic changes applicable to the AP1000 certification were made where necessary.

We recommend that staff evaluate on a generic basis whether there are any lessons learned, relative to ongoing and future oversight of the quality assurance program implementation during development of designs seeking certification under 10 CFR Part 52. Prospective combined license applicants may not be in a position to provide such oversight during this phase, and they may find it difficult to do so following certification when customer oversight can be more effective. We would appreciate the opportunity to meet with the staff on this generic matter at an appropriate time.

Conclusion

The five exemptions, which include six departures from the AP1000 certified design that will be included in the Levy Units 1 and 2 COLA, effectively address errors and omissions in the current certification and should be approved. As indicated in our letter on the Lee Units 1 and 2 COLA, dated December 14, 2015, other combined license applicants referencing the AP1000 certified design will also include the exemptions in accordance with the design centered review approach described in that letter. Current combined license holders will submit license amendments to incorporate these, or similar, changes.

Sincerely,

/RA/

Dennis C. Bley
Chairman

REFERENCES

1. Duke Energy Florida, Levy Nuclear Plant, Units 1 and 2, "Supplemental Response to NRC RAI Letter 124 - SRP Section 6.3 to Address Containment Condensate Return Cooling Design," January 14, 2016 (ML16020A105).

2. Duke Energy Florida, Levy Nuclear Plant, Units 1 and 2, "Revised Partial Response to Request for Additional Information Letter No. 121 Related to SRP Section 6.2.5, Combustible Gas Control in Containment," January 6, 2016 (ML16008A082).

3. Duke Energy Florida, Levy Nuclear Plant, Units 1 and 2, "Departure from AP1000 DCD Revision 19 to Address Compliance with IEEE 603-1991," September 1, 2015 (ML15247A153).

4. Duke Energy Florida, Levy Nuclear Plant, Units 1 and 2, "Revised Response to Request for Additional Information Letter No. 121 Related to SRP Section 6.2.5 and 6.4 for the Levy Nuclear Plant, Units 1 and 2 Combined License Application," July 1, 2015 (ML15189A255).

5. Duke Energy Florida, Levy Nuclear Plant, Units 1 and 2, "Response to Request for Additional Information Letter No. 122 Related to SRP Section 6.4, Control Room Habitability," March 26, 2015 (ML15089A193).

6. U.S. Nuclear Regulatory Commission, "Levy, Units 1 and 2 – Chapter 21, 'Design Changes Proposed in Accordance with ISG-11'," March 7, 2016 (ML16026A016).

7. Progress Energy, "Application for Combined License for Levy Nuclear Power Plant Units 1 and 2," July 28, 2008 (ML082260277).

8. Advisory Committee on Reactor Safeguards, "Report on the Safety Aspects of the Progress Energy Florida, INC. Combined License Application for Levy Nuclear Plant, Units 1 and 2," December 7, 2011 (ML11339A126).

9. U.S. Nuclear Regulatory Commission, Interim Staff Guidance DC/COL-ISG-011, "Finalizing Licensing Basis Information," November 2, 2009 (ML092890623).

10. Advisory Committee on Reactor Safeguards, "Report on the Safety Aspects of the Duke Energy Carolinas, LLC, Combined License Application for William States Lee III Nuclear Station, Units 1 and 2," December 14, 2015 (ML15348A196).

11. Westinghouse Electric Company, "Westinghouse AP1000 Design Control Document Revision 19," June 13, 2011 (ML11171A500).

12. IEEE Standard 603-1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Stations," June 27, 1991.

May 31, 2016

Mr. Christopher M. Fallon, Vice President
Nuclear Development
Duke Energy
EC12L / 526 South Church Street
Charlotte, NC 28202

SUBJECT: FINAL SAFETY EVALUATION REPORT FOR THE LEVY NUCLEAR PLANT UNITS 1 AND 2 COMBINED LICENSE APPLICATION

Dear Mr. Fallon:

This letter is to inform you that the U.S. Nuclear Regulatory Commission (NRC or Commission) staff has completed the final safety evaluation report (FSER) for the Levy Nuclear Plant Units 1 and 2, Combined License Application, submitted by Progress Energy Florida, Inc., now Duke Energy Florida, LLC (DEF), on July 30, 2008.

The enclosed FSER is being provided only to DEF for your information and will be submitted to the Commission in preparation for the mandatory (uncontested) hearing. The FSER has also been placed in the public document room and has been made publicly available in the Agencywide Documents Access and Management System (Accession Number ML16084A664) and on the public website. The NRC staff's issuance of this FSER does not constitute a commitment to issue the combined license, or in any way affect the authority of the Commission in any mandatory hearing proceeding pursuant to Subpart C of Title 10 of the *Code of Federal Regulations,* Part 52.

Sincerely,

/RA/

Frank Akstulewicz, Director
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-029 and 52-030

Enclosure:
Final Safety Evaluation Report

cc w/o enclosure: See next page

Mr. Christopher M. Fallon, Vice President
Nuclear Development
Duke Energy
EC12L / 526 South Church Street
Charlotte, NC 28202

SUBJECT: FINAL SAFETY EVALUATION REPORT FOR THE LEVY NUCLEAR PLANT UNITS 1 AND 2 COMBINED LICENSE APPLICATION

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Sincerely,

/RA/

Frank Akstulewicz, Director
Division of New Reactor Licensing
Office of New Reactors

Docket Nos.: 52-029
52-030

Enclosure:
Final Safety Evaluation Report

cc w/o enclosure: See next page

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