13.0 CONDUCT OF OPERATIONS

13.1 Organizational Structure of Applicant

13.1.1 Introduction

The organizational structure includes the design, construction, and preoperational responsibilities of the organizational structure. The management and technical support organization includes a description of the corporate or home office organization, its functions and responsibilities, and the number and the qualifications of personnel. Its activities include facility design, design review, design approval, construction management, testing, and operation of the plant. The descriptions of the design and construction and preoperational responsibilities include the following:

- how these responsibilities are assigned by the headquarters staff and implemented within the organizational units
- the responsible working- or performance-level organizational unit
- the estimated number of persons to be assigned to each unit with responsibility for the project
- the general educational and experience requirements for identified positions or classes of positions
- early plans for providing technical support for the operation of the facility

This section also describes the structure, functions, and responsibilities of the onsite organization established to operate and maintain the plant.

13.1.2 Summary of Application

Section 13.1 of the Levy Nuclear Plant (LNP) combined license (COL) Final Safety Analysis Report (FSAR), Revision 6, incorporates by reference Section 13.1 of the AP1000 Design Control Document (DCD), Revision 19.

In addition, in LNP COL FSAR Section 13.1, the applicant provided the following:

AP1000 COL Information Items

- LNP COL 13.1-1

The applicant[1] provided additional information in LNP COL 13.1-1 to resolve COL Information Item 13.1-1 (COL Action Item 13.1-1). COL Information Item 13.1-1 requires the COL applicant

[1] The applicant, Duke Energy Florida, was formerly identified as Progress Energy Florida. In a letter dated April 15, 2013, Progress Energy Florida notified the NRC that its name was changing to Duke Energy Florida effective April 29, 2013. The name change and a 2012 corporate merger between Duke Energy and Progress Energy are described in Chapter 1 of the SER. For the review described in this

to describe its organizational structure. LNP COL 13.1-1 describes organizational positions of the nuclear power station and owner/applicant corporations and associated functions and responsibilities.

- LNP COL 9.5-1

The applicant provided additional information in LNP COL 9.5-1, describing the fire protection program in Section 9.5.1.8. For this LNP COL item, the applicant added a new Section 13.1.1.2.10, "Fire Protection." LNP COL 9.5-1 is also addressed in Section 13.1.2.1.4.9, "Supervisor - Fire Protection." Table 1.8-202, "COL Item Tabulation," provides LNP COL 9.5-1 cross-references.

- LNP COL 18.6-1

The applicant provided additional information in LNP COL 18.6-1, describing the qualifications of the nuclear plant technical support personnel. LNP COL 18.6-1 is addressed under Section 13.1.1.4, "Qualifications of Technical Support Personnel"; Section 13.1.3.1, "Minimum Qualification Requirements"; Section 13.1.3.2, "Qualification Documentation"; and Table 13.1-201, "Generic Position/Site-Specific Position Cross-Reference." Table 1.8-202, "COL Item Tabulation," provides LNP COL 18.6-1 cross-references.

- LNP COL 18.10-1

The applicant provided additional information in LNP COL 18.10-1 to address the responsibilities of the manager in charge of nuclear training. LNP COL 18.10-1 is addressed in Section 13.1.1.3.2.4, "Manager – Training LNP." Table 1.8-202, "COL Item Tabulation," provides LNP COL 18.10-1 cross-references.

13.1.3 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 associated with the relevant requirements of the Commission regulations for LNP COL 13.1-1, LNP COL 9.5-1, LNP COL 18.6-1, and LNP COL 18.10-1 are given in Sections 13.1.1, "Management and Technical Support Organization," and 13.1.2-13.1.3, "Operating Organization," of NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants."

The applicable regulatory guidance for the organizational structure of the applicant is as follows:

- American National Standards Institute/American Nuclear Society (ANSI/ANS) -3.1-1993, as endorsed and amended by Regulatory Guide (RG) 1.8, Revision 3, "Qualification and Training of Personnel for Nuclear Power Plants."

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chapter completed prior to the name change, the NRC staff did not change references to "Progress Energy," "Progress Energy Florida," or "PEF," to "Duke Energy," "Duke Energy Florida," or "DEF."

The applicable regulations and regulatory guidance for the management, technical support, and operating organizations of the applicant are as follows:

- Title 10 of the *Code of Federal Regulations* (10 CFR) 50.34, “Contents of applications; technical information”
- 10 CFR 50.40, “Common standards”
- 10 CFR 50.48, “Fire Protection”
- 10 CFR 50.71, “Maintenance of records, making of reports”
- 10 CFR 50.50 Appendix B, “Quality Assurance Criteria for Nuclrar Power Plants and Fuel Reprocessing Plants”
- 10 CFR 50.54, “Condiitons of licenses”
- 10 CFR 52.47, “Contents of applications; technical information”
- 10 CFR 52.79, “Contents of applications; technical information in final safety analysis report”
- 10 CFR 50.54, “Conditions of licenses”
- RG 1.33, Revision 2, “Quality Assurance Program Requirements (Operation)”
- 10 CFR 55, “Operator's Licenses.”
- Regulatory Guide 1.8, “Qualification and Training of Personnel for Nuclear Power Plants.”
- Regulatory Guide 1.28, “Quality Assurance Program Criteria (Design and Construction).”
- Regulatory Guide 1.33, “Quality Assurance Program Requirements (Operation).”
- Regulatory Guide 1.68, “Initial Test Programs for Water-cooled Nuclear Power Plants.”
- Regulatory Guide 1.114, AGuidance to Operators at the Controls and to Senior Operators in the Control Room of a Nuclear Power Unit.”
- Regulatory Guide 1.160, “Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.”
- Regulatory Guide 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis.”
- Regulatory Guide 1.175, “An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Testing.”
- Regulatory Guide 1.177, “An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications.”
- Regulatory Guide 1.178, “An Approach for Plant-Specific Risk-Informed Decisionmaking for Inservice Inspection of Piping.”
- Regulatory Guide 1.182, “Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants.”
- Regulatory Guide 1.206 “Combined License Applications for Nuclear Power Plants (LWR Edition).”
- NUREG-0660, “NRC Action Plan Developed as a Result of the TMI-1 Accident”
- NUREG-0694, “TMI-Related Requirements for New Operating Licenses.”
- NUREG-0711,“Human Factors Engineering Program Review Model.”
- NUREG-0718, “Licensing Requirements for Pending Applications for Construction Permits and Manufacturing License.”
- NUREG-0737 and Supplement 1, “Clarification of TMI Action Plan Requirements.”
- NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition.”

13.1.4 Technical Evaluation

The Nuclear Regulatory Commission (NRC) staff reviewed Section 13.1 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.[2] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to the organizational structure of the applicant. 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 Items

- LNP COL 13.1-1

The NRC staff reviewed LNP COL 13.1-1 related to the organizational structure of the COL applicant included under Section 13.1 of the LNP COL FSAR. Section 13.1 of the LNP COL FSAR describes the organizational positions of a nuclear power plant and owner/applicant corporations and associated functions and responsibilities.

The applicant provided the following additional LNP site-specific COL information to resolve COL Information Item 13.1-1, which addresses the organizational structure of the COL applicant. COL Information Item 13.1-1 states:

> Combined License applicants referencing the AP1000 certified design will address adequacy of the organizational structure.

The commitment was also captured as COL Action Item 13.1-1 in Appendix F of NUREG-1793, which states:

> The COL applicant will describe its organizational structure.

The applicant provided additional information as part of the LNP COL FSAR to describe the organizational positions of a nuclear power station and owner/applicant corporations and associated functions and responsibilities. The position titles used in the text are generic and describe the function of the position. The applicant stated that LNP COL FSAR Table 13.1-201, "Generic Position/Site-Specific Position Cross-Reference" provides a cross-reference to identify site-specific position titles.

The applicant added new sections and information related to the site-specific organizational structure to LNP COL FSAR Section 13.1 beyond the structure given in RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR [light-water reactor] Edition)." The new section titles are:

> 13.1.1, "Management and Technical Support Organization"
> 13.1.2, "Operating Organization"

[2] 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).

13.1.3, “Qualifications of Nuclear Plant Personnel”
13.1.5, “References”
Table 13.1-201, “Generic Position/Site-Specific Position Cross-Reference”
Table 13.1-202, “Minimum On-Duty Operations Shift Organization for Two-Unit Plant”
Figure 13.1-201, “Plant Management Organization”
Figure 13.1-202, “Shift Operations Organization”
Figure 13.1-203, “Corporate and Engineering Organization”
Figure 13AA-201, “Construction Management Organization”
Figure 13AA-202, “Hiring Schedule for Plant Staff”

In addition, the applicant added a new appendix to Chapter 13 titled “Appendix 13AA Construction-Related Organization.” This appendix describes the applicant’s construction organization. Once plant operation commences, this appendix will become historical information.

The NRC staff has reviewed LNP COL 13.1-1 and concludes that the management, technical support, and operating organizations, as described, are acceptable and meet the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, “Transfer of licenses,” as applicable. This conclusion is based on the following:

The applicant has described its organization for the management of, and its means of providing technical support for the plant staff for the design, construction, and operation of the facility and has described its plans for managing the project and utilizing the nuclear steam system supplier (NSSS) vendor and architect-engineer (AE). These plans provide reasonable assurance that the applicant will establish an acceptable organization and that sufficient resources are available to provide offsite technical support and to satisfy the applicant's commitments for the design, construction, and operation of the facility.

The applicant has described the assignment of plant operating responsibilities; the reporting chain up through the chief executive officer; the functions and responsibilities of each major plant staff group; the proposed shift crew complement for single-unit or multiple-unit operation; the qualification requirements for members of its plant staff; and staff qualifications. In Table 1.9-202, “Conformance with SRP Acceptance Criteria,” of the LNP COL FSAR, the applicant noted an exception to the criteria of NUREG-0800, Section 13.1.2-13.1.3 that suggests resumes of personnel holding plant managerial and supervisory positions are to be included in the FSAR. The staff finds this exception to the guidance of NUREG-0800, Section 13.1.2-13.1.3 acceptable because resumes for management and principal supervisory and technical positions will be available for review after position vacancies are filled.

NUREG-0800, Section 13.1.2-13.1.3, “Operating Organization,” states that the applicant’s operating organization is characterized as follows:

1. The applicant is technically qualified, as specified in 10 CFR 50.40(b) and 10 CFR 50.80, as applicable.

2. An adequate number of licensed operators will be available at all required times to satisfy the minimum staffing requirements of 10 CFR 50.54(j) – (m).

3. On-shift personnel are able to provide initial facility response in the event of an emergency.

4. Organizational requirements for the plant manager and radiation protection manager have been satisfied.

5. Qualification requirements and qualifications of plant personnel conform to the guidance of RG 1.8.

6. Organizational requirements conform to the guidance of RG 1.33.

7. The applicant has complied with TMI Action Plan items I.A.1.1 and I.A.1.3.

The NRC staff finds that the operating organization proposed by the applicant will comply with these characteristics. These findings contribute to the judgment that the applicant complies with the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable. That is, the applicant is technically qualified to engage in design and construction activities and to operate a nuclear power plant; that the applicant will have the necessary managerial and technical resources to support the plant staff in the event of an emergency; and that the applicant has identified the organizational positions responsible for fire protection matters and delegated the authorities to these positions to implement fire protection requirements.

- LNP COL 9.5-1

The applicant added text to LNP COL FSAR Section 13.1.1.2.10, "Fire Protection," indicating that the nuclear power station is committed to maintaining a fire protection program as described in LNP COL FSAR Section 9.5, and that the Vice President Nuclear Operations is responsible for the fire protection program. The applicant added text to LNP COL FSAR Section 13.1.2.1.4.9, "Supervisor - Fire Protection," describing the responsibilities of the supervisor in charge of the fire protection program.

The NRC staff reviewed LNP COL 9.5-1 relative to the text added to Sections 13.1.1.2.10 and 13.1.2.1.4.9 of the LNP COL application. Based on the management descriptions provided in Sections 13.1.1.2.10 and 13.1.2.1.4.9, the staff finds the applicant's fire protection organization meets the guidance of NUREG-0800. The technical review for LNP COL 9.5-1 as it relates to the programmatic requirements is addressed in Section 9.5 of this safety evaluation report (SER).

- LNP COL 18.6-1

The NRC staff reviewed LNP COL 18.6-1, which describes the qualifications of the nuclear plant technical support personnel. The technical review for LNP COL 18.6-1 is addressed in Section 18.6 of this SER.

The applicant added text to Section 13.1.1.4, "Qualification of Technical Support Personnel," stating that the qualifications of managers and supervisors of the technical support organization will meet the education and experience requirements described in ANSI/ANS-3.1-1993 and RG 1.8. The applicant also stated that the qualification and experience requirements of headquarters staff are established in corporate nuclear policy and procedure manuals. This section is cross-referenced to LNP COL FSAR, Section 18.6.

The applicant added text to LNP COL FSAR Section 13.1.3, "Qualification Requirements," stating, in Section 13.1.3.1, the qualifications of managers, supervisors, operators, and technicians of the operating organization will meet the qualification requirements in education

and experience for those described in ANSI/ANS-3.1-1993 and RG 1.8. In addition, Section 13.1.3.2 states that resumes and other documentation of the qualifications and experience of initial appointees to appropriate management and supervisory positions will be available for review after position vacancies are filled. This section is cross-referenced to LNP COL FSAR, Section 18.6.

The applicant added Table 13.1-201, "Generic Position/Site-Specific Position Cross Reference" and Table 13.1-202, "Minimum On-Duty Operations Shift Organization for Two-Unit Plant." Table 13.1-201 describes the plant management, technical support, and plant operating organizations and provides a cross-reference to identify the corresponding generic position titles. Table 13.1-202 describes the minimum composition of the operating shift crew for all modes of operation. Position titles, license requirements and minimum shift manning for the various modes of operation are in the Technical Specifications, administrative procedures, Table 13.1-201, and Table 13.1-202, and are illustrated in Figure 13.1-202.

The NRC staff reviewed the text added to LNP COL FSAR Sections 13.1.1.4, 13.1.3.1, and 13.1.3.2 relative to LNP COL 18.6-1 and concludes that the qualification requirements are acceptable and meet the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable. This conclusion is based on the following:

The applicant has described its organization for the management of, and its means of providing technical support for the plant staff for the design, construction, and operation of the facility and has described its plans for managing the project and utilizing the NSSS vendor and AE. These plans give adequate assurance that the applicant will establish an acceptable organization and that sufficient resources are available to provide offsite technical support and to satisfy the applicant's commitments for the design, construction, and operation of the facility.

- LNP COL 18.10-1

The NRC staff reviewed LNP COL 18.10-1 included under Section 13.1.1.3.2.4, "Manager – Training LNP." This section describes the responsibilities of the site training manager relative to the site training programs required for the safe and proper operation and maintenance of the plant. This item is cross-referenced to LNP COL FSAR Section 18.10. The NRC staff concludes that the qualification requirements are acceptable and meet the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable, and the regulatory guidelines in NUREG-0800, Sections 13.1.1 and 13.1.2-13.1.3, because the applicant described how the training manager will carry out his or her position responsibilities for designing, developing, implementing, and maintaining training programs for the safe and proper operation and maintenance of the plant.

Additional technical review for LNP COL 18.10-1 is in Section 18.10 of this SER.

13.1.5 Post Combined License Activities

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

13.1.6 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 organizational structure of the applicant, 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 applicant has described clear responsibilities and definite resources for the design and construction of the facility and has described its plans for managing the project and utilizing the NSSS vendor and AE. These plans have been reviewed and give adequate assurance that an acceptable organization has been established and that sufficient resources are available to satisfy the applicant's commitments for the design and construction of the facility. These findings contribute to the judgment that the applicant complies with the requirements of 10 CFR 50.34, 10 CFR 50.40, 10 CFR 50.48, 10 CFR 50 Appendix B, 10 CFR 52.47, 10 CFR 52.79, and 10 CFR 50.80, as applicable; that is, the applicant is technically qualified to engage in design and construction activities.

The applicant has described its organization for the management of, and its means of providing, technical support for the plant staff during operation of the facility. These measures have been reviewed and the NRC staff finds that the applicant has an acceptable organization and adequate resources to provide offsite technical support for the operation of the facility under both normal and off-normal conditions.

The applicant has described the assignment of plant operating responsibilities; the reporting chain up through the chief executive office of the applicant; the proposed size of the regular plant staff; the functions and responsibilities of each major plant staff group; the proposed shift crew complement for single-unit or multiple-unit operation; the qualification requirements for members of its plant staff; and staff qualifications (through personnel resumes for management and principle supervisory and technical positions as submitted during the later stages of plant design, construction, and licensing).

The NRC staff finds that the operating organization proposed by the applicant will conform to these characteristics and will comply with the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable. That is, the applicant is technically qualified to operate a nuclear power plant; and that the applicant will have the necessary managerial and technical resources to support the plant staff in the event of an emergency; and that the applicant has identified the organizational positions responsible for fire protection matters and delegated the authorities to these positions to implement fire protection requirements.

In addition, the staff concludes that the information presented in the LNP COL FSAR is acceptable because it meets the acceptance criteria provided in NUREG-0800, Section 13.1. The staff based its conclusion on the following:

- LNP COL 13.1-1, related to the organizational structure of the COL applicant, is acceptable because it meets the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable.

- LNP COL 9.5-1, related to the fire protection organization meets the guidance of Section 13.1 of NUREG-0800 and is acceptable.

- LNP COL 18.6-1, related to the qualifications of nuclear plant technical support personnel, is acceptable because it meets the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable.

- LNP COL 18.10-1, related to the qualification requirements for the manager in charge of nuclear training, is acceptable because it meets the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable.

13.2 Training

13.2.1 Introduction

This section addresses the description and schedule of the training program for reactor operators (ROs) and senior reactor operators (SROs), i.e., licensed operators. It addresses the scope of licensing examinations as well as training requirements. The licensed operator training program also includes the requalification programs as required in 10 CFR 50.54(i)(i-1) and 10 CFR 55.59, "Requalification." In addition, this section of the LNP COL FSAR includes the description and schedule of the training program for non-licensed plant staff.

13.2.2 Summary of Application

Section 13.2 of the LNP COL FSAR, Revision 6, incorporates by reference Section 13.2 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 13.2, the applicant provides the following:

AP1000 COL Information Items

- STD COL 13.2-1

The applicant provided additional information in Standard (STD) COL 13.2-1 to resolve COL Information Item 13.2-1 (COL Action Item 13.2-1), which incorporates the provisions of Nuclear Energy Institute (NEI) 06-13A, "Template for an Industry Training Program Description," providing the description and scheduling of the training program for plant personnel, including the requalification program for licensed operators.

- STD COL 18.10-1

The applicant provided additional information in STD COL 18.10-1 to address training for those operators involved in the Human Factors Engineering (HFE) Verification and Validation (V&V) Program, using a systematic approach to training and Westinghouse Commercial Atomic Power (WCAP) -14655, "Designer's Input to the Training of the Human Factors Engineering Verification and Validation Personnel."

License Conditions

- Part 10, License Condition 3, Items B.1, C.3

The applicant proposed a license condition in Part 10 of the LNP COL application, which provides the milestones for implementing the Reactor Operator Training (B.1) and the applicable portions of the Non-Licensed Plant Staff Training Program (C.3), (required in accordance with 10 CFR 50-120, "Training and qualification of nuclear power plant personnel"). The license condition related to the portions of the Non-Licensed Plant Staff Training Program applicable to radioactive material is addressed in Chapter 1 of this SER.

- Part 10, License Condition 6

The applicant proposed a license condition to provide a schedule to support the NRC's inspection of operational programs included in LNP COL FSAR Table 13.4-201, including the Non-Licensed Plant Staff Training Program, (required in accordance with 10 CFR 50-120), Reactor Operator Training Program, and the Reactor Operator Requalification Program.

13.2.3 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 the description and schedule of the training program for licensed operators are given in Sections 13.2.1 and 13.2.2 and Chapter 18 of NUREG-0800.

The applicable regulations and regulatory guidance documents for STD COL 13.2-1 are as follows:

- 10 CFR 50.54(m)
- 10 CFR Part 55, "Operators' licenses"
- RG 1.8
- RG 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations"
- NUREG-1021, "Operator Licensing Examination Standards for Power Reactors"

The applicable regulations for the Non-Licensed Plant Staff Training Program are as follows:

- 10 CFR 50.120, "Training and qualification of nuclear power plant personnel"
- 10 CFR 52.79(a)(33), "Contents of applications; technical information"

The applicable regulations for the licensed operators training program are as follows:

- 10 CFR 55.13, "General exemptions"
- 10 CFR 55.31, "How to apply"
- 10 CFR 55.41, "Written examinations: Operators"
- 10 CFR 55.43, "Written examinations: Senior operators"
- 10 CFR 55.45, "Operating tests"

The applicable regulations for the licensed operator's requalification program are found in:

- 10 CFR 50.34(b), "Final safety analysis report"
- 10 CFR 50.54(i)
- 10 CFR 55.59, "Requalificaton"

The applicable regulatory guidance for STD COL 18.10-1 is as follows:

- NUREG-0711, "Human Factors Engineering Program Review Model"

13.2.4 Technical Evaluation

The NRC staff reviewed Section 13.2 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. The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to the description and schedule of the training programs for nuclear plant personnel. 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 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 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 13.2.4 of the VEGP SER:

<u>AP1000 COL Information Items</u>

- *STD COL 13.2-1*

The NRC staff reviewed STD COL 13.2-1 related to COL Information Item 13.2-1 (COL Action Item 13.2-1) included under Section 13.2 of the BLN COL FSAR. COL Information Item 13.2-1 states:

> *The 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 13.2-1 in Appendix F of the NRC staff FSER for the AP1000 DCD (NUREG-1793), which states:

> *The COL applicant will develop and implement training programs for plant personnel.*

The applicant provided the following text to supplement Section 13.2, "Training," of the AP1000 DCD, dealing with the training program for plant personnel.

> *This section incorporates by reference NEI 06-13* (sic) [NEI 06-13A]*, Template for an Industry Training Program Description. See Table 1.6-201.*

This technical report provides a complete training program description for use with COL applications. The staff has endorsed NEI 06-13A, Revision 1, as it provides an acceptable template for describing licensed operators and non-licensed plant staff training programs. The applicant has incorporated by reference NEI 06-13A, Revision 1.

The applicant provided the following text to supplement Section 13.2, "Training," of the AP1000 DCD, which is included in the [design certification] *DC amendment as part of the BLN COL FSAR to address STD COL 13.2-1, dealing with the training program for plant personnel.*

> *Table 13.4-201 provides milestones for training implementation.*

NUREG-0800, Section 13.2.1, establishes milestones for the licensed operators and non-licensed plant staff training programs and for the licensed operator requalification training program. The BLN COL FSAR has identified those milestones in Table 13.4-201. The staff determined that this is acceptable, as the milestone information included in this table meets the criteria found in NUREG-0800.

- *STD COL 18.10-1*

The NRC staff reviewed STD COL 18.10-1, related to COL Information Item 18.10-1 (COL Action Item 18.10.3-1). COL Information Item 18.10-1 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 considerations in NUREG-0711, (2) address relevant concerns identified in this report* [NUREG-1793], *and (3) identify the minimum documentation that the COL applicant will provide to enable the staff to complete its review.*

This section refers to Sections 13.1, "Organizational Structure of Applicant" and 13.2, "Training" regarding the training program development.

The NRC staff reviewed the resolution to STD COL 18.10-1, related to staffing and qualifications included under Section 18.10 of the BLN COL FSAR. The applicant provided the referenced NRC-endorsed NEI 06-13A, Revision 1, to address COL Information Item 18.10-1.

NEI 06-13A, Revision 1 was written to provide COL applicants with a generic program description for use with COL application submittals. In a letter dated December 5, 2008, the staff stated that the training template of NEI 06-13A, Revision 1, was an acceptable means for describing licensed operator and non-licensed plant staff training programs. The staff finds the applicant's incorporation of NEI 06-13A, Revision 1 to be acceptable because it utilizes an NRC-endorsed methodology.

In Table 1.9-202, "Conformance with SRP Acceptance Criteria," of the BLN COL FSAR, the applicant identified two exceptions to the criteria of NUREG-0800, Section 13.2, which recommends following the guidance in NUREG-0711 and RG 1.149. Further, the applicant stated in Table 1.9-202 that NEI 06-13A is incorporated by reference into the BLN COL FSAR. The staff's safety evaluation report for NEI 06-13A (ML0709504790) states that NEI 06-13A complies with the guidance in NUREG-0711 and RG 1.149. Therefore, the staff finds the two exceptions to the criteria in NUREG-0800, Section 13.2 to be acceptable because NEI 06-13A complies with the guidance in NUREG-0711 and RG 1.149.

<u>License Conditions</u>

- *Part 10, License Condition 3, Item B1*

The NRC staff finds the implementation milestone for the Reactor Operator Training Program (18 months prior to schedule date of initial fuel load) to be acceptable because it is consistent with 10 CFR 50.120

- *Part 10, License Condition 6*

The applicant proposed 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 Non-Licensed Plant Staff Training Program, (required in accordance with 10 CFR 50.120), Reactor Operator Training Program, and

Reactor Operation Requalification Program. The proposed license condition is consistent with the policy established in SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," for operational programs in general, and is acceptable.

13.2.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff finds the following license conditions proposed by the applicant acceptable:

- License Condition (13-1) – The licensee shall implement the Reactor Operator Training Program at least 18 months prior to schedule date of initial fuel load.

- License Condition (13-2) – No later than 12 months after issuance of the COL, the licensee shall submit to the Director of the Office of New Reactors (NRO) a schedule that supports planning for and conduct of NRC inspection of the operational programs (the Non-Licensed Plant Staff Training Program (required in accordance with 10 CFR 50.120), Reactor Operator Training Program, and Reactor Operation Requalification Program). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until these operational programs have been fully implemented

13.2.6 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 the description and schedule of the training program for licensed operators, 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 information presented in the LNP COL FSAR is acceptable because it meets the acceptance criteria provided in NUREG-0800, Section 13.2. The staff based its conclusion on the following:

- STD COL 13.2-1 incorporates by reference NEI 06-13A, Revision 1, which provides an acceptable template for describing licensed operators and non-licensed plant staff training programs. The staff determined that this is acceptable, as it applies an NRC-endorsed approach.

- STD COL 18.10-1, relating to training, references Section 13.2 of the LNP COL FSAR, in which the applicant has committed to use WCAP-14655 to ensure a systematic approach to training development, and has referenced NEI 06-13A, Revision 1. The staff finds this acceptable because it applies an NRC-endorsed approach.

13.3 Emergency Planning

13.3.1 Introduction

This section addresses the plans, design features, facilities, functions, and equipment necessary for radiological emergency planning (EP) that must be considered in a COL application. The LNP COL application includes the onsite, and State and local offsite emergency plans, which the NRC and the Federal Emergency Management Agency (FEMA) evaluated to determine whether the plans are adequate, and that there is reasonable assurance the plans can be implemented. The emergency plans are an expression of the overall concept of operation, and describe the essential elements of advanced planning that have been considered and the provisions that have been made to cope with radiological emergency situations.

13.3.2 Summary of Application

Section 13.3 of the LNP COL Final Safety Analysis Report (FSAR), Revision 6, incorporates by reference Section 13.3 of the AP1000 DCD, Revision 19, without any EP related departures. In addition, in LNP COL FSAR Section 13.3, the applicant provided the following:

AP1000 COL Information Items

- STD COL 13.3-1

The applicant provided additional information in STD COL 13.3-1 to address COL Information Item 13.3-1 (COL Action Item 13.3-1) of the AP1000 DCD, which states:

> COL applicants referencing the AP1000 certified design will address emergency planning including post-72 hour actions and its communication interface.

- STD COL 13.3-2

The applicant provided additional information in STD COL 13.3-2 to address COL Information Item 13.3-2 (COL Action Item 13.3.3.3.5-1) of the AP1000 DCD, which states:

> COL applicants referencing the AP1000 certified design will address the activation of the emergency operations facility consistent with current operating practice and NUREG-0654/FEMA-REP-1 ["Criteria for Preparation and Evaluation of Radiological Emergency Plans and Preparedness in Support of Nuclear Power Plants," Revision 1].

Supplemental Information

- STD SUP 13.3-1

The applicant provided additional information in STD SUP 13.3-1 that provides milestones for EP implementation.

Part 5, “Emergency Plan,” Revision 6 of the LNP COL application includes the following:

Onsite Emergency Plans

Part 5, “Emergency Plan,” of the LNP COL application includes the Emergency Plan (the LNP Emergency Plan). The LNP Emergency Plan consists of a basic plan and seven appendices. The seven appendices provide additional information regarding various aspects of the LNP Emergency Plan (e.g., List of Emergency Plan Supporting Procedures, Evacuation Time Estimate (ETE) Study Summary, and Certification Letters).

Offsite Emergency Plans

Part 5 of the COL application includes current State and local emergency plans. In addition, Part 5 includes the detailed ETE Report.

ITAAC

Part 10, “Proposed License Conditions (Including ITAAC),” Revision 5, of the LNP COL application provides information regarding EP - Inspections, Tests, Analyses, and Acceptance Criteria (EP ITAAC). The EP ITAAC are evaluated in Section 13.3C.19 of this safety evaluation report (SER).

License Conditions

- Part 10, License Condition 1

The applicant proposed a license condition to incorporate EP ITAAC into the COL, which are identified in Table 3.8-1 of Appendix B to Part 10 of the LNP COL application.

- Part 10, License Condition 6

The applicant proposed a license condition to provide a schedule to support the NRC’s inspection of operational programs, including EP.

- Part 10, License Condition 11

The applicant proposed the following license conditions:

A. Duke Energy Florida (DEF) shall submit a fully developed set of site-specific emergency action levels (EALs) for LNP Units 1 [Unit 2] to the NRC in accordance with Nuclear Energy Institute (NEI) 07-01, “Methodology for Development of Emergency Action Levels Advanced Passive Light Water Reactors,” Revision 0, with no deviations. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

B. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities” to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, “Domestic licensing of production and utilization facilities,” DEF will have available for NRC inspection Letters of Agreement (LOAs) with entities listed on Appendix 3 of the LNP COL application Part 5, Emergency Plan. These LOAs will detail each entity’s specific emergency planning responsibilities and certify the entity’s concurrence with their responsibilities.

C. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF will have available for NRC inspection the LOAs established with the following entities:

   a. Florida Division of Emergency Management
   b. Citrus County, Florida Emergency Management Agency
   c. Levy County, Florida Emergency Management Agency
   d. Marion County, Florida Emergency Management Agency

   These Letters of Agreement will certify each agency's concurrence with the EALs described in LNP Units 1 and 2 COL application, Part 5 Emergency Plan.

D. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF will demonstrate the integrated capability and functionality of the Emergency Operations Facility (EOF) for simultaneous dual-activation of the facility by the LNP and Crystal River Unit 3 (CR3) Emergency Response Organizations (EROs) for a simulated emergency condition. Integrated communication and data capability and functionality will include the LNP and Crystal River Technical Support Centers (TSCs), NRC site-teams, NRC Incident Response Centers, and other Federal, State, and local coordination centers as appropriate.

In response to RAI 13.3-48, the applicant proposed the following addition to License Condition 11:

E. DEF will distribute the initial LNP public information publications, developed in coordination with CR3 and consistent with the LNP Emergency Plan, to the public within 180 days prior to fuel load.

In a letter dated January 10, 2014, the applicant proposed the following text to revise License Condition 11(E):

E. DEF shall distribute the initial LNP public information publications, consistent with the LNP Emergency Plan, within 180 days prior to fuel load at LNP. DEF must coordinate the development, initial and annual redistribution, and maintenance of this information with CR3 as long as the NRC requires CR3 to distribute public information publications.

In response to the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011, the applicant proposed the following addition to License Condition 11:

F. At least two (2) years prior to scheduled initial fuel load, DEF shall have performed an assessment of emergency response staffing in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities", Revision 0.

13.3.3 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.

The applicable regulatory requirements and guidance for EP are as follows:

- 10 CFR 52.79(a)(21), "Contents of applications; technical information in final safety analysis report," and 10 CFR 52.79(a)(22)(i) require that the FSAR include emergency plans that comply with the requirements of 10 CFR 50.47, "Emergency plans," and Appendix E to 10 CFR Part 50, and certifications from State and local governmental agencies with EP responsibilities. Under 10 CFR 50.47(a)(1)(ii), no initial COL under 10 CFR Part 52, "Licenses, certifications, and approvals for nuclear power plants" will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. In addition, under 10 CFR 50.47(a)(2), the NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate, and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented.

- The staff considered the applicable requirements in 10 CFR 52.77, "Contents of applications; general information"; 10 CFR 52.80, "Contents of applications: additional technical information"; 10 CFR 50.33(g), "Content of the application: general information"; and 10 CFR 100.21, "Non-seismic siting criteria."

- NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants" identifies NUREG-0654/FEMA-REP-1, Revision 1 and other related guidance that the staff considered during its review. The related acceptance criteria are identified in NUREG-0800, Section 13.3.II and the applicable regulatory guidance for reviewing emergency preparedness as an operational program is established in NUREG-0800, Section 13.4. In addition, the staff considered NUREG/CR-6863, "Development of Evacuation Time Estimate Studies for Nuclear Power Plants," January 2005, and Interim Staff Guidance NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," Revision 0, November 2011.

- In addition, Appendix A to 44 CFR 353, "Memorandum of Understanding (MOU) Between Federal Emergency Management Agency and Nuclear Regulatory Commission Relating to Radiological Emergency Planning and Preparedness," September 14, 1993, states that FEMA is responsible for making findings and determinations as to whether offsite emergency plans are adequate and can be implemented. FEMA radiological emergency preparedness (REP) guidance documents provide guidance on various topics for use by State and local organizations responsible for radiological emergency preparedness and response. NUREG-0654/FEMA REP-1 provides guidance to provide a basis for State and local governments to develop radiological emergency plans.

13.3.4 Technical Evaluation

The NRC staff reviewed Section 13.3 of the LNP COL FSAR and checked the referenced DCD to ensure the combination of the DCD and COL application represents the complete scope of information relating to this review topic[3]. The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to EP. 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 Items

- STD COL 13.3-1
- STD COL 13.3-2

The NRC staff's evaluation related to STD COL 13.3-1 and 13.3-2 is addressed in Attachment 13.3A of this SER.

Supplemental Information

- STD SUP 13.3-1

The NRC staff's review of STD SUP 13.3-1 is addressed in Attachment 13.3A of this SER.

The NRC staff's review of the information provided in the application that is not part of the LNP Emergency Plan is addressed in Attachment 13.3B, "Additional Required Emergency Planning Information," of this SER. The NRC staff's review of the LNP Emergency Plan is addressed in Attachment 13.3C, "Onsite Emergency Plan," of this SER.

The NRC staff reviewed the application against the generic EP ITAAC provided in Table 14.3.10-1, "Emergency Planning-Generic Inspections, Tests, Analyses, & Acceptance Criteria (EP ITAAC)," pursuant to Section 14.3.10 of NUREG-0800.

FEMA has reviewed the emergency plans for the State of Florida and the local government plans for Levy, Citrus, and Marion counties pursuant to 44 CFR 350, and provided its Interim Findings Report (IFR) for Reasonable Assurance, dated February 17, 2010. FEMA has concluded that based on its review of the currently available offsite plans and procedures for the 10-mile plume exposure pathway emergency planning zone (EPZ), as well as the 50-mile ingestion exposure pathway EPZ, the offsite plans are adequate and there is reasonable assurance that the plans can be implemented with no corrections needed. In a letter dated August 20, 2012, NRC provided FEMA with an updated State of Florida Radiological Emergency Preparedness Plan (REPP) revised November 2011. By letter dated October 18, 2012, FEMA provided its response to NRC stating that FEMA has reviewed the updated State of Florida REPP and the February 17, 2010, reasonable assurance finding for off-site emergency planning is still valid. Specifically, the offsite plans are adequate and there is reasonable assurance that the plans can be implemented with no corrections needed. The

[3] 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 has reviewed the FEMA report and based its overall reasonable assurance finding on the FEMA findings and determinations regarding offsite EP.

Based on the staff's evaluation of the applicant's emergency plan found in Attachment 13.3C, the staff finds that the applicant's onsite emergency plan meets the standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50, including the requirements of the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011.

Based on the IFR and the staff's evaluations detailed in Attachments 13.3A, 13.3B, and 13.3C of this SER, the staff finds that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, the staff finds that the LNP Emergency Plan meets the requirements in 10 CFR 50.33(g), 10 CFR 50.34(b)(6)(v), 10 CFR 50.34(f)(2); 10 CFR 50.47; Appendix E to 10 CFR Part 50; 10 CFR 52.77; 10 CFR 52.79(a)(21); 10 CFR 52.79(a)(22)(i); 10 CFR 52.80; and 10 CFR 52.81, including the requirements of the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011.

License Conditions

- Part 10, License Condition 1

The applicant provided a license condition in Part 10 of the LNP COL application, which will incorporate into the COL the ITAAC identified in the tables in Appendix B of Part 10. Appendix B includes the EP ITAAC. The proposed text in License Condition 1 is evaluated in Chapter 1 of this SER. The NRC staff's evaluation of the EP ITAAC identified in Table 3.8-1 of Appendix B to Part 10 of the LNP COL application is documented in Section 13.3C.19 of the SER. Table 13.3-1 of this SER provides the EP ITAAC identified in Table 3.8-1 of Appendix B to Part 10 of the LNP COL application. Therefore, the staff will include the ITAAC in SER Table 13.3-1 in the license.

- Part 10, License Condition 6

The applicant proposed a license condition to provide a schedule which supports the NRC's inspection of operational programs including EP. Specifically, the applicant proposed, in part, the following:

> The licensee shall submit to the appropriate Director of the NRC, a schedule no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational programs in the FSAR table have been fully implemented or the plant has been placed in commercial service, whichever comes first.
>
> This schedule shall include a submittal schedule for:
>
> a. the emergency planning implementing procedures to the NRC consistent with 10 CFR Part 50, Appendix E, Section V.

The staff reviewed the above proposed license condition against the recommendations in SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria [ITAAC]" as endorsed by the related Staff Requirements Memorandum (SRM) dated February 22, 2006. The staff concludes that this proposed license condition conforms to the guidance in SECY-05-0197 and is, therefore, acceptable. For additional details on the staff's evaluation of proposed License Condition 6, see Section 13.4.4 of this SER.

- Part 10, License Condition 11

The applicant proposed several license conditions related to the site-specific EALs, finalized LOAs, and the shared EOFs' exercise demonstrating simultaneous activation of the LNP and CR3 EROs. In addition, the applicant proposed License Condition 11(F) for performance of a staffing analysis in response to the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. Specifically, the applicant proposed the following:

A. Duke Energy Florida (DEF) shall submit a fully developed set of site-specific EALs for LNP Unit 1 [Unit 2] to the NRC in accordance with NEI 07-01, Revision 0, with no deviations. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

B. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF will have available for NRC inspection LOAs with entities listed on Appendix 3 of the LNP COL application Part 5, Emergency Plan. These LOAs will detail each entity's specific emergency planning responsibilities and certify the entity's concurrence with their responsibilities.

C. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF will have available for NRC inspection the LOAs established with the following entities:

    a. Florida Division of Emergency Management
    b. Citrus County, Florida Emergency Management Agency
    c. Levy County, Florida Emergency Management Agency
    d. Marion County, Florida Emergency Management Agency

    These Letters of Agreement will certify each agency's concurrence with the EALs described in LNP Units 1 and 2 COL application Part 5 Emergency Plan.

D. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF will demonstrate the integrated capability and functionality of the EOF for simultaneous dual-activation of the facility by the LNP and CR3 EROs for a simulated emergency condition. Integrated communication and data capability and functionality will include the LNP and Crystal River TSCs, NRC site-teams, NRC Incident Response Centers, and other Federal, State, and local coordination centers as appropriate.

E. DEF will distribute the initial LNP public information publications, developed in coordination with CR3 and consistent with the LNP Emergency Plan, to the public within 180 days prior to fuel load.

F. At least two (2) years prior to scheduled initial fuel load, DEF shall have performed an assessment of emergency response staffing in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities", Revision 0.

The NRC staff's evaluation of the EALs is documented in Section 13.3C.4 of this SER.

Pursuant to the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50, the staff has revised the language in License Conditions 11(A) and (C) to incorporate the requirement for State and local review and agreement of the LNP initial EALs, and development of finalized letters of agreement, originally proposed, in part, in License Condition 11(B). These revisions, underlined below, are as follows:

A. Duke Energy Florida (DEF) shall submit a fully developed set of site-specific EALs for LNP Unit 1 [Unit 2] to the NRC in accordance with NEI 07-01, Revision 0, with no deviations. <u>These EALs shall have been discussed and agreed upon with State and local officials.</u> These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

C. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF will have available for NRC inspection the LOAs established with the following entities:

   a. State of Florida Division of Emergency Management
   b. Citrus County, Florida Emergency Management Agency
   c. Levy County, Florida Emergency Management Agency
   d. Marion County, Florida Emergency Management Agency
   e. <u>Citrus Memorial Hospital</u>
   f. <u>Seven Rivers Regional Medical Center</u>
   g. <u>Citrus County, Department of Public Safety Fire Rescue Division</u>
   h. <u>Nature Coast Emergency medical Services Fire Department</u>

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

With the staff's revisions to License Conditions 11(A) and 11(C), the staff finds 11(B) to be redundant. Therefore, License Condition 11(B) has been deleted. With the modifications identified above, the staff finds License Conditions 11(A) and 11(C) to be acceptable.

The staff's evaluation of written agreements is documented in Section 13.3C.1.7 of this SER.

The staff's evaluation of the EOF function is documented in Section 13.3C.8.19 of this SER. As described in Section 13.3C.8.19 of this SER, the staff finds License Condition 11(D) to be acceptable.

By letter dated January 10, 2014, "LNP Emergency Planning Impacts from Retirement of CR3 Supplement," from DEF to NRC, the applicant proposed revised language in License Condition

11(E) to incorporate the commitment for a coordinated dissemination of public safety information with CR3 until CR3 is no longer required to provide this information. This revision is as follows:

> E. DEF shall distribute the initial LNP public information publications, consistent with the LNP Emergency Plan, within 180 days prior to fuel load at LNP. DEF must coordinate the development, initial and annual redistribution, and maintenance of this information with CR3 as long as the NRC requires CR3 to distribute public information publications.

The staff's evaluation of public education and information is documented in Section 13.3C.7 of this SER. With the applicant's proposed revision to License Condition 11(E), the staff finds License Condition 11(E) to be acceptable since it meets the requirements of 10 CFR 50.47(b)(7) and Appendix E to 10 CFR Part 50.

The staff's evaluation of on-shift and augmented emergency response staff is documented in Section 13.3C.2.5 of this SER. The staff finds proposed License Condition 11(F) to be acceptable. The staff verified that Part 10 of the COL application was appropriately updated to incorporate this license condition.

13.3.5 Post-Combined License Activities

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

- The licensee shall perform and satisfy the ITAAC defined in SER Table 13.3-1, "Emergency Plan ITAAC."

- License Condition (13-3) – The licensee shall develop a schedule that supports planning for and conduct of NRC inspections of the operational programs listed in LNP COL FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations." This schedule must be available to the NRC staff no later than 12 months after issuance of the COL. The schedule shall be updated every 6 months until 12 months before scheduled fuel load, and every month thereafter until either the operational programs listed in LNP COL FSAR Table 13.4-201 have been fully implemented. This schedule shall include a submittal schedule for the EP implementing procedures to the NRC consistent with 10 CFR Part 50, Appendix E, Section V the EP program implementation.

- License Condition (13-4) - DEF shall submit a fully developed set of site-specific EALs for LNP Units 1 [Unit 2] to the NRC in accordance with NEI 07-01, Revision 0, with no deviations. These EALs shall have been discussed and agreed upon with State and local officials. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

- License Condition (13-5) - Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF shall have available for NRC inspection the LOAs established with the following entities:

  a. State of Florida Division of Emergency Management
  b. Citrus County, Florida Emergency Management Agency

c. Levy County, Florida Emergency Management Agency
d. Marion County, Florida Emergency Management Agency
e. Citrus Memorial Hospital
f. Seven Rivers Regional Medical Center
g. Citrus County, Department of Public Safety Fire Rescue Division
h. Nature Coast Emergency medical Services Fire Department

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

- License Condition (13-6) - Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF shall demonstrate the integrated capability and functionality of the EOF for simultaneous dual-activation of the facility by the LNP and CR3 EROs for a simulated emergency condition. The demonstration of integrated communication and data capability and functionality must include the LNP and Crystal River TSCs, NRC site-teams, NRC Incident Response Centers, and other Federal, State, and local coordination centers as appropriate.

- License Condition (13-7) - DEF shall distribute the initial LNP public information publications, consistent with the LNP Emergency Plan, within 180 days prior to fuel load at LNP. DEF must coordinate the development, initial and annual redistribution, and maintenance of this information with CR3 as long as the NRC requires CR3 to distribute public information publications.

- License Condition (13-8) - At least two (2) years prior to scheduled initial fuel load, DEF shall have performed an assessment of emergency response staffing in accordance with NEI 10-05, “Assessment of On-Shift Emergency Response Organization Staffing and Capabilities”, Revision 0.

13.3.6 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 EP, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

The ITAAC that are applicable to EP for LNP are included in SER Table 13.3-1 and are addressed in Section 13.3C.19. Pursuant to 10 CFR 52.80(a), the LNP COL application includes the proposed inspections, tests, and analyses that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the NRC’s rules and regulations.

FEMA has reviewed the emergency plans for the State of Florida and the local government plans for Levy, Citrus, and Marion counties pursuant to 44 CFR 350, and provided its IFR for Reasonable Assurance, dated February 17, 2010. FEMA has concluded that based on its review of the currently available offsite plans and procedures for the 10-mile plume exposure

pathway EPZ, as well as the 50-mile ingestion exposure pathway EPZ, the offsite plans are adequate and there is reasonable assurance that the plans can be implemented with no corrections needed. In a letter dated August 20, 2012, NRC provided FEMA with an updated State of Florida REPP revised November 2011. By letter dated October 18, 2012, FEMA provided its response to NRC stating that FEMA has reviewed the updated State of Florida REPP and the February 17, 2010, reasonable assurance finding for off-site emergency planning remains valid. Specifically, the offsite plans are adequate and there is reasonable assurance that the plans can be implemented with no corrections needed. The staff has reviewed the FEMA report and based its overall reasonable assurance finding on the FEMA findings and determinations regarding offsite EP.

Based on the staff's evaluation of the applicant's emergency plan for proposed Units 1 and 2 found in Attachment 13.3C, the staff finds that the applicant's onsite emergency plan meets the standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50, including the requirements of the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011.

Based on the IFR and the staff's evaluations detailed in Attachments 13.3A, 13.3B, and 13.3C of this SER, the staff finds that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, the staff finds that the LNP Emergency Plan meets the requirements in 10 CFR 50.33(g); 10 CFR 50.34(b)(6)(v), 10 CFR 50.34(f)(2); 10 CFR 50.47, Appendix E to 10 CFR Part 50; 10 CFR 52.77; 10 CFR 52.79(a)(21); 10 CFR 52.79(a)(22)(i); 10 CFR 52.80, and 10 CFR 52.81, including the requirements of the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011.

ATTACHMENT 13.3A - COL INFORMATION ITEMS, SUPPLEMENTAL INFORMATION ITEMS AND DEPARTURES

Introduction

This section addresses the COL information and supplemental information items associated with EP.

Section 13.3 of the COL application does not include any EP related departures from the AP1000 certified design for the LNP site that must be addressed by the COL applicant.

13.3A.1 Regulatory Basis

The applicable regulatory requirements for STD COL 13.3-1 and STD COL 13.3-2 associated with EP are established in 10 CFR 50.33(g), 10 CFR 52.79(a)(17), 10 CFR 52.79(a)(21), 10 CFR 50.34(f)(2)(xxv), 10 CFR 50.47(b)(6) and (8), and the guidance is provided in NUREG-0654/FEMA-REP-1, Revision 1 and Supplement 1 to NUREG-0737, "Clarification of TMI Action Plan Requirements."

With respect to STD SUP 13.3-1, the guidance related to implementation milestones for the EP program is provided in the Sample FSAR Table 13.4-X, "Operational Programs Required by NRC Regulation and Program Implementation," in NUREG-0800.

13.3A.2 COL Information Items

Technical Information in the Application:

- STD COL 13.3-1

Section 13.3, "Emergency Planning," of the LNP COL FSAR states:

> The emergency planning information is submitted to the Nuclear Regulatory Commission as a separate licensing document and is incorporated by reference (see Table 1.6-201).
>
> Post-72 hour support actions, as discussed in DCD Subsections 1.9.5.4 and 6.3.4, are addressed in DCD Subsections 6.2.2, 8.3, and 9.1.3. Provisions for establishing post-72 hour ventilation for the main control room, instrumentation and control rooms, and direct current (dc) equipment rooms are established in operating procedures.

In the request for additional information (RAI) 13.3-26(A), the staff requested the applicant explain why STD COL 13.3-1 did not address communication interfaces as described in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design." In response, the applicant stated that the LNP Emergency Plan addresses communication interfaces primarily in Sections E and F, which provide discussion of emergency notification methods and various communication systems, including their locations, reliability, and periodic testing.

- STD COL 13.3-2

Section 13.3 of the LNP COL FSAR, STD COL 13.3-2 states:

> The emergency plan describes the plans for coping with emergency situations, including communication interfaces and staffing of the emergency operations facility.

In RAI 13.3-26(B), the staff requested the applicant explain why COL Action Item 13.3.3.3.5-1 in Appendix F of NUREG-1793 addresses activation of the EOF, while the corresponding action item in the LNP COL FSAR, STD COL 13.3-2, addresses staffing and communication interfaces of the EOF, and does not address activation of the facility. The applicant's response stated that the concept of "activation" as used in NUREG-1793 and the AP1000 DCD includes the activities of notifying the appropriate emergency response personnel, staffing the emergency response facility (ERF), establishing the required communications interfaces, and declaring the facility to be operational. The applicant provided references to the LNP Emergency Plan that address these activities and stated that this information will be included in the emergency plan implementing procedures (EPIP).

Technical Evaluation

- STD COL 13.3-1

STD COL Information Item 13.3-1 requires that COL applicants referencing the AP1000 certified design will address EP, including post-72 hour actions and its communications interface. The

applicant addressed STD COL 13.3-1 by listing the LNP Emergency Plan for Units 1 and 2 (Revision 6) in FSAR Table 1.6-201, "Additional Material Referenced," with a reference to FSAR Section 13.3, "Emergency Plan," including submittal of its Emergency Plan in Part 5, "Emergency Plan," of the COL application. The staff finds the applicant's submittal of the onsite emergency plan for LNP in Part 5 of the COL application acceptable because it meets the requirements of Appendix E to 10 CFR Part 50 and 10 CFR 52.79(a)(21). As described above, the applicant provided additional information in response to RAI 13.3-26(A) that adequately addresses communications interfaces, including interfaces among the control rooms (CRs), TSCs, EOFs, other ERFs (e.g., State and local emergency operation centers [EOCs], and the NRC) to support the LNP site in an emergency. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. Additionally, the staff's evaluation of communications interfaces is addressed in Sections 13.3C.5, "Notification Methods and Procedures," and 13.3C.6, "Emergency Communications," of this SER.

In regard to post 72-hour actions associated with the AP1000 DCD, the applicant referenced operating procedures and various related DCD sections. The staff identified additional AP1000 DCD Tier 2 sections that address post-72 hour support actions, which include DCD Sections 6.4, "Habitability Systems," 9.4, "Air-Conditioning, Heating, Cooling, and Ventilation System," and 9.5, "Other Auxiliary Systems" (e.g., plant lighting systems described in Section 9.5.3). As described in AP1000 DCD Section 1.9.5.4, post-72 hour support actions relate to an extended loss of the nonsafety-related systems for both onsite and offsite alternating current (ac) power sources for more than 72 hours. For purposes of the staff's review of EP information in the COL application and in the context of COL Information Item 13.3-1, the reference to post-72 hour support actions is limited to the reliability of the electrical power supply for the TSC ventilation system and associated communications equipment. The evaluation of the reliability of the electrical power supply for the TSC is addressed in the AP1000 DCD sections referenced above. The habitability and functionality of the TSC is addressed above in Section 13.3C.8, "Emergency Facilities and Equipment," of this SER.

The staff finds that the applicant has addressed EP, including communication interfaces (see STD COL 13.3-2, below), in support of LNP Units 1 and 2 in the Emergency Plan. In addition, the applicant has addressed post-72 hour actions through reference to the AP1000 DCD sections (identified above) that specifically address an extended loss of the nonsafety-related systems for both onsite and offsite ac power sources for more than 72 hours. The staff's evaluation of those systems and power sources, including the establishment of associated operating procedures, are addressed in their respective sections of this report. Operating procedures to address post-72 hour support actions are being tracked by STD COL 13.5-1 in Section 13.5, "Plant Procedures," of this SER. In consideration of the applicant's response to RAI 13.3-26(A), the staff finds that the COL applicant has adequately addressed STD COL 13.3-1.

- STD COL 13.3-2

STD COL Information Item 13.3-2 requires that COL applicants referencing the AP1000 certified design will address activation of the EOF consistent with current operating practice and NUREG-0654/FEMA-REP-1. In FSAR Section 13.3, the applicant addressed STD COL 13.3-2 by stating that the emergency plan describes the plans for coping with emergency situations, including communications interfaces and staffing of the EOF.

In response to RAI 13.3-26(B), the applicant provided reference to various sections of the LNP Emergency Plan that outline the overall roles and responsibilities of the Emergency Coordinator

(EC) and EOF Director when the EOF is declared operational. In addition, these references describe the location and size of the EOF, functions to be performed by the facility, and capabilities specific to communications and data display. The applicant proposed to include this information in an EPIP. However, this information is inconsistent with the guidance provided in Supplement 1 to NUREG-0737 for activation of the EOF.

In RAI 13.3-21(B), discussed in Section 13.3C.8 of this SER, the staff requested the applicant provide a discussion in the LNP Emergency Plan regarding the timely activation of ERFs. The applicant's response, in part, stated that the applicant will staff the EOF, under the discretion of the EC, at the declaration of a Notification of Unusual Event or Alert emergency classification. Staffing of the EOF will be required at the declaration of a Site Area or General Emergency classifications. The applicant provided a discussion regarding response time goals for minimum staffing of the EOF. Specifically, the applicant stated that a goal of 60 minutes has been established for minimum staffing of the EOF, and it is the goal of the organization to be capable of declaring the EOF operational within 15 minutes.

The information provided in response to RAI 13.3-21(B) provides sufficient detail regarding EOF activation, consistent with operating practice. The staff finds the applicant's response to RAI 13.3-21(B) to be acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737. The staff confirmed that the information provided in response to RAI 13.3-21(B) is incorporated into Revision 1 of the LNP Emergency Plan.

The staff finds that the applicant's onsite emergency plan in Part 5 of the COL application adequately addresses activation of the EOF and communication interfaces between the ERFs and the CR as described in the staff's evaluation of STD COL Information Item 13.3-1 above. Therefore, the staff finds the information in the LNP Emergency Plan associated with STD COL 13.3-2 and the response to RAI 13.3-21(B) acceptable because it meets the guidance in NUREG-0737, Revision 1, and applicable requirements of 10 CFR 50.47(b)(6) and (8).

13.3A.3 Supplemental Information Items

Technical Information in the Application:

- STD SUP 13.3-1

Section 13.3 of the LNP FSAR, STD SUP 13.3-1 states:

> Table 13.4-201 provides milestones for emergency planning implementation.

Technical Evaluation

- STD SUP 13.3-1

The applicant provided acceptable milestones for EP program implementation in Table 13.4-201, "Operational Programs Required by NRC Regulations," of the LNP COL FSAR consistent with the requirements in Appendix E to 10 CFR Part 50 and the acceptance criteria in NUREG-0800. The staff's evaluation of EP milestones to support issuance of 10 CFR Part 30, "Rules of general applicability to domestic licensing of byproduct material"; 10 CFR Part 40, "Domestic licensing of source material"; and 10 CFR Part 70, "Domestic licensing of special nuclear material," licenses is in Section 1.5 of this SER.

13.3A.4 Post-Combined License Activities

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

13.3A.5 Conclusion

The staff reviewed the LNP COL application, referenced AP1000 DCD, and the applicant's response to RAIs. The staff's review confirmed that the applicant addressed the required information relating to EP, and there is no outstanding information expected to be addressed in the LNP COL FSAR related to this section. The results of the 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 has compared the COL information and supplemental information items in the LNP COL application to the applicable NRC requirements, acceptance criteria defined in Section 13.3 of NUREG-0800, and other NRC regulatory guidance. The staff concludes that the applicant is in compliance with the applicable regulatory requirements in 10 CFR 50.33(g), 10 CFR 52.79(a)(17), 10 CFR 52.79(a)(21), 10 CFR 50.34(f)(2)(xxv), 10 CFR 50.47(b)(6) and (8), and the guidance provided in NUREG-0654/FEMA-REP-1, Revision 1, Supplement 1 to NUREG-0737, and NUREG-0800.

ATTACHMENT 13.3B – ADDITIONAL REQUIRED EMERGENCY PLANNING INFORMATION

Introduction

This section of the SER includes the staff's evaluation of EP information that is required to be provided in the COL application, but does not address the applicant's plans for responding to a radiological emergency, which are evaluated in Attachment 13.3C in this SER.

13.3B.1 Regulatory Basis

The applicable regulatory requirements for EP information are as follows:

- 10 CFR Part 50, Appendix E, Section I, "Introduction," describes the EPZ.
- 10 CFR Part 50, Appendix E, Section E.III, "The Final Safety Analysis Report," requires that the FSAR include plans for coping with emergencies.
- 10 CFR 52.79(a)(21) and 10 CFR 50.34(b)(6)(v), also require that the FSAR include an onsite emergency plan that meets the requirements in 10 CFR 50.47 and 10 CFR Part 50, Appendix E.
- 10 CFR 50.33 and 10 CFR 52.77, require in part, the submittal of State and local emergency plans.
- 10 CFR 50.33(g) requires, in part, a description of the plume exposure pathway and the ingestion pathway EPZs. In addition, 10 CFR 50.47(c)(2) states generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles

(16 kilometers [km]) in radius and the ingestion exposure pathway EPZ shall consist of an area about 50 miles (80 km) in radius. The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. The plans for the ingestion pathway shall focus on such actions as are appropriate to protect the food ingestion pathway.

- 10 CFR 50.34(b)(6)(v) requires plans for coping with emergencies, which shall include the items specified in Appendix E. 10 CFR 50.34(h)(1)(i) and 10 CFR 52.79(a)(41) require that the COL application include an evaluation of the facility against NUREG-0800. Section 13.3 of NUREG-0800 provides guidance for the review of onsite emergency plans for nuclear power plants. 10 CFR 50.34(h)(2) and (3) require that the evaluation identify and describe all differences from the NUREG-0800 acceptance criteria in Section 13.3 and evaluate how the proposed alternatives to the NUREG-0800 criteria provide an acceptable method of complying with the Commission's regulations. Where differences exist, the evaluation should discuss how the proposed alternative provides an acceptable method of complying with the Commission's regulations or portions thereof that underlie the corresponding NUREG-0800 acceptance criteria.

- 10 CFR 52.73, "Relationship to other subparts," states that the application for a COL may reference a standard design.

- 10 CFR 52.79(a)(22)(i) requires certifications from State and local governmental agencies with EP responsibilities that: (1) the proposed emergency plans are practicable; (2) these agencies are committed to participating in any further development of the plans, including any required field demonstrations; and (3) these agencies are committed to executing their responsibilities under the plans in the event of an emergency.

- 10 CFR 52.81 states that COL applications will be reviewed according to the standards in 10 CFR Part 50 and 10 CFR Part 100, "Reactor site criteria." Therefore, the requirements of 10 CFR Part 100, Subpart B, "Evaluation Factors for Stationary Power Reactor Site Applications on or after January 10, 1997," are applicable.
  10 CFR 100.1(c), "Reactor site criteria, purpose," requires the identification of physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans. In addition, 10 CFR 100.21(g) also requires that applications for site approval identify physical characteristics unique to the proposed site.

- 10 CFR 100.1(c) states siting factors and criteria are important in assuring that radiological doses from normal operation and postulated accidents will be acceptably low, that natural phenomena and potential man-made hazards will be appropriately accounted for in the design of the plant, that site characteristics are such that adequate security measures to protect the plant can be developed, and that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans are identified.

- 10 CFR 100.21(g) states physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans must be identified.

13.3B.2 FSAR and Onsite Emergency Plan

Technical Information in the Application: {Appendix E, Section III} (10 CFR 52.79(a)(21)) (10 CFR 50.34(b)(6)(v))
Section 13.3 of the LNP COL FSAR states, in STD COL 13.3-1, that EP information is submitted to the NRC as a separate licensing document and is incorporated by reference (see Table 1.6-201). The document is Part 5, "Emergency Plan," (LNP Emergency Plan) of the COL application. Section 1.0, "Introduction," of the LNP Emergency Plan states that the emergency plan is developed in compliance with the requirements of 10 CFR Part 52. The requirements in 10 CFR Part 52 invoke the EP requirements in 10 CFR Part 50. Consistent with the requirements of both 10 CFR Part 50 and 10 CFR Part 52, the emergency plan is based on the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50. In addition, the applicant states that the emergency plan is consistent with the guidance provided in NUREG-0654/FEMA-REP-1, Revision 1.

The LNP Emergency Plan consists of a basic plan and seven appendices. The seven appendices provide additional information regarding various aspects of the LNP Emergency Plan (e.g., List of Emergency Plan Supporting Procedures, ETE Study Summary, and Certification Letters).

Technical Evaluation: {Appendix E, Section III} (10 CFR 52.79(a)(21)) (10 CFR 50.34(b)(6)(v))
The staff finds that the LNP COL FSAR includes an emergency plan for coping with emergencies at the LNP site, which meets the applicable requirements in Section III of Appendix E to 10 CFR Part 50, 10 CFR 52.79(a)(21), and 10 CFR 50.34(b)(6)(v).

13.3B.3 Submittal of State and Local Emergency Plans

Technical Information in the application: (10 CFR 50.33(g))
Section 1.3.1, "Plume Exposure Pathway EPZ," of the LNP Emergency Plan states that the State of Florida and respective counties within the 10-mile EPZ have prepared plans for a response to an emergency at LNP. The plans that describe the State and local EP documents are included as supplemental information. The list of State and local EP documents includes:

- State of Florida Radiological Emergency Management Plan
- Citrus County Sheriff's Office Radiological Emergency Preparedness Plan
- Levy County Emergency Management Radiological Emergency Preparedness Plan
- Marion County Emergency Management Radiological Emergency Preparedness Plan

Technical Evaluation: (10 CFR 50.33(g))
The applicant submitted offsite emergency plans for the State of Florida and Levy, Citrus, and Marion counties, which are wholly or partially within the plume exposure pathway EPZ. This is acceptable because it meets the requirements in 10 CFR 50.33(g).

13.3B.4 Description of Emergency Planning Zones

Technical Information in the Application: {Appendix E, Section I} (10 CFR 50.33(g)) (10 CFR 50.47(c)(2))
Section 1.3, "Emergency Planning Zones," of the LNP Emergency Plan defines the plume exposure and ingestion exposure pathway EPZs as follows:

The plume exposure pathway EPZ consists of an area within an approximate 10-mile radius of the LNP. Figure Intro-3, "Plume Exposure Pathway EPZ (10-Mile)," provides an illustration of the plume exposure pathway EPZ for the LNP site to include overlap of LNP and the CR3 site, 10-mile EPZs. Section 1.3.1 further describes the plume exposure pathway EPZ as the area in which principal exposure sources from the plume exposure pathway consist of external exposure to gamma and beta radiation from the plume and deposited materials, and exposure of internal organs to gamma and beta radiation from inhaled radioactive gases or particulates.

Section 1.3.2, “Ingestion Exposure Pathway EPZ,” states that the ingestion exposure pathway EPZ consists of an area within an approximate 50-mile radius of the LNP. Figure Intro-4, "Ingestion Exposure Pathway EPZ (50-Mile)," provides an illustration of the ingestion exposure pathway EPZ, which includes the Florida counties of Alachua, Citrus, Dixie, Gilchrist, Hernando, Lake, Levy, Marion, Pasco, Putnam, and Sumter. The ingestion exposure pathway EPZ is described as the area in which the exposure sources are from contaminated water or food, such as milk or fresh vegetables.

In RAI 13.3-27, the staff asked the applicant to discuss in the LNP Emergency Plan whether the exact sizes and configurations of the EPZs surrounding the LNP site were determined in relation to the local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. The applicant’s response stated that the plume exposure pathway and ingestion exposure pathway EPZs for the LNP site were determined in accordance with criteria described in NUREG-0654/FEMA-REP-1, Part 1, Section D.1.a, D.1.b, and Section D.2. The applicant stated that the exact size and configuration of the EPZs were discussed and coordinated with representatives from the State of Florida Division of Emergency Management and Levy, Citrus, and Marion County emergency management directors from the 10-mile EPZ risk counties. In addition, the applicant stated that demographical data, topographical information, land characteristics, access routes and jurisdictional boundaries were all taken into consideration in the determination of the 10-mile and 50-mile EPZ boundaries.

Technical Evaluation: {Appendix E, Section I} (10 CFR 50.33(g)) (10 CFR 50.47(c)(2))
The staff finds the applicant’s response to RAI 13.3-27 to be acceptable because it conforms to the guidance in NUREG-0396/EPA520/1-78-016, “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants,” and NUREG-0800. The staff confirmed that information provided by the applicant was incorporated into Revision 1 of the LNP Emergency Plan.

The onsite emergency plan describes the plume exposure pathway EPZ as consisting of an area about 10 miles in radius and the ingestion exposure pathway EPZ consisting of an area about 50 miles in radius. The exact size and configuration of the EPZs were determined in relation to the local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. The description of the EPZs provided by the applicant conforms to the guidance in NUREG-0396/EPA520/1-78-016, NUREG-0654/FEMA-REP-1, Revision 1, and meet the acceptance criteria in NUREG-0800.

Based on the information in the LNP Emergency Plan and the applicant's response to RAI 13.3-27, the staff finds that the EPZ sizes are acceptable and meet the requirements in 10 CFR 50.33(g), 10 CFR 50.47(c)(2), and Section 1 of Appendix E to 10 CFR Part 50.

13.3B.5 Certifications from State and Local Governments

Technical Information in the Application: (10 CFR 52.79(a)(22)(i))
Appendix 3, "Certification Letters," of the LNP Emergency Plan includes certification letters between Progress Energy Florida (PEF, currently Duke Energy Florida (DEF)), and State and local governmental agencies with EP responsibilities. These agencies include:

- Citrus County Emergency Management
- Levy County Emergency Management
- Marion County Emergency Management
- State of Florida Division of Emergency Management

Technical Evaluation: (10 CFR 52.79(a)(22)(i))
The applicant provided certification letters from the State and local governmental agencies with EP responsibilities, which state that: (1) the proposed emergency plans are practicable; (2) these agencies are committed to participating in any further development of the plans, including any required field demonstrations; and (3) these agencies are committed to executing their responsibilities under the plans in the event of an emergency. This is acceptable because it meets the requirements of 10 CFR 52.79(a)(22)(i).

13.3B.6 Evaluation Against the Standard Review Plan

Technical Information in the Application: (10 CFR 52.79(a)(41)) (10 CFR 50.34(h)(1)(i)) (10 CFR 50.34(h)(2) and (3))
LNP COL FSAR Table 1.9-202, "Conformance with SRP Acceptance Criteria," in STD SUP 1.9-1 indicates conformance with the acceptance criteria in NUREG-0800, which is acceptable for Section 13.3 with no differences identified.

Technical Evaluation: (10 CFR 52.79(a)(41)) (10 CFR 50.34(h)(1)(i)) (10 CFR 50.34(h)(2) and (3))
The applicant provided the results of its evaluation of the facility against the acceptance criteria in NUREG-0800. The staff finds the applicant addressed the applicable requirements as referenced above for Section 13.3 with no differences identified.

13.3B.7 Reference to a Standard Design

Technical Information in the Application: (10 CFR 52.73)
Section 13.3 of the LNP COL FSAR states that the AP1000 DCD is incorporated by reference with supplements and no departures.

Technical Evaluation: (10 CFR 52.73)
There are no EP-related departures from the AP1000 DCD. The staff finds that the AP1000 DCD was incorporated by reference in the LNP COL FSAR and the evaluation of the supplements is addressed in Attachment 13.3A of this SER. This is acceptable because it meets the requirements of 10 CFR 52.73.

13.3B.8 Impediments to the Development of Emergency Plans

Technical Information in the Application: (10 CFR 52.81) (10 CFR 100.1(c)) (10 CFR 100.21(g))
Appendix 6, "Evacuation Time Estimate Study Summary," of the LNP Emergency Plan states that the ETE Report, "Levy Nuclear Plant, Development of Evacuation Time Estimates," dated August 2009, describes the analyses undertaken and the results obtained by a study to develop ETEs for the proposed LNP. Section 1.3, "Preliminary Activities," of the ETE Report states, in part, that the entire highway system within the EPZ, and for some distance outside of the EPZ, was driven while characteristics of each section of the highway were recorded. These characteristics include unusual characteristics such as narrow bridges, sharp curves, poor pavement, flood warning signs, and inadequate delineations. This information was referenced while preparing the input stream for the traffic simulation modeling software system.

In RAI 13.3-3(G), the staff asked the applicant to explain the significance of the unusual characteristics of the highway system identified within the EPZ, and for some distance outside of the EPZ, and how they impact the proposed LNP site. In addition, the staff requested the applicant address whether any unusual characteristics unique to the proposed LNP site could pose a significant impediment to the development of the LNP Emergency Plan. The applicant's response references its response to RAI 13.3-11(A) through RAI 13.3-11(C) as including a detailed discussion of the road survey performed. In addition, the applicant's response to RAI 13.3-11(B)(1) states that the number of bridges, sharp curves, narrow shoulders, and other capacity-reducing features on the evacuation network were observed and considered in estimating capacity. These features are identified in Appendix K to the ETE Report.

In supplemental RAI 13.3-33, the staff asked the applicant to clarify in the ETE analysis whether any physical characteristics unique to the proposed LNP site exist that could pose a significant impediment to the development of the LNP Emergency Plan. The applicant's response, in part, stated that the April 2008 and August 2009 ETE Reports were discussed by KLD Associates, Progress Energy, and Emergency Management personnel from the State of Florida and local counties of Citrus, Levy, and Marion, and that there were no physical characteristics unique to the proposed LNP site identified that could pose a significant impediment to protecting the public.

Technical Evaluation: (10 CFR 52.81) (10 CFR 100.1(c)) (10 CFR 100.21(g))
The staff finds the applicant's response to supplemental RAI 13.3-33, in consideration of its responses to RAI 13.3-3(G) and RAI 13.3-11(B)(1), acceptable because it confirms that there are no physical characteristics unique to the proposed LNP site that could pose a significant impediment to the development of emergency plans. Therefore, the staff finds the information provided in Appendix 6 to the LNP Emergency Plan and in its responses to RAIs acceptable because they meet the requirements of 10 CFR 52.81, 10 CFR 100.1(c), and 10 CFR 100.21(g). The staff's review of the ETE Report is in Section 13.3C.18, "Evacuation Time Estimates (ETE) Analysis," of this SER.

13.3B.9 Post-Combined License Activities

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

13.3B.10 Conclusion

The staff reviewed the EP information required by regulations to be in the application, but not required to be part of the LNP Emergency Plan provided in Part 5, "Emergency Plan," of the LNP COL application. The staff concludes that the information provided is acceptable and meets the applicable requirements and guidance in 10 CFR 50.33; 10 CFR 50.34(b)(6)(v); 10 CFR 50.34(f)(1), (2), and (3); 10 CFR 50.47(c)(2); 10 CFR 52.73; 10 CFR 52.77; 10 CFR 52.79; 10 CFR 52.81; 10 CFR 100.1(c); 10 CFR 100.21(g); and the applicable portions of Appendix E to 10 CFR Part 50 as discussed above.

ATTACHMENT 13.3C - ONSITE EMERGENCY PLAN

13.3C Introduction

The NRC evaluates emergency plans for nuclear power reactors to determine whether the plans are adequate and there is reasonable assurance that the plans can be implemented. This attachment to the SER provides the results of the staff's review of the onsite emergency plan for the proposed reactors (Units 1 and 2) at the LNP site.

The LNP COL FSAR states in Section 13.3, "Emergency Planning," that the LNP Emergency Plan is included in Part 5 of the COL application. Also included as part of the onsite emergency plan are seven appendices, which provide additional information regarding various aspects of the LNP Emergency Plan (e.g., List of Emergency Plan Supporting Procedures, ETE Study Summary, and Certification Letters). In addition, Part 10 of the COL application includes a set of ITAAC related to the LNP Emergency Plan.

The following section describes the staff's evaluation of the onsite emergency plan for the LNP site and conforms to the evaluation criteria in NUREG-0654/FEMA-REP-1 and Interim Staff Guidance NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," associated with the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. Conformance with the guidance in NUREG-0654/FEMA-REP-1 and ISG NSIR/DPR-ISG-01 provides the basis for meeting the requirements of the planning standards in 10 CFR 50.47(b), and Appendix E to 10 CFR Part 50, including the requirements of the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011.

13.3C.1 Assignment of Responsibility (Organizational Control)

13.3C.1.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(1), the staff evaluated it against the detailed evaluation criteria[4] in NUREG-0654/FEMA-REP-1, Revision 1, and guidance in NSIR/DPR-ISG-01. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Assignment of Responsibility (Organization Control)," in Appendix E to 10 CFR Part 50.[5]

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[4] The bracketed, alphanumeric designations used throughout this SER section identify the corresponding NUREG-0654/FEMA-REP-1 evaluation criteria used by the staff to determine compliance with 10 CFR 50.47(b).

[5] Braces identify requirements in Appendix E to 10 CFR Part 50.

13.3C.1.2 *Overall Response Organization*

Technical Information in the Emergency Plan: [A.1.a]
Section A.1.a, "State, Local, Federal, and Private Organizations," and Table A-1, "Primary Emergency Response Organizations," of the LNP Emergency Plan provide a listing of principal organizations, including points of contact, participating in emergency response activities within the 10-mile EPZ (plume exposure pathway). The principal organizations include the applicant; State of Florida and government offices of Department of Community Affairs (Division of Emergency Management (DEM)) and Department of Health (Bureau of Radiation Control); the local county Emergency Management offices and municipal entities (Fire and Medical support) from Citrus, Levy, and Marion counties; certain Federal government agencies, including the U.S. Department of Energy (DOE), NRC, and U.S. Department of Homeland Security (DHS), and FEMA; and the Electric Power Research Institute (EPRI), Institute of Nuclear Power Operations (INPO), and Westinghouse.

Figure A-1, "Interrelationships between Key Response Organizations," illustrates the interfaces among functional areas of LNP emergency response activity, Progress Energy corporate support, and the affected State, local, and Federal government response organizations.

In RAI 13.3-17(A)(1), the staff requested the applicant address inconsistencies between Figure A-1 and Section A.1.a of the LNP Emergency Plan which excludes three EROs: the Federal Bureau of Investigation, National Weather Service, and Department of Natural Resources. The applicant's response confirmed that these three organizations could be asked to participate in emergency response activities within the LNP 10-mile EPZ and committed to revise Sections A.1.a and A.1.b of the LNP Emergency Plan.

{Appendix E, Section IV.A.8}
Section A.1.b.1, "State of Florida," of the LNP Emergency Plan identifies the State of Florida as having the primary responsibility for the local population and environs, including the possible need for evacuation. The DEM is identified as being responsible for coordinating Federal, State, and local radiological emergency response activities, and for preparing and maintaining the State of Florida plan. The DEM would also initiate protective action responses that could include the evacuation of radiologically affected areas.

Technical Evaluation: [A.1.a]
The staff finds the additional information and proposed textual revisions provided in the applicant's response to RAI 13.3-17(A)(1) to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed the applicant made the referenced changes as discussed above in Revision 1 to the LNP Emergency Plan. The staff finds that the LNP Emergency Plan adequately provides a general discussion of the assignment of responsibilities and addresses protective actions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of 10 CFR Part 50, Appendix E.

{Appendix E, Section IV.A.8}:
The staff finds that the LNP Emergency Plan adequately identifies State and/or local officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.1.3 *Concept of the Operations*

Technical Information in the Emergency Plan: [A.1.b]
Section A, "Assignment of Responsibility (Organizational Control)," of the LNP Emergency Plan provides a list of participating organizations and a discussion of their respective concepts of operation. Figures A-1 and A-2, "Communications and Interrelationships between Key Response Organizations," illustrate the interrelationships between the organizations participating in an emergency response, and the onsite and offsite ERFs. Figure A-3, "State Organization for Radiological Response," illustrates the relationship between State agencies with emergency response duties. Section A.1.b.9, "Progress Energy – LNP Emergency Response Organization (ERO)," describes the LNP ERO as having the immediate and continuing responsibility for emergency response and control of emergency activities onsite.

{Appendix E, Section III}
LNP COL FSAR Section 13.3 states that the emergency plan describes the plans for coping with emergency situations, including communications interfaces and staffing of the EOF. Section A of the LNP Emergency Plan provides supporting information regarding the concept of operations and emergency response roles of supporting organizations and offsite agencies. In addition, the LNP Emergency Plan describes the facilities, emergency response measures, and functional interfaces with offsite agencies which can be used to respond to a broad range of emergencies. The LNP Emergency Plan has also been coordinated with the plans of affected government agencies and private sector support organizations.

Technical Evaluation: [A.1.b] {Appendix E, Section III}
The staff finds that the LNP Emergency Plan adequately describes the applicant's operational role, its concept of operations, and its relationship to the total effort of emergency response. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and the requirements in Appendix E to 10 CFR Part 50.

13.3C.1.4 *Organizational Interrelationships*

Technical Information in the Emergency Plan: [A.1.c]
Section 13.3C.1.3 in this SER includes discussion regarding organizational interrelationships illustrated in Figures A-1, A-2, and A-3, and Section A of the LNP Emergency Plan.

Technical Evaluation: [A.1.c]
The staff finds that the LNP Emergency Plan adequately illustrates the interrelationships of the participating organizations in emergency response in a block diagram and in text. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.1.5 *Individual in Charge of Emergency Response*

Technical Information in the Emergency Plan: [A.1.d]
Revision 1 to the LNP Emergency Plan, Section A.1.b.12, "Progress Energy – LNP Emergency Response Organization (ERO)," identifies the Nuclear Shift Manager (NSM) as the individual who has the responsibility and authority to declare an emergency classification and initiate appropriate actions pursuant to written procedures to mitigate the consequences of that emergency. The NSM will assume the role of the EC until relieved by the Plant General Manager (PGM), or designated alternate. The EC is responsible for the direction of all activities at the plant site during any emergency, including evacuation of the site, if necessary, and placing site generating units in a safe shutdown condition. Section B.5.1, "Nuclear Shift

Manager," provides a description of the affected unit NSM as assuming the role of the EC, unless a site-wide emergency (e.g., security event or natural phenomena) is declared in which the Unit 1 NSM would assume the role of the EC. Section B.4, "Emergency Coordinator Responsibilities," of the LNP Emergency Plan provides a detailed discussion regarding the specific responsibilities of the EC, including those responsibilities that the EC is not authorized to delegate. Section B.5.2, "Off-Site Emergency Response Organization," defines the EOF Director as being responsible for overall command and control of the LNP response to the emergency once the offsite ERO is activated. The EOF Director provides information to, and interfaces with, offsite authorities. Additional activities under the purview of the EOF Director include the monitoring of offsite results from the event, protecting plant personnel located outside of the protected area (PA), supporting the onsite organization, and coordinating the flow of information to the public.

In RAI 13.3-39 (Bullet 4), the staff asked the applicant to incorporate into the emergency plan its description of PEF's response to a simultaneous emergency at LNP and CR3 as it pertains to activation and operation of the EOF. In response to RAI 13.3-39 (Bullet 4), the applicant committed to revise the emergency plan to discuss the specific roles and responsibilities of the EOF facility lead in the event of a simultaneous emergency at both LNP and the CR3 nuclear plant, owned and operated by PEF.

Technical Evaluation: [A.1.d]

The staff finds the additional information and proposed textual revisions provided in response to RAI 13.3-39 (Bullet 4) acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that information provided in response to RAI 13.3-39 (Bullet 4) is incorporated into Revision 2 of the LNP Emergency Plan.

By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of the CR3 nuclear plant, the applicant renamed the EOF to remove any reference to the Crystal River Training Center. The EOF is now referred to in the LNP Emergency Plan as the LNP EOF. In addition, the applicant added a conditional statement to address when the EOF is required for use by CR3. The assignment of the EOF Director as the facility lead for command and control of the EOF response remained unchanged.

On the basis of the staff's review of the LNP Emergency plan, and considering the above Crystal River Training Center reference deletion and additional conditional language added to the emergency plan, the staff finds that the LNP Emergency Plan adequately identifies a specific individual by title that will be in charge of the emergency response to an event at the LNP site. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.1.6 *24-Hour Response Capability*

Technical Information in the Emergency Plan: [A.1.e]
Section A.1.b, Concept of Operations," of the LNP Emergency Plan identifies 24-hour communication capabilities, including titles of responsible individuals, for the LNP site, the State of Florida, counties of Levy, Marion, and Citrus and various private and Federal organizations. Section F, "Emergency Communications," describes the capability at LNP for 24-hour communications between the CRs or TSCs and the EOF, State and county EOCs, via the State of Florida Hot Ringdown Telephone System. The applicant proposed EP ITAAC 1.1 to verify

that EPIPs provide for 24-hour per day emergency response staffing and manning of communication links, including continuous operations for a protracted period.

Technical Evaluation: [A.1.e]
The staff finds that the LNP Emergency Plan describes provisions for 24-hour per day emergency response, including 24-hour per day manning of communications links. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.1.7 *Written Agreements*

Technical Information in the Emergency Plan: [A.3] {Appendix E, Section IV.A.7}
Section A.3, "Written Agreements," of the LNP Emergency Plan states, in part, that DEF has established agreements with local emergency response support services, including firefighting, medical and hospital services listed in Appendix 3. Appendix 3, "Certification Letters," of the LNP Emergency Plan includes a listing of written agreements between DEF (formerly PEF) and associated emergency support organizations. Appendix 3 states, in part, that copies of the original agreements are kept on file by LNP Emergency Preparedness organization or with DEF Contract Services. The original written agreements are included in Part 5, "Emergency Plan," of the COL application. In RAIs 13.3-17(B)(1), 13.3-17(B)(2), and Supplemental RAIs 13.3-28(1), and 13.3-28(2), the staff requested finalized letters of agreement (LOAs) from Federal, State, and local agencies, and other support organizations having an emergency response role within the LNP EPZs. In its response, in part, the applicant proposed a revised description of the primary function and responsibility of local law enforcement agencies (LLEAs), including response to a hostile action event at the LNP site, in the LNP Emergency Plan. In addition, the applicant proposed a license condition requiring updated LOAs to be in place for all organizations listed in Appendix 3 prior to the full participation exercise to be conducted in accordance with Appendix E to 10 CFR Part 50. Specifically, the applicant proposed License Condition 11(B):

> B. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, DEF will have available for NRC inspection LOAs with entities listed on Appendix 3 of the LNP COL application Part 5, Emergency Plan. These LOAs will detail each entity's specific emergency planning responsibilities and certify the entity's concurrence with their responsibilities.

Technical Evaluation: [A.3] {Appendix E, Section IV.A.7}
The staff finds the additional information and proposed textual revisions provided in response to supplemental RAIs 13.3-28(1) and 13.3-28(2), in consideration of RAIs 13.3-17(B)(1) and 13.3-17(B)(2), to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that the proposed revisions to the LNP Emergency Plan and Part 10 of the COL application provided in response to the above RAIs were included in Revision 2 to the LNP COL application.

The applicant proposed License Condition 11(B) in response to supplemental RAI 13.3-28(2):

> B. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, PEF will have available for NRC inspection LOAs with entities listed on Appendix 3 of the LNP COL application Part 5, Emergency Plan. These LOAs will detail each entity's specific emergency

planning responsibilities and certify the entity's concurrence with their responsibilities.

Pursuant to the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50, and the guidance in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01, the staff has revised the language in License Conditions 11(A) and (C) to incorporate the requirement for State and local review and agreement of the LNP initial EALs, and development of finalized letters of agreement, originally proposed, in part, in License Condition 11(B) as stated above. These revisions are as follows:

A. Progress Energy Florida shall submit a fully developed set of site-specific EALs for LNP Units 1 [Unit 2] to the NRC in accordance with NEI 07-01, Revision 0, with no deviations. <u>These EALs shall have been discussed and agreed upon with State and local officials.</u> These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

C. Prior to the full-participation exercise to be conducted in accordance with the requirements of Appendix E to 10 CFR Part 50, PEF will have available for NRC inspection the LOAs established with the following entities:

   a. State of Florida Division of Emergency Management
   b. Citrus County, Florida Emergency Management Agency
   c. Levy County, Florida Emergency Management Agency
   d. Marion County, Florida Emergency Management Agency
   e. <u>Citrus Memorial Hospital</u>
   f. <u>Seven Rivers Regional Medical Center</u>
   g. <u>Citrus County, Department of Public Safety Fire Rescue Division</u>
   h. <u>Nature Coast Emergency medical Services Fire Department</u>

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

With the staff's revisions to License Conditions 11(A) and 11(C), the staff finds 11(B) to be redundant. Therefore, License Condition 11(B) has been deleted. With the modifications identified above, the staff finds License Conditions 11(A) and 11(C) to be acceptable.

The staff finds that with the above license condition, the LNP Emergency Plan will include written agreements with support organizations having an emergency response role within its EPZs, including consideration for the availability of adequate resources and response to a hostile action event at the LNP site, prior to the full participation exercise. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.1.8 *Operations for a Protracted Period*

Technical Information in the Emergency Plan: [A.4]
Section A.4, "Continuous Operations," of the LNP emergency Plan states that PEF maintains the capability for continuous operations through training of multiple responders for key

emergency response positions. The EC or EOF Director is responsible for ensuring continuity of technical, administrative, and material resources during emergency operations. The applicant proposed EP ITAAC 1.1 to verify that EPIPs provide for 24-hour per day emergency response staffing and manning of communication links, including continuous operations for a protracted period.

Technical Evaluation: [A.4]
The staff finds that the LNP Emergency Plan describes the capability for continuous (24-hour) operation for a protracted period and identifies the individual in the principal organization that will be responsible for continuity of resources. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.1.9 *Conclusion*

On the basis of its review of the onsite emergency plan as described above for assignment of responsibility, the staff concludes that the information provided in the LNP Emergency Plan is acceptable and meets the requirements of 10 CFR 50.47(b)(1) because it conforms with the guidance in Evaluation Criterion A of NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.2 Onsite Emergency Organization

13.3C.2.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(2), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Onsite Emergency Organization," in Appendix E to 10 CFR Part 50.

13.3C.2.2 *Normal Plant Operating Organization*

Technical Information in the Emergency Plan: **{Appendix E, Section IV.A.1}**
Section B.1, "On-Site Emergency Organization," and Section B.7, "Corporate Support for the Plant Staff," of the LNP Emergency Plan provide an overview of the normal plant operating organization. In addition, Section B.7 provides a brief description of the organizations reporting hierarchy. Section B.7 further states that the Nuclear Generation organization consists of organizational elements that provide additional administrative and technical support to ensure continued safe plant operation. These elements include Engineering, Support Services, Training and Nuclear Oversight.

Technical Evaluation: {Appendix E, Section IV.A.1}
The staff finds that the LNP Emergency Plan adequately describes the normal plant operating organization. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.2.3 *Onsite Emergency Organization*

Technical Information in the Emergency Plan: [B.1] {Appendix E, Section IV.A.2.b} {Appendix E, Section IV.A.9} Section B.1 of the LNP Emergency Plan describes the onsite

emergency organization available to respond to a declared emergency at the LNP site. Figures A-1, B-1, B-2, "On-Site Emergency Response Organization (CR, TSC, OSC)," and B-3, "Off-Site Emergency Response Organization (EOF/ENC)," illustrate the interrelationships between the LNP ERO, and associated onsite and offsite ERFs, including their communication interfaces and lines of authority. The narrative in Section B.1 states that plant staff will fill the roles in the ERO that align with their normal staff functions. Table B-1, "Minimum Staffing Requirements for Emergencies," identifies the minimum staff available onsite, and within a short period to perform key emergency activities. In RAIs 13.3-18(A)(1) and 13.3-18(A)(2)(A) through 13.3-18(A)(2)(E), the staff requested the applicant resolve discrepancies between the narratives in Section B, Figures B-1 and B-2, and Table B-1 of the LNP Emergency Plan. These discrepancies excluded various ERO members from the figures and text in the LNP Emergency Plan, and included inconsistencies between various ERO members and their respective ERF locations. In its response, the applicant provided clarification of the responsibilities for various ERO positions to resolve the identified discrepancies.

In response to the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011, the applicant proposed the following addition to License Condition 11 in Part 10 of the COL application:

F. At least two (2) years prior to scheduled initial fuel load, DEF shall have performed an assessment of emergency response staffing in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities", Revision 0.

Technical Evaluation: [B.1] {Appendix E, Section IV.A.2.b} {Appendix E, Section IV.A.9}
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to RAI 13.3-18(A)(1) and RAIs 13.3-18(A)(2)(A) through 13.3-18(A)(2)(E)to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1 and meet the applicable requirements of Appendix E to 10 CFR Part 50. The staff confirmed the proposed changes in these RAIs were incorporated into Revision 1 of the LNP Emergency Plan.

By letter dated November 8, 2012, "LNP Emergency Plan Revision 5 Submittal and Proposed License Condition for the On-Shift Staffing Analysis", from PEF to the NRC, the applicant proposed a license condition to perform an assessment of its emergency response staffing pursuant to the guidance contained in NEI 10-05. Specifically, the assessment will include a detailed analysis to validate whether on-shift personnel are assigned emergency plan implementation functions that would prevent the timely performance of their assigned functions as described in the LNP Emergency Plan. NRC issued associated guidance in Interim Staff Guidance NSIR/DPR-ISG-01 as part of the issuance of the Final EP Rule that endorsed NEI 10-05 as an acceptable methodology for a licensee to perform the required staffing analysis pursuant to Appendix E to 10 CFR Part 50, Section IV.A.9. The staff finds the proposed license condition to be acceptable and verified that Part 10 of the COL application (Revision 6) was updated to incorporate this license condition.

Therefore, the staff finds that the LNP Emergency Plan provides an adequate description of the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement. This is acceptable because it meets the requirements of Appendix E to 10 CFR Part 50 and conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.2.4 *Designation of an Emergency Coordinator*

Technical Information in the Emergency Plan: [B.2]
Section B.2, "Emergency Coordinator," of the LNP Emergency Plan states that the Nuclear Shift Manager will assume the position of EC of the affected unit until relieved by the PGM or an alternate. The EC will assume duties of the position until relieved or upon termination of the emergency. The EC has the responsibility and authority to initiate emergency response actions, including notification of affected State, local, and Federal authorities and providing protective action recommendations (PARs) to offsite authorities.

Technical Evaluation: [B.2]
The staff finds that the LNP Emergency Plan adequately identifies a designated individual as emergency coordinator, who shall be on shift at all times, and who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.2.5 *Line of Succession for the Emergency Coordinator*

Technical Information in the Emergency Plan: [B.3]
Section B.3, "Emergency Coordinator Line of Succession," of the LNP Emergency Plan describes the EC line of succession. A designated alternate will assume the responsibilities of the EC if the NSM is unable to fulfill his or her duties and responsibilities. The Plant General Manager or designated alternate will assume the EC role as soon as possible after an emergency classification is determined. Section B.5.1.F, "Emergency Coordinator – CR," of the LNP Emergency Plan states that the assigned alternates to assume the role of the EC during the initial stages of an emergency are on-shift licensed Senior Control Operators designated in accordance with operations' procedures.

Technical Evaluation:
The staff finds that the LNP Emergency Plan adequately identifies a line of succession for the emergency coordinator position, and identifies the specific conditions for higher level utility officials assuming this function. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.2.6 *Responsibilities of the Emergency Coordinator*

Technical Information in the Emergency Plan: [B.4] {Appendix E, Section IV.A.2.c}
Section B.4 of the LNP Emergency Plan describes the role and responsibilities of the EC. The EC shall not delegate the responsibility for decisions related to:

- Emergency Classification;
- Notifications to State, counties, and the NRC;
- PARs to State and local authorities responsible for offsite emergency measures;
- Approval of planned radiation exposures for LNP personnel in excess of 5 rem total effective dose equivalent (TEDE) or entry into radiation fields greater than 25 rem/hour;
- Review and approval of deviations from Technical Specifications or license conditions if the EC-TSC is a Nuclear Shift Manager (NSM), or ensure that such deviations are approved by a NSM;

- Authorization of the administration of potassium iodide to on-site emergency workers; and
- Termination of the emergency.

Section B.5.1 of the emergency plan states that the NSM assumes the role of EC-CR, on the affected unit in an emergency, until relieved by the PGM or designated alternate. Following activation of the TSC, overall command and control of the onsite response to the emergency is assumed by the EC-TSC. The EOF Director assumes responsibility for overall command and control of the LNP response to the emergency following activation of the EOF.

{Appendix E, Section IV.A.2.a}
Section B, "On-Site Emergency Organization," of the LNP Emergency Plan describes the onsite ERO. The authorities, responsibilities and duties of individuals who will take charge within this organization are discussed in Sections B.4 through B.5.1 and described in Figures B-1 and B-2, and Table B-1.

Technical Evaluation: [B.4] {Appendix E, Section IV.A.2.c}
The LNP Emergency Plan establishes the functional responsibilities assigned to the emergency coordinator, and clearly specifies which responsibilities may not be delegated to other elements of the emergency organization. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and requirements of Appendix E to 10 CFR Part 50.

{Appendix E, Section IV.A.2.a}:
The staff finds the LNP Emergency Plan adequately describes the onsite ERO with a detailed discussion of the authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency. This is acceptable because it meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.2.7 *On-shift and Augmentation Emergency Response Staff*

Technical Information in the Emergency Plan: [B.5] {Appendix E, Section IV.A.9}
Section B.5, "Plant Emergency Response Staff," of the LNP Emergency Plan provides a description of the positions, titles, and major tasks of onsite and offsite personnel assigned to functional areas of emergency activities. Minimum on-shift staffing requirements, including augmented staffing times for LNP are identified in Table B-1 of the LNP Emergency Plan. Figures B-2 and B-3 of the LNP Emergency Plan illustrate augmented staffing to support activation of ERFs, including minimum staffing and support positions.

In RAI 13.3-18(D)(6), the staff requested additional information from the applicant regarding the basis for its ERO staffing levels. In its response, the applicant stated, in part, that its basis for the staffing composition identified in Table B-1 of the LNP Emergency Plan is Table B-1 of NUREG-0654/FEMA-REP-1, Revision 1. The applicant further stated that Table B-1 includes positions needed for most types of emergencies and is not an all-inclusive list of ERO members that will respond to an event. In supplemental RAI 13.3-45(1), the staff requested that the applicant address the availability of digital instrumentation and controls (I&C) maintenance personnel as part of its staffing basis for Table B-1, and to discuss whether Table B-1 meets its site-specific needs to effectively respond, on-shift and for an extended period of time, to a declared emergency event. In response, the applicant stated, in part, that digital components can be affected during an emergency and Electrical/I&C personnel will be trained in repair and corrective action tasks associated with digital components. One individual capable of performing this function must be on-shift at all times and three additional personnel will augment

the shift staffing upon declaration of an Alert or higher emergency. By letter dated June 20, 2011, the applicant supplemented its response to RAI 13.3-45(1) to clarify that the on-shift Electrical/I&C personnel and at least one additional augmented staff member for this position will be trained in digital component repair and corrective action tasks.

Several positions (e.g., Shift Technical Advisor (STA), Unit Senior Control Operators, Control Operators, Dose Projection Team Leader, and maintenance personnel – mechanical, electrical, and I&C) were identified in Table B-1, Figure B-2, or Figure B-3 as being a part of the ERO; however, there was no discussion provided in the LNP Emergency Plan regarding their emergency support functions. In RAIs 13.3-18(A)(1), 13.3-41(1), and supplemental RAI 13.3-29(3)(b), the staff requested the applicant to provide a description of the emergency support functions and responsibilities in the emergency plan for each of the above identified positions. In response, the applicant provided a brief discussion of the primary responsibilities for each position stated above and committed to incorporating this information into the LNP Emergency Plan. The applicant further stated in response to RAI 13.3-42 (Bullet 3) that each ERF (e.g., operational support center (OSC), TSC, EOF, and Emergency News Center (ENC)) will have a corresponding activation and operation EPIP that includes the minimum and augmented staff roles and responsibilities associated with each facility. Appendix 5, "List of Emergency Plan Supporting Procedures," to the LNP Emergency Plan includes the titles of the EPIPs described above.

The augmented staffing times identified in Table B-1 of the LNP Emergency Plan are represented as a range of time, 30-45 minutes and 60-75 minutes, respectively, versus 30 minutes and 60 minutes as identified in NUREG-0654/FEMA-REP-1. In RAI 13.3-18(D)(1), the staff asked the applicant to provide augmented staffing times consistent with the guidance in NUREG-0654/FEMA-REP-1 or explain why extended augmentation times are acceptable. The applicant stated, in part, that notification of the ERO typically occurs within the first 15 minutes of an event. Once notified, ERO members are expected to respond to their respective ERFs within 30 or 60 minutes and be ready to assume responsibility for their ERO function within approximately 15 minutes. Therefore, the ranges of 30-45 minutes and 60-75 minutes shown on Table B-1 include the initial ERO notification time, not to exceed 15 minutes and turnover time to assume the ERO role and responsibility for their respective Table B-1 function. In addition, the applicant provided operating experience from the Crystal River Nuclear Facility, owned and operated by PEF, which is located approximately 9 miles from the LNP. The applicant stated that experience from Crystal River has shown that based on local demographics, weather, traffic, and housing availability for station employees, it is achievable to augment staffing within 30 to 60 minutes after notification of an emergency. In supplemental RAI 13.3-45(2), the staff requested the applicant clarify inconsistencies in augmentation times (e.g., the addition of 15 minutes to the 60-75 minute augmentation time) as described in the responses to RAIs 13.3-21B, 13.3-44(2) and 13.3-18(D)(1), or include the response to RAI 13.3-18(D)(1) in the LNP Emergency Plan. In response, the applicant stated, in part, that they will replace the ranges of time (30-45 and 60-75 minutes) for staff augmentation provided in Table B-1 and Section H.4 of LNP Emergency Plan with goals of 30 and 60 minutes to improve the overall clarity of response times for ERO personnel. A 15 minute briefing and turnover time will continue to be used in the facility activation times as described in Section H.4 of the plan. By letter dated June 20, 2011, the applicant supplemented its response to RAI 13.3-45(2) to clarify its ERO augmentation and ERF activation goals.

In RAIs 13.3-18(D)(3), 13.3-18(D)(4), 13.3-18(D)(5), 13.3-18(D)(7), and supplemental RAIs 13.3-29(2) and 13.3-29(3)(a), the staff requested additional clarification regarding collateral and potentially competing duties for the following ERO positions identified in Table B-1

of the LNP Emergency Plan: mechanical, electrical and I&C maintenance, fire brigade, emergency communicator, and the STA. The applicant's response to these RAIs included the following key points:

- Current staffing plans are such that each maintenance discipline will fill their own respective vacancies (e.g., mechanical maintenance positions will be filled with mechanical maintenance personnel) with the exception of fire brigade members performing the functions of first aid and rescue operations. During emergency situations, the mechanical and electrical maintenance shift members do not have collateral duties. Any staffing decisions made for LNP that are different than stated above will be in compliance with Table B-1, and staff will be trained and qualified personnel that do not have collateral emergency response duties.

- The fire brigade will consist of at least five onsite (per shift) trained and qualified members in accordance with the FSAR. The exact composition of the fire brigade may vary per shift among qualified responders, and personnel assigned to the fire brigade will not have collateral duties that compete or conflict with fire brigade responsibilities. The fire brigade is typically composed of operations personnel; however, if other personnel assume brigade responsibilities they will be trained and qualified to the same qualifications described in the LNP Emergency Plan. The LNP fire brigade members are trained in first aid and rescue operations. In an emergency situation that does not involve a fire, the fire brigade members are readily available for any needed first aid and rescue operations. In the event of a fire, the fire brigade will be on scene and handle any injured personnel near the fire as instructed per routine fire training and response. The ability to handle and address injured personnel in a fire is standard for fire fighters. Onsite support will be augmented by offsite fire rescue that would handle fire fighting and first aid activities beyond the capability of the onsite team.

- Typically a non-licensed operator will be assigned the role of Emergency Communicator, and the non-licensed operator will not have any collateral duties. In lieu of a non-licensed operator, a trained and qualified licensed operator may fill the role of Emergency Communicator if the shift complement could accommodate this assignment without any collateral duties. The Emergency Communicator position will not be augmented with operations personnel once the TSC and/or EOF are operational. Personnel assigned the role of Emergency Communicator will be trained and qualified to do so without collateral duties.

- The responsibility for an STA during transients or accident situations is to assess plant conditions and provide technical assistance and advice to mitigate an event. No additional collateral duties will be added to the STA or Senior Reactor Operator/STA position.

In RAI 13.3-29(1), the staff asked the applicant to discuss the inconsistency between the radiological control team members staffing for on-shift protective actions (in-plant) specified in Table B-1 of the LNP Emergency Plan versus the associated shift staffing levels identified in Table B-1 of NUREG-0654/FEMA-REP-1. In addition, the staff asked the applicant to clarify whether the staffing in Table B-1 of the LNP Emergency Plan is applicable to Unit 1 only, or Units 1 and 2 combined. In response, the applicant stated that Table B-1 of the LNP Emergency Plan will be revised to be consistent with Table B-1 of NUREG-0654/FEMA-REP-1. The LNP Table B-1 will show 2 members of the radiological control team on-shift for Unit 1 with

an additional member on-shift for Units 1 and 2. A footnote allowing the function to be performed by shift personnel assigned other functions will also be added to these positions. In supplemental RAI 13.3-45(3), the staff asked the applicant to revise Table B-1 of the LNP Emergency Plan to correct the total staffing for radiological control team members consistent with its response to RAI 13.3-29(1), and to address the footnote added to this position by discussing any collateral duties or competing priorities that could have an impact on performing the positions' emergency response function. In response, the applicant stated, in part, that Table B-1 will be revised to be consistent with the response to RAI 13.3-29(1) as described above. The footnote provided for this position is consistent with NUREG-0654/FEMA-REP-1. In addition, the applicant stated, in part, that LNP radiological control team personnel will not have collateral duties during emergency situations, and any on-shift personnel required to perform in-plant protective actions will be trained and qualified to do so.

In supplemental RAI 13.3-45(4), the staff requested that the applicant clarify whether the Radiation Monitoring Team personnel described in Section I.4.1, "On-site Dose Assessment," of the LNP Emergency Plan are the same as the Environmental Monitoring Team personnel identified in LNP Table B-1. In response, the applicant referred to its response for RAI 13.03-47 in which it proposed, in part, to revise Table B-1 to identify the Radiological Monitoring Team as being responsible for performing the major task of Off-site Surveys. The applicant stated that this change in nomenclature should more appropriately align with NUREG-0654/FEMA-REP-1 and distinguish between LNP and State Monitoring Teams.

In response to the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011, the applicant proposed the following addition to License Condition 11 in Part 10 of the COL application:

F. At least two (2) years prior to scheduled initial fuel load, DEF shall have performed an assessment of emergency response staffing in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities", Revision 0.

The applicant proposed EP ITAAC 2.1 to verify EPIPs exist that provide for minimum and augmented on-shift staffing levels consistent with Table B-1 of the LNP Emergency Plan.

Technical Evaluation: [B.5] {Appendix E, Section IV.A.9}
The staff finds the clarifying information and proposed textual revisions to the LNP Emergency Plan provided in response to RAIs 13.3-18(A)(1), 13.3-18(D)(2), 13.3-18(D)(5), 13.3-18(D)(7) through 13.3-18(D)(10), and supplemental RAIs 13.3-29(3)(b), 13.3-41(1), 13.3-42 (Bullet 3), 13.3-45(4), and 13.3-47 to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1 and meet the requirements in Appendix E to 10 CFR Part 50.

The staff confirmed that the proposed revisions provided in response to RAIs 13.3-18(A)(1), 13.3-18(D)(2), 13.3-18(D)(3), 13.3-18(D)(7), 13.3-18(D)(9), and 13.3-18(D)(10) have been incorporated into Revision 1 of the LNP Emergency Plan. The staff also confirmed that the proposed revisions provided in response to RAIs 13.3-29(3)(b), 13.3-41(1), and 13.3-42 (Bullet 3), have been incorporated into Revision 2 of the LNP Emergency Plan.

The staff created Confirmatory Item 13.3-47 to track the proposed change to LNP Table B-1 consistent with the applicant's response to RAI 13.3-47.

The staff finds the applicant's response to supplemental RAI 13.3-41(2), in consideration of its responses to RAI 13.3-18(D)(3) and supplemental RAI 13.3-29(3)(a), to be acceptable because

it corrects inconsistencies regarding collateral duties for Maintenance personnel in Table B-1 of the LNP Emergency Plan, conforms to the guidance in NUREG-0654/FEMA-REP-1, and meets the requirements in Appendix E to 10 CFR Part 50. The staff confirmed that Revision 2 to Table B-1 of the LNP Emergency Plan clarified that the maintenance personnel will not have collateral duties during an emergency.

The staff finds the applicant's response to supplemental RAI 13.3-29(2), in consideration of its response to RAI 13.3-18(D)(4), to be acceptable because it provides clarification regarding the fire brigade composition and collateral duties, conforms to the guidance in NUREG-0654/FEMA-REP-1, and meets the requirements in Appendix E to 10 CFR Part 50. The staff confirmed in Revision 2 of the LNP Emergency Plan that the applicant revised Section B.5.1 to reflect that fire brigade members will not have collateral emergency response duties that compete or conflict with fire brigade response.

The staff finds that the additional information and proposed revisions to the minimum staff augmentation and activation goals provided in response to RAI 13.3-45(2) and its supplement, in consideration of its prior response to RAIs 13.3-21(B) and 13.3-18(D)(1) and 13.3-44(2), to be acceptable because it describes provisions for a timely staff augmentation and activation of the ERFs, and conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff created Confirmatory Item 13.3-45(2**)** to track the proposed textual revisions to the emergency plan consistent with the Applicant's RAI responses.

The staff finds the applicant's response to supplemental RAI 13.3-45(1), in consideration of its response to RAI 13.3-18(D)(6), to be acceptable because it identifies on-shift personnel who will be trained and qualified to work on digital components, as needed, when performing repair and corrective actions during an emergency. This conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements in Appendix E to 10 CFR Part 50. The staff created Confirmatory Item 13.3-45(1) to track the proposed textual revision of the emergency plan consistent with the Applicant's RAI responses.

The staff finds the applicant's response to supplemental RAI 13.3-45(3), in consideration of its response to RAI 13.3-29(1), to be acceptable because it includes a proposed revision to Table B-1 of the LNP Emergency Plan, consistent with its response to RAI 13.3-29(1), that aligns with the minimum shift staffing number (3 versus 1) of radiological control team members supporting the major task of on-shift protective actions. In addition, the applicant proposed a revision to the LNP Emergency Plan clarifying that the radiological control team members described above will be qualified to perform their tasks identified in Table B-1 without collateral duties that compete or conflict with their ERO responsibilities. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff created Confirmatory Item 13.3-45(3) to track the applicant's inclusion of its response into the LNP Emergency Plan.

By letter dated November 8, 2012, from PEF to the NRC, the applicant proposed a license condition to perform an assessment of its emergency response staffing pursuant to the guidance contained in NEI 10-05. Specifically, the assessment will include a detailed analysis to validate whether on-shift personnel are assigned emergency plan implementation functions that would prevent the timely performance of their assigned functions as described in the LNP Emergency Plan. NRC issued associated guidance in Interim Staff Guidance NSIR/DPR-ISG-01 as part of the issuance of the Final EP Rule that endorsed NEI 10-05 as an acceptable methodology for a licensee to perform the required staffing analysis pursuant to Appendix E to 10 CFR Part 50, Section IV.A.9. The staff finds the proposed license condition to

be acceptable and verified that Part 10 of the COL application (Revision 6) was updated to include this license condition.

Resolution of Confirmatory Items 13.3-45(1), 13.3-45(2), 13.3-45(3), and 13.3-47

Confirmatory Items 13.3-45(1), 13.3-45(2), 13.3-45(3), and 13.3-47 are applicant commitments to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Items 13.3-45(1), 13.3-45(2), 13.3-45(3), and 13.3-47 are now closed.

On the basis of its review, the staff finds that the LNP Emergency Plan specifies the positions or titles and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments were made for all shifts and for plant staff members, both onsite and away from the site. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the requirements in Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.2.8 *Interfaces Between Functional Areas*

Technical Information in the Emergency Plan: [B.6]
Section B.6, "Interfaces Between Functional Areas," of the LNP Emergency Plan states that Figure A-1 illustrates the interfaces among functional areas of LNP emergency response activity, Progress Energy corporate support, and the affected State and local, and Federal government response organizations. In addition, Figure B-1 of the LNP Emergency Plan further illustrates the interrelationship and interface between the LNP ERO, associated onsite and offsite ERFs, Federal, State and county government response organizations, and local support services. The staff requested additional clarification from the applicant in RAI 13.3-18(A)(3), regarding the identification of Federal agencies, other than the NRC Headquarters, that interface with the LNP site. The applicant's response included an updated Figure A-1 revising its illustrated interface with the NRC Regions, the DHS/FEMA, DOE, Federal Bureau of Investigation (FBI), and National Weather Service (NWS).

Technical Evaluation:
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to RAI 13.3-18(A)(3) to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that the revision to Figure A-1 provided in this RAI response is included in Revision 1 to the LNP Emergency Plan. The staff finds that the LNP Emergency Plan adequately specifies the interfaces between and among the onsite functional areas of emergency activity, licensee headquarters support, local services support, and State and local government response organization. The interfaces were illustrated in a block diagram, and included the onsite TSC, OSC, and the applicant's EOF. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.2.9 *Corporate Support*

Technical Information in the Emergency Plan: [B.7] {Appendix E, Section IV.A.3}
Section B.7, "Corporate Support for Plant Staff," of the LNP Emergency Plan states that Progress Energy's Nuclear Generation organization consists of organizational elements that provide additional administrative and technical support to ensure continued safe plant operation. Upon declaration of an emergency, as conditions warrant, management, technical, and

administrative personnel staff the ERFs and provide support as shown in Table B-1. In the event of an emergency at LNP that requires personnel and other support resources beyond those available within the LNP ERO, augmentation support is available from offsite sources (e.g., Nuclear Generation organization) and further described in plant procedures. The following areas receiving corporate support during an emergency include:

a. logistics support for emergency personnel (e.g., transportation, communications, temporary quarters, food and water, sanitary facilities in the field, and special equipment and supplies procurement)

b. technical support for planning and reentry/recovery operations

c. management level interface with governmental authorities

d. release of information to news media during an emergency (coordinated with governmental authorities)

In RAI 13.3-18(B), the staff requested that the applicant clarify in the emergency plan which support personnel will augment logistics support for emergency personnel. In response, the applicant stated that the EOF Facility Manager is responsible for logistics support during an emergency. Administrative staff in the EOF will assist the Facility Manager in procuring needed supplies and resources. Specifics regarding the responsibilities of the EOF Facility Manager and administrative staff are included in the implementing procedures. The applicant committed to revise Figure B-3 to clarify the responsibility of the EOF Facility Manager.

In RAI 13.3-65, the staff requested the applicant to clarify in the emergency plan the support role of CR3 and describe how it is notified of an emergency at LNP. In response, the applicant stated, in part, that CR3 is an extension of the corporate support provided by Progress Energy and therefore is notified of an emergency at LNP in accordance with EPIPs. The applicant proposed a revision to the LNP Emergency Plan that would clarify this information.

Technical Evaluation: [B.7] {Appendix E, Section IV.A.3}
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to RAIs 13.3-18(B) and 13.3-65 to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1 and meet the requirements of Appendix E to 10 CFR Part 50. The staff confirmed the changes proposed in response to RAI 13.3-18(B) were incorporated in Revision 1 to the LNP Emergency Plan. In addition, the staff verified that the changes proposed in response to RAI 13.3-65 were incorporated in Revision 6 to the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes who in the corporate management, administrative, and technical support personnel will augment the plant staff during emergency events. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and the requirements of Appendix E to 10 CFR Part 50.

13.3C.2.10 *Contractor and Private Organizations Support*

Technical Information in the Emergency Plan: [B.8] {Appendix E, Section IV.A.5}
Section B.8, “Support from Contractor and Private Organizations,” of the LNP Emergency Plan lists contractor and private organizations that are available to assist in emergency response at the LNP site. In RAI 13.3-18(C), the staff requested that the applicant provide additional information identifying, by position and function to be performed, other employees of the

licensee or consultants with special qualifications for coping with emergency conditions that may arise, including the special qualifications of those persons. In its response, the applicant committed to revise Section B.8 of the LNP Emergency Plan to include a discussion of services provided by INPO, American Nuclear Insurers (ANI), DOE Radiation Emergency Assistance Center/Training Site (REAC/TS), and Westinghouse Electric Company, LLC.

Technical Evaluation: [B.8] {Appendix E, Section IV.A.5}
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to RAI 13.3-18(C) to be acceptable because they conforms to the guidance in NUREG-0654/FEMA-REP-1 and meet the requirements in Appendix E to 10 CFR Part 50. The staff confirmed the changes proposed in response to RAI 13.3-18(C) were incorporated in Revision 1 of the LNP Emergency Plan. The staff finds that the LNP Emergency Plan adequately specifies the contractor and private organizations that may be requested to provide technical assistance to, and augmentation of, the emergency organization. The staff also finds that the LNP Emergency Plan adequately identifies, by position and function to be performed, other employees of the licensee with special qualifications for coping with emergency conditions that may arise or other persons with special qualifications, such as consultants, who are not employees of the licensee, and who may be called upon for assistance for emergencies. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.2.11 *Local Emergency Response Support*

Technical Information in the Emergency Plan: [B.9] {Appendix E, Section IV.A.6}
Sections A.1.b, "Concept of Operations," of the LNP Emergency Plan describes local services (e.g., fire departments, hospitals, and LLEA) available to support the LNP ERO. This section includes a description of the support role of Citrus, Levy, and Marion County emergency management organization. CR3 is listed in Table C-1 of the LNP Emergency Plan as having radiological laboratories available to support the processing of highly radioactive samples, if necessary. Table L-1, "Summary of Actions for Emergency Medical Treatment," identifies local offsite medical facilities that are utilized depending upon the type of injury sustained and degree of contamination, if any. Additional information regarding written agreements of support organizations having an emergency response role within the LNP EPZs is in Section 13.3C.1.7 of this SER.

Technical Evaluation: [B.9] {Appendix E, Section IV.A.6}
By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of CR3 nuclear plant, the applicant removed reference to Crystal River 3 nuclear plant from Table C-1 of the LNP Emergency Plan as providing local support to analyze highly radioactive samples during an emergency at LNP.

In consideration for the above CR3 reference deletion, the staff finds that the LNP Emergency Plan adequately identified, or provided reference to, the services to be provided by local agencies for handling emergencies (e.g., police, ambulance, medical, hospital, and fire-fighting organizations). The staff also finds that the LNP Emergency Plan adequately incorporates, or provides reference to, information about the emergency response roles of supporting organizations and offsite agencies. The information in the onsite emergency plan is sufficient to provide assurance of coordination among the support groups and with the licensee. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.2.12 *Conclusion*

On the basis of its review of the LNP Emergency Plan as described above for the onsite emergency organization, the staff concludes that the information provided in the LNP Emergency Plan is acceptable and meets the requirements of 10 CFR 50.47(b)(2) because it conforms with the guidance in Evaluation Criterion B of NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and complies with the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.3 Emergency Response Support and Resources

13.3C.3.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(3), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1 and guidance in NSIR/DPR-ISG-01. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Emergency Response Support and Resources," in Appendix E to 10 CFR Part 50.

13.3C.3.2 *Individual Authorized to Request Federal Support*

Technical Information in the Emergency Plan: [C.1.a]
Sections A.1.b.12 and B.4 of the LNP Emergency Plan describe the responsibilities of the EC. Specifically, should the EC determine that extreme measures need to be taken in order to maintain control of an emergency situation, the EC has the authority to direct personnel to evacuate the LNP site, direct a safe shutdown, initiate accountability activities, notify all applicable agencies of the plant status or required outside assistance. Section C.1, “Federal Response Capability,” of the LNP Emergency Plan states, in part, that under some complex circumstances, the EOF Director may request assistance directly or through the NRC (Federal coordinating agency).

Technical Evaluation: [C.1.a]
The staff finds that the LNP Emergency Plan adequately addresses the individuals authorized to request Federal support because the description conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.3.3 *Expected Assistance from State, Local, and Federal Agencies*

Technical Information in the Emergency Plan: [C.1.b] {Appendix E, Section IV.A.7}
Section A.1.b of the LNP Emergency Plan describes the primary State, local, and Federal organizations and expected emergency response support to be provided to PEF during an event at the LNP site. Section C of the LNP Emergency Plan states that support from State, local, and Federal agencies includes assistance for onsite activities in response to a hostile action event that is sufficient to cope with potential events. Section C.1 of the LNP Emergency Plan states that the NRC, acting as the cognizant Federal agency, will initiate and coordinate Federal response for the emergency under the National Response Framework (NRF). Section C.1.b of the LNP Emergency Plan states that PEF estimates that NRC support would arrive at the site within 3-4 hours (based on driving time; shorter if using aircraft) following the notification to deploy. Furthermore, PEF expects NRC assistance from NRC offices in Atlanta, Georgia, will arrive in the LNP site vicinity within 7 to 8 hours following notification. This time may also be reduced using aircraft. Federal radiological monitoring assistance may be provided

by the NRC. By letter dated February 16, 2011, "Response to Request for Additional Information Letter No. 100 Related to Emergency Planning," to the NRC from PEF, the applicant provided additional information to clarify the NRC's expected response time to an LNP emergency. The applicant removed the reference to the NRC providing radiological monitoring assistance from the emergency plan and stated, in part, that NRC assistance is expected at the LNP site within approximately 8 hours following notification and drive time. The team may reduce this time by use of aircraft. Section A.1.b.11, "Department of Homeland Security [DHS/Federal Emergency Management Agency (FEMA)]," states that DHS and its subordinate agency FEMA are assigned lead responsibility for Federal offsite nuclear EP and response. DHS/FEMA Region IV and the Federal Bureau of Investigation will provide assistance to the LNP as needed.

In response to the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011, the applicant provided additional information in Section C, "Emergency Response Support and Resources," of the LNP Emergency Plan, which states that support from State, local, and Federal agencies includes assistance for onsite activities in response to a hostile action event that is sufficient to cope with potential events. In RAI 13.3-59, the staff requested the applicant to discuss whether acknowledgement of a State, local and Federal response to a hostile action event had been incorporated into Section A of the LNP Emergency Plan, which describes the emergency responsibilities of various support organizations having an operational role with the LNP EPZs. In response, the applicant provided a discussion that concluded, in part, that although the information in Section A of the LNP Emergency Plan does not explicitly mention hostile action support, the information contained in Section A is adequate. By letter dated April 26, 2013, "Supplemental Response to NRC RAI Letter 111 Related to SRP Section 13.3", the applicant supplemented its response to clarify in the LNP Emergency Plan that hostile action response is one of the emergency responsibilities for local law enforcement agencies.

Technical Evaluation: [C.1.b] {Appendix E, Section IV.A.7}
The staff finds the applicant's clarification regarding NRC's expected response time during an emergency and the roles of offsite response agencies during hostile actions, in consideration of its supplemental response, to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the requirements of Appendix E to 10 CFR Part 50. The staff verified that the LNP Emergency Plan (Revision 6) was appropriately updated (or revised). Therefore, on the basis of its review, the staff finds that the LNP Emergency Plan adequately identifies the assistance expected from appropriate State, local, and Federal agencies with responsibilities for coping with emergencies. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.3.4 *Resources to Support the Federal Response*

Technical Information in the Emergency Plan: [C.1.c]
Section C.1.c of the LNP Emergency Plan states that PEF will provide facilities and resources needed to support the Federal response through the EOF. PEF will provide office space and telephone communications for NRC personnel in the TSC, EOF, and ENC. Section A.1.b.2, "State of Florida Department of Community Affairs, Division of Emergency Management (DEM)," of the LNP Emergency Plan states that the DEM provides personnel and equipment to ERFs, and provides needed supplies to State and local political subdivisions. The State Emergency Management Communications Network, the State Hot Ringdown Telephone System, and the Florida Emergency Satellite Communications System (ESATCOM)

communication systems are also available to the DEM. Section H.3, "State/County Emergency Operations Centers," lists the State Emergency Operations Center (SEOC), the State Warning Point-Tallahassee (SWPT), and the Citrus, Levy, and Marion County EOCs as facilities utilized in the event of an LNP emergency. Section H.3, "State/County Emergency Operations Centers," also states that implementing procedures describe the inter-relationship of PEF with these centers and Federal agencies. Appendix 3 identifies certification letters with organizations that may be required to provide support during an emergency at LNP. Signed copies of the letters are provided.

Technical Evaluation: [C.1.c]
The staff finds that the LNP Emergency Plan adequately describes provisions for incorporating the Federal response capability into its operation plan; including specific licensee, State, and local resources available to support the Federal response. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.3.5 *Representatives to Offsite Governments*

Technical Information in the Emergency Plan: [C.2.b]
Section C.2, "Off-Site Organization Representation in the Emergency Operations Facility," of the LNP Emergency Plan states that the EOF organization will dispatch a representative to principal offsite State and local EOCs to provide technical expertise and assistance to these organizations. Section B.5.f, "Representatives to the State/County EOCs," states that representatives sent to the State/County EOCs are located in the Florida State EOC State Administrative Building in Tallahassee, Florida; the Citrus County EOC in Lecanto, Florida; the Levy County EOC in Bronson, Florida; and the Marion County EOC in Ocala, Florida.

Technical Evaluation: [C.2.b]
The staff finds that the LNP Emergency Plan adequately addresses the dispatch of a representative to principal offsite governmental EOCs. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.3.6 *Radiological Laboratory Support*

Technical Information in the Emergency Plan: [C.3]
Table C-1, "Radiological Laboratories – Capabilities," of the LNP Emergency Plan identifies three radiological laboratories and their capabilities: post-accident analyses and monitoring of radioactive samples. In addition, the LNP Emergency Plan states that the LNP ERO is authorized to use these laboratories in an emergency situation, which are expected to respond once resources become available. Section C.3, "Radiological Laboratories," states that the Department of Health, Bureau of Radiation Control (DHBRC) will provide services for low-level radioactivity samples and environmental monitoring.

Technical Evaluation: [C.3]
By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of CR3 nuclear plant, the applicant removed reference to Crystal River 3 nuclear plant from Table C-1 of the LNP Emergency Plan as providing local support to analyze highly radioactive samples during an emergency at LNP.

In consideration for the above CR3 reference deletion, the staff finds that the LNP Emergency Plan adequately identifies radiological laboratories, their general capabilities, and expected availability to provide radiological monitoring and analyses services which can be used in an

emergency. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.3.7 *Other Sources of Assistance*

Technical Information in the Emergency Plan: [C.4]
Section A of the LNP Emergency Plan includes a listing of State and county facilities available to provide assistance to LNP during an emergency. Section B.8 provides a listing of contractor and private organizations that are considered part of the overall response organization. Radiological laboratories and their general capabilities are identified in Table C-1. Section C.4, "Other Supporting Organizations," of the LNP Emergency Plan states, in part, that Oak Ridge Associated Universities is available to provide backup medical care and treatment of personnel. Appendix 3 includes Letters of Certification and Agreement with organizations that may be required to provide support to LNP during a classified emergency. Signed copies of these letters were provided.

{Appendix E, Section III}
The LNP FSAR Section 13.3-2 states that the emergency plan describes the plans for coping with emergency situations, including communications interfaces and staffing of the EOF. Section A, "Assignment of Responsibility (Organizational Control)," of the LNP Emergency Plan provides supporting information regarding the concept of operations and emergency response roles of supporting organizations and offsite agencies.

Technical Evaluation: [C.4]
The staff finds that the LNP Emergency Plan adequately identifies the other sources of assistance expected to support any emergency response. This is acceptable because it conforms to the guidance in NUREG 0654/FEMA-REP-1.

{Appendix E, Section III}:
The staff finds that the LNP Emergency Plan adequately describes the applicant's operational role, its concept of operations, and its relationship to the total effort. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.3.8 *Conclusion*

On the basis of its review of the onsite emergency plan as described above for emergency response support and resources, the staff concludes that the information provided in the LNP Emergency Plan is acceptable and meets the requirements of 10 CFR 50.47(b)(3) because it conforms with the guidance in Evaluation Criterion C of NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and complies with applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.4 Emergency Classification System

13.3C.4.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(4), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1 and guidance in NSIR/DPR-ISG-01. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Emergency Classification System," in Appendix E to 10 CFR Part 50.

13.3C.4.2 *Emergency Classification System*

Technical Information in the Emergency Plan: [D.1 and D.2] {Appendix E, Section IV.B and IV.C}
Section D, "Emergency Classification System," of the LNP Emergency Plan describes four emergency classes and includes a brief statement of purpose for each emergency classification level: Notification of Unusual Event (NOUE), Alert, Site Area Emergency (SAE), and General Emergency (GE). Section D.2, "Emergency Action Levels," and Appendix 4, "Emergency Action Levels," incorporate by reference NEI 07-01, "Methodology for Development of Emergency Action Levels for Advanced Passive Light Water Reactors," Revision 0, as the basis for the LNP EAL scheme. Section D.2 states that Appendix 4 provides the parameter values and equipment status that will be used in classifying emergencies at LNP. In addition, Appendix 4 includes five recognition category matrices, and a statement to support that the emergency classification and EAL scheme has been reviewed by the State of Florida and local counties of Citrus, Levy, and Marion, and will continue to be reviewed by the State and local authorities on an annual basis.

The applicant proposed EP ITAAC 3.1 to verify that the specified parameters (facility system and effluent) are retrievable in the CRs, TSC, and EOF, and the ranges of displays encompass the values specified in the emergency classification and action level scheme. Appendix 5, "List of Emergency Plan Supporting Procedures," identifies an EPIP entitled, "Emergency Classification."

In RAI 13.3-01, the staff requested the applicant address its plans to finalize the LNP emergency classification and action level scheme and provided them with two options. Option 1 was the submission of an entire EAL scheme, which includes all site-specific information. Option 2 had four parts (critical elements) that addressed the submission of an overview of the EAL scheme using NEI 07-01, Revision 0, and the proposal of a license condition that

addresses EAL completion and submission to the NRC. In response, the applicant selected Option 2. The applicant provided the following information: a definition and statement of purpose for each emergency class; a license condition committing to the use NEI 07-01 or an equivalent NRC endorsed EAL scheme with no deviations; a State and local government review and approval of the proposed EALs; and a statement indicating that the fully developed EAL scheme will be incorporated into an EPIP or the LNP Emergency Plan controlled pursuant to 10 CFR 50.54(q). The applicant supplemented its response, which provided additional information to clarify the revision of NEI 07-01 (Revision 0) to be used as the technical basis for its EALs, and changed the license condition submittal date of its EAL scheme to the NRC. In addition, the applicant proposed revisions to the emergency plan, which, in part, removed a requirement for the applicant to collaborate with, and obtain approval of its EAL scheme, from State and local government authorities.

Revision 1 to Part 10, "Proposed License Conditions (Including ITAAC)," of the COL application includes the following License Condition (No. 11, Emergency Planning Actions):

> A. Progress Energy Florida shall submit a fully developed set of site-specific Emergency Action Levels (EALs) for Levy Units 1 (Unit 2) to the NRC in accordance with NEI 07-01 Revision 0, with no deviations. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

In supplemental RAI 13.3-30, the staff asked the applicant to provide the revised language to the LNP Emergency Plan that includes a general list of licensee actions for each emergency classification, and a license condition to ensure that the final version of the initial EALs will be discussed with, and agreed upon, by State and local governmental authorities at least 180 days prior to fuel load. In response, the applicant provided revised language to Section D of the LNP Emergency Plan and a reference to an EPIP where the fully developed EAL scheme will be included. In addition, the applicant proposed to remove Appendix 4 from the emergency plan and mark it as "Not Used" since the LNP EALs have not been fully developed, and revised a proposed license condition developed in response to supplemental RAI 13.3-28(2) to include the concurrence of the State and local governments with the LNP EALs. The applicant submitted a supplemental response to this RAI which incorporated the State and local government review requirement into the emergency plan that had been previously deleted during the removal of Appendix 4.

Revision 2 to Part 10, "Proposed License Conditions (Including ITAAC)," of the COL application includes the following License Condition, in part (No. 11, Emergency Planning Actions):

> C. These Letters of Agreement will certify each agency's concurrence with the emergency action levels described in LNP Units 1 and 2 COLA Part 5 Emergency Plan.

In response to the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011, the applicant provided additional information in Section D.3, "Emergency Declaration," of the LNP Emergency Plan that states that LNP maintains the capability to assess, classify and declare an emergency condition within 15 minutes following the availability of indications to cognizant facility staff that an emergency action level has been exceeded. Section D.3 further states that the Shift Manager/Emergency Coordinator is responsible for promptly declaring the emergency condition following identification of the appropriate emergency classification level, consistent with the need to provide for public health

and safety. The LNP Emergency Plan contains additional information in Section D.3 to clarify that this 15 minute criterion is not to be construed as a grace period for restoring plant conditions to avoid declaring an EAL, and should not limit response actions necessary to protect public health and safety. Additional details describing the timeliness of emergency declaration are contained in LNP EPIPs.

Technical Evaluation: [D.1 and D.2] {Appendix E, Section IV.B and IV.C}
The staff finds the applicant's definition of the four emergency classifications (NOUE, Alert, SAE, GE) introduced in Section D of Revision 1 to the LNP Emergency Plan acceptable because they are consistent with the emergency classifications described in Appendix E to 10 CFR Part 50 and defined verbatim with NRC endorsed guidance NEI 07-01, Revision 0, which includes security-based events.

In Section D.2 of the LNP Emergency Plan, the staff finds the applicant's reference to NEI 07-01, Revision 0, as the technical basis for development of the LNP site-specific EALs to be acceptable since NEI 07-01, Revision 0 was reviewed by NRC staff and found acceptable for use, as documented in a letter to NEI dated August 12, 2009. NEI 07-01 includes the critical elements specified in 10 CFR 50.47(b)(4), and Sections IV.B and IV.C of Appendix E to 10 CFR Part 50. The staff recognizes that the response to supplemental RAI 13.3-30 alters the text in Section D.2 and deletes the reference to NEI 07-01, Revision 0, as the technical basis for development of EALs. However the staff's determination of acceptability remains valid since the revised Section D.2 introduces an EPIP, "Emergency Classification," that will include the fully developed set of EALs, and a license condition proposed by the applicant that refers to the site-specific EALs as being developed in accordance with NEI 07-01, Revision 0, with no deviations. The staff has confirmed that Revision 1 to Part 10 of the COL application incorporates this license condition as described in this section of the SER.

The staff requested additional information from the applicant in supplemental RAI 13.3-30 because the applicant's initial and supplemental response to RAI 13.3-1 did not fully address all of the critical elements outlined in Option 2 (e.g., licensee actions for each emergency classification were not provided consistent with NUREG 0654/FEMA-REP-1, Appendix 1; Appendix 4 of the emergency plan includes an incomplete EAL scheme). The staff finds the applicant's response to supplemental RAI 13.3-30 to be acceptable because it addresses the critical elements outlined in Option 2 to RAI 13.3-1 and conforms to the guidance in NEI 07-01, Revision 0, and NUREG-0654/FEMA-REP-1, Appendix 1. However, the revision to Appendix 4 removed an Appendix E to 10 CFR Part 50 requirement (E.IV.B) to review the LNP's EALs with State and local authorities on an annual basis. The applicant revised the emergency plan to add this requirement in a supplemental response to RAI 13.3-30, which the staff finds acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

The staff confirmed that the applicant's proposed revisions to the LNP Emergency Plan provided in response to RAI 13.3-30 and its supplement were incorporated into Revision 2 of the LNP Emergency Plan and Part 10 of the COL application. In its further review of License Condition 11(A) and (C) in Part 10 of the COL application, Revision 2, the staff finds the proposed language to be ambiguous with regards to the State and local review and acceptance of LNP's initial EALs as required by Section IV.B of Appendix E to 10 CFR Part 50. Therefore, the staff revised License Condition 11(A) as follows to address this requirement:

A. Progress Energy Florida shall submit a fully developed set of site-specific EALs for LNP Units 1 [Unit 2] to the NRC in accordance with NEI 07-01, Revision 0, with no deviations. <u>These EALs shall have been discussed and agreed upon with State and</u>

local officials. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

The staff removed the underlined language described above from License Condition 11(C) and added it to License Condition 11(A). The staff finds that the proposed EAL scheme and license condition as modified by the staff to be acceptable because they meet the requirements of Appendix E to 10 CFR Part 50 and conform to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

By letter dated November 8, 2012 from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011, regarding emergency declaration timeliness. The staff finds the applicant's description of emergency declaration timeliness in Section D.3 of the LNP Emergency Plan and reference to additional detail contained in an EPIP, to be acceptable since it conforms to the guidance in NSIR/DPR-ISG-01 and meets the requirements of Appendix E.IV.C.2 to 10 CFR Part 50.

13.3C.4.3 *Emergency Action Level Review by State and Local Authorities*

Technical Information in the Emergency Plan: {Appendix E, Section IV.B}
As previously described in Section 13.3C.4.2 of this SER, License Condition 11(A) includes provisions to ensure that the finalized EALs for LNP have been discussed and agreed upon with State and local officials. In addition, Section P.4, "Plan Review and Updates," of the LNP Emergency Plan includes the annual requirement for the licensee to review its EALs with the State and local governments.

Technical Evaluation: {Appendix E, Section IV.B}
The staff finds the proposed License Condition 11(A), as modified by the staff, to be acceptable because it meets the requirements of Appendix E to 10 CFR Part 50. The staff finds that the LNP Emergency Plan provides for the annual review of EALs by State and local officials. This is acceptable because it meets the requirements of Appendix E, Section IV.B to 10 CFR Part 50.

13.3C.4.4 *Conclusions*

On the basis of its review of the LNP Emergency Plan as described above for the emergency classification system, the staff concludes that the information provided in the LNP Emergency Plan is acceptable and meets the requirements of 10 CFR 50.47(b)(4) because it conforms with the guidance in Evaluation Criterion D of NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.5 Notification Methods and Procedures

13.3C.5.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(5) for notification methods and procedures, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to

the area of "Notification Methods and Procedures," in Appendix E to 10 CFR Part 50 and 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors."[6]

13.3C.5.2 *Notification Procedures, Capabilities, and Agreements*

Technical Information in the Emergency Plan: [E.1] {Appendix E, Sections IV.D.1 and D.3}

Section E, "Notification Methods and Procedures," of the LNP Emergency Plan states that mutually agreeable methods and procedures for notification of offsite response organizations are consistent with the emergency classification and action level scheme and have been established between PEF and State and local agencies. Appendix 5 of the LNP Emergency Plan includes an EPIP titled, "Notification and Communication," that provides details regarding notification responsibilities, communication systems, and information required to be transmitted to offsite agencies, including provisions for message verification. The means used to notify local, State, and Federal officials and agencies is described in Section E.1, "Notification and Mobilization of Emergency Response Personnel," and Section F, "Emergency Communications," of the LNP Emergency Plan. Points of contact for participating agencies and organizations are outlined in Table A-1. Appendix 7, "Public Alert and Notification System," Section 2.0, "Design Objective/Basis," states design parameters of the Alert and Notification System (ANS) are intended to meet or exceed the applicable criteria in Appendix 3 of NUREG-0654/FEMA-REP-1. Section E.5, "Instruction to the Public in the Plume Exposure Pathway EPZ," states notification of the public is the responsibility of State and local Emergency Management authorities. The applicant proposed EP ITAAC 4.1 and 12.1.1.B.2 to test the capabilities of the system used to notify the State of Florida and counties of Levy, Citrus, and Marion within 15 minutes after an emergency is declared. In addition, the applicant proposed EP ITAAC 9.3 and 12.1.1.B.4 to test the capability of the Public Alert and Notification System to successfully initiate a broadcast message to notify and protect all segments of the transient and resident populations.

Technical Evaluation: [E.1] {Appendix E, Section IV.D.1 and D.3}
The staff finds that the LNP Emergency Plan adequately refers to procedures which describe the mutually agreeable bases for notification of response organizations and conforms to the emergency classification scheme consistent with Appendix 1 to NUREG-0654/FEMA-REP-1, and NEI 07-01, Revision 0. These procedures will include the means for verification of messages. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements in Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.5.3 *Notification and Activation of the Emergency Response Organization*

Technical Information in the Emergency Plan: **[E.2] {Appendix E, Section IV.C}**
Section E.1.1, "Progress Energy Emergency Response Organization," of the LNP Emergency Plan states that notification and mobilization of onsite and offsite personnel will be directed by the EC once an event has been classified. The public address system will be used as the primary means for notification of personnel within the PA. Audible and visual alarms specific to the nature of the emergency, will be used to alert site staff. ERO members are requested to respond, as directed by the EC. Offsite ERO staff will be contacted via a dedicated notification

[6] Parentheses identify other applicable regulatory requirements

system. Commercial telephone and/or telephone-activated pager will be used as a backup means to notify ERO members who are offsite. Telephone numbers will be available in the Emergency Telephone Directory. Corporate personnel will be notified in accordance with implementing procedures. The applicant proposed EP ITAAC 4.2 to test the capability of the primary and back-up ERO notification systems. In addition, the applicant proposed EP ITAAC 12.1.1.B.1 and 12.1.1.B.2 to demonstrate the ability to alert, notify, and mobilize site emergency response personnel, and notify the NRC, and State and local governments in accordance with implementing procedures.

Technical Evaluation: [E.2] {Appendix E, Section IV.C}
The staff finds that the LNP Emergency Plan adequately addresses procedures for alerting, notifying, and mobilizing emergency response personnel. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements in Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.5.4 *Initial Message Content to Offsite Response Organizations*

Technical Information in the Emergency Plan: [E.3] {Appendix E, Section IV.A.4 and IV.C}
Section E.2, "Message Content," of the LNP Emergency Plan states that the content of the messages to Offsite-Response Organizations (OROs) have been established in conjunction with the State and local governments. The messages include the initial emergency classification (or classification escalation), whether a release is taking place, basic meteorological data, potentially affected population/areas, and any recommended protective actions. Supplemental messages containing more detail may be released once additional information is available. The applicant proposed EP ITAAC 12.1.1.B.2.a to test the capabilities of the LNP site to transmit information to State and local agencies within 15 minutes of event classification consistent with implementing procedures.

Technical Evaluation: [E.3] {Appendix E, Section IV.A.4 and IV.C}
The staff finds that the LNP Emergency Plan, in conjunction with State and local government authorities, adequately established the contents of the initial emergency messages to be sent from the plant. This is acceptable because it meets the requirements of Appendix E, to 10 CFR Part 50 and conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.5.5 *Follow-up Messages to Offsite Response Organizations*

Technical Information in the Emergency Plan: [E.4]
Section E.3, "Follow-up Messages to Off-Site Authorities," of the LNP Emergency Plan states follow-up messages will be issued to the affected State and local authorities to describe the emergency. Follow-up messages will include the following information: incident location, name of caller and contact information; date and time; emergency classification; information regarding a potential or actual release; estimates of quantities and concentrations of radioactive particulate; meteorological conditions; projected doses at prescribed locations; emergency response actions underway; protective action recommendations; requests for any onsite support needed by offsite organizations; and any prognosis for changes in event classification or other conditions based on the current plant assessment.

Technical Evaluation: [E.4]
The staff finds that the LNP Emergency Plan adequately provides for follow-up messages from the facility to offsite authorities, and the content of these messages is consistent with the guidance in NUREG-065/FEMA-REP-1, Revision 1. In addition, the staff verified that the nature of the information provided is consistent with the requirements of the State and local emergency plans. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.5.6 *Notification of the Public*

Technical Information in the Emergency Plan: [E.6] {Appendix E, Section IV.D.3}
Section E.5 of the LNP Emergency Plan states that the primary means for alerting the public in the 10-mile plume exposure pathway EPZ to initiate protective actions is by sounding the ANS. In supplemental RAI 13.3-38, the staff requested the applicant provide additional information related to a secondary capability to promptly alert and notify the public of an emergency should the primary system (ANS) become unavailable. In its response, the applicant stated that Sections 2.1 and 2.2 of Appendix 7, "Public Alert and Notification System," to the LNP Emergency Plan identifies mobile sirens as the alternate method of notifying the public when offsite locations 5 miles from the site are not suitable for fixed siren placement. Section J.10.c, "Protective Measure Implementation," describes warnings to the public as being the responsibility of State and local officials. Section E.5 of the LNP Emergency Plan states, in part, that in the event of an emergency, the public will be advised to tune to local televisions or radio stations for instructions. General information regarding the nature of potential emergencies will be disseminated through news or press releases from the ENC. The Public Information Director is responsible for the coordination and dissemination of this information. This process is discussed in Section G, "Public Education and Information," of the LNP Emergency Plan. Appendix 7 of the LNP Emergency Plan provides detailed information regarding the design objectives of the public ANS, including the ability to alert the population within the plume exposure pathway EPZ within 15 minutes. Appendix 5 provides an EPIP titled, "Notification and Communication," which implements this section of the LNP Emergency Plan. The applicant proposed EP ITAAC 9.3 to test the capability of the Public ANS to successfully initiate a broadcast message to notify and protect all segments of the transient and resident populations.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011, regarding its backup ANS capability should the primary means for performing this function become unavailable. The staff requested additional information from the applicant in RAI 13.3-60 to clarify in the LNP Emergency Plan the administrative means used by DEF for alerting the populace within the 10-mile EPZ, and to clearly identify whether tone alert radios were the designated backup means for performing this activity. In addition, the staff requested the applicant describe the primary means for notifying the populace within the 10-mile EPZ should mobile sirens become cost-prohibitive, and clarify in the LNP Emergency Plan whether the 15-minute timeliness goal includes both the capability to alert and notify the public of an emergency at the LNP site. In its initial and supplemental response to address this RAI, the applicant committed to revise Section E.5 of the LNP Emergency Plan to reference Appendix 7 which describes the ANS; clarify that route alerting is the backup means for alerting the public while deleting its reference to tone alert radios; add a reference to Appendix 5 in Section E to clarify that the "Notification and Communication" implementing procedures apply to Section E of the emergency plan; and clarify sections E.5, J.10.c, and Appendix 7 to remove mobile sirens from the emergency plan as a primary means of alerting the public.

Technical Evaluation: [E.6] {Appendix E, Section IV.D.3}
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to supplemental RAI 13.3-38 and RAI 13.3-60, in consideration of its supplemental response, acceptable because they provide clarification that an alternate means of alerting the public exists for an emergency at LNP and conforms to the guidance in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the requirements of Appendix E to 10 CFR Part 50. The staff confirmed that the information provided in response to supplemental RAI 13.3-38 has been incorporated into Revision 2 of the LNP Emergency Plan. The staff confirmed that the information provided in response to RAI 13.3-60, including its supplemental response, has been incorporated into Revision 6 of the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately establishes the administrative and physical means and the time required for notifying and providing prompt instructions to the public in the plume exposure pathway EPZ. This is acceptable because it conforms to the guidance of NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the requirements of Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.5.7 *Written Messages to the Public*

Technical Information in the Emergency Plan: [E.7]
Section E.6, "Written Messages to the Public," of the LNP Emergency Plan states that written, pre-planned messages or Emergency Alert System (EAS) messages are released to the media by the State or local Director of Emergency Management consistent with the emergency classification scheme. These messages provide instructions on specific actions to be taken by the public, including information on the nature of the emergency and recommended protective actions (e.g., sheltering, evacuation, potassium iodide).

Technical Evaluation: [E.7]
The staff finds the LNP Emergency Plan adequately discusses written messages intended for the public developed by the State of Florida. In particular, draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas, were prepared. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.5.8 *Notification of the NRC*

Technical Information in the Emergency Plan: {Appendix E, Section IV.A.4}
(10 CFR 50.72(a)(3)) and **(10 CFR 50.72(c)(3))**
Section E.1.2.b, "Nuclear Regulatory Commission (NRC)," of the LNP Emergency Plan states the NRC will be notified using the Emergency Notification System (ENS) as soon as possible and within one hour of emergency classification. Commercial telephone lines are available as a backup method for notification. Section F.1.c, "Description of Communication Links," states separate telephone lines are dedicated for communications with the NRC. Section F.1.c.1 states that the ENS will be used to provide initial notifications to the NRC, as well as ongoing information about plant systems, status, and parameters. The EC and EOF Director, when the EOF is operational are responsible for direct interface with offsite authorities. Additional information regarding the timely notification to the NRC during a security-based event can be found in Section 13.3C.17.3 of this SER. In RAI 13.3-46, the staff requested the applicant clarify in the LNP Emergency Plan whether an open, continuous channel for communication with the NRC will exist, if requested. In response, the applicant stated that the LNP will maintain an open, continuous communication channel with the NRCOC upon request by the NRC per

10 CFR 50.72(c)(3) over the ENS and/or Health Physics Network (HPN) circuits. The EC has accountability to ensure the channel remains open upon request. The applicant proposed to revise the LNP Emergency Plan to reflect this information.

Technical Evaluation: {Appendix E, Section IV.A.4} (10 CFR 50.72(a)(3))
The staff finds that the LNP Emergency Plan provides for prompt notification (as soon as possible, within one hour) of the NRC after declaration of an emergency. This is acceptable because it meets the requirements in 10 CFR 50.72(a)(3) and applicable portions of Appendix E to 10 CFR Part 50.

(10 CFR 50.72(c)(3))
The staff finds the applicant's response to RAI 13.3-46 to be acceptable because it describes the means by which the licensee will maintain an open line with the NRC upon request and meets the requirements of 10 CFR 50.72(c)(3). The staff created Confirmation Item 13.3-46 to track the applicant's proposed changes to the LNP Emergency Plan in response to RAI 13.3-46.

Resolution of Confirmatory Item 13.3-46

Confirmatory Item 13.3-46 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-46 is now closed.

On the basis of its review of the LNP Emergency Plan, the staff finds that the LNP Emergency Plan includes provisions for the licensee to maintain an open, continuous communication channel with the NRCOC upon request by the NRC. This is acceptable because it meets the requirements of 10 CFR 50.72(c)(3).

13.3C.5.9 *Conclusion*

On the basis of its review of the LNP Emergency Plan, the staff concludes that the information provided in the LNP Emergency Plan regarding notification methods and procedures is acceptable and meets the requirements of 10 CFR 50.47(b)(5) because it conforms to the guidance in Evaluation Criterion E of NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the applicable requirements of Appendix E to 10 CFR Part 50 and 10 CFR 50.72(a)(3) and (c)(3) as described above.

13.3C.6 Emergency Communications

13.3C.6.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(6) for emergency communications, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Emergency Communications," in Appendix E to 10 CFR Part 50 and GL 91-14, "Emergency Telecommunications."

13.3C.6.2 *Content of the Emergency Communications Plan*

Technical Information in the Plan: [F.1.a]

Section F, “Emergency Communications,” of the LNP Emergency Plan describes the communication systems and provisions for communications between the LNP site ERFs and principal response organizations, including State, local, and Federal agencies. Section F further states that details describing the operation and testing of communication systems is located in EPIPs. Section F.1.a states that Progress Energy maintains capabilities for 24-hour notification to the State and county emergency response network and all State/county warning points are manned 24-hours per day. Appendix 5 identifies an EPIP, “Notification and Communication,” that supports and implements Section F of the LNP Emergency Plan.

Technical Evaluation: [F.1.a]
The staff finds that the LNP Emergency Plan adequately addresses communication plans for emergencies, provides for 24-hour per day notification to, and activation of, the State/local emergency response network; and at a minimum, a telephone link and alternate, including 24-hour per day manning of communications links that initiate emergency response actions. This is acceptable because they conform to the guidance described in NUREG-0654/FEMA-REP-1. Additional information regarding emergency communications and the staff’s evaluation is located in SER Section 9.5.2, “Communications Systems.”

Technical Information in the Plan: [F.1.b]
Sections F.1.b and F.1.d of the LNP Emergency Plan identify various communication links (e.g., State of Florida Hot Ringdown Telephone System, Florida ESATCOM, private telephone, satellite telephone, and dedicated radio networks) available from the CRs, TSCs, and EOF used to provide a primary and alternate means of communicating with State and local governments within the EPZs.

Technical Evaluation: [F.1.b]
The staff finds that the LNP Emergency Plan adequately addresses provisions for continuous communications with State and local governments within the plume exposure pathway EPZ. This is acceptable because it meets the guidance in NUREG-0654/FEMA–REP-1, Revision 1.

Technical Information in the Plan: [F.1.c]
Section F.1.c of the LNP Emergency Plan lists separate telephone lines dedicated for communications with the NRC including the ENS, HPN, Reactor Safety Counterpart Link (RSCL), Protective Measures Counterpart Link (PMCL), Emergency Response Data System (ERDS), Management Counterpart Link (MCL), and NRC Remote Access link.

Technical Evaluation: [F.1.c]
The staff finds that the LNP Emergency Plan adequately addresses provisions for communications, as needed, with Federal EROs. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1.

Technical Information in the Plan: [F.1.d]
Section F.1.d of the LNP Emergency Plan describes the communication links to be used for communications between the LNP ERFs (e.g., CRs, TSCs, and EOF), State and county EOCs, and the Florida DHBRC, via the State of Florida Hot Ringdown Telephone System and conference-line phone systems. In RAI 13.3-47(1), the staff requested that the applicant clarify in the LNP Emergency Plan the provisions for communications from the OSC and EOF to the PEF radiological monitoring teams, which are dispatched, as needed, prior to the arrival of the State of Florida DHBRC support. In response, the applicant stated, in part, that a separate radio communications channel exists for communications from the EOF, TSC, and CR to the PEF radiological monitoring teams that are dispatched for offsite monitoring, as needed, prior to

the arrival of the State of Florida DHBRC support. Commercial cell phones, satellite phones, or other means are available as backup to the primary field team communications system. The applicant proposed EP ITAAC 5.1 to demonstrate the capability of both the primary and secondary communications systems/methods between the LNP ERFs, radiological field monitoring teams, and State/county warning points and EOCs. Table A-1 provides the point of contact, by title, for primary organizations in the ERO. Tables F-1, "On-Site Communications," and F-2, "Interfacility/Organization Communications," identify communication systems and the title of the primary communicators within each ERF and its respective organization.

Technical Evaluation: [F.1.d]
The staff finds the applicant's response to RAI 13.3-47(1) to be acceptable because it clarifies the provisions for communications between the ERFs and the licensee's radiological monitoring teams, and conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff created Confirmatory Item 13.3-47(1) to track the applicant's proposed changes to the LNP Emergency Plan provided in response to RAI 13.3-47(1).

Resolution of Confirmatory Item 13.3-47(1)

Confirmatory Item 13.3-47(1) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-47(1) is now closed.

On the basis of its review of the LNP Emergency Plan, the staff finds that the LNP Emergency Plan adequately describes the communication plans that included provisions for emergency communications between the nuclear facility and the EOF, State and local EOCs, and radiological monitoring teams. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

Technical Information in the Plan: [F.1.e]
Section 13.3C.5.3 of this SER provides information regarding the primary and backup means of notification and activation of the onsite and offsite ERO.

Technical Evaluation: [F.1.e]
The staff's evaluation of the information provided by the applicant regarding the provision for alerting or activating emergency personnel in each response organization can be found in Section 13.3C.5.3 of this SER.

Technical Information in the Plan: [F.1.f]
Section F.1.f of the LNP Emergency Plan states that communications between the LNP CRs, TSCs, and EOF, to the NRCOC is via the Emergency Telephone System (ETS) or private phone. Communications from these facilities to the NRC Regional Office is via private telephone. Section I.7, "Field Monitoring Capability," identifies the Radiological Emergency Team assembly area as the EOF. The applicant proposed EP ITAAC 5.2 to verify that a test will be performed to demonstrate communications between LNP ERFs and the NRC offices (regional and headquarters). The test will include the HPN and ERDS.

Technical Evaluation: [F.1.f]
The staff finds that the LNP Emergency Plan adequately describes the communication plans for emergencies and addresses provisions for communication by the licensee with NRC Headquarters and NRC Regional Office EOCs and the EOF and radiological monitoring team

assembly area. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

Technical Information in the Plan: {Appendix E, Section IV.E.9}
Section F of the LNP Emergency Plan describes onsite and offsite communication systems. Section F.3, "Communication System Reliability," of the LNP Emergency Plan states that the variety of onsite communication networks ensures the availability and reliability of communications. Failure of normal power supplies will not prevent offsite communication capability since backup power is provided. Communications systems equipment is located in different areas to prevent incapacitation of all communication systems during an accident. Dedicated telephone lines are checked according to specified schedules. Additional information regarding individuals by title, and alternates for those in charge at both ends of the communication links can be found in Sections 13.3C.5 and 13.3C.6.2 [F.1.d] of this SER.

{Appendix E, Section IV.E.9(a)}
Section F, "Emergency Communications," of the LNP Emergency Plan describes the communication links used to notify and activate State/local agencies. Section F.3, "Communication System Reliability," states that monthly tests are conducted between the LNP to State and local warning points, and the State EOCs within the plume exposure pathway EPZ.

{Appendix E, Section IV.E.9(b)}
Section N.2.a, "Communication Drills," of the LNP Emergency Plan states that PEF tests communications with Federal EROs and States within the ingestion pathway EPZ monthly. Testing includes that of the ETS and the ERDS.

{Appendix E, Section IV.E.9(c)}
Section F.1.d, including related EP ITAAC, as discussed in Section 13.3C.6.2 in this SER and in LNP Emergency Plan describes the provisions for communication between the LNP ERFs (e.g., CRs, TSCs, and EOF) and State and county EOCs, and the State of Florida DHBRC. In RAI 13.3-47(1), the staff requested additional information regarding provisions for communication with the LNP radiological monitoring team as addressed above in this section of the SER. Section F.1.d of the LNP Emergency Plan further describes three separate conference line phone systems that have been established to facilitate communications between the CRs, TSCs, and the EOF, including the establishment of a quarterly test frequency. Section F.3 of the LNP Emergency Plan states that communication tests between the LNP site and State and county warning points, and the State EOCs within the plume exposure pathway EPZ are performed monthly. This communication test includes an aspect of understanding the content of messages. In addition, Section F.3 states communication tests between the LNP site and State and local EOCs, and the environmental monitoring teams are tested annually. In RAI 13.3-47(2), the staff requested the applicant provide clarification in the LNP Emergency Plan regarding the communications test frequency between the LNP site (e.g., CRs, TSCs, and EOF), and the LNP radiological control teams that precede the offsite survey support provided by the State of Florida DHBRC (environmental monitoring team). The applicant stated, in part, that a future revision to the LNP Emergency Plan will state that the communication test frequency between the LNP EOF, TSC, and CR to the radiological monitoring team shall be annual.

{Appendix E, Section IV.E.9(d)}
Section F.3 of the LNP Emergency Plan states that quarterly communication tests are conducted between the LNP ERFs (e.g., CRs, TSCs, and EOF) to the NRC Headquarters

Operations Center. In RAI 13.3-19(B), the staff requested a discussion on why the LNP ERFs communication test with NRC Headquarters is quarterly instead of monthly. In its response, the applicant committed to change the frequency of this communications test to monthly consistent with the regulations. In RAI 13.3-47(3), the staff requested that the applicant clarify in the LNP Emergency Plan the frequency of testing communications between the LNP CRs, TSCs, and EOF and the appropriate NRC Regional Office. In response, the applicant stated, in part, that a future revision to the LNP Emergency Plan will state the frequency for testing communications between the LNP CRs, TSCs, EOF, and appropriate NRC Regional Office will be on a monthly basis.

Technical Evaluation: {Appendix E, Section IV.E.9(a)-(d)}
The staff finds the additional information and proposed textual revision provided in response to RAI 13.3-19(B) to be acceptable because it meets the requirements of Appendix E to 10 CFR Part 50. However, the applicant did not identify the testing of communications between the LNP ERFs and the appropriate NRC Regional office. The staff requested this information in supplemental RAI 13.3-47(3). The staff confirmed the changes proposed to the LNP Emergency Plan in response to RAI 13.3-19(B) were incorporated in Revision 1 to the LNP Emergency Plan.

The staff finds the additional clarification and textual revisions provided in the applicant's responses to RAIs 13.3-47(2) and (3) to be acceptable because it clarifies in the LNP Emergency Plan the frequency of testing communications between the LNP ERFs, radiological control teams, and the appropriate NRC Regional Office, which meets the applicable requirements of Appendix E to 10 CFR Part 50. The staff created Confirmatory Items 13.3-47(2) and 13.3-47(3) to track the applicant's proposed changes to the LNP Emergency Plan provided in response to RAIs 13.3-47(2) and (3).

<u>Resolution of Confirmatory Items 13.3-47(2) and 13.3-47(3)</u>

Confirmatory Items 13.3-47(2) and 13.3-47(3) are applicant commitments to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Items 13.3-47(2) and 13.3-47(3) are now closed.

On the basis of its review of the LNP Emergency Plan, the staff finds that the LNP Emergency Plan adequately states that at least one onsite and one offsite communications systems exists, and that each system has a backup power source. This is acceptable because it meets the requirements described in Appendix E to 10 CFR Part 50.

In addition, the applicant's communication plans have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communication links and the primary and backup means of communication. Consistent with the function of the governmental agency, these arrangements included:

a. Provisions for communications with contiguous State/local governments within the plume exposure pathway EPZ. Such communications shall be tested monthly.

b. Provisions for communications with Federal EROs. Such communications systems shall be tested annually. However, the LNP has committed to a monthly testing frequency.

c. Provisions for communications among the nuclear power reactor CR, the onsite TSC, and the EOF; and among the nuclear facility, the principal State and local EOCs, and the field assessment teams. Such communications systems shall be tested monthly.

d. Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor CR, the onsite TSC, and the EOF. Such communications shall be tested monthly.

These provisions for onsite and offsite communications are acceptable because they meet the requirements in Appendix E to 10 CFR Part 50.

Technical Information in the Plan: (GL 91-14)
Section 13.3C.6.2 [F.1.c] of this SER and F.1.C of the LNP Emergency Plan describes communication pathways (e.g., ENS, HPN, RSCL, etc.) dedicated for communications with the NRC. In addition, Section 13.3C.6.2 [Appendix E.IV.E.9] of this SER and Section F.3 of the LNP Emergency Plan describe, in general, communication system reliability through the use of dedicated phone lines, normal and backup power supplies, and periodic testing. Additional information regarding the adequacy of emergency telecommunications systems is provided in Section 9.5.2 of this SER.

Technical Evaluation: (GL 91-14)
The staff finds that the LNP Emergency Plan adequately includes provisions for communications with the NRC. This is acceptable because it conforms to the guidance in GL 91-14.

13.3C.6.3 *Communications with Medical Facilities*

Technical Information in the Plan: [F.2.]
Section F.2, "Communication with Fixed and Mobile Medical Support Facilities," of the LNP Emergency Plan states that the LNP maintains communication systems which allow for communication between LNP and fixed and mobile medical support facilities. These systems include both commercial telephone communications for fixed facilities and radio communications for ambulance contact.

Technical Evaluation: [F.2.]
The staff finds that the LNP Emergency Plan adequately ensures that a coordinated communication link exists for fixed medical support facilities and ambulance service(s). This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1.

13.3C.6.4 *Periodic Testing of the Emergency Communications System*

Technical Information in the Plan: [F.3]
Section F.3, "Communication System Reliability," of the LNP Emergency Plan provides periodic test frequencies for communications between the LNP ERFs, State and local warning points and EOCs, radiological monitoring teams, and the NRC. Appendix 7 of the LNP Emergency Plan provides a description of the design for the public ANS that includes periodic system tests (i.e., silent test, growl test, and complete cycle test) to be performed and their associated test frequencies (i.e., silent – every two weeks, growl – quarterly and after preventative maintenance). Additional information regarding communication test frequencies is in Section 13.3C.14.10, "Communication Drills," of this SER. Section F of the LNP Emergency Plan states that details regarding the operation and testing of communication systems is located

in EPIPs. Appendix 5 identifies an EPIP titled, “Notification and Communication,” that supports and implements Section F of the LNP Emergency Plan.

Technical Evaluation: [F.3]
The staff finds that the LNP Emergency Plan adequately describes the conduct of periodic testing of the entire emergency communications system. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1.

13.3C.6.5 *Conclusion*

On the basis of its review of the LNP Emergency Plan, the staff concludes that the information provided in the LNP Emergency Plan regarding emergency communications is acceptable and meets the requirements of 10 CFR 50.47(b)(6) because it conforms with the guidance in Evaluation Criterion F of NUREG-0654/FEMA-REP-1 and GL 91-14 and meets the applicable requirements of Appendix E to 10 CFR Part 50.

13.3C.7 Public Education and Information

13.3C.7.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(7) for public education and information, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Public Education and Information," in Appendix E to 10 CFR Part 50.

13.3C.7.2 *Content of Public Information*

Technical Information in the Plan: [G.1]
Section G.1, “Public Information Program,” of the LNP Emergency Plan describes the program designed to educate and inform the public of emergency notification methods and actions to take in the event of an emergency at LNP. PEF, in coordination with State and county officials, will provide this information to residents, businesses, and transients in the 10-mile plume exposure pathway EPZ at least annually. This information includes educational material on radiation; contacts for additional information; protective measures (e.g., evacuation routes, relocation centers, sheltering, and respiratory protection); and special needs of the handicapped. PEF states that the means for accomplishing dissemination of this information will be via a publication, in the form of brochures, calendars, and/or phone book pages that will be distributed to the residents of Citrus, Levy, and Marion Counties within a 10-mile radius of LNP, and that will be available to the general public within the same area. In RAI 13.3-20, the staff requested the applicant provide a discussion in the LNP Emergency Plan regarding its efforts to coordinate public education and information with the CR3 site, specifically in areas where the CR3 and LNP EPZs overlap. In its response, the applicant stated that the public education and information programs for the two sites will be coordinated by PEF. Development and distribution of public safety information materials to resident, business, and transient populations will be shared between the two sites. Due to the proximity of the sites and overlapping EPZs, PEF will develop and distribute one set of public information materials describing the 10-mile EPZs for both the LNP and CR3. The applicant also provided revised text for Section G.1 of the LNP Emergency Plan for clarification. In supplemental RAI 13.3-48, the staff requested that the applicant commit to develop and distribute the initial public information publications, in coordination with CR3, within 180 days prior to fuel load at LNP. In

response, the applicant proposed a license condition to ensure that the initial LNP public information publications are distributed within 180 days prior to fuel load at LNP. Specifically, the applicant proposed License Condition 11(E):

E. PEF will distribute the initial LNP public information publications, developed in coordination with CR3 and consistent with the LNP Emergency Plan, to the public within 180 days prior to fuel load.

Appendix 5 to the LNP Emergency Plan includes an administrative procedure titled, "Public Information."

Technical Evaluation: [G.1]
The staff finds the additional information and proposed textual revisions provided by the applicant in response to RAI 13.3-20 to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that the changes referenced in response to RAI 13.3-20 were included in Revision 1 to the LNP Emergency Plan. The staff finds the applicant's response to RAI 13.3-48 to be acceptable because it provides License Condition 11(E) to ensure that the initial public information developed in coordination with CR3 is distributed prior to fuel load (plant operation). Specifically, the staff finds License Condition 11(E) as stated below acceptable:

E. PEF will distribute the initial LNP public information publications, developed in coordination with CR3 and consistent with the LNP Emergency Plan, to the public within 180 days prior to fuel load.

The staff created Confirmatory Item 13.3-48 to track the applicant's proposed changes to the LNP COL application provided in response to RAI 13.3-48.

<u>Resolution of Confirmatory Item 13.3-48</u>

Confirmatory Item 13.3-48 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-48 is now closed.

By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of the CR3 nuclear plant, the applicant removed the language proposed in response to RAI 13.3-20, which included revisions to the LNP Emergency Plan for the coordination of the public education and information programs between CR3 and LNP, and the commitment to publish a consolidated set of public safety information for all CR3 and Levy EPZ stakeholders. By letter dated January 10, 2014, "LNP Emergency Planning Impacts from Retirement of CR3 Supplement," from DEF to NRC, the applicant proposed revised language in License Condition 11(E) to incorporate the commitment for a coordinated dissemination of public safety information with CR3 until CR3 is no longer required to provide this information. This revision is as follows:

E. DEF shall distribute the initial LNP public information publications, consistent with the LNP Emergency Plan, within 180 days prior to fuel load at LNP. DEF must coordinate the development, initial and annual redistribution, and maintenance of this information with CR3 as long as the NRC requires CR3 to distribute public information publications.

With the applicant's proposed revision to License Condition 11(E), the staff finds License Condition 11(E) to be acceptable since it meets the requirements of 10 CFR 50.47(b)(7) and Appendix E to 10 CFR Part 50.

On the basis of its review of the LNP Emergency Plan, the staff finds that the LNP Emergency Plan adequately provides for a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. In addition, the means for accomplishing this dissemination are also adequately described. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1.

13.3C.7.3 *Dissemination and Maintenance of Public Information*

Technical Information in the Plan: [G.2] {Appendix E, Section IV.D.2}
A general discussion regarding the LNP Public Education and Information Program is provided in Section 13.3C.7.2 of this SER. In addition, Section G.2, "Distribution and Maintenance of Public Information," of the LNP Emergency Plan states that Progress Energy will support, but not necessarily be limited to, publications (referenced above) to be provided in quantity at key locations, such as motels and various business locations, in order to reach any new or transient individuals in the area. These publications will provide the appropriate information that will be helpful if an emergency or accident occurs. This information will refer new or transient individuals to the telephone directory or other source of local emergency information, and provide guidance as to the appropriate radio and television frequencies in which information can be obtained. Section 13.3C.7.2 of this SER describes a license condition proposed by the applicant in response to supplemental RAI 13.3-48, to ensure that the initial LNP public information publications are distributed within 180 days prior to fuel load at LNP.

Technical Evaluation: [G.2] {Appendix E, Section IV.D.2}
The staff's evaluation of the applicant's response to supplemental RAI 13.3-48 is provided in Section 13.3C.7.2 of this SER. The staff created Confirmatory Item 13.3-48 to track the applicant's proposed changes to the LNP COL application provided in response to this RAI.

<u>Resolution of Confirmatory Item 13.3-48</u>

Confirmatory Item 13.3-48 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-48 is now closed.

By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of the CR3 nuclear plant, the applicant removed the language proposed in response to RAI 13.3-20, which included revisions to the LNP Emergency Plan for the coordination of the public education and information programs between CR3 and LNP, and the commitment to publish a consolidated set of public safety information for all CR3 and Levy EPZ stakeholders. By letter dated January 10, 2014, "LNP Emergency Planning Impacts from Retirement of CR3 Supplement," from DEF to NRC, the applicant proposed revised language in License Condition 11(E) to incorporate the commitment for a coordinated dissemination of public safety information with CR3 until CR3 is no longer required to provide this information. This revision is as follows:

> E. DEF shall distribute the initial LNP public information publications, consistent with the LNP Emergency Plan, within 180 days prior to fuel load at LNP. DEF must coordinate the development, initial and annual redistribution, and maintenance of this

information with CR3 as long as the NRC requires CR3 to distribute public information publications.

With the applicant's proposed revision to License Condition 11(E), the staff finds License Condition 11(E) to be acceptable since it meets the requirements of 10 CFR 50.47(b)(7) and Appendix E to 10 CFR Part 50.

On the basis of its review of the LNP Emergency Plan, the staff finds that the LNP Emergency Plan adequately describes a public information program that provides the permanent and transient population within the plume exposure EPZ an opportunity to become aware of the information annually. The program includes provisions for written material that is likely to be available in a residence during an emergency. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1 and meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.7.4 *Points of Contact for the News Media*

Technical Information in the Plan: [G.3.a]
Section G.3, "News Media Coordination," and G.4, "Information Exchange," of the LNP Emergency Plan states that the ENC will be the principal point of contact with the news media during an emergency. The ENC is located in the Crystal River Training Center/EOF and is a shared facility with CR3. Section G.4 states that a news coordinator in the ENC will have access to all required information and provide plant status and company information during scheduled news conferences and media briefings. Section B.5.2.g, "Emergency News Center (ENC)," states that the ENC staff is responsible for the dissemination of information to the public and news media under the direction of the Public Information Director (PID). Section H.2.2, "Emergency News Center," states, in part, that the PID is responsible for dissemination of information by Progress Energy.

Technical Evaluation: [G.3.a]
By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of the CR3 nuclear plant, the applicant renamed the EOF to remove any reference to the Crystal River Training Center. The EOF is now referred to in the LNP Emergency Plan as the LNP EOF. Therefore, the ENC is co-located with the LNP EOF.

In consideration for the above Crystal River Training Center reference deletion, the staff finds that the LNP Emergency Plan adequately designates the points of contact and physical locations for use by news media during an emergency and that the LNP Emergency Plan also describes space, which may be used for a limited number of the news media at the EOF. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.7.5 *Space for News Media*

Technical Information in the Plan: [G.3.b]
Section H.2.2, "Emergency News Center," states, in part, that the ENC provides a near-site location for the local dissemination of information to the public and news media.

Technical Evaluation: [G.3.b]
Initially, the applicant proposed to use the existing CR3 EOF for support of emergency planning for LNP Units 1 and 2. Since the ENC is co-located with the EOF, the staff's review of the EOF and ENC focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. Currently, the EOF and ENC is an existing NRC-approved facility for CR3 that meets the requirements of 10 CFR 50.47 and Appendix E to Part 50, and conforms to the guidance in NUREG-0696 and NUREG-0737, Supplement No. 1. The staff determined the EOF and ENC was acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the EOF and ENC, by monitoring performance indicators; 2) the EOF and ENC is inspected periodically during routine inspections, drills and exercises; and 3) any changes to the EOF and ENC are reviewed in accordance with the established inspection program and requirements for operating reactors.

However, by letter dated April 18, 2013, from PEF to NRC, the applicant proposed a revision to the LNP Emergency Plan to address the future state of CR3 as it relates to decommissioning activities and the anticipated relaxation of offsite EP responsibilities for CR3. In consideration of these circumstances, the applicant anticipates the EOF and ENC will no longer be required for response to an emergency event at CR3. In LNP Emergency Plan, revision 6, the EOF has been renamed the LNP EOF and is expected to support the future needs of LNP only. The staff anticipates a lapse in time for which the readiness capabilities of the EOF and ENC will no longer be required. By letter dated January 10, 2014, from DEF to the NRC, the applicant proposed EP ITAAC 7.2.3 through 7.2.5 to address regulatory guidance criteria in NUREG-0696 and Supplement 1 to NUREG-0737 that are not addressed in the LNP Emergency Plan. Prior to fuel load, these EP ITAAC will provide staff assurance that the EOF continues to comply with the uniform building code; the EOF is environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment; and the EOF is provided with industrial security when it is activated to exclude unauthorized personnel and when it is idle to maintain its readiness. Given that the EOF and ENC may not be required to maintain its functionality for some time prior to LNP operations, the staff found these ITAAC necessary to ensure that the EOF and ENC is constructed as designed, as required by 10 CFR 52.80. Therefore, the staff finds the applicant's proposed EP ITAAC 7.2.3 through 7.2.5 acceptable since they conform to the guidance in NUREG-0696 and Supplement 1 to NUREG-0737 and meet the requirements in 10 CFR 52.80. The staff subsequently finds the LNP EOF and ENC are acceptable.

The applicant is proposing to use the existing CR3 ENC for LNP Units 1 and 2. The staff's review focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. The ENC is an existing NRC approved facility for CR3 that conforms to the guidance in NUREG-0654/FEMA-REP-1 as it pertains to limited space for news media at the near-site EOF. Therefore, the staff finds the ENC acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the ENC, by monitoring performance indicators; 2) the ENC is inspected periodically during routine inspections and drills and exercises; and 3) any changes to the ENC are reviewed in accordance with the established inspection program and requirements for operating reactors.

13.3C.7.6 *Designated Spokesperson*

Technical Information in the Plan: [G.4.a]
Section G.4 of the LNP Emergency Plan states that a News Coordinator in the ENC will have access to all required information and provide plant status and company information during news conferences and media briefings.

Technical Evaluation: [G.4.a]
The staff finds that the LNP Emergency Plan adequately identifies a spokesperson that has access to all necessary information. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.7.7 *Timely Exchange of Information*

Technical Information in the Plan: [G.4.b]
Section G.4 of the LNP Emergency Plan states that LNP personnel who are designated in implementing procedures will meet periodically and/or have timely exchanges of information. These information exchanges will extend to include other designated spokespersons of local, State, and Federal agencies, and will include the awareness of media releases. Appendix 5 to the LNP Emergency Plan includes an Administrative Procedure titled, "Public Information" that implements this commitment.

Technical Evaluation: [G.4.b]
The staff finds the LNP Emergency Plan adequately describes established arrangements for timely exchange of information among designated spokespersons. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.7.8 *Rumor Control*

Technical Information in the Plan: [G.4.c]
Section G.4 of the LNP Emergency Plan states that the timely exchange of information among spokespersons will dispel most rumors. Additional rumor control is accomplished through obtaining and disseminating accurate information through representatives of the ENC. Progress Energy Customer Service Centers would handle customer inquiries.

Technical Evaluation: [G.4.c]
The staff finds that the LNP Emergency Plan adequately describes coordinated arrangements for dealing with rumors. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.7.9 *Annual Media Orientation*

Technical Information in the Plan: [G.5]
Section G.5, "News Media Training," of the LNP Emergency Plan states that Progress Energy, in cooperation with State and county Emergency Management, conducts an annual program to acquaint the news media with the emergency plans, information concerning radiation and operation of LNP, and points of contact for release of public information during any emergency. These briefings may be conducted in the form of a group presentation or documented individual contacts throughout the year.

Technical Evaluation: [G.5]
The staff finds that the LNP Emergency Plan adequately describes coordinated programs that will be conducted at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.7.10 *Conclusion*

On the basis of its review of the LNP Emergency Plan, the staff concludes that the information provided in the LNP Emergency Plan regarding public education and information is acceptable and meets the requirements of 10 CFR 50.47(b)(7) because it conforms to the guidance in Evaluation Criterion G of NUREG-0654/FEMA-REP-1 and meets the applicable requirements of Appendix E to 10 CFR Part 50.

13.3C.8 Emergency Facilities and Equipment

13.3C.8.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(8) for emergency facilities and equipment, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Supplement 1 to NUREG-0737, NUREG-0696, and NSIR/DPR-ISG-01. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Emergency Facilities and Equipment," in Appendix E to 10 CFR Part 50, 10 CFR 50.34, and 10 CFR 50.72.

Technical Support Center

13.3C.8.2 *Technical Support Center Functions*

Technical Information in the Emergency Plan: [H.1] {Appendix E, Section IV.E.8} (8.2.1.a)
Section H.1.2, “Technical Support Centers [TSC],” of the LNP Emergency Plan describes the establishment of a TSC for each unit. These facilities include necessary supplies and communications equipment to permit effective direction and control during an emergency. Details of facility operation are provided in implementing procedures. Appendix 5 identifies a procedure for activation and operation of the TSC. Duties of the EC that will be transferred from the CR to the TSC following activation are discussed in Section B.5.1.d, “Emergency Coordinator-TSC.” Section E.1.2, “Off-Site Emergency Response Organizations,” states the TSC is responsible for notifying State and local agencies until the EOF is operational. Functions to be performed by the TSC, discussed in Section H.1.2.b, “Functions,” of the LNP Emergency Plan include:

1. Command and communications center for EC and assigned staff upon activation.

2. Perform emergency classification, notification of offsite agencies (including the NRC), and provide PARs to offsite agencies.

3. Provide plant management and technical support to plant operations personnel.

4. Prioritize emergency response team (ERT) activities in the plant.

5. Assist the CR in accident assessment.

Technical Evaluation: [H.1] {Appendix E, Section IV.E.8} (8.2.1.a)
The staff finds that the LNP Emergency Plan adequately describes the TSC functions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and Supplement 1 to NUREG-0737 and meets the applicable requirements of Appendix E to 10 CFR Part 50.

13.3C.8.3 *TSC Location*

Technical Information in the Emergency Plan: (8.2.1.b) (50.34(f)(2)(xxv))
Section H.1.2.a.1, "Characteristics," of the LNP Emergency Plan states that the TSCs are located within the protected area in the passage from the Annex Building to the CRs (of Units 1 and 2). The applicant proposed EP ITAAC 7.1.2 to verify that the TSC is close to the CR, and the walking distance from the TSC to the CR does not exceed two minutes. The applicant proposed EP ITAAC 7.1.6 to verify that the TSC is separate from the OSC.

Technical Evaluation: (8.2.1.b) (50.34(f)(2)(xxv))
The staff finds that the LNP Emergency Plan adequately describes the TSC location consistent with the TSC location in the referenced AP1000 DCD. The TSC is located within the site protected area (onsite) to facilitate necessary interaction with the CR, OSC, EOF and other personnel involved with the emergency. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737 and meets the applicable requirements of 10 CFR 50.34. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.4 *TSC Size and Staffing Requirements*

Technical Information in the Emergency Plan: (8.2.1.c and j)
Section H.1.2.a.1 of the LNP Emergency Plan states that each TSC command room covers 2144 square (sq) feet (ft), with 4 adjoining conference rooms that cover 988 sq ft. The TSCs are sized to accommodate approximately 25 persons, including 20 persons designated by Progress Energy and 5 NRC personnel. The applicant proposed EP ITAAC 7.1.1 to verify each TSC has at least 1875 sq ft of floor space (75 sq ft per person to accommodate a minimum of 25 persons).

Figure B-2 illustrates minimum staffing positions and other designated positions necessary to support activation and operation of the TSC. Section B.5., "Plant Emergency Response Staff" describes the positions, titles, and major tasks of personnel assigned to the functional areas of emergency activities within the TSC. Major tasks, functional areas and positions within the TSC are also outlined in Table B-1 of the LNP Emergency Plan. Section H.4, "Activation and Staffing of Emergency Response Facilities," of the LNP Emergency Plan states that ERFs are staffed and declared operational in accordance with EPIPs. In RAI 13.3-21(B), the staff requested that the applicant explain whether the TSC will be operational within one hour following activation of the facility. In response, the applicant provided a discussion regarding staff augmentation times (30-45 and 60-75 minutes) consistent with the minimum staffing augmentation times identified in Table B-1 of the LNP Emergency Plan. The applicant also stated, in part, that a goal of 60 minutes, once notified, has been established for minimum staffing of the TSC. The TSC will be declared operational within 15 minutes of achieving minimum staffing. This time is used as turnover time. The applicant committed to revise Section H.4 of the LNP Emergency Plan for clarification of activation goals for the TSC. In its prior response to RAI 13.3-18(D)(1), the applicant provided its justification for extended augmentation and ERF activation times. The applicant stated, in part, that operating experience from Crystal River Nuclear Facility, located approximately 9 miles from LNP, has shown that based on local demographics, weather, traffic,

and housing availability for station employees, it is achievable to augment staffing within 30 to 60 minutes after notification of an emergency. Therefore, since Crystal River is in close proximity to LNP, it is reasonable to conclude the same response time will be achieved for the LNP ERO. In its subsequent response to RAI 13.3-45(2), the applicant removed the reference to augmentation times of 30-45 and 60-75 minutes in Table B-1 and Section H.4 of the LNP Emergency Plan, restating its proposed goal of 60 minutes for achieving minimum staffing of the TSC following notification of ERO personnel. Additional discussion regarding augmentation times applicable to the TSC can be found in Section 13.3C.2.7 of this SER. Appendix 5 contains an EPIP, "Activation and Operation of the Technical Support Center," that supports and implements this section of the LNP Emergency Plan.

Technical Evaluation: (8.2.1.c and j)
The staff finds that the proposed revisions to the minimum staff augmentation and TSC activation goals provided in response to Supplemental RAI 13.3-45(2), in consideration of its prior response to RAIs 13.3-21(B) and 13.3-18(D)(1), to be acceptable because it describes provisions for a timely staff augmentation and activation of the TSC, and conforms to the guidance in Supplement 1 to NUREG-0737. The staff created Confirmatory Item 13.3-45(2) to track the proposed textual revision to the emergency plan consistent with the applicant's RAI responses. Additional staff technical evaluation regarding ERO staff augmentation times can be found in Section 13.3C.2.7 of this SER.

Resolution of Confirmatory Item 13.3-45(2)

Confirmatory Item 13.3-45(2) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-45(2) is now closed.

The staff finds that the LNP Emergency Plan adequately describes the TSC size and staffing requirements. This is acceptable because it conforms to the regulatory guidance in Supplement 1 to NUREG-0737. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.5 *TSC Structure*

Technical Information in the Emergency Plan: (8.2.1.d)
Section H.1.2.a.2 of the LNP Emergency Plan states the TSC exterior walls, roof, and floor are built to Seismic Category II requirements. The applicant proposed EP ITAAC 7.1 to verify that an inspection of the as-built TSCs will be performed, including a test of the capabilities.

Technical Evaluation: (8.2.1.d)
The applicant stated in the LNP Emergency Plan that the TSC is built to Seismic Category II requirements. This exceeds the criterion in Supplement 1 to NUREG-0737, which states that the TSC should be built in accordance with the uniform building code. Therefore, the staff finds that the LNP Emergency Plan adequately describes the TSC structure. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.6 *TSC Environmental Controls*

Technical Information in the Emergency Plan: (8.2.1.e)
Section H.1.2.a.4 of the LNP Emergency Plan states the TSC is environmentally controlled to provide room air temperature, humidity and cleanliness appropriate for personnel and equipment.

Technical Evaluation: (8.2.1.e)
The staff finds that the LNP Emergency Plan adequately describes the TSC environmental controls. This is acceptable because it meets the applicable regulatory guidance in Supplement 1 to NUREG-0737.

13.3C.8.7 *TSC Radiological Protection*

Technical Information in the Emergency Plan: (8.2.1.f)
Section H.1.2.a.3 of the LNP Emergency Plan states the TSC is provided with radiation protection equivalent to CR habitability requirements, such that the dose to an individual in the TSC for the duration of a design basis accident is less than 5 roentgen equivalent man (rem) total effective dose equivalent (TEDE). The applicant proposed EP ITAAC 7.1.4 to verify that the TSC ventilation systems include a high efficiency particulate air (HEPA) and charcoal filter, and that radiation monitors are installed.

Technical Evaluation: (8.2.1.f)
The staff finds that the LNP Emergency Plan adequately describes the TSC radiological protection. This is acceptable because it meets the applicable regulatory guidance in Supplement 1 to NUREG-0737. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.8 *TSC Communications*

Technical Information in the Emergency Plan: (8.2.1.g)
Section H.1.2.c.1, "Emergency Equipment and Supplies," of the LNP Emergency Plan states, in part, that the TSC maintains reliable voice communications with the CRs, EOF, OSCs, NRCOC, State and local warning points, and State EOCs. Additional information related to communication systems can be found in Section 13.3C.6, "Emergency Communications," of this SER. The applicant proposed EP ITAAC 7.1.3 to verify that communications equipment is installed, and voice transmission and reception are accomplished between the CRs, TSCs, OSCs, and EOFs.

Technical Evaluation: (8.2.1.g) The staff finds that the LNP Emergency Plan adequately describes the TSC communications. This is acceptable because it meets the applicable regulatory guidance in Supplement 1 to NUREG-0737. Evaluation of communication equipment can be found in Section 13.3C.6.2 of this SER. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.9 *TSC Data Collection, Storage, and Analysis*

Technical Information in the Emergency Plan: (8.2.1.h)
Section H.5, "On-Site Monitoring Systems," of the LNP Emergency Plan states Progress Energy maintains and operates onsite monitoring systems to provide data essential for initiating emergency measures and performing accident assessment. Section H.1.2.c.2, "Emergency

Equipment and Supplies," states that the TSCs contain a visual display system capable of displaying plant data, safety parameter display systems (SPDSs), and radiation monitoring systems (RMSs) information. Section H.8, "Meteorological Instrumentation and Procedures," states, in part, that real time meteorological data with provisions for computerized historical storage and retrieval, for use in accident scenarios will be available in the TSCs. In addition, by letter dated December 21, 2010, the applicant proposed to revise the LNP Emergency Plan to include a statement that the TSC has been established consistent with NUREG-0696 guidelines. The applicant proposed EP ITAAC 7.1.5 to verify that the TSC receives, stores, processes, and displays plant and environmental information, which enables the initiation of emergency measures and the performance of emergency assessment. These capabilities are demonstrated during testing and acceptance activities. Additional information regarding the availability of meteorological information and data, including atmospheric diffusion estimates, can be found in Section 2.3.3, " Onsite Meteorological Measurement Program," and Section 7.5, "Safety-Related Display Information," of this SER.

Technical Evaluation: (8.2.1.h)
The staff finds that the applicant's proposed reference to the TSC being established consistent with NUREG-0696 guidance to be acceptable. The staff created Confirmatory Item 13.3-2 to track the applicant's inclusion of the information as stated above in the next revision to the LNP Emergency Plan.

Resolution of Confirmatory Item 13.3-2

Confirmatory Item 13.3-2 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-2 is now closed.

The staff finds that the LNP Emergency Plan adequately describes the TSC functions of data collection, storage, and analysis. This is acceptable because it meets the applicable regulatory guidance in Supplement 1 to NUREG-0737. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.10 *TSC Human Factors Engineering*

Technical Information in the Emergency Plan: (8.2.1.h and k)
Section H.1.2.a.7, "Emergency Equipment and Supplies," of the LNP Emergency Plan states the TSC is designed using human factors criteria in APP-GW-GLR-136, "AP1000 Human Factors' Program Implementation for the Emergency Operations Facility and the Technical Support Center." In addition, by letter dated December 21, 2010, the applicant proposed to revise the LNP Emergency Plan to include a statement that the TSC has been established consistent with NUREG-0696 guidelines. In response to RAI 13.03-49(4)(b), in part, the applicant proposed additional EP ITAAC acceptance criteria (12.1.1.D.2.d) that states, in part, the applicant will demonstrate the capability of the TSC equipment and data displays to clearly reflect the affected unit during an emergency. Additional information regarding human factors engineering (HFE) for the TSC can be found in Chapter 18, "Human Factors Engineering," of the AP1000 DCD and its supplements, and Section 18.2 of this SER.

Technical Evaluation: (8.2.1.h and k)
The staff created Confirmatory Item 13.3-2 in Section 13.3C.8.9 of this SER to track the applicant's inclusion of its reference to NUREG-0696 in a future revision to the LNP Emergency

Plan. The staff's evaluation of the TSC HFE pursuant to Supplement 1 to NUREG-0737 is addressed in Section 18.2 of this SER.

Resolution of Confirmatory Item 13.3-2

Confirmatory Item 13.3-2 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-2 is now closed.

The staff finds that the LNP Emergency Plan adequately addresses the LNP HFE Program. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.11 *TSC Plant Records*

Technical Information in the Emergency Plan: (8.2.1.i)
Section H.1.2.c.3, "Emergency Equipment and Supplies," of the LNP Emergency Plan states that the TSCs contain reference materials that include: mechanical and electrical systems drawings; the plant operating manual; the FSAR; and corporate, plant, State, and local emergency plans that are available in hardcopy or online. In addition, by letter dated December 21, 2010, the applicant proposed to revise the LNP Emergency Plan to include a statement that the TSC has been established consistent with NUREG-0696 guidelines.

Technical Evaluation: (8.2.1.i)
The staff finds that the applicant's proposed reference to the TSC being established consistent with NUREG-0696 guidance to be acceptable. The staff created Confirmatory Item 13.3-2 in Section 13.3C.8.9 of this SER to track the applicant's inclusion of its reference to NUREG-0696 in a future revision to the LNP Emergency Plan.

Resolution of Confirmatory Item 13.3-2

Confirmatory Item 13.3-2 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-2 is now closed.

The staff finds that the LNP Emergency Plan adequately describes the TSC plant records availability. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737.

13.3C.8.12 *TSC Activation*

Technical Information in the Emergency Plan: [H.4]
Section H.4 of the LNP Emergency Plan states that Progress Energy's staffing and activation of the TSC is required upon declaration of an emergency classification of alert, SAE, or GE. In addition, the TSC is staffed and declared operational in accordance with an EPIP identified in Appendix 5 to the LNP Emergency Plan titled, "Activation and Operation of the TSC."

Technical Evaluation: [H.4]
In Section 13.3C.2.7 and 13.3C.8.4 of this SER, the staff created Confirmatory Item 13.3-45(2) to track a textual revision to the LNP Emergency Plan that clarifies the language justifying untimely augmentation of the ERO and activation of its ERFs.

Resolution of Confirmatory Item 13.3-45(2)

Confirmatory Item 13.3-45(2) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-45(2) is now closed.

The staff finds that the LNP Emergency Plan adequately provides for timely activation and staffing of facilities and centers described in the plan. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

Operations Support Center

13.3C.8.13 *Operations Support Center Functions*

Technical Information in the Emergency Plan: [H.1] (8.3.1.a)
Functions to be performed by the OSC, described in Section H.1.3.b, "Functions," of the LNP Emergency Plan include:

1. Assembly location for the OSC manager and operational support (i.e., Maintenance, Operations, Radiation Protection, and Chemistry) personnel for receipt of equipment and assignments to aid in response to an emergency.

2. Briefing and dispatch of emergency teams.

Section B.5.1.n, "OSC Manager," of the emergency plan states the OSC manager is responsible for providing direction to the total onsite maintenance and equipment restoration effort, including coordinating the dispatch of OSC teams.

Technical Evaluation: [H.1] (8.3.1.a)
The staff finds that the LNP Emergency Plan adequately describes the OSC functions. This is acceptable because it meets the applicable regulatory guidance in Supplement 1 to NUREG-0737 and conforms to the guidance described in NUREG-0654/FEMA-REP-1.

13.3C.8.14 *OSC Location*

Technical Information in the Emergency Plan: (8.3.1.b) (50.34(f)(2)(xxv))
Section H.1.3.a.1, "Characteristics," of the LNP Emergency Plan states the OSC is located inside the protected area on the second floor of the Annex Building of each unit adjacent to the CRs. The applicant proposed EP ITAAC 7.1.6 to verify that there is an OSC located inside the unit's protected area separate from the CR and TSC.

Technical Evaluation: (8.3.1.b) (50.34(f)(2)(xxv))
The staff finds that the LNP Emergency Plan adequately describes the location of the OSCs. This is acceptable because it conforms to the guidance described in Supplement 1 to NUREG-0737 and 10 CFR 50.34. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.15 *OSC Coordination Activities*

Technical Information in the Emergency Plan: (8.3.1.a)

Section H.1.3.b, "Functions," of the LNP Emergency Plan states that the OSC is an assembly location for the OSC Manager and support personnel (e.g., operations, maintenance, health physics, and chemistry) for receipt of equipment and assignments to aid in response to an emergency. The OSC is the location for the briefing and dispatch of emergency response teams. This location includes separate areas for coordinating and planning OSC activities.

Technical Evaluation: (8.3.1.a)
The staff finds that the LNP Emergency Plan adequately describes the OSC coordination of activities function. This is acceptable because it conforms to the regulatory guidance in Supplement 1 to NUREG-0737.

13.3C.8.16 *OSC Communications*

Technical Information in the Emergency Plan: (8.3.1.c)
Section H.1.3.c.1, "Characteristics," of the LNP Emergency Plan states the OSC maintains reliable voice communications with the CRs, TSCs, and EOF. Additional information related to communication systems can be found in Section F, "Emergency Communications," of the LNP Emergency Plan and 13.3C.6 of this SER. The applicant proposed EP ITAAC 7.1.7 to verify that communication equipment is installed, and voice transmissions and reception are accomplished between the OSC and OSC teams, the TSC, and CRs.

Technical Evaluation: (8.3.1.c)
The staff finds that the LNP Emergency Plan adequately describes the OSC communications. This is acceptable because it conforms to the applicable regulatory guidance in Supplement 1 to NUREG-0737. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.17 *OSC Activation and Staffing*

Technical Information in the Emergency Plan: [H.4]
In Sections 13.3C.2.7, 13.3C.8.4 and 13.3C.8.12 of this SER, the staff provided discussion regarding the timely activation and staffing of ERFs, including the OSC. Section H.4 of the LNP Emergency Plan states, in part, that a goal of 60 minutes has been established for minimum staffing in the OSC. It is the goal of the organization to be capable of declaring the OSC operational within 15 minutes of achieving minimum staffing.

Technical Evaluation: [H.4]
In Section 13.3C.2.7 and 13.3C.8.4 of this SER, the staff created Confirmatory Item 13.3-45(2) to track a textual revision to the LNP Emergency Plan that eliminates language justifying untimely augmentation of the ERO and activation of its ERFs, including the OSC.

<u>Resolution of Confirmatory Item 13.3-45(2)</u>

Confirmatory Item 13.3-45(2) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-45(2) is now closed.

The staff finds that the LNP Emergency Plan adequately provides for activation and staffing of the OSC. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.8.18 *OSC Capacity and Supplies*

Technical Information in the Emergency Plan: [H.9]
Section H.1.3, "Operations Support Centers," of the LNP Emergency Plan establishes an OSC for each unit. The total area for each OSC is approximately 2,888 square feet. Additional space is available in adjacent offices and locker rooms, as needed. Table H-1, "Typical Emergency Kit Equipment/Supplies and Locations," provides a general list of emergency equipment and supplies available in the OSC that includes personnel dosimetry, protective clothing, portable radiation monitoring equipment, and portable lighting. Section J.6, "Protective Measures," states that LNP distributes protective equipment and supplies to personnel remaining or arriving onsite, as needed, to control radiological exposure or contamination including respiratory protection. Section F of the LNP Emergency Plan states that portable ultra-high frequency (UHF) radios are available to emergency teams for limited communication. Appendix 5 identifies an implementing procedure for the OSC titled, "Activation and Operation of the Operational Support Center," which supports and implements Section H of the LNP Emergency Plan.

Technical Evaluation: [H.9]
The staff finds the LNP Emergency Plan adequately describes the OSC capacity and supplies. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

<u>Emergency Operations Facility</u>

13.3C.8.19 *Emergency Operations Facility Functions*

Technical Information in the Emergency Plan: [H.2] {Appendix E, Section IV.E.8} (8.4.1.a)
Section H.2.1.b.1, "Functions," of the LNP Emergency Plan states, in part, that the EOF:

1. Is capable of supporting extended emergency operations, including simultaneous activation with CR3;

2. Provides a near-site location for assembling EOF staff and representatives of Federal, State, county, and industry emergency response agencies;

3. Upon activation, performs offsite notification, PARs, environmental monitoring, and dose projection;

4. Emergency communications systems monitoring and control;

5. Provides technical analysis and support;

6. Receives and displays site status and parameters data;

7. Serves as the Recovery Center during recovery operations;

Section B.5.2.a, "EOF Director," of the emergency plan states that upon activation of the EOF, the EOF Director is responsible for overall command and control of the LNP response to an emergency. This includes activities for providing information to, and interfacing with, offsite authorities, monitoring offsite results of the event, protecting plant personnel outside the protected area(s), supporting the onsite organization and coordinating the flow of information to the public information ERO. In RAI 13.3-21(A), the staff requested, in part, clarification from the

applicant regarding the use of a shared EOF for LNP and CR3, and its ability to accommodate a response to a simultaneous emergency at both sites. In response, the applicant stated, in part, that the LNP EOF will be a shared facility with sufficient space and equipment to handle the response to a simultaneous event at both sites. The applicant stated that equipment will be available in adequate number with connection capability to facilitate unimpeded communication with offsite agencies, onsite ERFs and the ENC. The applicant stated that the EOF will have the capability to acquire, display, and evaluate radiological, meteorological, and plant system data pertinent to offsite protective measures for both LNP and CR3 without decreasing effectiveness. The applicant committed to revise Section H.2.1 of the LNP Emergency Plan to clarify the use of the EOF for a simultaneous event. In supplemental RAI 13.3-39, the staff requested that the applicant include in the LNP Emergency Plan additional information related to the shared EOF location and functionality provided in its prior responses to RAIs 14.3.10-1(J), 13.3-21(A), 13.3-18(3)(A), and 13.3-18(3)(D). The applicant's response committed to including the associated information from these RAIs into a future revision of the LNP Emergency Plan.

In supplemental RAI 13.3-31, the staff requested that the applicant propose a license condition to demonstrate the integrated capability and functionality of the existing EOF with LNP and Crystal River TSCs, the NRC, and other Federal, State, and local coordination centers, prior to use of the EOF for LNP emergency response. In response, the applicant committed to revise proposed License Condition 11 in Part 10, "Proposed Licensing Conditions (including ITAAC)," of the COL application to state that Progress Energy will demonstrate the capability of the EOF to handle simultaneous activation for a simulated emergency condition. Integrated communication, data capability, and functionality will include the LNP and Crystal River TSC, NRC, and other Federal, State, and local coordination centers.

Technical Evaluation: [H.2] {Appendix E, Section IV.E.8} (8.4.1.a)
The applicant proposed the use of a shared EOF between LNP Units 1 and 2, and CR3, which is owned and operated by Progress Energy. The EOF is an existing facility approved for use by the NRC for CR3. The staff's evaluation of the existing EOF as a shared facility, included the consideration of past implementation practices for shared facilities pertaining to operating reactors and the associated Commissions requirements for operation. In addition, the staff's evaluation focused on the potential impact to the functionality and capability of the existing facility with the addition of the two new units.

PEF has committed in a license condition to demonstrate its integrated capability of the EOF to handle the simultaneous activation of the LNP and CR3 EROs for a simulated emergency condition. Integrated communication, data capability, and functionality will include the LNP and Crystal River TSC, NRC (site teams and incident response centers), and other Federal, State, and local coordination centers, as appropriate.

The staff finds the additional information and proposed textual revisions to the emergency plan and Part 10 of the COL application provided in response to RAIs 13.3-21(A), 13.3-31, and 13.3-39 to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1 and Supplement 1 to NUREG-0737 and meets the applicable requirements of Appendix E to 10 CFR Part 50. The staff confirmed that the additional information and proposed textual revisions provided in response to these RAIs have been incorporated into Revisions 1 and 2 of the LNP Emergency Plan and Part 10 of the COL application.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. In regard to implementation of the EP rule pertaining to the distance and

performance based criteria of the EOF, there were no changes warranted for the LNP Emergency Plan.

By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of the CR3 nuclear plant, the applicant renamed the EOF to remove any reference to the Crystal River Training Center. The EOF is now referred to in the LNP Emergency Plan as the LNP EOF. In addition, the applicant added a conditional statement to address when the EOF is required for use by CR3.

In consideration for the applicant's response to address the new EP rule and above Crystal River Training Center reference deletion with additional conditional language, Therefore, the staff finds the LNP Emergency Plan adequately describes the EOF functions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Supplement 1 to NUREG-0737, and NSIR/DPR-ISG-01, and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.8.20 *EOF Location*

Technical Information in the Emergency Plan: (8.4.1.b) (50.34(f)(2)(xxv)) {Appendix E, Section IV.E.8}
Section H.2.1, "Emergency Operations Facility," of the LNP Emergency Plan states, in part, that the EOF is located outside the 10-mile EPZ but within 20 miles of the LNP TSCs on West Venable Street in Crystal River, Florida. The facility is a shared EOF with CR3. In addition, the applicant stated that the EOF has been established consistent with NUREG-0696, "Functional Criteria for Emergency Response Facilities," guidelines. Section H.2.1.c.7, "Emergency Equipment and Supplies," states that radiological monitoring equipment will be provided to the EOF by Health Physics if conditions warrant.

Technical Evaluation: (8.4.1.b) (50.34(f)(2)(xxv)) {Appendix E, Section IV.E.8}
The EOF is located outside of the 10-mile plume exposure pathway EPZ and within 20 miles of the LNP TSCs. Consistent with the guidance in Supplement 1 to NUREG-0737, there is no special radiation protection factor required for the facility.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. In regard to implementation of the EP rule pertaining to the distance and performance based criteria of the EOF, there were no changes warranted for the LNP Emergency Plan.

By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of the CR3 nuclear plant, the applicant renamed the EOF to remove any reference to the Crystal River Training Center. The EOF is now referred to in the LNP Emergency Plan as the LNP EOF. In addition, the applicant added a conditional statement to address when the EOF is required for use by CR3.

In consideration for the applicant's response to the new EP rule and above Crystal River Training Center reference deletion with additional conditional language, Therefore, the staff finds the LNP Emergency Plan adequately describes the EOF location. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737 and NSIR/DPR-ISG-01 and meets the requirements of 50.34(f)(2)(xxv).

13.3C.8.21 *EOF Size*

Technical Information in the Emergency Plan: (8.4.1.c)
Section H.2.1.a.3, "Functions," of the LNP Emergency Plan states, in part, that the EOF provides approximately 21,000 sq. ft of working space for Progress Energy and other support personnel. Section H.2.1.b.3, "Functions," states the EOF will serve as an assembly point for EOF staff and representatives of Federal, State, county, and industry emergency response agencies.

Technical Evaluation: (8.4.1.c)
The staff finds the LNP Emergency Plan adequately describes the EOF size requirements. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737.

13.3C.8.22 *EOF Structural Capabilities*

Technical Information in the Emergency Plan: (8.4.1.d)
Section H.2.1.a of the LNP Emergency Plan states, in part, that CR3 will share the existing EOF with LNP.

Technical Evaluation: (8.4.1.d)
Initially, the applicant proposed to use the existing CR3 EOF for support of emergency planning for LNP Units 1 and 2. The staff's review of the EOF focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. Currently, the EOF is an existing NRC approved facility for CR3 that meets the requirements of 10 CFR 50.47 and Appendix E to Part 50, and conforms to the guidance in NUREG-0696 and NUREG-0737, Supplement No. 1. The staff determined the EOF was acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the EOF, by monitoring performance indicators; 2) the EOF is inspected periodically during routine inspections, drills and exercises; and 3) any changes to the EOF are reviewed in accordance with the established inspection program and requirements for operating reactors.

However, by letter dated April 18, 2013, from PEF to NRC, the applicant proposed a revision to the LNP Emergency Plan to address the future state of CR3 as it relates to decommissioning activities and the anticipated relaxation of offsite EP responsibilities for CR3. In consideration of these circumstances, the applicant anticipates the EOF will no longer be required for response to an emergency event at CR3. In LNP Emergency Plan, revision 6, the EOF has been renamed the LNP EOF and is expected to support the future needs of LNP only. The staff anticipates a lapse in time for which the readiness capabilities of the EOF will no longer be required. By letter dated January 10, 2014, from DEF to the NRC, the applicant proposed EP ITAAC 7.2.3 through 7.2.5 to address regulatory guidance criteria in NUREG-0696 and Supplement 1 to NUREG-0737 that are not addressed in the LNP Emergency Plan. Prior to fuel load, these EP ITAAC will provide staff assuranceconfirm that the EOF continues to comply with the uniform building code; the EOF is environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment; and the EOF is provided with industrial security when it is activated to exclude unauthorized personnel and when it is idle to maintain its readiness. Given that the EOF may not be required to maintain its functionality for some time prior to LNP operations, the staff found these ITAAC necessary to ensure that the EOF is constructed as designed, as required by 10 CFR 52.80. Therefore, the staff finds the applicant's proposed EP ITAAC 7.2.3 through 7.2.5 acceptable since they conform to the guidance in NUREG-0696 and Supplement 1 to NUREG-0737 and meet the requirements in 10 CFR 52.80. The staff subsequently finds the LNP EOF acceptable.

The applicant is proposing to use the existing CR3 EOF for LNP Units 1 and 2. The staff's review focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. The EOF is an existing NRC approved facility for CR3 that conforms to the guidance in NUREG-0737 as it pertains to its structure. Therefore, the staff finds the EOF acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the EOF, by monitoring performance indicators; 2) the EOF is inspected periodically during routine inspections, drills and exercises; and 3) any changes to the EOF are reviewed in accordance with the established inspection program and requirements for operating reactors.

13.3C.8.23 *EOF Environmental Controls*

Technical Information in the Emergency Plan: (8.4.1.e)
Section H.2.1.a of the LNP Emergency Plan states, in part, that CR3 will share the existing EOF with LNP.

Technical Evaluation: (8.4.1.e)
Initially, the applicant proposed to use the existing CR3 EOF for support of emergency planning for LNP Units 1 and 2. The staff's review of the EOF focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. Currently, the EOF is an existing NRC approved facility for CR3 that meets the requirements of 10 CFR 50.47 and Appendix E to Part 50, and conforms to the guidance in NUREG-0696 and NUREG-0737, Supplement No. 1. The staff determined the EOF was acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the EOF, by monitoring performance indicators; 2) the EOF is inspected periodically during routine inspections, drills and exercises; and 3) any changes to the EOF are reviewed in accordance with the established inspection program and requirements for operating reactors.

However, by letter dated April 18, 2013, from PEF to NRC, the applicant proposed a revision to the LNP Emergency Plan to address the future state of CR3 as it relates to decommissioning activities and the anticipated relaxation of offsite EP responsibilities for CR3. In consideration of these circumstances, the applicant anticipates the EOF will no longer be required for response to an emergency event at CR3. In LNP Emergency Plan, revision 6, the EOF has been renamed the LNP EOF and is expected to support the future needs of LNP only. The staff anticipates a lapse in time for which the readiness capabilities of the EOF will no longer be required. By letter dated January 10, 2014, from DEF to the NRC, the applicant proposed EP ITAAC 7.2.3 through 7.2.5 to address regulatory guidance criteria in NUREG-0696 and Supplement 1 to NUREG-0737 that are not addressed in the LNP Emergency Plan. Prior to fuel load, these EP ITAAC will provide staff assurance that the EOF continues to comply with the uniform building code; the EOF is environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment; and the EOF is provided with industrial security when it is activated to exclude unauthorized personnel and when it is idle to maintain its readiness. Given that the EOF may not be required to maintain its functionality for some time prior to LNP operations, the staff found these ITAAC necessary to ensure that the EOF is constructed as designed, as required by 10 CFR 52.80. Therefore, the staff finds the applicant's proposed EP ITAAC 7.2.3 through 7.2.5 acceptable since they conform to the guidance in NUREG-0696 and Supplement 1 to NUREG-0737 and meet the requirements in 10 CFR 52.80. The staff subsequently finds the LNP EOF acceptable.

The applicant is proposing to use the existing CR3 EOF for LNP Units 1 and 2. The staff's review focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. The EOF is an existing NRC approved facility for CR3 that conforms to the guidance in NUREG-0737 as it pertains to environmental controls. Therefore, the staff finds the EOF acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the EOF, by monitoring performance indicators; 2) the EOF is inspected periodically during routine inspections and drills and exercises; and 3) any changes to the EOF are reviewed in accordance with the established inspection program and requirements for operating reactors.

EOF Voice and Data Communications and Information Collection

Technical Information in the Emergency Plan: (8.4.1.f)
Section F.1, "Description of Communication Links," of the LNP Emergency Plan states that Progress Energy maintains reliable communications links both within the plant, and between the plant and external EROs. Section H.2.1.c.2 of the LNP Emergency Plan states that the EOF is equipped with commercial telephones, the Progress Energy Voicenet system, and power based radio service for communications within the plant, with corporate facilities, and with offsite organizations. An automatic ringdown telephone system provides communications between the EOF and the TSCs. Messages, technical data, and other emergency-related information can be rapidly and efficiently communicated through facsimile equipment among and between the ERFs as well as the State and county EOCs. Special communications systems are available for non-Progress Energy support groups. The EOF is also equipped with the State Hot Ringdown Telephone System for communication with the SWPT, the Florida DHBRC, and the county EOCs. Section F.1.f of the LNP Emergency Plan states, in part, that communications between the EOF, to the NRCOC is via the ETS or private phone. Communications from these facilities to the NRC Regional Office is via private telephone. Additional information and the staff's evaluation related to emergency communication systems can be found in Section F, "Emergency Communications," of the LNP Emergency Plan and Section 13.3C.6 of this SER. The applicant proposed EP ITAAC 7.2.1 to verify that communication equipment is installed and voice transmission and reception are accomplished between the CRs, TSC, EOF, radiological monitoring teams, NRC, State and county agencies, and ENC. Section 13.3C.8.19 of this SER provides additional information regarding the availability of communication equipment to facilitate unimpeded communications during the response to a simultaneous emergency at LNP and CR3.

Technical Evaluation: (8.4.1.f)
The staff finds the LNP Emergency Plan adequately describes the EOF voice and data communications and information collection capabilities. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737.

13.3C.8.24 ***EOF Information Display, Storage and Analysis***

Technical Information in the Emergency Plan: (8.4.1.g)
Section H.2.1.b.7, "Functions," of the LNP Emergency Plan states the EOF receives and displays site status and parameter data. Section 13.3C.8.19 of this SER provides a discussion regarding the applicant's capability within the EOF to acquire, display and evaluate radiological, meteorological, and plant system data pertinent to offsite protective measures for both LNP and CR3. Section H.5, "On-Site Monitoring Systems," of the LNP Emergency Plan states that Progress Energy maintains and operates onsite monitoring systems needed to provide data that is essential for initiating emergency measures and performing accident assessment.

Section H.8, “Meteorological Instrumentation and Procedures,” of the LNP Emergency Plan states that real time meteorological data with provisions for computerized historical storage and retrieval, for use in accident scenarios will be available in the EOF. Section I.5, “Meteorological Information,” states, in part, that Progress Energy has the capability to access the NWS on a 24-hour basis to provide reliable backup meteorological data representative of site conditions. In addition, Section 13.3C.4.2 of this SER provides additional information regarding plant system and effluent parameter values characteristic of a spectrum of off-normal and accident conditions, including EP ITAAC 3.1 proposed by the applicant to verify that the specified parameters (facility system and effluent) are retrievable in the EOF, and the ranges of displays encompass the values specified in the emergency classification and action level scheme. The applicant also proposed EP ITAAC Acceptance Criteria 7.2.2 to verify that radiological data, meteorological data, and plant system data pertinent to offsite protective measures in the EOF is acquired, displayed and evaluated.

Technical Evaluation: (8.4.1.g)
The staff finds the LNP Emergency Plan adequately describes the EOF information display, storage, and analysis. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737.

13.3C.8.25 *EOF Plant Records*

Technical Information in the Emergency Plan: (8.4.1.h)
Section H.2.1.c.5, “Emergency Equipment and Supplies,” of the LNP Emergency Plan states a selection of technical documents is stored in the EOF at all times and are available whenever the EOF is activated. By letter dated December 21, 2010, the applicant proposed to revise the LNP Emergency Plan to include a statement that the EOF has been established consistent with NUREG-0696 guidelines.

Technical Evaluation: (8.4.1.h)
The staff created **Confirmatory Item 13.3-2** in Section 13.3C.8.9 of this SER to track the applicant’s inclusion of its reference to NUREG-0696 in a future revision to the LNP Emergency Plan.

<u>Resolution of Confirmatory Item 13.3-2</u>

Confirmatory Item 13.3-2 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-2 is now closed.

The staff finds that the LNP Emergency Plan adequately describes the availability of EOF plant records. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737.

13.3C.8.26 *EOF Industrial Security*

Technical Information in the Emergency Plan: (8.4.1.j)
Section H.2.1.a of the LNP Emergency Plan states, in part, that CR3 will share the existing EOF with LNP.

Technical Evaluation: (8.4.1.j)
Initially, the applicant proposed to use the existing CR3 EOF for support of emergency planning for LNP Units 1 and 2. The staff's review of the EOF focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. Currently, the EOF is an existing NRC approved facility for CR3 that meets the requirements of 10 CFR 50.47 and Appendix E to Part 50, and conforms to the guidance in NUREG-0696 and NUREG-0737, Supplement No. 1. The staff determined the EOF was acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the EOF, by monitoring performance indicators; 2) the EOF is inspected periodically during routine inspections, drills and exercises; and 3) any changes to the EOF are reviewed in accordance with the established inspection program and requirements for operating reactors.

However, by letter dated April 18, 2013, from PEF to NRC, the applicant proposed a revision to the LNP Emergency Plan to address the future state of CR3 as it relates to decommissioning activities and the anticipated relaxation of offsite EP responsibilities for CR3. In consideration of these circumstances, the applicant anticipates the EOF will no longer be required for response to an emergency event at CR3. In LNP Emergency Plan, revision 6, the EOF has been renamed the LNP EOF and is expected to support the future needs of LNP only. The staff anticipates a lapse in time for which the readiness capabilities of the EOF will no longer be required. By letter dated January 10, 2014, from DEF to the NRC, the applicant proposed EP ITAAC 7.2.3 through 7.2.5 to address regulatory guidance criteria in NUREG-0696 and Supplement 1 to NUREG-0737 that are not addressed in the LNP Emergency Plan. Prior to fuel load, these EP ITAAC will provide staff assuranceconfirm that the EOF continues to comply with the uniform building code; the EOF is environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment; and the EOF is provided with industrial security when it is activated to exclude unauthorized personnel and when it is idle, to maintain its readiness. Given that the EOF may not be required to maintain its functionality for some time prior to LNP operations, the staff found these ITAAC necessary to ensure that the EOF is constructed as designed, as required by 10 CFR 52.80. Therefore, the staff finds the applicant's proposed EP ITAAC 7.2.3 through 7.2.5 acceptable since they conform to the guidance in NUREG-0696 and Supplement 1 to NUREG-0737 and meet the requirements in 10 CFR 52.80. The staff subsequently finds the LNP EOF acceptable.

The applicant is proposing to use the existing CR3 EOF for LNP Units 1 and 2. The staff's review focused on the extension of the existing facility as it applies to the proposed reactor units at the LNP site. The EOF is an existing NRC approved facility for CR3 that conforms to the guidance in NUREG-0737 as it pertains to industrial security. Therefore, the staff finds the EOF acceptable for use at LNP Units 1 and 2 because: 1) the NRC performs oversight of emergency preparedness, including the EOF, by monitoring performance indicators; 2) the EOF is inspected periodically during routine inspections and drills and exercises; and 3) any changes to the EOF are reviewed in accordance with the established inspection program and requirements for operating reactors.

13.3C.8.27 *EOF Human Factors*

Technical Information in the Emergency Plan: (8.4.1.k)
By letter dated December 21, 2010, the applicant proposed to revise the LNP Emergency Plan to include a statement that the EOF has been established consistent with NUREG-0696 guidelines. In RAI 13.3-49(4)(b), the staff requested the applicant to describe the capability of the TSC and EOF equipment and data displays to clearly identify and reflect the affected unit during a declared emergency, or propose an EP ITAAC to demonstrate this capability. In

response, in part, the applicant proposed additional EP ITAAC acceptance criteria (12.1.1.D.2.d) that states the applicant will demonstrate the capability of the EOF equipment and data displays to clearly reflect the affected unit. Additional information regarding human factors engineering (HFE) for the EOF can be found in Chapter 18, "Human Factors Engineering," of the AP1000 DCD and its supplements, and Section 18.2 of this SER.

Technical Evaluation: (8.4.1.k)
The staff created Confirmatory Item 13.3-2 in Section 13.3C.8.9 of this SER to track the applicant's inclusion of its reference to NUREG-0696 in a future revision to the LNP Emergency Plan. The staff's evaluation of the EOF HFE pursuant to Supplement 1 to NUREG-0737 is addressed in Section 18.2 of this SER. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

Resolution of Confirmatory Item 13.3-2

Confirmatory Item 13.3-2 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-2 is now closed.

13.3C.8.28 *EOF Activation and Staffing*

Technical Information in the Emergency Plan: [H.4] (8.4.1.i)
Section B.5.2 of the LNP Emergency Plan describes the activation of the offsite ERO and responsibilities of the EOF Director. Section H.4 of the LNP Emergency Plan states, in part, that Progress Energy staffing and activation of the EOF is required upon declaration of an emergency classification of a site area emergency or GE. A goal of 60 minutes has been established for minimum staffing of the EOF. It is the goal of the organization to declare the facility operational within 15 minutes of achieving minimum staffing. The EOF is staffed and declared operational in accordance with an EPIP identified in Appendix 5 to the LNP Emergency Plan titled, "Activation and Operation of the Emergency Operations Facility." Section B.7 states that Progress Energy management, technical, and administrative personnel staff the EOF and provide augmented support for the plant staff as outlined in Table B-1.

Sections 13.3C.2.7, 13.3C.8.4, 13.3C.8.12, and 13.3C.8.17 of this SER provide additional information relating to the activation and staffing of ERFs, including response times applicable to the EOF. Section 13.3C.8.19 of this SER provides additional information relating to the activation of the EOF in response to a simultaneous emergency at both LNP and CR3 nuclear plant, including command and control of the facility and staffing, in accordance with procedures.

Technical Evaluation: [H.4] (8.4.1.i)
In Section 13.3C.2.7 and 13.3C.8.4 of this SER, the staff created Confirmatory Item 13.3-45(2) to track a textual revision to the LNP Emergency Plan that eliminates language justifying untimely augmentation of the ERO and activation of its ERFs, including the EOF.

Resolution of Confirmatory Item 13.3-45(2)

Confirmatory Item 13.3-45(2) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-45(2) is now closed.

The staff finds that the LNP Emergency Plan adequately provides for timely activation and staffing of the EOF. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and Supplement 1 to NUREG-0737.

Other Emergency Facilities and Equipment

13.3C.8.29 *Onsite Monitoring System*

Technical Information in the Emergency Plan: [H.5]
Section H.1, "On-Site Emergency Response Facilities," of the LNP Emergency Plan states that the Digital Display System (DDS), which is the primary plant data display system for the TSC, includes SPDS data and will provide measurement and indication of Regulatory Guide (RG) 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants," Revision 4 variables. Section H.5, "On-Site Monitoring Systems," of the LNP Emergency Plan provides references to the LNP COL FSAR sections containing information regarding monitoring systems for geophysical phenomena, radiological conditions, plant processes, and fire and combustion products. Sections H.7, "Off-Site Radiological Monitoring Equipment," and H.8, "Meteorological Instrumentation and Procedures," describe meteorological instrumentation and monitoring systems. Section I.2, "Plant Monitoring Equipment," describes radiological monitoring. Sections I.2.1, "Radiation Monitoring," of the LNP Emergency Plan and 11.5, "Radiation Monitoring," of the AP1000 DCD and its supplements provide a description of two radiation monitoring subsystems, one for process, airborne, and effluent radiological monitoring and sampling, and one for area radiation monitoring.

Technical Evaluation: [H.5]
The staff finds that the LNP Emergency Plan adequately describes onsite monitoring systems. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.8.30 *Provisions to Acquire Data from Offsite Sources*

Technical Information in the Emergency Plan: [H.6]
Section H.6, "Access to Data from Environmental Monitoring Systems," of the LNP Emergency Plan states that meteorological data can be acquired from the NWS when the primary system becomes unavailable. Back-up seismic data is available from the U.S. Geological Survey. Flooding data is available from the National Oceanic and Atmospheric Administration (NOAA) Hydro-Meteorological Reports. The site also maintains offsite monitoring systems as described in the LNP Offsite Dose Calculation Manual (ODCM). Environmental radiological monitoring equipment includes radioiodine and particulate monitors and thermoluminescent dosimeters (TLDs). The TLDs are posted and collected in accordance with Table 1, of NRC's Branch Technical Position for the Environmental Radiological Monitoring Program, Revision 1. Section A.1, "Emergency Organization," of the LNP Emergency Plan states, in part, that the Florida DHBRC performs offsite monitoring and performs laboratory analyses of air, water, and food samples. The DHBRC also provides radiological laboratory capability, including the use of a Mobile Emergency Radiological Laboratory (MERL) and field radiological instrumentation, equipment, and supplies. Radiological laboratories, their capabilities, and expected response times are identified in Table C-1, "Radiological Laboratories – Capabilities." In RAI 13.3-21(C), the staff requested that the applicant clarify its response times in Table C-1. In response, the applicant stated Section C.3 of the LNP Emergency Plan will be revised to refer only to the laboratories and their capabilities listed in Table C-1. These laboratories can be used by the

LNP ERO during an emergency and are expected to respond as soon as resources are available.

Technical Evaluation: [H.6]
The staff finds the additional information and proposed textual revision to the emergency plan provided in response to RAI 13.3-21(C) to be acceptable and confirmed that the change referenced above was included in Revision 1 to the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes provisions to acquire data from, or for emergency access to, offsite monitoring and analysis equipment. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.8.31 *Offsite Radiological Monitoring Equipment*

Technical Information in the Emergency Plan: [H.7]
Section H.7, "Off-site Radiological Monitoring Equipment," of the LNP Emergency Plan stated, in part, that Progress Energy maintains the capability and resources for field monitoring with additional dosimetry as specified in the ODCM related to the Environmental Radiological Monitoring Program. TLD stations have been placed around the site in each accessible sector at various distances. Section 13.3C.8.31 of this SER provides additional information regarding the availability of radioiodine and particulate monitors for use in the environmental radiological monitoring program. Additional support can be requested from the Florida DHBRC and the MERL. Section A.1.B.3, "Florida Department of Health, Bureau of Radiation Control," of the LNP Emergency Plan states that DHBRC provides radiological laboratory capability, including mobile laboratory facilities, such as the MERL and field radiological instrumentation, equipment, and supplies to ensure measurements are properly and effectively carried out. In addition, DHBRC Standard Operating Procedures (Chapter 8 of the State Plan) includes inventories of radiation response emergency kits, radiological laboratory equipment, and mobile laboratory equipment available through the agency. In RAI 13.3-49(1)(a), the staff requested the applicant provide additional discussion in the LNP Emergency Plan regarding the availability of offsite radiological monitoring equipment (other than environmental TLDs) in the vicinity of the nuclear facility to facilitate Progress Energy's response to a radiological emergency prior to receiving support from the State of Florida DHBRC. In response, the applicant restated its capability for field monitoring prior to receiving support from the State of Florida DHBRC. In addition, the applicant stated that all other equipment needed by Progress Energy radiological monitoring teams will be obtained from the LNP emergency kits as described in Section H of the emergency plan.

Technical Evaluation: **[H.7]**
The staff finds that the LNP Emergency Plan adequately describes the offsite radiological monitoring equipment in the vicinity of the nuclear facility. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.8.32 *Meteorological Instrumentation*

Technical Information in the Emergency Plan: [H.8]
Section H.8, "Meteorological Instrumentation and Procedures," of the LNP Emergency Plan provides a description of available meteorological instrumentation (e.g., 60.4 meter (m) meteorological tower), the availability of meteorological data in the CRs, TSCs, and EOFs, and implementing procedures for incorporating onsite meteorological data into dose assessment calculations. Section I.5, "Meteorological Information," states that as a backup for onsite capability, meteorological data can be acquired from the NWS. Instrumentation, maintenance,

and calibration of meteorological equipment are also discussed in Section 2.3.3.1, "Instrumentation," of the LNP COL FSAR. Additional information regarding the availability of meteorological information and data, including atmospheric diffusion estimates, can be found in Section 2.3.3, " Onsite Meteorological Measurement Program," and Section 7.5, "Safety-Related Display Information," of this SER.

Technical Evaluation: [H.8]
The staff finds that the LNP Emergency Plan adequately describes the meteorological instrumentation and procedures, including provisions to obtain representative current meteorological information from other sources. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.8.33 *Inspection/Inventory of Emergency Equipment*

Technical Information in the Emergency Plan: [H.10]
Section H.9, "Emergency Equipment and Supplies," states that emergency equipment and supplies to carry out the provisions of the LNP Emergency Plan are specified in emergency plan administrative procedures. Appendix 5, "List of Emergency Plan Supporting Procedures," identifies an administrative procedure titled, "Emergency Response Facilities and Equipment," that supports this section of the LNP Emergency Plan. Section H.9 also states that provisions have been made to inspect, inventory, and operationally check emergency equipment/instruments once each calendar quarter and after drills or an actual emergency. Sufficient reserves of instruments/equipment are provided to replace those that are removed from emergency kits for calibration or repair. Calibration of instruments has been established by intervals recommended by instrument suppliers, or as required by Federal regulations.

Technical Evaluation: [H.10]
The staff finds that the LNP Emergency Plan adequately describes the provisions to inspect, inventory, and operationally check emergency equipment/instruments at least once each calendar quarter and after each use. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.8.34 *Emergency Kits*

Technical Information in the Emergency Plan: [H.11]
Table H-1, "Typical Emergency Kit Equipment/Supplies and Locations," of the LNP Emergency Plan lists emergency supplies available at each emergency facility (e.g., CRs, OSC and TSC).

Technical Evaluation: [H.11]
The staff finds that the LNP Emergency Plan adequately describes the emergency kits available at each facility. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.8.35 *Location to Coordinate Field Monitoring Data*

Technical Information in the Emergency Plan: [H.12]
Section H.11, "Receipt of Field Monitoring Data," of the LNP Emergency Plan states that dose assessment personnel located in the EOF are designated as the central point for the receipt of offsite monitoring data and sample media analysis results. Resources exist within the organization to evaluate this information and make recommendations.

Technical Evaluation: [H.12]
The staff finds that the LNP Emergency Plan adequately establishes a central point, dose assessment personnel in the EOF, for the receipt and analysis of all field monitoring data and coordination of sample media. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.8.36 *Facilities and Supplies for Emergency Medical Treatment*

Technical Information in the Emergency Plan: {Appendix E, Section IV.E.4}
In RAI 13.3-49(2), the staff requested the applicant discuss in the LNP Emergency Plan whether facilities and associated supplies onsite exist for appropriate emergency first aid treatment. In response, the applicant stated that First aid facilities at LNP are designed to provide basic first responder aid to injured or ill personnel before arrival of offsite medical support. Emergency treatment areas are located in each of the units and are located at the Health Physics area near the work exits. The first aid facilities also contain personnel contamination monitoring equipment, decontamination shower facilities, and first-aid equipment. Medical equipment and supplies are available at these locations. Additional first aid facilities and supplies will be located onsite as needed. Section L.2.2, "First Aid Kits," states that first aid kits are located in various areas of the site, which contain equipment/items necessary to treat injured personnel until offsite support is available to transport patients to the appropriate treatment centers.

Technical Evaluation: **{Appendix E, Section IV.E.4}**
The staff finds the additional information and proposed textual revisions to the emergency plan submitted in response to RAI 13.3-49(2) acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50. The staff created **Confirmatory Item 13.3-49(2)** to track the applicant's inclusion of its response to this RAI in the LNP Emergency Plan.

<u>Resolution of Confirmatory Item 13.3-49(2)</u>

Confirmatory Item 13.3-49(2) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-49(2) is now closed.

The staff finds that the LNP Emergency Plan adequately describes the facilities and medical supplies at the site for appropriate emergency first aid treatment. This is acceptable because it meets the requirements provided in Appendix E to 10 CFR Part 50.

13.3C.8.37 *Maintenance of Emergency Equipment and Supplies*

Technical Information in the Emergency Plan: {Appendix E, Section IV.G}
Section 1.1 of the LNP Emergency Plan states, in part, that the Emergency Plan and implementing procedures in Appendix 5 outline the EP Program and includes an objective for the continued maintenance of an adequate state of EP. Section 13.3C.8.34 of this SER provides discussion regarding procedures that include provisions for the inventory, inspection, calibration, and operational checks of emergency equipment/instruments. In RAI 13.3-49(3), the staff requested that the applicant provide additional discussion in the LNP Emergency Plan regarding the maintenance of emergency equipment and supplies. In response, the applicant stated that it will revise the emergency plan to include provisions for ensuring that emergency supplies are maintained up-to-date. The applicant stated, in part, that during the inspections any emergency equipment, supplies, and parts having a shelf-life will be replaced as necessary.

Inventory requirements and inspections will be delineated in LNP emergency preparedness administrative procedures.

Technical Evaluation: {Appendix E, Section IV.G}
The staff finds the additional information and proposed textual revisions to the emergency plan submitted in response to RAI 13.3-49(3) acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50. The staff created **Confirmatory Item 13.3-49(3)** to track the applicant's inclusion of its response to this RAI in the LNP Emergency Plan.

Resolution of Confirmatory Item 13.3-49(3)

Confirmatory Item 13.3-49(3) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-49(3) is now closed.

The staff finds that the LNP Emergency Plan adequately describes provisions to ensure that the emergency plan, its implementing procedures, and emergency equipment and supplies are maintained up-to-date. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.8.38 *ERDS Description, Testing, and Activation*

Technical Information in the Emergency Plan: (10 CFR 50.72(a)(4) {Appendix E, Section VI}
Section A.1.b.7, "U.S. Nuclear Regulatory Commission," of the LNP Emergency Plan describes emergency notification to the NRC and communication of operational information through dedicated phone lines for the ENS and the ERDS. Section F.1, "Description of Communication Links," states that ERDS provides a real-time transfer of plant data from LNP to the NRC. Progress Energy will activate ERDS within one hour of the declaration of an alert or higher emergency classification in accordance with implementing procedures. Section N.2, "Drills," states that Progress Energy tests communications with Federal EROs and States within the ingestion pathway EPZ quarterly. Section F.3, "Communication System Reliability," states that communications from the CRs, TSCs, and the EOF to the NRCOC is also tested quarterly. In RAI 13.3-21(D), the staff requested the applicant clarify in the LNP Emergency Plan whether the frequency of the ERDS system testing will be quarterly. In response, the applicant committed to a monthly testing frequency and to revise the LNP Emergency Plan accordingly. In RAI 13.3-50, the staff requested that the applicant clarify in the LNP Emergency Plan whether the plant data for Units 1 and 2 transmitted from the plant computer system to the NRCOC will be representative of reactor core and coolant system conditions, reactor containment conditions, radioactivity release rates, and plant meteorological data, pursuant to the requirements of Section VI.2 of Appendix E to 10 CFR Part 50. In addition, the staff requested the applicant provide a listing of the data points that will be available for transmittal from each unit at the LNP site to the NRCOC. In response, the applicant proposed to clarify in the emergency plan the availability of data to be transmitted consistent with the staff's request in this RAI. The applicant specified that data points identified in the parameters listed in Section VI.2.a(i) for pressurized water reactors will be transmitted. The applicant proposed EP ITAAC 5.2 to verify that ERDS is established and successfully completes a transfer of data between the operating units to the NRCOC. In response to supplemental RAI 13.3-44(1), the applicant changed the proposed language in EP ITAAC 5.2 to refer to plant computer systems transmitting data to the NRCOC versus operating units.

Technical Evaluation: {Appendix E, Section VI} (10 CFR 50.72(a)(4))
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to RAI 13.3-21(D) and 13.3-50 to be acceptable because they conform to the requirements of Appendix E to 10 CFR Part 50. The staff confirmed that the proposed change provided in response to RAI 13.3-21(D) was incorporated into Revision 1 to the LNP Emergency Plan. The staff created **Confirmatory Item 13.3-50** to track the applicant's inclusion of its response to this RAI in the LNP Emergency Plan. The staff finds that the LNP Emergency Plan adequately describes the activation of ERDS and meets the regulatory requirements in 10 CFR 50.72(a)(4).

Resolution of Confirmatory Item 13.3-50

Confirmatory Item 13.3-50 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-50 is now closed.

The staff finds that the LNP Emergency Plan adequately describes the ERDS. This is acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.8.39 *ERO Augmentation at Alternate Facility*

Technical Information in the Emergency Plan: {Appendix E, Section VI.8.d}
Section H.2.3, "Alternate Emergency Response Facility," of the LNP Emergency Plan (Revision 5) describes the alternate facility as being located in the EOF/ENC Facility that will serve as a short-term location for ERO members to assemble and activate in the event that access to the onsite emergency response facilities is not possible with minimal equipment available for its operation. Section H.2.3 states that the alternate facility will include at a minimum communication links with the EOF, control room and security; the capability to notify offsite response organizations if the EOF is not performing this action; and computer links to the site to access plant data. In RAI 13.3-62, the staffed requested the applicant clarify in the LNP Emergency Plan whether the alternate facility is capable of being staffed for an extended period of time with adequate equipment to support its operation; whether the purpose of the alternate facility is to stage ERO personnel to support rapid response to the LNP site to limit or mitigate site damage, or the potential for a radiological release; and whether general drawings and system information will be used to support engineering assessment activities to include damage control team planning and preparation. In response to RAI 13.3-62, the applicant provided the requested clarification as described above.

Technical Evaluation: {Appendix E, Section VI.8.d}
The applicant has designated an alternate facility (EOF) outside of the 10-mile plume exposure pathway EPZ and within 20 miles of the LNP site (TSCs) with capabilities similar to the EOF. By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. In regard to implementation of the EP rule and designation of an alternate facility for use during ERO augmentation should onsite facilities become unavailable, the staff requested additional clarification of the LNP Emergency Plan in RAI 13.3-62 as described above. The staff finds the additional information and proposed textual revisions to the emergency plan proposed in RAI 13.3-62 to be acceptable because they conform to the requirements of Appendix E to 10 CFR Part 50, and the guidance in NSIR/DPR-ISG-01. The staff verified that Revision 6 of the LNP Emergency Plan was appropriately updated (or revised).

Therefore, the staff finds that the LNP Emergency Plan adequately describes the ERO augmentation at an alternate facility to support rapid response to the LNP site in the event of an emergency, meets the regulatory requirements in 10 CFR 50.47(b)(8) and Appendix E to 10 CFR Part 50, and conforms to the guidance in NSIR/DPR-ISG-01.

13.3C.8.39 13.3C.8.40 *Conclusion*

On the basis of its review of the LNP Emergency Plan as described above for Emergency Facilities and Equipment, the staff concludes that information provided in the LNP Emergency Plan regarding emergency facilities and equipment is acceptable and meets the requirements of 10 CFR 50.47(b)(8) because it conforms with the guidance in Evaluation Criterion H of NUREG-0654/FEMA-REP-1, NSIR/DPR-ISG-01, Supplement 1 to NUREG-0737, and NUREG-0696, and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.9 Accident Assessment

13.3C.9.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(9), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Accident Assessment" in Appendix E to 10 CFR Part 50 and 10 CFR 50.34.

13.3C.9.2 *Initiating Conditions for Emergency Classes*

Technical Information in the Emergency Plan: [I.1]
Section I, “Accident Assessment,” of the LNP Emergency Plan describes the methods, systems, and equipment available for assessing and monitoring actual or potential offsite consequences of a radiological emergency. Section I states that the use of the equipment described in this section of the emergency plan during an emergency is detailed in EPIPs. Section I.1, “Parameters Indicative of Emergency Conditions,” of the LNP Emergency Plan states that plant system and effluent parameter values that would be observed in off-normal situations are described in Section D, “Emergency Classification System,” of the emergency plan. In addition, Section I.1 states that emergency response procedures and implementing procedures include methods for quickly assessing plant system and effluent parameter values, and classifying the emergency condition. Section I.2, “Plant Monitoring Systems,” of the emergency plan describes the monitoring systems that would be available for assessing plant conditions in an emergency.

Technical Evaluation: [I.1]
The staff finds that the LNP Emergency Plan adequately identifies plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and identifies the plant parameter values or other information which correspond to the initiating conditions for each emergency class. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.9.3 *Capability to Continuously Assess an Accident*

Technical Information in the Emergency Plan: [I.2] (10 CFR 50.34(f)(2)(xvii))
Section B.5.1.h, “Accident Assessment Coordinator,” of the LNP Emergency Plan states that the

Accident Assessment Coordinator is located in the TSC, reports to the EC-TSC, and is responsible for coordination of accident assessment team strategies to support accident mitigation. Section B.5.1.e, "Technical Support Coordinator," states that the Technical Support Coordinator is located in the EOF, reports to the EOF Director, and is responsible for assisting the TSC Accident Assessment Team in identifying accident mitigation activities and monitoring critical safety system functions. Section F.1.d, "Description of Communication Links," describes separate conference-line phone systems available between the CRs, TSCs, and EOF to be used to communicate accident assessment, dose assessment, and emergency plant status information. Section 13.3C.8.2 of this SER provides additional information regarding one of the key TSC functions, which is to assist the CR in accident assessment. Section I.2, "Plant Monitoring Systems," of the LNP Emergency Plan states that initial values and continuing assessment of plant conditions through the course of an emergency may rely on reactor coolant sample results, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring. The LNP Emergency Plan provides reference to various sections of the FSAR, including Section 9.3.3, "Primary Sampling System," and 11.5, "Radiation Monitoring," which incorporates by reference the related sections of the AP1000 DCD and its supplements, and describe provisions for obtaining samples under accident conditions and radiation monitoring systems. Section I.2.1, "Radiological Monitoring," states that the RMS provides plant effluent monitoring, process fluid monitoring, airborne monitoring, and continuous indication of the radiation environment in plant areas where such information is needed. A listing of plant and sampling locations is also provided for each monitor type that is part of the RMS. Additional discussion related to Section H.5, "Onsite Monitoring Systems" of the LNP Emergency Plan and data, including SPDS and RG 1.97 variables, that can be retrieved in the CRs and TSC for accident assessment is located in Section 13.3C.8.30 of this SER.

Additional discussion regarding meteorological instrumentation and data that is digitally displayed in the CRs, TSCs, and EOF can be found in Section H.8 of the LNP Emergency Plan and 13.3C.8.33 of this SER. Additional information regarding the availability of meteorological information and data, including atmospheric diffusion estimates, can be found in Section 2.3.3, "Onsite Meteorological Measurement Program," and Section 7.5, "Safety-Related Display Information," of this SER.

Section I.6, "Determination of Release Rates and Projected Dose Rates," of the LNP Emergency Plan, states that there are implementing procedures which establish processes for estimating the extent of fuel damage. Section I.9, "Measuring Radioiodine Concentrations," describes the capabilities of field monitoring teams to assess radioiodine concentrations in air downwind of the site. The field monitoring equipment is capable of measuring concentrations as low as $1\times10\text{-}7\ \mu Ci/cm^3$. The applicant proposed EP ITAAC 8.1 to verify that the means exist to provide initial and continuing radiological assessment throughout the course of an accident through the plant computer or communications with the CR.

Section I.4.1, "On-site Dose Assessment," of the LNP Emergency Plan states that implementing procedures provide procedural guidance for the following assessment activities: assessment and quantification of actual and potential releases; obtaining samples; performing isotopic analysis (evaluation of effluents); sampling and analyzing the containment atmosphere for radionuclide concentration under accident conditions; sampling and analyzing the containment atmosphere for hydrogen content under accident conditions; and estimating the types and quantities of radioactive material available for release. Additional discussion regarding onsite dose assessment is in Section 13.3C.9.6 of this SER. Appendix 5 of the LNP Emergency Plan provides reference to two EPIPs titled, "Core Damage" and "Dose Assessment," that support and implement Section I of the LNP Emergency Plan.

Technical Evaluation: [I.2] (10 CFR 50.34(f)(2)(xvii))
The staff finds that the LNP Emergency Plan adequately describes the capability and resources to provide initial values and continuing assessment of plant conditions through the course of an accident. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of 10 CFR 50.34(f)(2)(xvii). The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.4 *Capability to Determine Source Term*

Technical Information in the Emergency Plan: [I.3.a] {Appendix E, Section IV.E.2}
Section I.3, "Determination of Source Term and Radiological Conditions," of the LNP Emergency Plan states that implementing procedures provide the means for interpreting measured parameters (such as containment monitor readings) to determine source terms (such as the radioactive material available for release from containment). The applicant proposed EP ITAAC 8.2 to demonstrate that the means exists to determine the source term of releases of radioactive material within plant systems, and the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.

Technical Evaluation: [I.3.a] {Appendix E, Section IV.E.2}
The staff finds that the LNP Emergency Plan adequately establishes methods and techniques to be used for determining the source term of releases of radioactive material within plant systems based on plant system parameters and effluent monitors. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.5 *Capability to Determine the Magnitude of a Radiological Release*

Technical Information in the Emergency Plan: [I.3.b] {Appendix E, Section IV.B}
Section I.3, "Determination of Source Term and Radiological Conditions," of the LNP Emergency Plan states that the magnitude of the release can be determined from plant system parameters and effluent monitor readings using implementing procedures. The applicant proposed EP ITAAC 8.2 to demonstrate that the means exists to determine the source term of releases of radioactive material within plant systems, and the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.

Technical Evaluation: [I.3.b] {Appendix E, Section IV.B}
The staff finds that the LNP Emergency Plan adequately establishes methods and techniques to be used for determining the magnitude of releases of radioactive material within plant systems based on plant system parameters and effluent monitors. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.6 *Relationship Between Effluent Monitors and Exposure*

Technical Information in the Emergency Plan: [I.4] {Appendix E, Section IV.A.4} {Appendix E, Section IV.B}
Section I.4, "Relationship between Effluent Monitor Reading and Exposure and Contamination Levels," of the LNP Emergency Plan describes dose assessment procedures which include the

relationship between effluent monitor readings, and onsite and offsite exposures and contamination estimates for various meteorological conditions. Sections I.4.1, "On-Site Dose Assessment," and I.4.2, "Off-Site Dose Assessment," of the LNP Emergency Plan describe the emergency dose assessment program used at LNP both onsite and offsite. Information provided includes dose and dose rate determinations based on plant effluent monitors, and contamination estimates based on deposition assumptions and meteorological conditions. Section I.4.1 of the emergency plan describes the process by which onsite radiological surveys are performed and by whom. Survey results are forwarded to the TSCs for evaluation and assessment. The Radiation Controls Coordinator will assess survey results and advise the EC of in-plant radiological conditions. The need for additional or continuing surveys is established by the EC. Specific instructions for in-plant radiological surveys are provided in implementing procedures. In some instances, additional sampling and analysis are required for quantitative assessment of potential source terms or the magnitude of a release. Section 13.3C.9.3 of this SER provides additional discussion regarding the contents of implementing procedures on this topic. Section I.4.2 of the emergency plan states, in part, that an EPIP will be used to assess the dose to personnel downwind of a radiological release. The EPIP will account for specific criteria such as meteorological regimes (e.g., seabreeze) and other topographical effects so the dose projections will be representative of the LNP site. The EPIP will provide Operations staff (including the STA) with a rapid method of determining the magnitude of a radioactive release from LNP during an accident condition. The EPIP contains a series of tables that will be used with meteorological and radiological data displayed in the CR, to quickly generate offsite dose information. The EPIP will also provide dose assessment personnel guidance to determine the magnitude of the radioactive release and cumulative dose by distance and sector to aid in the formulation of PARs.

Section B.5.2, "Off-Site Emergency Response Organization," describes the offsite ERO and states that the Radiation Controls Manager is responsible for providing direction for dose assessment, and the EOF Director has the responsibility for coordinating dose assessment. The EOF Director is also responsible for direct interface with offsite authorities. The applicant proposed EP ITAAC 8.3 to test that response personnel can continuously assess the impact of the release of radioactive materials to the environment, accounting for the relationship between effluent monitor readings, and onsite and offsite exposures and contamination for various meteorological conditions.

Additional information regarding the availability of meteorological information and data, including atmospheric diffusion estimates, can be found in Section 13.3C.9.7, "Meteorological Information," Section 2.3.3, " Onsite Meteorological Measurement Program," and Section 7.5, "Safety-Related Display Information," of this SER.

Technical Evaluation: [I.4] {Appendix E, Section IV.A.4} {Appendix E, Section IV.B}
The staff finds that the LNP Emergency Plan adequately establishes the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the applicable requirements of Appendix E to Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.7 *Meteorological Information*

Technical Information in the Emergency Plan: [I.5.]
Section I.5, "Meteorological Information," of the LNP Emergency Plan states that a permanent meteorological monitoring station is located within the Exclusion Area Boundary. It records the

data that are required for performing dose projections and this information is presented in the CR, TSC, and EOF. Progress Energy has the capability to access the NWS in Tallahassee, Florida on a 24-hour basis to provide backup data should the onsite system fail. Sections E.2, "Message Content," and E.3, "Follow-up Messages to Off-site Authorities," of the LNP Emergency Plan states that the contents of initial and follow-up emergency messages established with State and local governments include basic meteorological data. Section F.1.b, "Description of Communication Links," states that communications with State/county governments within the EPZs include weather service forecast offices. Section F.1.C states, in part, that the HPN and PMCL are separate telephone lines dedicated for communicating radiological and meteorological conditions, assessments, trends, and protective measures with the NRC. HPN and PMCL lines are located in the TSCs and EOF. The applicant proposed EP ITAAC 8.4 in response to supplemental RAI 13.3-32 to test the capability to display meteorological parameters (e.g., wind speed – 10 m and 60 m, wind direction – 10 m and 60 m, delta-temperature) in the TSC and CR in the format needed for the use in the appropriate EPIP. In supplemental RAI 13.3-51, the staff requested that the applicant revise EP ITAAC 8.4 (proposed in response to supplemental RAI 13.3-32) to include a test of the capability to display meteorological data in the EOF consistent with Section I.5 of the LNP Emergency Plan. The applicant revised EP ITAAC 8.4 as requested by the staff. Additional discussion regarding the transfer of plant operational data from LNP via ERDS to the NRCOC can be found in Section 13.3C.8.39 of this SER. Additional information regarding the availability of meteorological information and data, including atmospheric diffusion estimates, can be found in Section 13.3C.8.33, "Meteorological Instrumentation," Section 2.3.3, " Onsite Meteorological Measurement Program," and Section 7.5, "Safety-Related Display Information," of this SER.

Technical Evaluation: [I.5]
The staff finds that the LNP Emergency Plan adequately describes the capability of acquiring and evaluating meteorological information. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.8 *Projecting Dose When Instrumentation is Inoperable*

Technical Information in the Emergency Plan: [I.6]
Section I.6, "Determination of Release Rates and Projected Doses," of the LNP Emergency Plan states that implementing procedures establish the processes for estimating release rates and projected doses in the event that associated instrumentation is off-scale or inoperable. Procedures include provisions for estimating releases based on field monitoring data and surrogate instrumentation, and methods to estimate the extent of fuel damage. The applicant proposed EP ITAAC 8.5 to verify that a test will be performed of the capabilities to determine the release rate and projected doses if the instrumentation used for assessment is off-scale or inoperable. Procedures related to core damage and dose assessment are identified in Appendix 5 of the LNP Emergency Plan.

Technical Evaluation: [I.6]
The staff finds that the LNP Emergency Plan adequately establishes the methodology for determining the release rate/projected doses if the instrumentation used for assessment are off-scale or inoperable. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.9 *Field Monitoring Capability*

Technical Information in the Emergency Plan: [I.7]
Section I.4.1, "On-site Dose Assessment," of the LNP Emergency Plan states that the Radiation Monitoring Team performs activities to determine radioactive levels at the site boundary, and beyond, as soon as possible following an accidental release in accordance with implementing procedures. Conditions at the time of an emergency may dictate specific areas where intense radiological monitoring efforts will be required. Upon activation and preparation of the Radiation Monitoring Team, the Radiation Controls Coordinator and EC will determine specific areas to be monitored. The Radiation Monitoring Team has sole responsibility for plume monitoring until such time as the State Monitoring Teams arrive and assume this responsibility for areas beyond the site boundary. Results of surveys are appropriately recorded and reported to the TSCs via portable transceiver. The TSCs transmit the results to the EOF for coordination of analysis, as appropriate, with State survey results. Section I.7, "Field Monitoring Capability," of the LNP Emergency Plan states that radiological surveys and monitoring of the offsite environs are coordinated by the State and conducted by the State Radiological Emergency Team. Field teams have access to the MERL, which is equipped to provide radiological laboratory services and can arrive at the EOF within two hours of notification. Equipment available to the field team by the MERL is provided in Table I-1, "Mobile Emergency Radiological laboratory – Typical Instrumentation and Equipment." Section H.7, "Off-Site Radiological Monitoring Equipment," provides additional information related to the MERL and State capabilities, and states that LNP has monitoring capabilities normally associated with the environmental monitoring program, such as environmental TLDs. The applicant proposed EP ITAAC 8.6 to ensure a test will be performed to demonstrate the capabilities for field monitoring teams to be dispatched and locate and monitor a radiological release within the plume exposure pathway EPZ.

Technical Evaluation: [I.7]
The staff finds that the LNP Emergency Plan adequately describes the capability and resources for field monitoring within the plume exposure EPZ. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.10 *Capability to Rapidly Assess Radiological Hazards*

Technical Information in the Emergency Plan: [I.8.]
Section I.8, "Assessment Hazards through Liquid or Gaseous Release Pathways," of the LNP Emergency Plan states that Progress Energy trains, designates, equips, dispatches, and coordinates, both radiological and environmental field teams in accordance with the LNP Emergency Plan. Field teams maintain the capability to perform sampling of offsite media samples to assess the potential magnitude and locations of radiological hazards. Additional discussion regarding the capability and resources for rapidly assessing radiological hazards can be found in Section 13.3C.9.6 and 13.3C.9.9 of this SER. The applicant proposed EP ITAAC 8.7 to ensure a drill or exercise is conducted that demonstrates the capability to activate field teams, which will make a rapid assessment of the actual or potential magnitude, and locations of radiological hazards through simulated liquid or gaseous release pathways. A qualified field team is capable of being notified, activated, briefed and dispatched from the EOF during a radiological release scenario. The team demonstrates conformance with procedural guidance for team composition, use of monitoring equipment, communication from the field, and locating specific sampling locations.

Technical Evaluation: [I.8]

The staff finds that the LNP Emergency Plan adequately describes methods, equipment, and expertise to rapidly assess radiological hazards. This is acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.11 *Capability to Measure Radioiodine Concentrations in Air*

Technical Information in the Emergency Plan: [I.9]
Section I.9, "Measuring Radioiodine Concentrations," of the LNP Emergency Plan states that field teams are equipped with the capability to detect and measure radioiodine concentrations as low as 1×10-7 $\mu Ci/cm^3$ (microcuries per cubic centimeter) in the vicinity of the site. Interference from background radiation and noble gas is minimized by moving to a low-background position before analyzing a sample cartridge. The collected air sample is measured by hand-held survey meter as an initial check of the projection derived from the plant data to determine if significant quantities of elemental iodine have actually been released. The applicant proposed EP ITAAC 8.8 to ensure a test will be performed of the capabilities to detect and measure radioiodine concentrations in air in the plume exposure EPZ, as low as 10^{-7} µCi/cc under field conditions.

Technical Evaluation: [I.9]
The staff finds that the LNP Emergency Plan adequately describes a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as 10^{-7} uCi/cc under field conditions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.12 *Means to Relate Various Parameters to Dose Rates*

Technical Information in the Emergency Plan: [I.10]
Section I.10, "Relating Measured Parameters to Dose Rates," of the LNP Emergency Plan states that implementing procedures establish the means for relating measured parameters to dose rates for key radioisotopes. These procedures also set the methods for determining projected dose based on projected and actual dose rates. The applicant proposed EP ITAAC 8.9 to ensure a test will be performed of the capabilities to estimate integrated dose from the projected and actual dose rates, and for comparing these estimates with the Environmental Protection Agency Protection Action Guidelines. Appendix 5 provides reference to an EPIP for making dose assessments.

Technical Evaluation: **[I.10]**
The staff finds that the LNP Emergency Plan adequately establishes means for relating the various measured parameters (e.g., contamination levels, water and air activity levels) to dose rates for key isotopes and gross radioactivity measurements. The LNP Emergency Plan also adequately describes provisions for estimating integrated dose from the projected and actual dose rates, and for comparing these estimates with the protective action guides. The detailed provisions are described in separate procedures. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.9.13 *Conclusion*

On the basis of its review of the LNP Emergency Plan as described above for Accident Assessment, the staff concludes that the information provided in the LNP Emergency Plan regarding accident assessment is acceptable and meets the requirements of 10 CFR 50.47(b)(9) because it conforms with the guidance in Evaluation Criterion I of NUREG-0654/FEMA-REP-1 and meets the applicable requirements of Appendix E to 10 CFR Part 50 and 10 CFR 50.34 as described above.

13.3C.10 Protective Response

13.3C.10.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(10) for protective response, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01. In addition, the staff evaluated the proposed emergency plan against the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.10.2 *Warning Onsite Personnel*

Technical Information in the Emergency Plan: [J.1.a-d]
Section J, "Protective Response," of the LNP Emergency Plan describes the protective actions that have been developed to limit radiation exposure to site personnel and the general public in the event of an accident at the site. Section J.1, "On-Site Notification," states that methods have been established, in a timely manner, to notify all individuals within the LNP site boundary of an emergency condition requiring individual action. These individuals may include LNP personnel not having emergency assignments; visitors; contractors and construction personnel; and other individuals in the public access areas, on or passing through the site or within the owner controlled area. Notifications will be made to individuals within the PA primarily through use of the plant's public address system and audible warning systems. In areas of high noise or other areas where these systems may not be audible, other measures (e.g., visible warning signals or personal notifications) may be used. Notification to personnel located outside of the PA are through audible warnings provided by warning systems and the activities of the Security Force (e.g., vehicle-mounted public address systems) or local law enforcement, as needed. LNP provides information regarding the meaning of the various warning systems and appropriate response actions through plant training programs, visitor orientation, escort instructions, posted instructions, or within the content of audible messages. In RAI 13.3-23(A), the staff requested the applicant clarify the time required to warn or advise onsite individuals of an emergency. The applicant's response stated that personnel and others within the LNP site boundary will be notified in a timely manner (about 15 minutes). In response to RAI 13.3-44(3), the applicant proposed EP ITAAC 9.1 and 12.1.1.B.3 to ensure a test will be performed to demonstrate the capability to warn and advise onsite individuals of emergency conditions in a timely manner (about 15 minutes) in accordance with the LNP Emergency Plan.

Technical Evaluation: [J.1.a-d]
The staff finds the clarification and textual revision to the emergency plan provided in response to RAI 13.3-23(A) to be acceptable because they conform to NUREG-0654/FEMA-REP-1. The staff confirmed that the proposed changes provided in response to this RAI were incorporated into Revision 1 to the LNP Emergency Plan. The staff also confirmed that the proposed

changes to EP ITAAC 9.1 and 12.1.1.B.3 were incorporated into Revision 2 to Part 10 of the COL application. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER. Therefore, the staff finds that the LNP Emergency Plan adequately establishes the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including employees not having emergency assignments, visitors, contractor and construction personnel, and other persons who may be in the public access areas on or passing through the site or within the owner controlled area. This is acceptable because it meets the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.3 *Evacuation Routes for Onsite Personnel*

Technical Information in the Emergency Plan: [J.2]
Section J.2, "Evacuation Routes and Transportation," of the LNP Emergency Plan states that in the event of an evacuation, onsite personnel will be evacuated to a remote offsite assembly area. In RAI 13.3-23(B), the staff requested that the applicant provide additional information regarding the location of the pre-designated main assembly area or alternate remote offsite assembly area to be used when evacuating onsite personnel in the event of an emergency. In its response, the applicant stated that since each emergency situation can be unique in regards to radiological, meteorological, plant, and security conditions, implementing procedures will provide flexibility on assignment of assembly areas, both onsite and offsite, for evacuating onsite personnel. The applicant stated that the LNP Training Building is the primary onsite, pre-designated assembly area located outside of the PA for evacuating non-essential personnel, while the EOF is the primary offsite assembly area and alternate remote offsite assembly area. Section J.2 states that evacuation of non-essential personnel could be required from either the PA or from the entire owner-controlled area. Section J.2.a of the emergency plan states that non-essential personnel (e.g., personnel not on the ERO or assisting with the emergency) shall evacuate using their respective personal transportation and follow established evacuation routes. Section J.2.d indicates that personnel without transportation will arrange for rides with others. Local evacuations for radiation control and fire protection are conducted in accordance with site procedures. Section J.10, "Protective Measures Implementation," states that evacuation routes are illustrated in Figure A.6-2, "Levy Evacuation Routes and Shelters." Appendix 5 includes an implementing procedure titled, "Evacuation and Accountability," that supports and implements Section J of the LNP Emergency Plan.

Technical Evaluation: [J.2]
The staff finds the clarifications and textual revisions to the emergency plan provided in response to RAI 13.3-23(B) to be acceptable because they clarify the locations of pre-designated and alternate remote assembly areas, and the response conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that the changes provided in response to this RAI were included in Revision 1 to the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes the provisions for evacuation routes and transportation for onsite individuals to a suitable location. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.4 *Radiological Monitoring of Onsite Personnel*

Technical Information in the Emergency Plan: [J.3]
Section J.2, "Evacuation Routes and Transportation," of the LNP Emergency Plan states that evacuating personnel may be monitored through portal monitors as they leave the PA or by portable friskers in the evacuation monitoring area based on the current situation. If conditions warrant, they will reassemble at an offsite area, the EOF or other suitable area, until remote

monitoring and decontamination stations are established. Section J.3, "Personnel Monitoring and Decontamination," states that if a radiological release has occurred or is in progress, a representative sample of vehicles will be monitored for contamination prior to dismissing personnel to relocation sites. Progress Energy has established relocation sites for personnel monitoring. Contamination monitoring of personnel, vehicles, and personal property arriving at the assembly area is directed by the Emergency Coordinator when a possibility exists that individuals may have become contaminated before or during the LNP site evacuation. Based on monitoring results, personnel will be cleared or dispatched to an offsite vehicle wash-down station. If it is necessary to dispatch personnel offsite, Progress Energy will coordinate this process with county emergency management personnel. The applicant proposed EP ITAAC 9.2 to demonstrate the capability to radiologically monitor people evacuated from the site. Equipment is available, and personnel have been assigned and trained to procedures that are approved and in place to accomplish this activity.

Technical Evaluation: [J.3]
The staff finds that the LNP Emergency Plan adequately provides for radiological monitoring of people evacuated from the site. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.10.5 *Evacuation of Non-essential Onsite Personnel*

Technical Information in the Emergency Plan: [J.4]
Section J.4, "Non-essential Personnel Evacuation and Decontamination," of the LNP Emergency Plan states that evacuation of non-essential personnel in the event of a "site area emergency" or "general emergency" is described in Section J.2, "Evacuation Routes and Transportation." Appropriate equipment and supplies are provided from the facility to the assembly areas to facilitate contamination monitoring. All members of the public who are onsite must be evacuated if there is a possibility of individual exposures. When assembly is requested, members of the general public will proceed to the pre-designated assembly area(s); and non-essential personnel will stop work, shut down potentially hazardous equipment, and proceed to the pre-designated assembly area(s). Assembly area accountability will take place and the results will be reported to the EC when requested. Members of the general public and LNP personnel will remain in assembly area(s) until instructed to return to work, to shelter in the assembly areas, or to evacuate. Section J.2 states that non-essential personnel exiting the site will be directed to proceed either to their homes, if no radiological release has occurred, or to an assembly area, such as the EOF or other suitable location, until county monitoring and decontamination stations are in place. Non-essential personnel exiting the site may also be monitored through portal monitors as they exit the PA or by portable friskers in the evacuation monitoring area based on the situation.

Technical Evaluation: [J.4]
The staff finds that the LNP Emergency Plan adequately provides for the evacuation of onsite non-essential personnel in the event of a "site area emergency" or "general emergency" and describes a decontamination capability. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.6 *Onsite Personnel Accountability*

Technical Information in the Emergency Plan: [J.5]
Section J.5, "Personnel Accountability," of the LNP Emergency Plan states that all personnel within the PA will be evacuated at a Site Area or General Emergency classification, or earlier if deemed necessary by the EC. Any remaining personnel within the PA will be accounted for within 30 minutes, and continuously thereafter during the emergency. Missing individuals will be identified by Security. Additional discussion regarding a delay in accountability due to a security-based event and onsite personnel protective decision making by the EC can be found in Section 13.3C.17.4 of this SER. Emergency procedures describe the accountability methodology. Search procedures will be implemented to locate unaccounted persons. Procedures related to evacuation and accountability are identified in Appendix 5, "List of Emergency Plan Supporting Procedures," of the LNP Emergency Plan.

Technical Evaluation: [J.5]
The staff finds that the LNP Emergency Plan adequately describes the capability to account for all individuals onsite at the time of an emergency and ascertain the names of missing individuals within 30 minutes of its start, accounting for all onsite individuals continuously thereafter. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.7 *Protection for Personnel Remaining or Arriving Onsite*

Technical Information in the Emergency Plan: [J.6.a-c]
Section J.6, "Protective Measures," of the LNP Emergency Plan states that LNP distributes protective equipment and supplies, as needed, to personnel remaining or arriving onsite during an emergency to control radiological exposure and contamination. The equipment and supplies include respiratory protection for individuals, protective clothing, and potassium iodide tablets for protection against radioactive iodine, if warranted. Other engineering controls (e.g., ventilation in TSCs and CRs) are used, as well, to control personnel exposure to radioactive material in the air.

Technical Evaluation: [J.6.a-c]
The staff finds that the LNP Emergency Plan adequately provides for the use of individual respiratory protection, protective clothing, and radioprotective drugs (e.g., individual thyroid protection). This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.8 *Recommending Protective Actions*

Technical Information in the Emergency Plan: [J.7]
Section J.7, "Protective Action Recommendations and Bases," of the LNP Emergency Plan provides discussion regarding who is responsible for recommending offsite protective actions in an emergency, including communications with State and local government authorities. The EOF Director or the EC (if the EOF is not activated) is responsible for making protective action recommendations (PARs) to the State and affected counties within 15 minutes of declaring a general emergency and any change in the PARs. Specific PARs, tied to plant and meteorological conditions, are provided in an implementing procedure. This guidance is based on Supplement 3 to NUREG-0654/FEMA-REP-1, "Criteria for Protective Action Recommendations for Severe Accidents." Appendix 5 of the LNP Emergency Plan includes reference to an EPIP titled, "Protective Action Recommendations." Section J.7 further states

that public PARs are based on plant conditions, estimated offsite doses, or some combination of both. The EALs correspond to the projected dose to the population-at-risk and are determined consistent with the methodology discussed in NEI 07-01. Offsite dose projections are compared to the Protective Action Guides shown in Table J-1, which are derived from USEPA 400-R-92-001. Section J.7 states that sheltering may be appropriate when a release is controlled or terminated, or when conditions exist, such as severe weather, that would make evacuation dangerous. In addition, recommendations are made for use of potassium iodide by the public that are consistent with approved strategies.

Technical Evaluation: [J.7]
The staff finds that the LNP Emergency Plan adequately establishes a mechanism for recommending protective actions to the appropriate State and local authorities. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.9 *Evacuation Time Estimates*

Technical Information in the Emergency Plan: [J.8] {Appendix E, Section IV.1}
Section J.8, "Evacuation Time Estimates," of the LNP Emergency Plan states that an ETE study was performed for the LNP site, consistent with guidance in NUREG-0654, Appendix 4, "Evacuation Time Estimates within the Plume Exposure Pathway Emergency Planning Zone," and NUREG/CR-6863, "Development of Evacuation Time Estimate Studies for Nuclear Power Plants." A summary of the ETEs are provided in Table J-2, "10-Mile Emergency Planning Zone [EPZ] Evacuation Time Estimates (100 Percent) (Hr:Min)," of the emergency plan. Details regarding this study are provided in Appendix 6, "Evacuation Time Estimate Study Summary," of the LNP Emergency Plan, and are reviewed separately in Section 13.3C.18 of this SER. Figure A6-1, "EPZ Population Distribution (by Subzone)," presents a distribution of the population within the 10-mile plume exposure pathway EPZ.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. In regard to implementation of the EP rule pertaining to the evacuation time estimates, the applicant revised the emergency plan Section J.8 (Revision 5) to clarify the intended use of the ETE study and subsequent updates by the LNP organization and State and local authorities, including timing requirements for periodic updates by LNP and submittal to the NRC for review.

Technical Evaluation: [J.8] {Appendix E, Section IV.1}
The staff finds that the LNP Emergency Plan adequately provides time estimates for evacuation within the plume exposure EPZ. This is acceptable because it meets the guidance in NUREG-0654/FEMA-REP-1 and requirements in Appendix E to 10 CFR Part 50.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. The staff finds the revisions to the LNP Emergency Plan (Revision 5) regarding evacuation time estimate updates, including timing requirements, information sharing with State and local authorities, and submittal to the NRC to be acceptable because they conform to the guidance in NSIR/DPR-ISG-01 and meet the requirements of Appendix E to 10 CFR Part 50. At this time, revision to the ETE Study contained in Appendix 6 is not warranted.

The staff's detailed evaluation of the LNP ETE Report is addressed in Section 13.3C.18 of this SER.

13.3C.10.10 *Plans to Implement Protective Measures*

Technical Information in the Emergency Plan: [J.10.a]
Section J.10, "Protective Measures Implementation," of the LNP Emergency Plan states that Figure A6-2, "Levy Evacuation Routes and Shelters," provides a map of the evacuation routes, reception centers, and shelters. Pre-selected radiological sampling and monitoring points are identified in implementing procedures. Procedures related to PARs and evacuation are identified in Appendix 5 to the LNP Emergency Plan.

Technical Evaluation: [J.10.a]
The staff finds that the LNP Emergency Plan adequately addresses evacuation routes, evacuation areas, pre-selected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

Technical Information in the Emergency Plan: [J.10.b]
Section J.10, "Protective Measures Implementation," of the LNP Emergency Plan states that Appendix 6, "Evacuation Time Estimate Study Summary," provides tables and maps of the plume exposure pathway EPZ illustrating population distribution. Figure A6-1, "Resident Population within the 10-Mile EPZ," provides resident population in sector format.

Technical Evaluation: [J.10.b]
The staff finds that the LNP Emergency Plan includes figures that adequately show population distribution around the nuclear facility. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

Technical Information in the Emergency Plan: [J.10.c]
Section J.10, "Protective Measures Implementation," of the LNP Emergency Plan states that warnings to the public within the EPZ are the responsibility of the State and local officials. The primary method of warning the public is by the use of the ANS. Section E.5, "Instructions to the Public in the Plume Exposure EPZ," states that the primary method of alerting the public is by sounding the ANS. In addition, Sections 2.1 and 2.2 of Appendix 7, "Public Alert and Notification System," describe mobile sirens as the alternate method of notifying the public when offsite locations five miles from the site are not suitable for fixed sirens. The applicant revised Section E.5 and J.10.c. of the LNP Emergency Plan to discuss the alternate method used for alerting the public of an emergency. Additional discussion regarding notification of the public can be found in Section 13.3C.5.6 of this SER.

Technical Evaluation: [J.10.c]
The staff finds that the LNP Emergency Plan adequately describes the means for notifying all segments of the transient and resident population. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

Technical Information in the Emergency Plan: [J.10.m]
Section J.10, "Protective Measures Implementation," of the LNP Emergency Plan states that choices of recommended protected actions are based on guidance provided in EPA 400-R-92-00. Section J.8, "Evacuation Time Estimates," and Appendix 6, "Evacuation Time Estimate Study Summary," of the LNP Emergency Plan provides a summary of ETE prepared for the plume Exposure Pathway EPZ. Table J-2, "10-Mile Emergency Planning Zone

Evacuation Time Estimates (100 Percent) (Hr:Min)," provides an illustrative summary of ETEs within the Plume Exposure Pathway EPZ.

Technical Evaluation: [J.10.m]
The staff finds that the LNP Emergency Plan includes the basis for recommended protective actions for the plume exposure pathway during emergency conditions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.11 *Conclusion*

The staff concludes that the information provided in the LNP Emergency Plan regarding protective response is acceptable and meets the requirements of 10 CFR 50.47(b)(10) because it conforms with the guidance in Evaluation Criterion J of NUREG-0654/FEMA-REP-1 as described above.

13.3C.11 Radiological Exposure Control

13.3C.11.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(11), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1.

13.3C.11.2 *Onsite Exposure Guidelines*

Technical Information in the Emergency Plan: [K.1.a-g]
Section K, "Radiological Exposure Control," of the LNP Emergency Plan states that exposure guidelines are consistent with the Environmental Protection Agency (EPA) Emergency Worker and Lifesaving Activity Protective Action Guides described in EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." Section K.1, "Emergency Exposures," of the LNP Emergency Plan states that in the event of an emergency, workers involved in: the removal of injured persons; undertaking corrective actions; performing assessment actions; providing first aid; performing personnel decontamination; providing ambulance service; or providing medical treatment services would be expected to comply with routine dose limits unless the conditions of protecting valuable property, lifesaving, or protection of large populations would require a higher exposure. The higher-dose provision would be evaluated based on the guidelines in Table K-1, "Emergency Worker Exposure Guidelines," of the LNP Emergency Plan.

Technical Evaluation: [K.1.a-g]
The staff finds that the LNP Emergency Plan adequately describes onsite exposure guidelines for the removal of injured persons, undertaking corrective actions, performing assessment actions, providing first aid, performing personnel decontamination, providing ambulance service, and providing medical treatment services. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.11.3 *Onsite Radiation Protection Program*

Technical Information in the Emergency Plan: [K.2]
Section K.2, "Radiation Protection Program [RPP]," states that the RPP's purpose is to ensure that radiation doses are kept as low as reasonably achievable (ALARA) and do not exceed

established limits for normal operating and emergency conditions. The established methods within the RPP include access control, personnel monitoring, and contamination control. The applicant stated that the RPP and implementing procedures include provisions for implementing emergency exposure guidelines. Section K.1 of the LNP Emergency Plan states that the EC, in consultation with facility radiation protection personnel, can authorize doses exceeding the dose limits in 10 CFR Part 20, "Standards for protection against radiation." If consideration for exceeding the occupational dose limits provided in 10 CFR Part 20 is required, these exposures will be limited to individuals who are properly trained and knowledgeable of the tasks to be completed and the risks associated with the exposures. Selection criteria for volunteer emergency workers include consideration of those who are in good physical health, are familiar with the consequences of emergency exposure, and are not a "declared pregnant adult." Efforts are made to maintain personnel doses ALARA. Additional discussion regarding the circumstances surrounding the extension of exposure guidelines is located in Section 13.3C.11.2 of this SER. Additional information regarding the onsite RPP is located in SER Section 12.0, "Radiation Protection." The applicant proposed EP ITAAC 10.1 to verify that site procedures provide the means for onsite radiation protection.

Technical Evaluation: [K.2]
The staff finds that the LNP Emergency Plan adequately provides an onsite radiation protection program to be implemented during emergencies, including methods to implement exposure guidelines. This is acceptable because it conforms to the guidance of NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.11.4 *Capability to Determine Dose Received by Emergency Personnel*

Technical Information in the Emergency Plan: [K.3.a] {Appendix E, Section IV.E.1}
Section K.3, "Dosimetry and Dose Assessment," of the LNP Emergency Plan states that dosimeters are maintained by the Radiation Protection section in adequate supply for use during an emergency. Implementing procedures describe in detail the types of personal dosimeter devices (both self-reading and permanent), the manner in which they are to be used, who is to wear them, and how they are cared for. The types of dosimeters include TLDs, electronic alarming dosimeters, and special types of ring badges. In an emergency situation, special care shall be taken to assure the proper reading frequency of dosimeters. Provisions have been established, onsite and through service organizations, to provide the 24-hour per day capability to read dosimeters to determine doses received by emergency workers. The applicant proposed EP ITAAC 10.2 to verify that EPIPs provide the means for the 24-hour per day capability to determine the doses received by emergency personnel and maintaining of dose records.

Technical Evaluation: [K.3.a]
The staff finds that the LNP Emergency Plan adequately describes provisions for distribution of dosimeters and the 24-hour per day capability to determine the doses received by emergency personnel involved in any radiological emergency. This is acceptable because it conforms to the guidance of NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.11.5 *Dose Records for Emergency Personnel*

Technical Information in the Emergency Plan: [K.3.b]
Section 13.3C.11.4 of this SER provides discussion regarding the frequency for reading dosimeters issued to emergency workers. Section K.3.b of the LNP Emergency Plan states, in part, that the LNP RPP requires that the individual exposure records be documented and maintained to demonstrate and facilitate compliance with procedural requirements and applicable government regulations; and for reconstruction of the doses for medical or legal purposes.

Technical Evaluation: [K.3.b]
The staff finds that the LNP Emergency Plan adequately provides for ensuring that dosimeters are read at appropriate frequencies, and includes provisions for maintaining dose records for emergency workers involved in any nuclear accident. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.11.6 *Decontamination Action Levels*

Technical Information in the Emergency Plan: [K.5.a]
Section K.5, "Decontamination Levels," of the LNP Emergency Plan states that LNP implements procedural requirements for personnel and area decontamination, including decontamination action levels and criteria for returning areas and items to normal use. In addition, LNP implements procedures for decontamination of onsite personnel wounds, supplies, instruments and equipment, and for waste disposal.

Technical Evaluation: [K.5.a]
The staff finds that the LNP Emergency Plan adequately addresses decontamination action levels. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.11.7 *Decontamination Facilities and Supplies*

Technical Information in the Emergency Plan: [K.5.b] {Appendix E, Section IV.E.3}
Decontamination of onsite emergency personnel wounds, supplies, instruments and equipment, and for waste disposal is discussed in Section 13.3C.11.6 of this SER. In addition, Section K.5 of the LNP Emergency Plan states that LNP provides decontamination supplies with emergency kits. Section H.1.2, "Technical Support Centers," of the LNP Emergency Plan states that TSC contains a decontamination area and monitoring area, and that the TSC is equipped with a survey meter and an area radiation monitor. Section K.7, "Decontamination of Relocated Personnel," states that LNP has dedicated decontamination and clothing kits and decontamination stations onsite. Additional information regarding the existence of a decontamination facility (Room 40355) in the Health Physics area of the Annex Building for personnel decontamination, which will include two personnel showers and two sinks connected to the radioactive liquid waste system, can be found in the staff's evaluation of the AP1000 DCD, NUREG-1793 and its supplements, Section 13.3.3.1, "General Description of Facilities." In RAI 13.3-52, the staff requested the applicant provide clarification in the LNP Emergency Plan regarding the specific location(s) of any onsite decontamination facilities, including decontamination supplies associated with these facilities that will be used for decontaminating onsite personnel. In addition, the staff requested the applicant provide additional clarification regarding the existence of a decontamination area located inside the TSC since the AP1000 DCD drawings (e.g., Figure 1.2-19) do not include such an area. In

response, the applicant stated, in part, that during non-emergency and emergency conditions, decontamination showers and supplies are provided onsite in the Health Physics (HP) area located in the Annex Building of the AP1000 units along with additional personnel decontamination equipment and capabilities. Basic decontamination supplies such as soaps, shampoo, mild detergent, 3 % Hydrogen Peroxide solution, plastic bags, plastic suits, cotton swabs, oral hygiene products, and saline solution will be available in the HP area. The decontamination and monitoring station near the HP area will remain the primary location during non-emergency and emergency conditions. However, in the event of an emergency when it is no longer practical for the HP area to be used as a decontamination area for TSC personnel, the TSC will also have a temporary decontamination and monitoring area established, including supplies.

Technical Evaluation: [K.5.b] {Appendix E, Section IV.E.3}
The staff finds that the additional information and proposed textual revisions to the emergency plan provided in response to RAI 13.3-52 to be acceptable because it provides clarification regarding the applicant's reference to the TSC as a decontamination area, and reference to the Annex Building as containing a decontamination facility, including decontamination supplies. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50. The staff created **Confirmatory Item 13.3-52** to track the applicant's inclusion of its RAI response into the emergency plan.

Resolution of Confirmatory Item 13.3-52

Confirmatory Item 13.3-52 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-52 is now closed.

The staff finds that the LNP Emergency Plan adequately addresses decontamination of emergency personnel and equipment. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.11.8 *Onsite Contamination Control*

Technical Information in the Emergency Plan: [K.6.a]
Section K.2 of the LNP Emergency Plan states, in part, that the RPP establishes measures to assure personnel doses are maintained ALARA, including contamination control. Section K.6, "Contamination Control Measures," of the LNP Emergency Plan states that the strict control of access to areas is a primary means to minimize radiation exposures. Section K.6.a describes implementing procedures that exist so that hazardous radiological areas can be quickly identified and controlled, and these measures are initiated by the EC through the use of Radiation Monitoring Teams. In addition, the LNP Emergency Plan provides discussion regarding how Radiation Work Permits and Access Control Points are used to maintain control of personnel exposures, inform workers of radiological hazards, assure appropriate precautions are taken, and prevent the spread of contamination. In supplemental RAI 13.3-42 (Bullet 5), the staff requested the applicant clarify which implementing procedure supports and implements Section K, "Radiological Exposure Control," of the LNP Emergency Plan. In response, the applicant stated, in part, that the LNP Emergency Plan includes an EPIP for radiological exposure control that includes guidance for onsite contamination control. The applicant provided EP ITAAC 10.4 to verify site procedures provide the means for onsite contamination control measures.

[K.6.b]
Section K.6.b of the LNP Emergency Plan states that contamination control is enforced with respect to potable water and food supply by routine measures. All potable water for the plant comes from approved, surveyed locations and no food or drinking is permitted in the radiation controlled area (RCA).

[K.6.c]
Section K.6.c states that LNP would permit areas or items to be returned to normal use after it has been verified that contamination levels are within levels established by the LNP RPP or its supporting procedures.

Technical Evaluation: [K.6.a-c]
The staff finds that the LNP Emergency Plan adequately addresses onsite contamination control. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.11.9 *Capability to Decontaminate Relocated Onsite Personnel*

Technical Information in the Emergency Plan: [K.7]
Section K.7, "Decontamination of Relocated LNP Personnel," of the LNP Emergency Plan describes plans for decontamination of personnel who are relocated in an emergency. Personnel who are leaving a contaminated area are monitored to ensure that their person, personal clothing, and equipment are not contaminated. LNP has dedicated decontamination and clothing kits, and decontamination stations onsite to take offsite when needed. General procedures for personal cleanliness will generally remove contaminants and minimize exposure. Stronger cleansing agents may be utilized to remove contamination from the skin avoiding risk of injury to skin surfaces.

Technical Evaluation: [K.7]
The staff finds that the LNP Emergency Plan adequately describes the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination expected. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.11.10 *Conclusion*

The staff concludes that the information provided in the LNP Emergency Plan regarding radiation exposure control is acceptable and meets the requirements of 10 CFR 50.47(b)(11) because it conforms with the guidance in Evaluation Criterion K of NUREG-0654/FEMA-REP-1 and meets the applicable requirements of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(11).

13.3C.12 Medical and Public Health Support

13.3C.12.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(12), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Medical and Public Health Support," in Appendix E to 10 CFR Part 50.

13.3C.12.2 *Onsite Medical Support*

Technical Information in the Emergency Plan: [L.2] {Appendix E, Section IV.E.5}
Section 2.0, "On-site First Aid Capability," states that First aid assistance at LNP is designed to handle a wide range of injuries from simple first aid to injuries requiring medical assistance. This task is accomplished by Medical Response Personnel. Section L.2.1, "Medical Response Personnel," of the LNP Emergency Plan states that First Aid assistance is provided by Medical Response personnel who are onsite individuals trained in basic medical procedures and certified by the State of Florida Department of Health, Bureau of Emergency Medical Services and Community Health Resources. Section L.2 of the LNP Emergency Plan states that Medical Response personnel are trained to handle injured personnel with or without radiological considerations in accordance with implementing procedures. Appendix 5 to the LNP Emergency Plan includes an implementing procedure titled, "Medical Response." References to certification letters, and LOAs, are provided in Appendix 3 from offsite organizations that will provide medical support to LNP in the event of an emergency.

Technical Evaluation: [L.2] {Appendix E, Section IV.E.5}
The staff finds that the LNP Emergency Plan adequately describes onsite medical support and arrangements made for the services of physicians and other medical personnel qualified to handle radiation emergencies onsite. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50 and conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.12.3 *Offsite Medical Services*

Technical Information in the Emergency Plan: [L.1] {Appendix E, Section IV.E.7}
Section L.1, "Hospital and Medical Support," of the LNP Emergency Plan states, in part, that LNP has an agreement with Seven Rivers Regional Medical Center and Citrus Memorial Hospital to provide medical services to radiological and non-radiological injured individuals that require treatment offsite. Citrus Memorial Hospital will be used when Seven Rivers Regional Medical Center is not available due to an evacuation. Section L.1.3, "Off-Site Medical Support Plans," states that the REAC/TS in Oak Ridge, Tennessee, may be used, if warranted, depending on the nature or severity of the injury or when local facilities are deemed inadequate. Section L.1.3 also describes plans that Seven Rivers Regional Medical Center and Citrus Memorial Hospital have developed for the emergency handling of radioactive cases from LNP that carry out the terms of the hospital's agreements with Progress Energy. Table L-1 describes onsite actions to be taken and offsite medical facilities to provide medical support depending upon the type of injury sustained and degree of contamination. In RAI 13.3-24, the staff requested that the applicant clarify whether REAC/TS should also be listed in Table L-1. In its response, the applicant committed to revise Table L-1 to include a note describing the use of REAC/TS, if required. Section N.2.c, "Medical Emergency Drills," states that Progress Energy

will conduct medical emergency drills that include a simulated contaminated injured individual and may involve participation by the local support services (e.g., medical transportation and offsite medical treatment facilities) annually. Additional information regarding training for offsite emergency medical responders, which includes radiation protection precautions, can be found in Section 13.3C.15.2, "Training for Off-site Emergency Organizations," of this SER.

[L.4] {Appendix E, Section IV.E.6}
Section L.4, "Medical Emergency Transportation," of the LNP Emergency Plan states that transportation of injured personnel at LNP is available by using local emergency medical services, other Progress Energy vehicles, or private vehicles. In addition, the instructions and maps to local hospitals are provided in implementing procedures. Appendix 3 of the emergency plan includes local agreements for Nature Coast Emergency Medical Services and Citrus County Fire Rescue Division of Public Safety. Nature Coast Emergency Medical Services provides ambulance transport for injured and contaminated individuals. Appendix 5 identifies an EPIP titled, "Medical Response," that supports and implements this section of the LNP Emergency Plan.

Technical Evaluation: [L.1] {Appendix E, Section IV.E.7}
The staff finds the clarification and textual revision to the emergency plan provided in response to RAI 13.3-24 to be acceptable since it identifies an additional medical facility and service available to handle contaminated injured personnel should local resources be determined inadequate. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that the changes proposed in response to RAI 13.3-24 were incorporated into Revision 1 to the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes arrangements made for treatment of individuals injured in support of licensed activities on the site at treatment facilities outside the site boundary. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50 and it conforms to the guidance in NUREG-0654/FEMA-REP-1.

[L.4] {Appendix E, Section IV.E.6}
The staff finds that the LNP Emergency Plan adequately describes the arrangements made for transportation of contaminated injured individuals from the site to specifically identified treatment facilities outside the site boundary. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50 and it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.12.4 Conclusion

The staff concludes that the information provided in the LNP Emergency Plan regarding medical and public health support is acceptable and meets the requirements of 10 CFR 50.47(b)(12) because it conforms with the guidance in Evaluation Criterion L of NUREG-0654/FEMA-REP-1 and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.13 Recovery and Reentry Planning and Post-Accident Operations

13.3C.13.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(13) for recovery and reentry planning and post-accident operations, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Recovery and Reentry Planning and Post-Accident Operations," in Appendix E to 10 CFR Part 50.

13.3C.13.2 *Plans and Procedures for Reentry and Recovery*

Technical Information in the Emergency Plan: [M.1] {Appendix E, Section IV.H}
Section M.1, "Recovery Plans and Procedures," of the LNP Emergency Plan," states that Progress Energy implements recovery plans and procedures that provide guidance for a range of recovery and re-entry activities, including the recovery/re-entry organization. The recovery organization develops plans and procedures designed to address both immediate and long-term actions. The recovery organization will recommend relaxation of the protective measures based on the following conditions: site parameters of operation no longer indicate a potential or actual emergency exists; the release of radioactivity from the station is controllable, no longer exceeds permissible levels, and does not present a credible danger to the public; the site is capable of sustaining itself in a long-term shutdown condition. Reentry procedures may need to be written for specific requirements and as recovery operations progress, resources may be increased or reduced to ensure effectiveness in meeting operational needs. A procedure titled, "Recovery and Reentry," is referenced in Appendix 5, "List of Emergency Plan Supporting Procedures," as supporting and implementing Section M of the LNP Emergency Plan.

Technical Evaluation: [M.1] {Appendix E, Section IV.H}
The staff finds that the LNP Emergency Plan adequately describes general plans and procedures for reentry and recovery and describes the means by which decisions to relax protective measures are reached. This process considers both existing and potential conditions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.13.3 *Recovery Organization*

Technical Information in the Emergency Plan: [M.2]
Section M.2, "Recovery Operations," states that the EOF Director is responsible for control and direction of the recovery/re-entry operation as defined in implementing procedures. The recovery organization may be modified as required to better respond to site conditions. The EC acts as the site liaison with the recovery organization. The State of Florida will be the lead organization for offsite recovery operations in accordance with the State of Florida Radiological Emergency Management Plan (REMP). The recovery process is implemented when LNP ERO managers, with concurrence of State and Federal agencies, determine the site to be in a stable and controlled condition. Upon this determination, the EOF Director notifies the NRCOC, the State EOC, and local EOCs that the emergency has terminated and any required recovery has commenced.

Technical Evaluation: [M.2]
The staff finds that the LNP Emergency Plan adequately provides the position/title, authority, and responsibilities of individuals who will fill key positions in the facility recovery organization. The organization includes technical personnel with responsibilities to develop, evaluate, and direct recovery and reentry operations. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.13.4 *Recovery Operations Initiation*

Technical Information in the Emergency Plan: [M.3]
Section M.1.c, **"**Recovery Plans and Procedures," of the LNP Emergency Plan states that Progress Energy implements recovery plans and procedures that provide guidance for a range of recovery and re-entry activities, including the means for informing members of the ERO when recovery operations are to be initiated and any related changes in the organizational structure. The recovery process will be implemented when the LNP ERO managers have determined the site to be in a controlled and stable condition. Section 13.3C.13.2 of this SER provides discussion regarding a recovery and reentry procedures available to support and implement Section M of the LNP Emergency Plan.

Technical Evaluation: [M.3]
The staff finds that the LNP Emergency Plan adequately addresses the means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.13.5 *Methods to Estimate Total Population Exposure*

Technical Information in the Emergency Plan: [M.4]
Section M.1,d, "Recovery Plans and Procedures," of the LNP Emergency Plan states that Progress Energy implements plans and procedures for recovery and reentry activities including methods for periodically updating estimates of total population exposure. Section M.3, "Updating Total Population Exposure," states, in part, that the Radiological Control Manager will periodically update estimates of total population exposure using population distribution data from within EPZs. Section I.10, "Relating Measured Parameters to Dose Rates," states that implementing procedures establish the means for relating measured parameters to dose rates for key isotopes listed in Table 3 of NUREG-0654, Revision 1. Section 13.3C.13.2 of this SER provides discussion regarding a recovery and reentry procedure available to support and implement Section M of the LNP Emergency Plan. Appendix 5 of the LNP Emergency Plan also includes reference to an EPIP titled, "Accident Assessment," that supports and implements Section I of the plan.

Technical Evaluation: [M.4]
The staff finds that the LNP Emergency Plan adequately establishes a method for periodically estimating total population exposure. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.13.6 *Conclusion*

The staff concludes that the information provided in the LNP Emergency Plan regarding recovery and reentry planning and post-accident operations is acceptable and meets the

requirements of 10 CFR 50.47(b)(13) because it conforms with the guidance in Evaluation Criterion M of NUREG-0654/FEMA-REP-1, and complies with the applicable portions of Appendix E to 10 CFR Part 50 as described above.

13.3C.14 Exercises and Drills

13.3C.14.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(14) for exercises and drills, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory guidance related to the area of "Exercises and Drills," in NSIR/DPR-ISG-01 and requirements in Appendix E to 10 CFR Part 50.

13.3C.14.2 *Emergency Preparedness Exercise Purpose and Content*

Technical Information in the Emergency Plan: [N.1.a]
Section N, "Exercises and Drills," of the LNP Emergency Plan states that Progress Energy implements a program of periodic exercises to evaluate major portions of emergency response capabilities and to develop and maintain key emergency response skills. Section N.1, "Exercises," defines an exercise as an event that tests the integrated capability and a major portion of the basic elements existing within EP plans and organizations. In RAI 13.3-53(1)(a), the staff requested the applicant clarify whether EP exercises will simulate an emergency that results in offsite radiological releases which would require response by offsite authorities, and are conducted as set forth in NRC and FEMA rules. In response, the applicant acknowledged the need to incorporate this information into its emergency plan and proposed a revision accordingly.

Technical Evaluation: [N.1.a]
The staff finds the additional information and proposed textual revisions to the emergency plan submitted in response to RAI 13.3-53(1)(a) is acceptable because it proposes to incorporate the criteria for exercises consistent with NUREG-0654/FEMA-REP-1. The staff created Confirmatory Item 13.3-53(1)(a) to track the applicant's revision to the emergency plan consistent with this RAI response.

<u>Resolution of Confirmatory Item 13.3-53(1)(a)</u>

Confirmatory Item 13.3-53(1)(a) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-53(1)(a) is now closed.

The staff finds that the LNP Emergency Plan adequately states that exercises will test the integrated capability and the major elements of the emergency plans and preparedness program. In addition, the emergency preparedness exercise will, as appropriate, simulate an emergency that results in offsite radiological releases which would require response by offsite authorities and that exercises will be conducted as set forth in NRC and FEMA rules.

Technical Information in the Emergency Plan: [N.1.b]
Section N.1.a, "Exercise Scope and Frequency," states that an exercise will be conducted every two years. The scenario will be varied to ensure all major elements of the LNP Emergency Plan are tested within a 6-year period. Major elements to be tested include: management and

coordination of emergency response, accident assessment, protective action decision-making, and plant system repair and corrective action. State and local agencies will be invited to participate in off-year exercises. Section N.1.b, "Exercise Scenario and Participation," states the frequency of the State of Florida's participation in exercises with Progress Energy is discussed in Chapter 14 of the State Plan. The State's participation may be either full or partial depending on the objectives of the exercise and the degree to which the State and local plans are tested. The State Division of Emergency Management is responsible for assuring that exercises are conducted as set forth in NRC and FEMA rules. Post-exercise meetings with participants and observers will be conducted to assess emergency response actions. Comments resulting from these sessions should serve as input to the critique as discussed in Section N.5, "Exercise and Drill Critiques," of the emergency plan. In RAI 13.3-53(2), the staff requested the applicant clarify whether the following provisions for the conduct of EP exercises have been made: 1) an EP exercises shall start between 6:00 p.m. and 4:00 a.m. once every six years; 2) exercises will be conducted during different seasons of the year to vary weather conditions; and 3) some exercises will be unannounced. In response, the applicant acknowledged that the provisions for exercises stated above in this RAI have been made and proposed a revision to the emergency plan incorporating this information.

Technical Evaluation: [N.1.b]
The staff finds the additional information and proposed textual revisions to the emergency plan submitted in response to RAI 13.3-53(2) to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff created **Confirmatory Item 13.3-53(2)** to track the applicant's proposed revisions to the emergency plan consistent with this RAI response.

<u>Resolution of Confirmatory Item 13.3-53(2)</u>

Confirmatory Item 13.3-53(2) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-53(2) is now closed.

The staff finds that the LNP Emergency Plan adequately states that exercises will include mobilization of State and local personnel and resources adequate to verify the capability to respond to an emergency event. In addition, the LNP Emergency Plan adequately describes provisions for a critique of the biennial exercise by Federal and State observers/evaluators. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.14.3 *Emergency Preparedness Exercises*

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2}
Section N of the LNP Emergency Plan states that Progress Energy implements a program of periodic exercises to evaluate major portions of emergency response capabilities and to develop and maintain key emergency response skills. In RAI 13.3-53(1)(b), the staff requested the applicant clarify whether the following provisions for the conduct of EP exercises have been made: 1) exercises will test the adequacy of timing and content of implementing procedures and methods; 2) exercises will test emergency equipment, communication networks, and the public notification system; and 3) exercises will ensure the members of the ERO are familiar with their duties. In response, the applicant acknowledged that the provisions for exercises stated above in this RAI have been made and proposed a revision to the emergency plan incorporating this information. In RAI 13.3-64 the staff requested the applicant clarify in the LNP Emergency Plan whether EP exercises will be designed to test the public alert and notification

system. In response, the applicant proposed a revision to the emergency plan (Section N.1) as described above.

Technical Evaluation: {Appendix E, Section IV.F.2}
The staff finds the additional information and proposed textual revisions to the emergency plan submitted in response to RAIs 13.3-53(1)(b) and 13.3-64 to be acceptable because they meet the requirements in Appendix E to 10 CFR Part 50. The staff created Confirmatory Item 13.3-53(1)(b) and 13.3-64 to track the applicant's proposed revisions to the emergency plan consistent with this RAI response.

Resolution of Confirmatory Item 13.3-53(1)(b) and 13.3-64

Confirmatory Items 13.3-53(1)(b) and 13.3-64 are the applicant's commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-53(1)(b) and 13.3-64 are now closed.

Therefore, the staff finds that the LNP Emergency Plan adequately describes provisions for the conduct of emergency preparedness exercises and specifies that exercises test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public notification system, and ensure that emergency organization personnel are familiar with their duties. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.14.4 *Full Participation Exercise Prior to Fuel Load*

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.a}
Section 13.3A.3 of this SER provides discussion and evaluation on EP implementation milestones to include a full participation exercise prior to fuel load. In addition, the applicant proposed EP ITAAC 12.0 to ensure that the applicant conducts a full participation exercise that tests major portions of emergency response capabilities, and includes participation by each State and local agency within the plume exposure pathway EPZ, and each State within the ingestion control EPZ. The exercise will be conducted within the specified time periods of 10 CFR Part 50, Appendix E.

Technical Evaluation: {Appendix E, Section IV.F.2.a}
The staff finds that the LNP Emergency Plan adequately describes provisions for the conduct of a full participation exercise at least one year before fuel load. This is acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.14.5 *Onsite Biennial Exercise*

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.b}
Section N.1.a of the LNP Emergency Plan states that an emergency response exercise will be conducted every 2 years. Section N.1 states, in part, that at least one drill involving principal areas of onsite emergency response capabilities will be conducted during the interval between biennial exercises. Drills will include management and coordination of emergency response, accident assessment, protective action decision-making, plant system repair, and corrective actions, which would assure that emergency organization personnel are familiar with their duties. State and local agencies will be invited to participate in off-year drills.

Technical Evaluation: {Appendix E, Section IV.F.2.b}
The staff finds that the LNP Emergency Plan adequately states that an exercise of its onsite emergency plan will be conducted every 2 years and adequately describes actions that will be taken to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. This is acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.14.6 *Offsite Biennial Exercise / Ingestion Pathway Exercise with State*

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.c} {Appendix E, Section IV.F.2.d}
Section N.1.b of the LNP Emergency Plan states, in part, that the (Florida) State Division of Emergency Management is responsible for implementing Chapter 14, "Exercises and Drills," of the State Plan which specifies the frequency that the State of Florida will participate in an exercise with Progress Energy. The Division of Emergency Management will assure that exercises are conducted as set forth in NRC and FEMA rules. Progress Energy will conduct an emergency response exercise every 2 years, with intermediate drills, to test specific sections of the plans. State and local agencies will be invited to participate in these intermediate drills.

Technical Evaluation: {Appendix E, Section IV.F.2.c} {Appendix E, Section IV.F.2.d}
The staff reviewed FEMA's findings and determinations regarding the adequacy of offsite exercise participation by State and local government authorities, in addition to the REMPs of the State of Florida, and counties of Levy, Citrus, and Marion. The staff confirmed that the plans addressed the applicable requirements of Appendix E to 10 CFR Part 50. The staff finds that the LNP Emergency Plan adequately addresses the requirements for biennial exercises of authorities having a response role at the LNP site, and the States' participation in the ingestion pathway exercise. This is acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.14.7 *Enabling Local and State Participation in Drills*

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.e}
Section N.2 of the LNP Emergency Plan states, in part, that upon request, Progress Energy allows affected State and local governments located within the plume exposure EPZ to participate in drills.

Technical Evaluation: {Appendix E, Section IV.F.2.e}
The staff finds that the LNP Emergency Plan adequately describes how the licensee will enable any State or local government located within the plume exposure pathway EPZ to participate in the licensee's drills when requested by such State or local government. This is acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.14.8 *Remedial Exercises*

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.f}
Section N of the LNP Emergency Plan describes how exercises are conducted to evaluate emergency response capabilities. Section N.1 describes the exercise scope, frequency, scenarios, and participation. In RAI 13.3-53(3), the staff requested the applicant clarify in the LNP Emergency Plan whether remedial exercises will be conducted for unsatisfactory

performance during a biennial exercise that results in the loss of NRC and FEMA reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. In response, the applicant acknowledged that the provisions for exercises stated above in this RAI have been made and proposed a revision to the emergency plan incorporating this information.

Technical Evaluation: {Appendix E, Section IV.F.2.f}
The staff finds the additional information and proposed textual revisions to the emergency plan submitted in response to RAI 13.3-53(3) to be acceptable because it meets the requirements in Appendix E to 10 CFR Part 50. The staff created Confirmatory Item 13.3-53(3) to track the applicant's proposed revisions to the emergency plan consistent with this RAI response.

Resolution of Confirmatory Item 13.3-53(3)

Confirmatory Item 13.3-53(3) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-53(3) is now closed.

The staff finds that the LNP Emergency Plan adequately describes provisions for how remedial exercises will be conducted if the emergency plan is not satisfactorily tested during the biennial exercise, such that the NRC and FEMA, cannot find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.14.9 *Drills*

Technical Information in the Emergency Plan: [N.2]
Section N.2, "Drills," of the LNP Emergency Plan states that Progress Energy conducts drills between biennial exercises to maintain adequate emergency response capabilities. Drills would include activities such as management and coordination of emergency response, accident assessment, protective action decision-making, plant system repair, and corrective actions. Drills are used to consider accident management strategies, provide supervised instruction, allow the operating staff to resolve problems and focus on internal training objectives. Exercises may include one or more drills. State and local governments located within the plume exposure pathway EPZ are invited to participate in the drills when requested.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. In regard to implementation of the EP rule pertaining to the conduct of exercises and drills, the staff requested additional information from the applicant in RAI 13.3-61 to clarify in the LNP Emergency Plan whether the EOF staff for LNP and CR3 will demonstrate its ability to perform their consolidated EOF functions in at least one drill or exercise per exercise cycle thereafter. In response, the applicant proposed a revision to the LNP Emergency Plan (Section N.2) to practice its EOF integrated capability with CR3.

Technical Evaluation: [N.2]
The staff finds the additional information and textual revisions to the LNP Emergency Plan submitted in response to RAI 13.3-61 to be acceptable since it conforms to the regulatory guidance in NSIR/DPR-ISG-01. The staff verified that the LNP Emergency Plan (Revision 6) was appropriately updated (or revised). By letter dated April 18, 2013, from PEF to NRC regarding impacts from retirement of the CR3 nuclear plant, the applicant renamed the EOF to

remove any reference to the Crystal River Training Center. The EOF is now referred to in the LNP Emergency Plan as the LNP EOF. In addition, the applicant added a conditional statement to address when the EOF is required for use by CR3.

In consideration for the appplicant's response to the new EP rule and above Crystal River Training Center reference deletion with additional conditional language, Therefore, the staff finds the LNP Emergency Plan adequately describes how a drill is a supervised instruction period aimed at testing, developing, and maintaining skills in a particular operation. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01.

13.3C.14.10 *Communications Drills*

Technical Information in the Emergency Plan: [N.2.a] {Appendix E, Section IV.E.9(b)}
Section N.2.a, "Communications Drills," of the LNP Emergency Plan states that Progress Energy tests communications with State and local governments within the plume exposure EPZ monthly. Progress Energy tests communications with Federal EROs and States within the ingestion exposure pathway EPZ monthly. Communications tests between the facility, State, and local EOCs, and field assessment teams are performed annually. Communications drills evaluate the operability of the communications systems and the ability to understand message content. Additional information related to communication systems and testing can be found in Section F.3, "Communication System Reliability," of the LNP Emergency Plan.

Technical Evaluation: [N.2.a] {Appendix E, Section IV.E.9(b)}
The staff finds the LNP Emergency Plan adequately describes communication drills and testing frequencies with Federal, State and local governments in the plume exposure and ingestion exposure pathway EPZs. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, and the applicable requirements of Appendix E to 10 CFR Part 50.

13.3C.14.11 *Fire Drills*

Technical Information in the Emergency Plan: [N.2.b]
Section N.2.b, "Fire Drills," of the LNP Emergency Plan states that Progress Energy conducts fire drills as discussed in Section 9.5.1.8.2.2 of the LNP COL FSAR. Section 9.5.1.8.2.2.4 of the LNP COL FSAR, "Drills," states that fire brigade drills are conducted at least once per calendar quarter for each shift, with each member of the fire brigade participating in at least two drills annually. Drills are either announced or unannounced. At least one unannounced drill is held annually for each shift of the fire brigade. At least one drill is performed annually on a "back shift" for each shift's fire brigade. The drills provide for offsite fire department participation at least annually. Triennially, a randomly selected, unannounced drill shall be conducted and critiqued by qualified individuals independent of the plant staff. Training objectives are established prior to each drill and reviewed by plant management. Criteria to be critiqued during the drills are also listed. Performance deficiencies identified during the drill is used as the basis for additional training and repeat drills. Unsatisfactory drill performance is followed by a repeat drill within 30 days.

Technical Evaluation: [N.2.b]
The staff finds the LNP Emergency Plan adequately describes how fire drills will be conducted in accordance with the LNP COL FSAR. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.14.12 *Medical Emergency Drills*

Technical Information in the Emergency Plan: [N.2.c]
Section N.2.c, "Medical Emergency Drills," of the LNP Emergency Plan states that Progress Energy conducts annual medical drills that will include a simulated contaminated injury. These drills may involve participation by the local support service agencies (e.g., medical transportation and offsite medical treatment facility).

Technical Evaluation: [N.2.c]
The staff finds the LNP Emergency Plan adequately describes the scope, frequency, and participation of a medical emergency drill. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.14.13 *Radiological Monitoring Drills*

Technical Information in the Emergency Plan: [N.2.d]
Section N.2.d, "Radiological Monitoring Drills/Health Physics Drills, of the LNP Emergency Plan states that Progress Energy conducts radiological monitoring drills, involving both onsite and offsite radiological monitoring activities, annually. These drills test procedures for collecting, analyzing samples, and recording results; collection and analysis of all sample media for which the facility is responsible; communications with monitoring teams; and record keeping. Radiological monitoring drills may be coordinated with drills conducted by State and local government entities or conducted independently.

Technical Evaluation: [N.2.d]
The staff finds the LNP Emergency Plan adequately describes that plant environs and radiological monitoring drills (onsite and offsite) will be conducted annually; and where appropriate, local organizations participate. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.14.14 *Health Physics Drills*

Technical Information in the Emergency Plan: [N.2.e]
Section N.2.e, "Sampling Drills," of the LNP Emergency Plan states that onsite radiation protection drills are conducted at least semi-annually. Drills include: the response to, and analysis of, simulated elevated airborne and liquid activity levels; response to simulated elevated area radiation levels; and analysis of the simulated radiological situation using the appropriate procedures. State and local participation during these drills is discussed in Section 13.3C.14.13 of this SER.

Technical Evaluation: [N.2.e]
The staff finds the LNP Emergency Plan adequately describes how radiation protection drills will be conducted semi-annually and involves response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.14.15 *Conduct of Drills and Exercises*

Technical Information in the Emergency Plan: [N.3.a-f]
Section N.3, "Conduct of Drills and Exercises," of the LNP Emergency Plan states that the EP organization is responsible for the overall development and direction of the exercise. The

Exercise Director (ED) is responsible for the development of an exercise plan for each exercise to include the following: 1) the objectives of the exercise and evaluation criteria; 2) the date, time, place, and participating organizations; 3) a time schedule of real and simulated events; 4) a narrative summary of the event including such items as emergency classification at various times in the simulated accident, 5) offsite assistance and details about the plant conditions; and 6) a description of the arrangement for official observers. In RAI 13.3-53(4), the staff requested the applicant clarify whether the discussion in the LNP Emergency plan is also applicable for drills. In response, the applicant stated, in part, that Section N.3 is applicable to exercises and drills, which describes exercise content that shall be included in the exercise plan. The plan content listed in Section N.3.a-e should also be used for large scale integrated drills that involve activation and participation by both onsite and offsite agencies.

Technical Evaluation: [N.3.a-f]
The staff finds that the additional information and proposed textual revisions to the LNP Emergency Plan provided in response to RAI 13.3-53(4) to be acceptable because it clarifies that the information contained in the emergency plan (Section N.3) is applicable to emergency preparedness drills, and conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff created Confirmatory Item 13.3-53(4) to track the applicant's proposed revision to the emergency plan provided in response to this RAI.

Resolution of Confirmatory Item 13.3-53(4)

Confirmatory Item 13.3-53(4) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-53(4) is now closed.

The staff finds that the LNP Emergency Plan adequately describes how exercises and drills will be carried out to allow free play for decision-making and to meet the exercise objectives. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.14.16 Observing, Evaluating, and Critiquing Drills and Exercises

Technical Information in the Emergency Plan: [N.4] {Appendix E, Section IV.F.2(g)}
Section N.4, "Exercise and Drill Evaluation," of the LNP Emergency Plan states that qualified Progress Energy instructors/evaluators will supervise and evaluate drills and exercises. A qualified instructor/evaluator is an individual whose knowledge, skills, and abilities have been evaluated by the EP Manager or designee to determine whether they are qualified to observe and evaluate the planned activities against established criteria. Specific areas to be observed by the evaluators will be defined in the form of pre-printed critique sheets. Critiques will be performed as soon as practicable following each exercise. Progress Energy staff, the NRC, State, local, and other participants, and observers/evaluators, will participate in the critiques. A formal evaluation will result from the critique. In RAI 13.3-25, the staff requested that the applicant clarify whether critiques also apply to drills. In its response, the applicant committed to revise Section N.4 to clarify that critiques are for drills and exercises and that a formal evaluation is strictly for an evaluated exercise by NRC or FEMA.

Technical Evaluation: [N.4] {Appendix E, Section IV.F.2(g)}
The staff finds the clarification and textual revisions to the emergency plan provided in response to RAI 13.3-25 to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, and meet the applicable requirements in Appendix E to 10 CFR Part 50. The staff confirmed that the changes referenced above were included in

Revision 1 to the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes provisions for official observers from Federal, State, or local governments to observe, evaluate, and critique the required exercises. This is acceptable because it meets the applicable requirements in Appendix E to 10 CFR Part 50 and the guidance described in NUREG-0654/FEMA-REP-1.

13.3C.14.17 *Means to Correct Areas Needing Improvement*

Technical Information in the Emergency Plan: [N.5]
Section N.5, "Exercise and Drill Critiques," of the LNP Emergency Plan states that Progress Energy records the input from exercise and drill critique participants and then evaluates the needs for changes to the Plan, procedures, equipment, facilities, and other components of the EP program, and develops an action plan to address substantive issues. Progress Energy tracks identified corrective actions to completion using the site's Corrective Action Program. In RAI 13.3-25, the staff requested that the applicant clarify whether the results of critiques are factored into initial and retraining of personnel. In its response, the applicant committed to revise Section N.5 to clarify that the adequacy of the Emergency Preparedness training program is considered for improvement during exercise and drill critiques.

Technical Evaluation: [N.5]
The staff finds the clarification and textual revisions to the emergency plan provided in response to RAI 13.3-25 to be acceptable because they conform to NUREG-065/FEMA-REP-1. The staff confirmed that the changes referenced above were incorporated into Revision 1 to the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes a means for evaluating observer and participant comments on areas needing improvement, including emergency plan procedural changes, and for assigning responsibility for implementing corrective actions. The LNP Emergency Plan also establishes management control used to ensure that corrective actions are implemented. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1.

13.3C.14.18 *Conclusion*

The staff concludes that the information provided in the LNP Emergency Plan regarding exercises and drills is acceptable and meets the requirements of 10 CFR 50.47(b)(14) because it conforms with the guidance in Evaluation Criterion N of NUREG-0654/FEMA-REP-1 and NSIR/DPR-ISG-01 and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.15 Radiological Emergency Training

13.3C.15.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(15) for radiological emergency training, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Radiological Emergency Training," in Appendix E to 10 CFR Part 50.

13.3C.15.2 *Training for Off-site Emergency Organizations*

Technical Information in the Emergency Plan: [O.1.a]
Section O.1, "General Requirements," of the LNP Emergency Plan states, in part, that Progress Energy implements a training program that provides for initial training and retraining for individuals and organizations who have been assigned emergency response duties.
Section O.1.a, "Off-site Emergency Response Training," of the LNP Emergency Plan states that Progress Energy conducts, or supports the site-specific training for offsite personnel who may be called upon to provide assistance in the event of an emergency. Progress Energy provides or supports training for affected hospital, ambulance/rescue, police and firefighting personnel, which includes their expected emergency response roles, notification procedures, and radiation protection precautions. In addition, Section O.1.a states that Progress Energy provides or supports training for offsite responders that addresses LNP access procedures and identifies (by position) the individual who will control onsite activities. Appendix 5 of the LNP Emergency Plan identifies an Administrative Procedure, "Emergency Preparedness Training," that supports and implements Section O, "Radiological Emergency Response Training," of the LNP Emergency Plan. Additional information regarding Emergency Plan Training can be found in Section 13.2.2 of this SER.

Technical Evaluation: [O.1.a]
The staff finds that the LNP Emergency Plan adequately describes the site-specific emergency response training to be provided for offsite emergency organizations that may be called upon to provide assistance in the event of an emergency. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.15.3 *Onsite Emergency Response Organization Training*

Technical Information in the Emergency Plan: [O.2]
Section O.2, "Progress Energy Emergency Response Training," of the LNP Emergency Plan states that the emergency response training program includes Progress Energy personnel who may be called upon to respond to an emergency, in which each individual completes the required training prior to being assigned to a position in the ERO. Section O.4, "Emergency Response Training and Qualification," provides a discussion regarding the categories of specialized training programs (e.g., training and retraining for directors or coordinators of the response organization) and scope of training for the onsite ERO. Section N of the LNP Emergency Plan states that Progress Energy implements a program of periodic drills and exercises to develop and maintain key emergency response skills. Section N.2 states that Progress Energy may use drills to provide supervised instruction, allow the operating staff to resolve problems, and focus on internal training objectives. Additional information regarding the retraining of onsite emergency responders is provided in Section 13.3C.15.16 of this SER. Additional information regarding Emergency Plan Training can be found in Section 13.2.2 of this SER.

Technical Evaluation: [O.2]
The staff finds that the LNP Emergency Plan adequately describes the training program for members of the onsite emergency organization. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1.

13.3C.15.4 *First Aid and Rescue Team Training*

Technical Information in the Emergency Plan: [O.3] [O.4.f] {Appendix E, Section IV.F.1(b)(vi)}
Section O.3, "First Aid Training," states that Progress Energy provides first aid training to all individuals assigned to Medical Response teams in accordance with approved procedures. Section O.4, "Emergency Response Training and Qualification," states that the scope of associated training for first aid and rescue team responders includes emergency organizational interfaces, search and rescue procedures, and communication systems. Section L.2 of the LNP Emergency Plan states that first aid assistance is provided by medical response personnel who are onsite individuals trained in basic medical procedures and certified by the State of Florida Department of Health, Bureau of Emergency Medical Services and Community Health Resources. In addition Section L.2 states that medical response personnel are trained to handle injured personnel with or without radiological considerations in accordance with implementing procedures. Appendix 5 of the LNP Emergency Plan identifies an EPIP titled, "Medical Response." Additional information regarding the retraining of first aid and rescue team emergency responders is in Section 13.3C.15.16 of this SER

Technical Evaluation: [O.3] [O.4.f] {Appendix E, Section IV.F.1(b)(vi)}
The staff finds that the LNP Emergency Plan adequately describes specialized initial and refresher training for first aid and rescue teams. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.5 *Training Program to Implement the Emergency Plan*

Technical Information in the Emergency Plan: [O.4] {Appendix E, Section IV.F.1}
Section O.4 of the LNP Emergency Plan states that Progress Energy conducts a program for instructing and qualifying all personnel who implement the LNP Emergency Plan. Personnel complete the required training prior to assignment to a position in the ERO. The training program establishes the scope, nature, and frequency of the required training and qualification measures. The program provides position-specific training for members of the ERO that is appropriate for the duties and responsibilities of the position. The positions and scope of training programs include the following: Directors, coordinators and managers in the ERO; accident assessment personnel; radiological control personnel; police security, and firefighting personnel; damage control/emergency repair teams; first aid, fire brigade, and rescue personnel; local support services/emergency service personnel; offsite medical support personnel; emergency communicators; and personnel responsible for communicating with the media and public. In addition, the emergency plan states that company personnel not assigned to the site are utilized as members of the program. Additional information regarding the retraining of emergency responders is located in Section 13.3C.15.16 of this SER. Appendix 5 of the LNP Emergency Plan identifies an Administrative Procedure, "Emergency Preparedness Training," that supports and implements Section O, "Radiological Emergency Response Training," of the LNP Emergency Plan. Additional information regarding Emergency Plan training can be found in Section 13.2.2 of this SER.

Technical Evaluation: [O.4.] {Appendix E, Section IV.F.1}
The staff finds that the LNP Emergency Plan adequately describes the training program for instructing and qualifying personnel who will implement radiological emergency response plans.

This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.6 *Training for Emergency Response Organization Management*

Technical Information in the Emergency Plan: [O.4.a] {Appendix E, Section IV.F.1(b)(i)}
Section O.4.a of the LNP Emergency Plan states that Directors, coordinators, and managers in the ERO receive training that includes emergency condition assessment and classification, notification systems and procedures, organizational interfaces, site evacuation, radiation exposure controls, offsite support, and recovery. Additional information regarding the retraining of emergency response management is located in Section 13.3C.15.16 of this SER. Additional information regarding Emergency Plan training can be found in Section 13.2.2 of this SER.

Technical Evaluation: [O.4.a] {Appendix E, Section IV.F.1(b)(i)}
The staff finds that the LNP Emergency Plan adequately describes the training program for instructing and qualifying directors, managers, and coordinators who will implement radiological emergency response plans. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.7 *Training for Accident Assessment Personnel*

Technical Information in the Emergency Plan: [O.4.b] {Appendix E, Section IV.F.1(b)(ii)}
Section O.4.b of the LNP Emergency Plan states that accident assessment personnel receive training that includes emergency condition assessment and classification, notification systems and procedures, and organizational interfaces. In response to RAI 13.3-40(2), the applicant proposed a revision, in part, to Section O.4 of the LNP Emergency Plan that includes a discussion regarding CR (operations) staff, including the STA, which will receive training in emergency condition assessment and classification, offsite dose assessment, site evacuation, and recovery operations. Additional information regarding the retraining of accident assessment emergency responders is in Section 13.3C.15.16 of this SER.

Technical Evaluation: [O.4.b] {Appendix E, Section IV.F.1(b)(ii)}
The staff finds that the additional information and proposed textual revisions provided in response to RAI 13.3-40(2) are acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, and meet the applicable requirements of Appendix E to 10 CFR Part 50. The staff confirmed that the proposed revisions to the emergency plan provided in response to RAI 13.3-40(2) have been incorporated into Revision 2 of the LNP Emergency Plan. The staff finds that the LNP Emergency Plan adequately describes specialized initial training for personnel responsible for accident assessment, including control room shift personnel. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.8 *Training for Radiological Monitoring and Analysis Personnel*

Technical Information in the Emergency Plan: [O.4.c] {Appendix E, Section IV.F.1(b)(iii)}
Section O.4.c of the LNP Emergency Plan states that radiological control personnel receive training that includes dose assessment, emergency exposure evaluation, protective measures, protective actions, contamination control and decontamination, monitoring systems, and procedures. Additional information regarding radiological analysis training specific to CR staff including the STA is located in Section 13.3C.15.7 of this SER. In response to RAI 13.3-45(4), the applicant stated that the Radiological Monitoring Team is responsible for evaluating the

radiological conditions of the site boundary and beyond. The Radiological Monitoring Team is responsible for plume tracking, monitoring, and other sampling activities. The emergency plan (Section O.4) will be revised to specify the training for this team that will include the following topics: equipment checks, plume tracking and map reading, field measurement of airborne radioactivity, radiation levels and contamination in the EPZ, environmental sample collection, recordkeeping, communications, and procedures. Additional information regarding the retraining of radiological monitoring and analysis personnel is in Sections 13.3C.15.2 and 13.3C.15.16 of this SER.

Technical Evaluation: [O.4.c] {Appendix E, Section IV.F.1(b)(iii)}
The staff finds that the additional information and proposed textual revisions to the LNP Emergency Plan provided in response to RAI 13.3-45(4) are acceptable because they clarify the training content and scope for the team assigned to perform offsite radiation monitoring during an emergency. This conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff created **Confirmatory Item 13.3-45(4)** to track the applicant's revision to the emergency plan.

Resolution of Confirmatory Item 13.3-45(4)

Confirmatory Item 13.3-45(4) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-45(4) is now closed.

The staff finds that the LNP Emergency Plan adequately addresses the specialized initial training describing radiological monitoring and analysis personnel. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.9 *Training for Fire Fighting Teams*

Technical Information in the Emergency Plan: [O.4.d] {Appendix E, Section IV.F.1(b)(iv)}
Section O.4.d of the LNP Emergency Plan states that firefighting personnel receive training that includes the notification of station personnel, facility activation, personnel accountability and evacuation, and access control. In addition, Section O.4.f of the LNP Emergency Plan states that firefighting personnel receive training in emergency organizational interfaces, firefighting, search and rescue procedures, and communications systems. Additional information regarding site-specific training and retraining for offsite firefighting personnel can be found in Section 13.3C.15.16 of this SER and Section 9.5.1.8.2.2, "Fire Brigade Training," of the LNP COL FSAR. Section 9.5.1.8.2.2 of the LNP FSAR provides supporting discussion regarding the individuals qualified to conduct fire brigade training, the scope of course content, classroom instruction and fire fighting techniques, refresher training, practice in fire fighting, and periodic fire drills.

Technical Evaluation: [O.4.d] {Appendix E, Section IV.F.1(b)(iv)}
The staff finds that the LNP Emergency Plan adequately describes the specialized initial and refresher training for firefighting personnel. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.10 *Training for Repair and Damage Control Teams*

Technical Information in the Emergency Plan: [O.4.e] {Appendix E, Section IV.F.1(b)(v)}
Section O.4.e of the LNP Emergency Plan states that Damage Control/Emergency Repair Teams receive training that includes information on the damage control organization, communication systems, and planning and coordination of damage control tasks. Additional information regarding the retraining of repair and damage control teams is in Section 13.3C.15.16 of this SER.

Technical Evaluation: [O.4.e] {Appendix E, Section IV.F.1(b)(v)}
The staff finds that the LNP Emergency Plan adequately describes the specialized initial and refresher training for repair and damage control teams. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.11 *Training for Local Emergency Management Personnel*

Technical Information in the Emergency Plan: [O.4.g] {Appendix E, Section IV.F.1}
Initial and refresher training for local support services personnel including emergency services personnel is addressed in Section 13.3C.15.2 and 13.3C.15.16 of this SER.

Technical Evaluation: [O.4.g] {Appendix E, Section IV.F.1}
The technical evaluation of specialized initial and refresher training for local support services personnel including emergency service personnel is addressed in Section 13.3C.15.2 and 13.3C.15.16 of this SER.

13.3C.15.12 *Training for Medical Support Personnel*

Technical Information in the Emergency Plan: [O.4.h] {Appendix E, Section IV.F.1(b)(vii)}
Initial and refresher training for medical support personnel is addressed in Sections 13.3C.15.2, 13.3C.15.4, and 13.3C.15.16 of this SER.

Technical Evaluation: [O.4.h] {Appendix E, Section IV.F.1(b)(vii)}
The technical evaluation of specialized initial and refresher training for medical support personnel is addressed in Sections 13.3C.15.2, 13.3C.15.4 and 13.3C.15.16 of this SER.

13.3C.15.13 *Training for Headquarters Support Personnel*

Technical Information in the Emergency Plan: [O.4.i] {Appendix E, Section IV.F.1(b)(viii)}
Section O.4 of the LNP Emergency Plan states, in part, that Progress Energy conducts a program for instructing and qualifying all personnel and company personnel not assigned to the site that implement the emergency plan. In RAI 13.3-54, the staff requested the applicant clarify the specialized initial and periodic refresher training (including the scope, nature, and frequency) for corporate support personnel. In response the applicant stated, in part, that Company personnel that are not assigned to the site, such as corporate support personnel, may be members of the LNP ERO. However, all personnel regardless of whether they are assigned to the site or not, will receive the same training for the ERO designated position they are assigned per the emergency plan. Initial training and retraining is described in Sections O.4 and O.5 of the emergency plan. Additional information regarding the retraining of corporate emergency response personnel is located in Section 13.3C.15.16 of this SER.

Technical Evaluation: [O.4.i] {Appendix E, Section IV.F.1(b)(viii)}
The staff finds that the additional information and proposed textual revisions to the LNP Emergency Plan provided in response to RAI 13.3-54 related to the training and retraining of corporate support personnel to be acceptable because it clarifies the information in the emergency plan. This conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50. The staff created **Confirmatory Item 13.3-54(a)** to track the applicant's revision to the emergency plan provided in response to this RAI.

Resolution of Confirmatory Item 13.3-54(a)

Confirmatory Item 13.3-54(a) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-54(a) is now closed.

The staff finds that the LNP Emergency Plan adequately describes the initial training and retraining for corporate support personnel. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.14 *Training Related to Transmitting Emergency Information*

Technical Information in the Emergency Plan: [O.4.j]
Section O.4.j of the LNP Emergency Plan states that Company personnel responsible for communicating with the media and public are trained prior to position assignment. In RAI 13.3-54(b), the staff requested the applicant provide a general discussion regarding the specialized initial and periodic refresher training (including the scope, nature, and frequency) for ENC or corporate communications personnel responsible for communicating with the media and public during an emergency. In response, the applicant stated, in part, that the Emergency News Coordinator responsible for communicating with the media is assigned to the ERO and receives initial and annual retraining. Training for communicating with the media includes: development and issuance of news releases, coordination and conduct of media briefings, rumor control, and media monitoring and correction of misinformation. In addition, Section O.4.i of the LNP Emergency Plan states emergency communicators receive training that includes notifications, reports to offsite authorities, and communication systems. Additional information regarding the retraining of emergency response personnel responsible for transmitting emergency information is in Section 13.3C.15.16 of this SER.

Technical Evaluation: [O.4.j]
The staff finds that the additional information and proposed textual revisions to the LNP Emergency Plan provided in response to RAI 13.3-54(b) related to the training and retraining of personnel responsible for the transmission of emergency information to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50. The staff created **Confirmatory Item 13.3-54(b)** to track the applicant's revision to the emergency plan provided in response to this RAI.

Resolution of Confirmatory Item 13.3-54(b)

Confirmatory Item 13.3-54(b) is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-54(b) is now closed.

The staff finds that the LNP Emergency Plan adequately describes the initial training and retraining of personnel responsible for the transmission of emergency information and instructions. This is acceptable because it conforms to the guidance described in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.15 *Training for Security Personnel*

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.1(b)(ix)}
Section O.4.d, "Emergency Response Training and Qualification," of the LNP Emergency Plan states that security personnel receive training that includes the notification of station personnel, facility activation, personnel accountability and evacuation, and access control. Additional information regarding the retraining of Security personnel is in Section 13.3C.15.16 of this SER.

Technical Evaluation: {Appendix E, Section IV.F.1(b)(ix)}
The staff finds that the LNP Emergency Plan adequately addresses the specialized training described for security personnel. This is acceptable because it meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.16 *Retraining of Emergency Response Personnel*

Technical Information in the Emergency Plan: [O.5] {Appendix E, Section IV.F.1}
Section O.5, "Retraining," states that Progress Energy conducts or supports annual retraining for personnel with emergency response responsibilities, in accordance with the plant training program. Personnel that have not successfully completed this training as specified in plant training program requirements will be removed from the ERO pending completion of the required training.

Technical Evaluation: [O.5] {Appendix E, Section IV.F.1}
The staff finds that the LNP Emergency Plan adequately describes the provisions for retraining of personnel with emergency response responsibilities. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50.

13.3C.15.17 *Conclusion*

The staff concludes that the information provided in the LNP Emergency Plan regarding radiological emergency training is acceptable and meets the requirements of 10 CFR 50.47(b)(15) because it conforms with the guidance in Evaluation Criterion O of NUREG-0654/FEMA-REP-1 and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.16 Responsibility for the Planning Effort

13.3C.16.1 *Regulatory Basis*

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(16) for responsibility for the planning effort, the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Responsibility for the Planning Effort," in Appendix E to 10 CFR Part 50.

13.3C.16.2 *Training for Personnel Responsible for Planning Effort*

Technical Information in the Emergency Plan: [P.1]
Section P.1, "Training," of the LNP Emergency Plan states that Progress Energy implements a process to ensure the Emergency Preparedness Supervisor and supporting staff are properly trained for the effective implementation of the EP effort consistent with regulatory requirements and guidance, license conditions, other commitments, and accepted good practices. Training is primarily through on-the-job experience related to plan preparation, periodic revisions, or drills and exercises. Other training may include formal education, professional seminars, plant-specific training, and industry meetings.

Technical Evaluation: [P.1]
The staff finds that the LNP Emergency Plan adequately describes the training that will be provided for individuals responsible for the planning effort. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.16.3 *Person Responsible for Emergency Planning*

Technical Information in the Emergency Plan: [P.2]
Section P.2, "Responsibility for Radiological Emergency Response Training," of the LNP Emergency Plan states that the Vice President, Corporate Governance and Operations Support, has the overall authority and responsibility for ensuring that an adequate level of EP is maintained. The EP Supervisor is delegated responsibility for the radiological emergency response planning effort.

Technical Evaluation: [P.2]
The staff finds that the LNP Emergency Plan adequately identifies the individual, by title, with the overall authority and responsibility for radiological emergency response planning. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.16.4 *Designation of an Emergency Response Coordinator*

Technical Information in the Emergency Plan: [P.3]
Section P.3, "Emergency Planning Coordination," of the LNP Emergency Plan states that the Emergency Preparedness Supervisor is designated as the EP Coordinator and responsible for developing and updating the LNP Emergency Plan. The Emergency Preparedness Supervisor is also responsible for the coordination of LNP Emergency Plan with other response organizations.

Technical Evaluation: [P.3]
The staff finds that the LNP Emergency Plan adequately designates an EP Coordinator with responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.16.5 *Update and Maintenance of the Emergency Plan*

Technical Information in the Emergency Plan: [P.4] {Appendix E, Section IV.G}
Section P.4, "Plan Reviews and Updates," of the LNP Emergency Plan states that the emergency plan will be reviewed, updated, and certified to be current on an annual basis by the

EP Coordinator. Revisions to the Plan will be reviewed in accordance with 10 CFR 50.54(q). Section P.9, "Emergency Plan Audits," identifies the Emergency Plan and implementing procedures, ERFs, equipment, and supplies to be within the scope of independent periodic audits. Section N.5 of the LNP Emergency Plan states that input captured from drill and exercise critiques will be used by Progress Energy to evaluate the need for changes to the LNP emergency Plan. In RAI 13.3-57, the staff requested the applicant clarify in the LNP Emergency Plan whether written agreements and implementing procedures are maintained up-to-date. In response, the applicant confirmed that in addition to the emergency plan, written agreements and EPIPs in support of the plan will be reviewed, updated, and certified to be current on an annual basis by the EP Coordinator. Written agreements shall be certified current annually.

Technical Evaluation: [P.4] {Appendix E, Section IV.G}
The staff finds that the additional information and proposed textual revisions to the LNP Emergency Plan provided in response to RAI 13.3-57 related to the update and maintenance of written agreements and EPIPs to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the requirements of Appendix E to 10 CFR Part 50. The staff created **Confirmatory Item 13.3-57** to track the applicant's revision to the emergency plan provided in response to this RAI.

Resolution of Confirmatory Item 13.3-57

Confirmatory Item 13.3-57 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-57 is now closed.

The staff finds that the LNP Emergency Plan adequately describes provisions for updating, and certifying the current emergency plan, written agreements, and EPIPs on an annual basis. In addition, the updating provisions described, take into account changes identified by drills and exercises. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and meets the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.16.6 *Distribution of Emergency Plans*

Technical Information in the Emergency Plan: [P.5]
Section P.5, "Distribution of Revised Plans," of the LNP Emergency Plan states, in part, that the EP Coordinator will incorporate any changes to the emergency plan following its annual review. Changed pages will be marked and dated to highlight each change. Following approval of the updated plan by the Site Executive, the LNP document control organization will distribute the updated plan to those individuals or organizations responsible for its implementation.

Technical Evaluation: [P.5]
The staff finds that the LNP Emergency Plan adequately describes that the emergency response plans and approved changes to the plan will be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plan. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.16.7 *Supporting Plans*

Technical Information in the Emergency Plan: [P.6]
Section P.6, "Supporting Plans," of the LNP Emergency Plan includes a list of plans that support the LNP Emergency Plan. In supplemental RAI 13.3-43, the staff requested the applicant include reference to the REMPs for Levy, Citrus, and Marion counties. In response, the applicant stated that the plans for these three counties will be incorporated into Section P.6 in a future revision to the LNP Emergency Plan. The applicant also committed to adding the three plans to Appendix 2, "References." Section L.1.3, "Off-site Medical Support Plans," of the LNP Emergency Plan which states that both Seven Rivers Regional Medical Center and Citrus Memorial Hospital have plans for emergency handling of radiation accident cases from the LNP to carry out the terms of the hospital's agreement with Progress Energy. In RAI 13.3-55, the staff requested that the applicant incorporate reference to these plans in the LNP Emergency Plan. In response, the applicant proposed to revise the emergency as recommended above.

Technical Evaluation: [P.6]
The staff finds that the additional information and proposed textual revisions to the LNP Emergency Plan provided in response to RAI 13.3-55 to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff created **Confirmatory Item 13.3-55** to track the applicant's revision to the emergency plan provided in response to this RAI. The staff also confirmed that the additional information and proposed textual revisions to the LNP Emergency Plan provided in response to RAI 13.3-43 have been incorporated into Revision 2.

<u>Resolution of Confirmatory Item 13.3-55</u>

Confirmatory Item 13.3-55 is an applicant commitment to update the LNP Emergency Plan. The staff verified that the LNP Emergency Plan was appropriately updated (or revised). As a result, Confirmatory Item 13.3-55 is now closed.

The staff finds that the LNP Emergency Plan adequately describes supporting emergency response plans. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.16.8
13.3C.16.9 *Emergency Plan Implementing Procedures*

Technical Information in the Emergency Plan: [P.7]
Section P.7, "Implementation Procedures," of the LNP Emergency Plan states that changes to implementing procedures are developed and approved consistent with the requirements of 10 CFR 50.54(q) and the guidance provided in NRC Regulatory Information Summary 2005-02, "Clarifying the Process for Making Emergency Plan Changes." Appendix 5, "List of Emergency Plan Supporting Procedures," provides a list of implementing and administrative procedures that support and implement applicable sections of the emergency plan. In supplemental RAI 13.3-42, the staff requested the applicant provide additional clarification regarding some procedure titles, and the potential need for implementing procedures (e.g., security's emergency response role and ERO staff roles and responsibilities) referenced in the LNP Emergency Plan. In its response, the applicant has proposed clarification to Appendix 5 of the LNP Emergency Plan, including the addition of procedures titled, "Radiological Exposure Control," and, "Duties of the LNP Security Organization." The applicant proposed EP ITAAC 15.1 to ensure that detailed

implementing procedures for its emergency plan are submitted no less than 180 days prior to fuel load.

Technical Evaluation: [P.7]
The staff finds the applicant's response to supplemental RAI 13.3-42 to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that the additional information and proposed textual revisions to the emergency plan provided in response to RAI 13.3-42 have been incorporated into Revision 2 of the LNP Emergency Plan. The staff finds that the LNP Emergency Plan adequately includes a listing of the procedures by title that are required to implement the emergency plan. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff's evaluation of EP ITAAC is provided in Section 13.3C.19 of this SER.

13.3C.16.10 *Table of Contents and Cross-Reference Table*

Technical Information in the Emergency Plan: [P.8]
Section P.8, "Table of Contents and NUREG-0654 Cross Reference," states, in part, that the LNP Emergency Plan includes a specific table of contents, and the format for the emergency plan directly follows the format of NUREG-0654/FEMA-REP-1. Appendix 8, "NUREG-0654 Cross Reference," of the emergency plan includes a cross-reference between the guidance provided in NUREG-0654/FEMA-REP-1, including specific acceptance criteria, and the LNP Emergency Plan. A cross-reference to Appendix E to 10 CFR Part 50, as specified in RG 1.206, C.I.13.3.1, "Combined License Application and Emergency Plan Content," is also included as supplemental information to Part 5 of the COL application.

Technical Evaluation: [P.8]
The staff finds that the LNP Emergency Plan adequately provides for a table of contents and a cross-reference table to facilitate the use of the LNP Emergency Plan. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.16.11 *Annual Independent Review of the Emergency Plan*

Technical Information in the Emergency Plan: [P.9]
Section P.9, "Emergency Plan Audits," of the LNP Emergency Plan states that Progress Energy's Nuclear Oversight organization will perform or oversee independent audits of the LNP EP Program consistent with the requirements of 10 CFR 50.54(t). Progress Energy establishes and maintains the frequency of the periodic audits based on an assessment of performance as compared to performance indicators; however, the audit frequency may not be less than once every 24 months. Programs audits are also performed as soon as possible but no longer than 12 months after a change occurs in personnel, procedures, equipment, and facilities that could adversely affect the status of EP. The minimum elements of the Emergency Preparedness Program, consistent with NUREG-0654/FEMA-REP-1; Evaluation Criterion P.9, included in the audit are outlined. Progress Energy's Nuclear Oversight organization will ensure that all audit findings are subject to management controls consistent with the facility's corrective action program. Results of the audit are sent to the LNP facility, Progress Energy management, and affected governments. The audit results, including recommended improvements, answers to the recommended improvements, and a description of the corrective actions taken, are maintained by records management for 5 years.

Technical Evaluation: [P.9]
The staff finds that the LNP Emergency Plan adequately describes arrangements for and the conduct of independent reviews of the emergency preparedness program at least every 12 months. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.16.12 *Quarterly Update of Emergency Telephone Numbers*

Technical Information in the Emergency Plan: [P.10]
Section P.10, "Emergency Telephone Numbers," of the LNP Emergency Plan states that the EP Coordinator reviews telephone numbers in emergency response procedures quarterly and is responsible for ensuring required revisions are completed.

Technical Evaluation: [P.10]
The staff finds that the LNP Emergency Plan adequately provides for updating telephone numbers in emergency procedures at least quarterly. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.16.13 *Conclusion*

The staff concludes that the information provided in the LNP Emergency Plan regarding the responsibility for EP is acceptable and meets the requirements of 10 CFR 50.47(b)(16) because it conforms with the guidance in Evaluation Criterion P of NUREG-0654/FEMA-REP-1 and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.17 Security-Based Event Considerations

13.3C.17.1 *Regulatory Basis*

NUREG-0800, Chapter 13.3, "Emergency Planning," specifies that applicants for a COL address the information in the Commission Orders issued February 25, 2002, as well as any subsequent NRC guidance, to determine what security-related aspects of EP and preparedness should be addressed in the emergency plan.

NUREG-0800, the Commission Orders issued February 25, 2002, and security-related enhancements identified in NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," identify the following areas that applicants should consider in the COL application, emergency plan, or implementing procedures:

1. Security-based emergency classification levels and EALs - The emergency plan, or implementing procedures includes EALs to ensure that a site-specific, security event results in an emergency classification declaration of at least a notification of unusual event. The classification scheme should also reflect the strategy for escalation to a higher-level event classification.

2. NRC Notifications - Notification procedures allow for NRC notification of safeguards events immediately after notification of LLEAs, or within about 15 minutes of the recognition of a security-based threat.

3. Onsite Protective Measures - Consideration has been given to a range of protective measures for site workers, as appropriate, during a security-based event (e.g., evacuation of personnel from target buildings, site evacuation by opening security gates, dispersal of licensed operators, sheltering of personnel in structures away from potential site targets, and arrangements for accounting for personnel after attack).

4. ERO Augmentation - ERFs and alternative facilities have been identified to support the rapid response from ERO members to mitigate site damage from a security-based event once the site is secured. The alternative facilities could likely be located outside of the PA and should include the following characteristics: accessible even if the site is under threat or actual attack; communication links with the EOF, CR and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities, including damage control team planning and preparation. The alternative facility should also be equipped with general plant drawings and procedures, telephones, and computer links to the site.

5. Potential Vulnerabilities from Nearby Hazardous Facilities, Dams, and other Sites - The potential effect has been determined on the plant, onsite staffing and augmentation, and onsite evacuation strategies from damage to nearby hazardous facilities, dams, and other nearby sites, in consideration of a security-based event.

6. Drills and Exercises - Emergency Preparedness drill and exercise programs maintain the key skills necessary for mitigating security-based events. The ERO demonstrates security-based emergency preparedness program activities under the schedule as committed to in its emergency plans.

7. Emergency Preparedness and Response to a Security-based Event - Onsite staffing, facilities, and procedures are adequate to accomplish actions necessary to respond to a security-based event, and the Emergency Plan and implementing procedures reflect the site-specific needs.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. The staff's review included the guidance in NSIR/DPR-ISG-01 and the requirements in Appendix E to 10 CFR Part 50.

13.3C.17.2 *Security-Based Emergency Classification and Emergency Action Levels*

Technical Information in the Emergency Plan: (NUREG-0800)
Emergency classifications and action levels for security or hostile action based events are included in the EALs addressed in Section 13.3C.4 of this SER.

Technical Evaluation: (NUREG-0800)
The staff's evaluation of the LNP emergency classification and action level scheme is included in Section 13.3C.4 of this SER.

13.3C.17.3 *NRC Notification*

Technical Information in the Emergency Plan: (NUREG-0800)
In RAI 13.3-23(C), the staff asked the applicant to describe how the LNP Emergency Plan addressed emergency preparedness for security-based events as outlined in NRC

Bulletin 2005-02. The applicant's response, in part, referenced implementing procedures that provide instructions for notification to Federal authorities that includes an accelerated call to the NRC. In supplemental RAI 13.3-37(2), the staff asked the applicant to clarify in the emergency plan the notification to the NRC of hostile-action based events immediately after notification of local law enforcement agencies, or within about 15 minutes following its recognition. In response, the applicant stated, in part, that they will revise the LNP Emergency Plan to add direction to notify the NRC within about 15 minutes immediately after notification of local law enforcement in the event of a hostile-based threat against LNP. In addition, the applicant stated that specific actions to complete the NRC notification will be included in EPIPs.

Technical Evaluation: (NUREG-0800)
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to supplemental RAI 13.3-37(2), in consideration of its response to RAI 13.3-23(C), to be acceptable because it provided instructions for an accelerated call to the NRC (within 15 minutes) immediately after notification of local law enforcement in the event of a security-based or hostile action event. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02 and the specific evaluation criteria in NUREG-0800. The staff confirmed that the applicant's responses to these RAIs are incorporated into Revisions 1 and 2 of the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes provisions for an accelerated call to the NRC in the event of a hostile-based threat against LNP. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02 and the specific evaluation criteria in NUREG-0800.

13.3C.17.4 *Onsite Protective Measures during a Security-Based Event*

Technical Information in the Emergency Plan: (NUREG-0800) {Appendix E, Section IV.I}
Section J.5, "Personnel Accountability," of the LNP Emergency Plan states that assembly and accountability may be delayed during a security event, if the EC (in consultation with Security) determines that performing accountability could be detrimental to the safety of site personnel. If accountability is delayed, then accountability should be performed immediately when conditions warrant. In RAI 13.3-23(C), the staff requested additional information from the applicant regarding onsite protective measures during a security-based event. In response, in part, the applicant provided clarification of the personnel accountability process, including a description of the decision-making process by the EC with input from Security to protect onsite personnel during a site security event. The applicant stated, in part, that the EC may direct protective measures including:

- evacuation of site personnel;
- site evacuation while continuing to defend security gates;
- dispersal of key personnel;
- onsite sheltering;
- staging of ERO personnel in alternate locations pending the restoration of safe conditions; or
- implementation of accountability measures following restoration of safe conditions.

Technical Evaluation: (NUREG-0800) {Appendix E, Section IV.G}
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to RAI 13.3-23(C) to be acceptable because they describe onsite protective measures, other than evacuation, that can be taken during a security-based event. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02, the specific

evaluation criteria in NUREG-0800, and NSIR/DPR-ISG-01, and meets the requirements in Appendix E to 10 CFR Part 50. The staff confirmed that the information provided in response to this RAI was incorporated into Revision 1 of the LNP Emergency Plan.

By letter dated November 8, 2012, from PEF to the NRC, the applicant provided its response to address the Final Rule on Enhancements to Emergency Preparedness Regulation effective November 23, 2011. In regard to implementation of the EP rule pertaining to the protective actions for onsite personnel, there were no changes warranted for the LNP Emergency Plan. Therefore, the staff finds that the LNP Emergency Plan adequately describes onsite protective measures necessary to respond to a security-based event and to ensure the continued ability of the licensee to safely shut down the reactor, while performing the functions of the licensee's emergency plan. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02, the specific evaluation criteria in NUREG-0800, and NSIR/DPR-ISG-01, and meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.17.5 *Emergency Response Organization Augmentation*

Technical Information in the Emergency Plan: (NUREG-0800)
Section E.1.1, "Progress Energy Emergency Response Organization," states that notifications of an emergency will be made to personnel assigned to the ERO, and if the emergency involves a security threat, alternate assembly areas may be used to protect the responding ERO members. In RAI 13.3-23(C), the staff requested additional information from the applicant regarding ERO augmentation during a security-based event. In response, in part, the applicant provided reference to an EPIP that includes additional instruction on assembly, protective actions and response to an alternate assembly area for responding ERO personnel, if required. In supplemental RAI 13.3-37(1), the staff asked the applicant to describe in the emergency plan an alternative facility to support rapid response to a hostile-action event with functionality similar to the EOF. In response, the applicant stated that the EOF/ENC is the alternate ERF. The proposed revision to the emergency plan will address the characteristics needed for an alternate facility to support the rapid response to a severe weather event, hostile-action event, or any other situation that prevents the LNP ERO from responding to normal onsite facilities. In addition, the applicant provided reference to an EPIP that will be added to Appendix 5 of the LNP Emergency Plan titled, "Activation and Operation of the Alternate Emergency Response Facility," which will provide specific setup criteria for this facility. Additional information regarding ERO augmentation at an alternate facility is in 13.3C.8.39 of this SER.

Technical Evaluation: (NUREG-0800)
The staff finds the additional information and proposed textual revisions to the emergency plan provided in response to supplemental RAI 13.3-37(1), in consideration of its response to RAI 13.3-23(C), to be acceptable because it describes an alternate facility and functionality to support the augmentation of ERO personnel and rapid response to a security-based or hostile action event. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02 and the specific evaluation criteria in NUREG-0800. The staff confirmed that the information provided in response to these RAIs have been incorporated into Revisions 1 and 2 of the LNP Emergency Plan. Additional information regarding ERO augmentation at an alternate facility is in 13.3C.8.39 of this SER. Therefore, the staff finds that the LNP Emergency Plan adequately describes provisions for use of an alternate facility to support augmentation of ERO personnel and the rapid response to a security-based or hostile action event. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02 , the specific evaluation criteria in NUREG-0800, and NSIR/DPR-ISG-01, and meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.17.6 *Potential Vulnerabilities from Nearby Hazardous Facilities, Dams, and Other Sites*

Technical Information in the Emergency Plan: (NUREG-0800)
Part 2, "FSAR," of the LNP COL application, Section 2.2, "Nearby Industrial, Military, and Transportation Facilities," provides information regarding the potential effect on the plant from damage to nearby hazardous facilities, dams, and other nearby sites. Section J.10, "Protective Measures Implementation," of the LNP Emergency Plan states that evacuation routes are illustrated in Figure A.6-2, "Levy Evacuation Routes and Shelters." Appendix 5 provides reference to an EPIP for evacuation and accountability of personnel. In supplemental RAI 13.3-37(3), the staff asked the applicant to clarify whether the potential effect to onsite staffing with augmentation and evacuation strategies, in consideration of a security event from damage to nearby hazardous facilities, dams, and other nearby sites, have been considered in the LNP Emergency Plan. In response, the applicant stated, in part, that the LNP Emergency Plan adequately addresses the ability to classify, notify, and augment staff during emergencies regardless whether the initiating condition originates onsite or offsite. The applicant provided reference to the LNP emergency classification and action level scheme as the means to be used for classifying such an emergency. In addition, the applicant stated that when an emergency classification is deemed necessary that requires activation of the LNP ERO the emergency facilities would be staffed accordingly:

1. When ERO personnel are onsite as is the case during a normal work day, the onsite facilities would be staffed as normal. An event at a nearby site is unlikely to cause an immediate health concern or nuclear safety concern preventing personnel from commuting to onsite facilities such as the TSC or OSC. Ventilation systems and other onsite protective measures protect the staff upon arrival.

2. When ERO personnel are offsite as is typical during night time and weekends, notification is made to personnel to respond to the onsite facilities as normal. In the event access to the site is deemed hazardous, the ERO is notified to respond to the alternate ERF.

Notification and mobilization of the ERO is discussed in Section E of the LNP Emergency Plan. In addition, the applicant provided reference to Section J, "Protective Response," within the LNP Emergency Plan, which provides additional direction to evacuate, relocate, stage, disperse, or shelter personnel onsite based on the hazard present regardless of the origination source.

Technical Evaluation: (NUREG-0800)
The staff's evaluation of the potential effect on the physical plant resulting from damage to offsite hazardous facilities, dams, and other nearby sites is located in Chapter 2 of this SER. Section 13.3C.4 of this SER includes the staff's evaluation regarding the applicant's means and methodology for classifying an emergency that initiates offsite. As described in Section 13.3C.17.5 in this SER, the applicant identifies an alternate facility (EOF/ENC) that will serve as a location for ERO members to assemble and activate in the event that access to the plant's onsite ERF locations are not accessible due to a severe weather event, hostile-action or any other reason. In response to RAI 13.3-37(3), the applicant provided additional clarification regarding the use of an alternate facility (EOF) for the protection of ERO personnel responding to an emergency at LNP. The staff finds the additional clarification provided in response to RAI 13.3-37(3) acceptable because it conforms to the guidance provided in NRC Bulletin 2005-02 and acceptance criteria in NUREG-0800. In addition, the applicant provides

reference to, and the LNP Emergency Plan includes, protective strategies described in Section 13.3C.17.4 of this SER for the protection of onsite personnel and responding ERO members. In response to RAI 13.3-37(3), the applicant did not propose any textual revisions to the emergency plan. The staff finds this acceptable. Therefore, the staff finds that the information LNP Emergency Plan adequately describes the assessment of other nearby hazards that could potentially affect the safety of the LNP facility. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02 and specific evaluation criteria in NUREG-0800.

13.3C.17.7 *Security-Based Drills and Exercises*

Technical Information in the Emergency Plan: (NUREG-0800)
Section N.1.a, "Exercise Scope and Frequency," states, in part, that provisions for drills and exercises using terrorist based events are part of the Drill and Exercise Program.

Technical Evaluation: (NUREG-0800)
The staff finds that the LNP Emergency Plan adequately describes the consideration for terrorist-based events in the LNP Drill and Exercise Program. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02 and specific evaluation criteria in NUREG-0800.

13.3C.17.8 *Emergency Preparedness and Response to a Security-Based Event*

Technical Information in the Emergency Plan: (NUREG-0800)
Sections 13.3C.2 and 13.3C.8 of this SER provides reference to information regarding the onsite and offsite EROs described in the LNP Emergency Plan, including the identification of minimum on shift and augmented staffing levels which would support activation of the ERO and associated ERFs in the event of a declared security-based event at the LNP site.

In addition, Sections 13.3C.17.2 through 13.3C.17.7 of this SER provides additional information regarding the applicant's ability to classify an emergency based on a security-related event; make an accelerated notification to the NRC; provide for protection of onsite ERO responders; assemble the augmented ERO staff at an alternate facility in support of rapid response should unsafe site conditions exist; and practice the ERO's response to a security-related event.

Appendix 5 of the LNP Emergency Plan includes a listing of EPIPs that encompass the spectrum of response activities associated with EP and security (non-safeguards) at the LNP site.

Technical Evaluation: (NUREG-0800)
The staff finds that the LNP Emergency Plan adequately describes emergency planning and response to a security-based or hostile action event at LNP. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02 and specific evaluation criteria in NUREG-0800.

13.3C.17.9 *Conclusion*

The staff concludes that the LNP Emergency Plan adequately addresses the preparation and response to security-based or hostile action events. This is acceptable because it conforms to the guidance in NRC Bulletin 2005-02, specific evaluation criteria in NUREG-0800, and

NSIR/DPR-ISG-01, and meets the applicable requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.18 Evacuation Time Estimate (ETE) Analysis

The LNP Emergency Plan includes an analysis of the time required to evacuate the plume exposure pathway EPZ. The report titled "Levy Nuclear Plant Development of Evacuation Time Estimates," Revision 5, dated February 2011, (ETE Report) was provided as a separate document in the COL application as Appendix 5, "Evacuation Time Estimate Study." The Pacific Northwest National Laboratory and the Sandia National Laboratory assisted the staff in performing a technical review of the ETE Report. The ETE Report includes analyses and responses to RAIs and provides the basis for the staff's conclusions as to the adequacy of its content and conformity with Appendix 4 to NUREG-0654/FEMA-REP-1.

13.3C.18.1 *Regulatory Basis*

The staff considered the following regulatory requirements and guidance in the review of the ETE analysis:

- 10 CFR 52.79(a)(21) refers to Appendix E to 10 CFR 50, Section IV, "Content of Emergency Plans," of which requires that the nuclear power reactor operating license applicant provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations.

The staff evaluated the ETE Report against Appendix 4, "Evacuation Time Estimates within the Plume Exposure Pathway Emergency Planning Zone," to NUREG-0654/FEMA-REP-1. Appendix 4 includes detailed guidance that the staff considered in determining whether the ETE analysis meets the applicable regulatory requirements in Appendix E to 10 CFR Part 50.

13.3C.18.2 *Introductory Materials Related to the ETE Report*

Technical Information in the ETE Report: [Section I of Appendix 4]
Section 1, "Introduction," of the ETE Report provides a basic description of the process used to determine the ETEs for the proposed LNP site. A description of the LNP site location, including a map (Figure 1-1, "Levy Nuclear Plant Site Location"), illustrating the plume exposure pathway EPZ and surrounding area is provided. In RAI 13.3-2(A), the staff requested additional information regarding the lack of elevations, surrounding communities, and political boundaries identified on the map. In response, the applicant revised the map in Figures 1-1 and 3-1 to include counties within the plume exposure pathway EPZ and their boundaries. The applicant also revised the text in Section 1.2, "The Levy Nuclear Plant Location," for clarification of these figures.

Section 2, "Study Estimates and Assumptions," provides the basis for the population data estimates used in the ETE. Population estimates are based on the 2000 census data using the ArcGIS Software and the block centroid method. Estimates of employee and special facility populations are based on data provided by county emergency management officials. Vehicle occupancy factors are based on a statistical analysis of data acquired from a telephone survey. Additional assumptions regarding the development of population estimates, including pass-through populations and regional employees, are provided in Section 3, "Demand Estimation," and Appendix E, "Special Facility Data." Assumptions about transit-dependent and

special populations are provided in Section 8, “Transit-Dependent and Special Facility Evacuation Time Estimates,” and Appendix E of the ETE Report. Development of trip generation times from survey responses is described in Section 5, “Estimation of Trip Generation Times.”

Eleven study assumptions used as the basis for the calculation of the ETEs are provided in Section 2.3, “Study Assumptions,” of the ETE Report. This study assumes that everyone will evacuate according to assigned evacuation routes. Schools will be notified in advance of the general population and given priority for use of transportation resources. Buses that are not being used for school evacuation will be used to transport those without access to private vehicles. Additional information regarding bus capacity assumptions was requested in RAI 13.3-3(F). In response, the applicant stated that the ETE Report assumes that there are 22 to 24 seats in most school buses in which 8 seats could accommodate 15 patients, leaving 14 to 16 seats for stacking of wheelchairs and patients’ personal items.

Traffic control points (TCPs) and access control points (ACPs) will be established to aid the flow of traffic out of the plume exposure pathway EPZ. Additional information was requested in RAI 13.3-3(C) to determine what effect traffic control will have on evacuation times. In response, the applicant stated that that the ETE Report assumes that the capacity estimates presented in Appendix K are not enhanced nor compromised by the establishment of a TCP at an intersection. The establishment of TCPs is recommended to provide guidance and reassurance to evacuees of the appropriate actions to take and route information, in addition to providing fixed point surveillance of evacuation activities. The applicant stated that there would be no effect on the ETE if TCPs were not established.

Voluntary and shadow evacuations are considered potential impediments to the overall evacuation effort. In RAIs 13.3-8(A) and 13.3-9(B), the staff requested clarification regarding why Lake Rousseau was part of the shadow region and not included in one of the protective action zones (PAZs). In response, the applicant stated that Lake Rousseau was not included as part of the Shadow Evacuation Region. The applicant revised the ETE Report to reflect Lake Rousseau is within PAZs C3, C4, L5, L6, and M9; and the PAZ boundaries now follow the county boundaries. In addition, the applicant stated that the transients visiting Lake Rousseau have been accounted for as part of the EPZ population and no changes to the analysis are needed.

In RAI 13.3-8(C), the staff requested information on how voluntary evacuees were addressed in Table 6-3, “Percent of Population Groups for Various Scenarios.” In its response, the applicant stated that the numbers presented in Tables 6-3 and 6-4 are for a 100 percent evacuation of the full EPZ (Region R03). The applicant added a footnote to Table 6-4 for clarification and included a new Table H-1, “Percent of PAZ Population Evacuating for each Region,” in the ETE Report that identifies the voluntary evacuation percentages for each PAZ for each regional configuration. In addition, the applicant revised the text of page H-1 of the ETE Report to include a discussion of Table H-1. The applicant further stated that a review of the input streams to IDYNEV indicated that the voluntary evacuation percentages were not properly specified for any region, except Region R03. PAZs C1 and C3 were originally included in the 5-mile evacuation. Based on comments received during the review process, PAZ C1 and C3 were removed from the 5-mile evacuation. Tables 6-1, 7-2 and J-2, as well as the figures in Appendix H were revised; however, the input stream was not modified accordingly. The applicant corrected these percentages to show the values in Table H-1 and recomputed the ETE. The ETE values presented in the executive summary in Tables 7-1A through 7-1D and Tables J-1A through J-1D were updated based on these changes. I-DYNEV was modified to

allow for the input of specific bus routes speed. This new feature of I-DYNEV was used to compute the average speed during evacuation on each of the school and transit-dependent bus routes servicing the EPZ. The average speeds discussed in Section 8.4 of the ETE Report were updated accordingly. Tables 8-5A and 8-5B, and Tables 8-7A and 8-7B, were also updated accordingly. Pages ES-11 and ES-12 in the Executive Summary were revised to reflect the new information.

In RAI 13.3-9(C), the staff requested clarification on assumptions regarding the "shadow" population that is expected to evacuate and the numbers of vehicles that were proposed to be used. In response, the applicant revised the text in Section 7.1, "Voluntary Evacuation and Shadow Evacuation," to identify the population within the Shadow Region and the methodology used to compute that estimate.

In RAI 13.3-14(F), the staff requested clarification on how the data in Figure F-11, "Time to Prepare Home for Evacuation," was used in development of the ETE. In its response, the applicant stated this distribution was "truncated" to avoid the bias of those few stragglers who take significantly longer to mobilize. In "truncating" these distributions, the mobilization of the stragglers is advanced. Therefore, the stragglers are not eliminated from the ETE. Additional information was provided in response to RAI 13.3-3(B).

In RAI 13.3-9(A), the staff requested clarification on whether a densely populated area, Dunnellon and Citrus Springs, was bisected by this boundary, and if so, to provide a resolution for the boundary of these zones. In response, the applicant stated the boundaries were developed in conjunction with the offsite authorities (State of Florida and EPZ counties) along well-defined features that would be easily identifiable to area residents and that would conform to an EPZ radius of about 10 miles. The PAZ boundaries, as defined, adhere to NRC guidelines and will be maintained.

An outline of the approach to estimating the ETE is presented with a link-node map [Figure 1-2, "Levy Nuclear Plant Link-Node Analysis Network"] of the highway network developed through the use of GIS mapping software and field observations. Details of the link-node map are presented in Appendix K, "Evacuation Roadway Network Characteristics." The IDYNEV System was used to analyze the highway network to determine routes used for evacuation and estimate evacuation times. A description of the IDYNEV System and associated sub-models is provided in Section 1.3, "Preliminary Activities," of the ETE Report. The IDYNEV system consists of several sub-models - a macroscopic traffic simulation model, an intersection capacity model, and a dynamic, node-centric routing model that adjusts the "base" routing in the event of an imbalance in the levels of congestion on the outbound links. Another model of the IDYNEV System is the traffic assignment and distribution model, which integrates an equilibrium assignment model with a trip distribution algorithm to compute origin-destination volumes and paths of travel designed to minimize travel time. A discussion of algorithms used is provided in detail in Section 4, "Estimation of Highway Capacity." Additional information on algorithms used in the estimations was requested in RAIs 13.3-4(A)(B)(C)(D)(E).

In RAI 13.3-4(A), the staff requested a general description of other important algorithms used in the traffic simulation model. In response, the applicant stated that Appendices B through D of the ETE Report provide additional detail on the IDYNEV system and its use in computing ETEs. The applicant revised page 1-6 of the ETE Report to include references to other documents that can be accessed for additional information. In RAI 13.3-4(B), the staff requested a discussion on how certain intersections will be controlled by traffic control personnel and how this may affect the variable in the equation, and/or intersection capacity, and the traffic simulation model.

In response, the applicant stated the ETE calculations do not rely upon any of the traffic control measures in Appendix G of the ETE Report. The estimates of capacity used by the IDYNEV model are based on the factors described in Section 4, "Estimation of Highway Capacity," of the ETE Report and observations made during the road survey. It is assumed that these capacity estimates are not enhanced nor compromised by the establishment of a TCP at an intersection. The values of the variables in the intersection algorithm in Section 4 were derived by applying the IDYNEV system as an analysis tool rather than as a single "pass-through" calculation of an ETE. The applicant revised Item 7 in Section 2.3; and the text in Section 9 and page G-1 to clarify the use of ACPs and TCPs. In RAI 13.3-4(C), the staff requested values, or a range of possible values, for the parameters in the equation, where applicable, including "Mean Duration of Green Time," and "Mean Queue Discharge;" clarification on whether these values are estimated or field verified; and a discussion on how this equation is applied to staffed intersections where traffic control is in place. In response, the applicant provided additional information related to the parameters used in the equations in Section 4. Clarification on how these equations were applied to staffed intersections was also provided. The applicant included a new section, "Simulation and Capacity Estimation," at the end of Section 4 of the ETE Report for further clarification. In RAI 13.3-4(D), the staff requested a description of how the values for each variable in Section 4 were derived. For example, on page 4-2, the variables F1 and F2 are only defined as the various known factors that influence the turn-movement-specific mean discharge headway h_m. In response, the applicant provided additional information related to the variables F1 and F2. The applicant stated that this level of detail is not appropriate for inclusion in an ETE Report. The applicant revised the text on page 4-3 to include reference to Chapters 16 and 17 of the Highway Capacity Manual (HCM) where additional information can be found.

Further details on the use of traffic models is provided in Appendix C, "Traffic Simulation Model: PC-DYNEV," and Appendix D, "Detailed Description of Study Procedure" of the applicant's ETE Report.

Technical Evaluation: [Section I of Appendix 4]
The staff finds the additional information and proposed textual revisions provided by the applicant in response to RAIs 13.3-2(A), 13.3-3(C), 13.3-3(F), 13.3-4(A), 13.3-4 (B), 13.3-4(C), 13.3-4(D), 13.3-4(E), 13.3-8(A), 13.3-8(B), 13.3-8(C), 13.3-9(A), 13.3-9(B), 13.3-9(C), and 13.3-14(F), to be acceptable because they meet the requirements of Appendix E, Section IV to 10 CFR Part 50 and conform to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. The staff confirmed that the changes proposed in the RAIs above have been incorporated into Revision 4 of the LNP ETE Report. The staff finds that the LNP ETE Report includes a map showing the proposed site and plume exposure pathway EPZ, as well as transportation networks, topographical features, and political boundaries. Also, the boundaries of the plume exposure pathway EPZ, in addition to the evacuation subareas within the plume exposure pathway EPZ, are based on factors such as current and projected demography, topography, land characteristics, access routes, and jurisdictional boundaries. The ETE Report also describes the method of analyzing the evacuation times. A general description of the evacuation model was provided including the assumptions used in the ETE analysis. Therefore, the information provided in the introductory materials of the LNP ETE Report meets the requirements of Appendix E, Section IV to 10 CFR Part 50 and conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1.

13.3C.18.3 *Demand Estimation*

Technical Information in the ETE Report: [Section II of Appendix 4]
Section 3, "Demand Estimation," provides an estimate of demand expressed in terms of people and vehicles. The permanent resident population was projected out to 2007 by comparing the 2005 census data with the 2000 census data to obtain growth rates for each county. Based on information obtained in a telephone survey, the permanent resident average household size is estimated at 2.25 persons per household. In RAI 13.3-5(A), the staff requested additional information on the correct value to use for the average number of vehicles per household and whether Table 3-2 and Figure 3-3 would require updating if the number of vehicles per household is changed. In response, the applicant stated that both the 1.32 value used for vehicles per household in Table 1-1 and the 1.37 value in Figure F-8 were incorrect. The applicant stated the correct value is 1.39 as shown in Table 1. Using the correct value (1.39) results in a 5.3 percent increase in permanent resident vehicles, which should not significantly affect evacuation estimates. The applicant revised the number of evacuating vehicles per household from 1.32 and 1.37 to 1.39 in the ETE Report; re-computed the number of evacuating vehicles for permanent residents and the Shadow Region; re-ran all the ETE scenarios using the updated vehicle estimates; and updated various tables and figures in the ETE Report to reflect the revised results.

Estimates of the permanent resident population and their vehicles are presented for each PAZ in Table 3-2, "Permanent Resident Population and Vehicles by PAZ," and by polar coordinate representation in Figures 3-2, "Permanent Resident by Sector," and Figure 3-3, "Permanent Resident Vehicles by Sector."

In RAI 13.3-5(D)(1), the staff requested clarification as to whether Table 6-4 of the ETE Report represented an evacuation of Region R03 (entire EPZ). In response, the applicant added a footnote to Table 6-4 stating, "The values presented are for an evacuation of the full EPZ (Region R03)." In RAI 13.3-5(D)(2), the staff requested a discussion of the county-specific growth rates used to obtain the permanent resident population and shadow population expanded to the year 2017 for Scenario 11. In response, the applicant provided the growth rates for Citrus, Levy, and Marion Counties obtained from the County Planning Departments. In RAI 13.3-5(D)(3), the staff requested clarification on how the values for residents with commuters, residents without commuters, and shadow were developed for Scenario 11 in Table 6-4. In response, the applicant stated that the values for residents with commuters, residents without commuters and shadow presented for Scenario 11 in Table 6-4 are overstated. Also, the peak construction date has shifted outward to year 2019. The simulations were re-run for all construction cases to correct the projection error and to update the peak construction year to 2019: Table 6-4, Tables 7-1A through 7-1D, Tables J-1A through J-1D, Figure J-11, and Tables 7-1C and 7-1D in the Executive Summary were revised to reflect the new simulation results. The applicant stated that the external traffic values shown in Table 6-4 are hourly volumes and will be expressed as total vehicles over the 90 minutes following the advisory to evacuate. The applicant revised the text on page 3-13 to reflect this change. In RAI 13.3-5(D)(4), the staff requested an explanation on why no additional transit buses or external traffic would be anticipated if a 60 percent growth increase is expected. In response, the applicant stated that the construction projections and 60 percent population growth were overstated in the ETE Report, and that the vehicles should be extrapolated to the peak construction year of 2019. Changes were incorporated into the IDYNEV input stream and all Scenario 11 cases were re-run. Tables 7-1A through 7-1D (Tables 7-1C and 7-1D also appear in the Executive Summary), Tables J-1 A through J-1D and Figure J-11, were updated based on

this change. The discussion on page 3-2 of the ETE Report and the footnote to Table 6-4 pertaining to construction were also revised to reflect this change.

It is estimated that 1,416 people makeup the transient population. Individual activity vehicle occupancy factors were used to estimate average vehicle occupancy of 1.63 transient per vehicle. In RAI 13.3-6(A), the staff requested verification that the correct value for the transient population (1,416 versus 1,417) was used. In response, the applicant stated Figure 3-4 indicates 89 people visiting the Inglis Dam Recreation Area where the table on Page E-6 states 90 transients. Figure 3-4 was updated to agree with the table on page E-6. Also, the text on page 3-7 was updated to read "1,417 people." In RAI 13.3-6(B), the staff requested clarification of the logistics for evacuation of the lake and gulf coast areas. In response, the applicant stated that the warnings and evacuation of waterways will be conducted by various State and local organizations (e.g., Fish and Wildlife Conservation Commission and Florida Department of Environmental Protection, Division of Law Enforcement). Once the transients return to the mainland, they will evacuate using private vehicles on the evacuation routes identified in Section 10 of the ETE Report. In RAI 13.3-6(C), the staff requested an explanation regarding whether consideration was given for the possibility of transients returning to a location to gather their belongings. In response, the applicant stated that some transients will evacuate immediately while others may return to the lodging facility to gather up belongings and then evacuate. Figure 5-1 and the text in Section 5 were revised to include the possibility that transients may return to lodging facilities or campsites prior to beginning their evacuation trip.

Estimates of the transient population and their vehicles are presented by polar coordinate representation in Figures 3-4, "Transient Population by Sector," and 3-5, "Transient Vehicles by Sector," of the ETE Report.

Employees who commute to jobs within the plume exposure pathway EPZ are assumed to evacuate along with the permanent resident and transient populations. Four major employers, LNP, Crystal River Nuclear Plant (CRNP), Sweetbay Supermarket, and Super Wal-Mart, are within the plume exposure pathway EPZ. In RAI 13.3-6(G)(1), the staff requested clarification on whether the Seven Rivers Regional Medical Center should be considered a major employer since it employs 190 people. In response, the applicant stated that the omission of Seven Rivers Regional Medical Center from the major employers listing was an oversight and was corrected in the table on page E-4 and Figure E-2 of the ETE Report. In RAI 13.3-6(G)(2), the staff requested a discussion regarding the effect on the ETE from the additional vehicle demand due to the employees of the Seven Rivers Regional Medical Center. In response, the applicant stated the ETE Report will assume that 75 percent of the workforce commutes into the EPZ to work at Seven Rivers Regional Medical Center. Based on this assumption and the average vehicle occupancy factor, 138 vehicles will have to be added into the simulation. Various changes were made to the ETE Report based on the addition of Seven Rivers Regional Medical Center as a major employer: a discussion was added of the facility as item "4" on page 3-10; Figures 3-6, 3-7, E-4, E-2, and Table 6-4 were updated based on this information.

Vehicle occupancy of 1.03 is used for the employee population. Estimates of the employee vehicles are presented by polar coordinate representation in Figures 3-7, "Employee Vehicles by Sector." In RAIs 13.3-6(D), 13.3-6(E), and 13.3-6(F), the staff requested information on whether employees are expected to need transit service; whether LNP employees were considered in the calculations; and whether less than 100 percent of CRNP might be expected to evacuate. In RAI 13.3-6(D), the staff requested a discussion on whether employees and transients have been factored into this need for transit service. In response, the applicant stated since there is no mass transit servicing the area, therefore it is assumed that all

transients and employees will have private vehicles available for evacuation. The text on page 8-1 was corrected to reflect this assumption in the revised ETE Report. In RAI 13.3-6(E), the staff requested a discussion on the ETE as to whether LNP employees were included in the calculation. In response, the applicant stated the ETE Report will be updated to include LNP as a major employer when the first unit is complete. The employment data for the CRNP is also misstated in the table on page E-4 and does not agree with the data presented on page 3-10. The table on page E-4 was revised accordingly. Also, the tables in Appendix E were labeled Tables E-1 through E-7. The discussion of construction on page 3-2 and the footnote to Table 6-4 were revised as discussed in response to RAI 13.3-5(D)(4). The input streams to IDYNEV were updated to project to a construction year of 2019 and all ETEs were re-computed. Tables 7-1A through 7-1D; Tables 7-1C and 7-1D in the Executive Summary; Tables J-1A through J-1D; and Figure J-11 were revised to reflect this change as discussed in response to RAI 13.3-05(D)(4). In RAI 13.3-6(F), the staff requested clarification on the actual percentage of CRNP employees that might be expected to evacuate. In response, the applicant included additional text to indicate that it is conservatively assumed in this study that 100 percent of CRNP employees would evacuate.

One special event scenario, Scenario 11, is included in the ETE Report. Scenario 11 represents the peak construction period during a typical winter, weekend, midday, under good weather conditions. Progress Energy estimates there will be two units constructed with Unit 1 being operational in February 2018 and Unit 2 operational in February 2019. Population estimates for permanent residents, transients, and shadow population were extrapolated out to 2019. An estimated 3600 workers and their vehicles were also included in Scenario 12. In RAI 13.3-8(B), the staff requested clarification on why a scenario, such as Scenario 7, was not chosen to be midweek with rain and new plant construction to provide a worst-case estimate. In its response, the applicant stated the specific details of construction scheduling were not determined when the ETE study was conducted. It was uncertain how inclement weather would impact the construction workforce, therefore, Scenario 8 conditions were chosen for the construction scenario, assuming that the full construction workforce would be present under good weather conditions and that this would be a “worst-case” scenario.

Permanent residents, transients, and employees make up the general population. Vehicles traveling through the plume exposure pathway EPZ (external-external trips) are assumed to continue to enter during the first 60 minutes following an accident. Subsequently, none enter the EPZ and those remaining will evacuate with the general population. Population Estimates for special facilities and people without personal vehicles are provided in Section 8, “Transit-Dependent and Special Facility Evacuation Time Estimates.” There are two elementary schools, one Middle School, and two schools/academies with K-12 grades within the plume exposure pathway EPZ. There is one youth correctional facility and 5 daycare facilities located inside the plume exposure pathway EPZ. In RAI 13.3-7(C), the staff requested the applicant clarify whether pre-school children and the youth in the correctional facilities were included in the ETE Study. In response, the applicant stated that it was assumed that children at daycare centers are picked up by their parents and that this activity is accounted for in the mobilization times for residents presented in Section 5. The Crystal River public information calendar advises parents to pick up children at relocation schools where they will be transported and not their schools or daycares. This policy may likely be adapted by LNP making the previous assumption invalid. The daycare centers identified on page E-2 of the ETE Report have been added to Tables 8-2, 8-3, 8-5A and 8-5B. The titles of these tables were revised to include daycare centers. Section 8.2 was revised to include discussion of daycare centers. Page 8-8 was revised to include a discussion of the evacuation of the Forestry Youth Camp Incarceration

Center to be performed by cooperating law enforcement transporting inmates to a facility outside of the 10-mile EPZ in Tallahassee, Florida.

There are two special care facilities and one regional medical center within 10 miles of the LNP site. In RAI 13.3-7(A), the staff requested the applicant provide the basis for the assumption of loading non-ambulatory individuals in 1.5 minutes. In its response, the applicant revised the text on page 8-8 of the ETE Report to specify a loading time of 30 minutes per ambulance. In RAI 13.3-7(D), the staff requested clarification regarding whether a transit-dependent special needs population exists. If so, discuss whether it was considered in the ETE study. In its response, the applicant stated that recent communication with county emergency management agencies yielded data on a registered special needs population. Section 8.5 entitled, "Evacuation of Homebound Special Needs Population," was incorporated into the ETE Report. A separate map is provided identifying recreational areas in Appendix E, "Special Facility Data." In RAI 13.3-7(B), the staff requested a clarification of the LNP plume exposure pathway EPZ lodging table in Appendix E since it appears twice. In its response, the applicant stated that the repeated table was a PDF conversion error and that the table titled, "Levy EPZ: Lodging (As of July 2007)," on page E-2 has been replaced with the table titled, "Table E-1, Levy EPZ Schools (As of July 2007)." All tables in Appendix E were renumbered in the ETE Report.

Telephone survey results (reported in Appendix F, "Telephone Survey") are used to estimate the portion of the population requiring transit service. The transit-dependent population includes persons in households without vehicles and persons in households whose vehicles are unavailable at the time of evacuation do to commuter use. In RAI 13.3-3(A)(1), the staff requested the actual number of completed survey forms and the sampling error used throughout the telephone survey. In its response, the applicant stated that the total of the required sample column was shown as 550 when it should have been 553. The applicant stated that this was a "rounding-off" error. Table F-1 was revised in the response to RAI 13.3-5(B) and has been incorporated into the ETE Report. The ETE Report now includes additional confidence bound estimates for Figures 5-3, F-1, F-5, F-6, F-7, and F-8; and Table 5-1. In RAI 13.3-3(A)(2), the staff requested clarification on whether completed survey forms received from the public included populations within the associated zip codes, outside of the plume exposure pathway EPZ. In its response, the applicant stated that it is assumed that the demographics are uniform across a zip code. Therefore calls made within the zip codes identified in Table F-1 will produce valid results, even if the person may live just outside the EPZs of the two plants. In RAI 13.3-3(A)(3), the staff requested clarification on what population size was used as a basis for the telephone sampling plan and whether or not the population size used had an effect on the ETEs, if different from the 22,758 population size found on page 3-4. In its response, the applicant stated that due to the close proximity of LNP and CRNP, a combined telephone survey of residents living within the zip codes identified in Table F-1 of the ETE Report was deemed appropriate. The population size used as a basis for the telephone survey sampling plan is 34,880. The computation of this population size is discussed in the response to RAI 13.3-5(B)(1). This population size differs from the EPZ population of 22,758 shown in Table 3-2 of the ETE Report, and this difference is explained in the response to RAI 13.3-5(B)(2).

In RAI 13.3-3(B), the staff requested clarification on the inconsistency in the ETE report regarding the time it takes to evacuate 100 percent of the general population. In its response, the applicant provided a discussion on the process of "truncating" the ETEs used to avoid biasing values. The applicant provided revised text for page 5-11 of the ETE Report as well as a new Appendix M, "Procedure for Estimating Mobilization Time Based upon Survey Data." In RAI 13.3-5(B)(1), the staff requested clarification on how the population values per zip code

were determined for Table F-1. In its response, the applicant provided a discussion of the use of zip code area shape files to obtain population values. The values presented in the second column of Table F-1 of the ETE Report are the Year 2004 population estimates that were mistakenly labeled as Year 2000 population. Table F-1 has been revised to provide Year 2000 population and household data. Table F-1 has been re-titled, "Combined Levy and Crystal River Nuclear Plants Telephone Survey Sampling Plan." The text on page F-2 has been revised to indicate that a combined survey was performed. In RAI 13.3-5(B)(2), the staff requested the population for each listed zip code in Table F-1. In its response, the applicant provided a discussion on the EPZ population for each listed zip code. The applicant stated, in part, that a combined LNP and CRNP telephone survey was used. The applicant stated that its survey sampling plan, as documented in the new Table F-1, is valid and is being maintained. In supplemental RAIs 13.3-34 and 13.3-36, the staff requested that the applicant include the information provided in response to RAI 13.3-5(B)(2) (Table-2 and text) in the next revision to the ETE Report. In its response, the applicant provided additional clarification regarding the use of a combined telephone survey since the LNP EPZ boundaries had not been finalized at the time the initial ETE Report was developed. The applicant stated, in part, that the EPZ boundaries for LNP have since been defined and the information presented in response to RAI 13.3-5(B)(2) will be incorporated into in a future revision of the ETE Report.

The transit-dependent population is discussed in Section 8.4 of the ETE Report. In RAI 13.3-07(E)(1), the staff requested clarification regarding whether there are enough bus drivers and resources to support a single evacuation wave. In its response, the applicant stated that the ETE Report (Section 8.4) assumes that there are sufficient drivers for all buses available to the EPZ counties. This assumption has been added to Section 2.3 of the ETE Report. The applicant stated that there are sufficient resources of each type available to each county for a single wave evacuation with the exception of buses in Levy County. This issue can be addressed either through a mutual aid agreement with Marion and Citrus Counties, or by using the surplus wheelchair vans within Levy County to evacuate the homebound special needs population. The capacities provided in the discussion of "medical facilities" on page 3-13 of the ETE Report are incorrect and do not reflect the capacities used in this study. This section has been revised to match the capacities provided in Section 8.3. Table 4 illustrates the available and required resources for each county within the LNP EPZ. Table 4 has been added to Section 8 as Table 8-11 of the ETE Report.

In RAI 13.3-7(E)(2), the staff requested clarification regarding the impact on transit services if CRNP had an evacuation at the same time as LNP. In its response, the applicant stated, in part, that there is considerable overlap of the EPZs for the CRNP and the LNP. However, the only PAZ within the CRNP EPZ that is not within the LNP EPZ is PAZ C2 in Citrus County. Therefore, only the resources for Citrus County would be affected by simultaneous evacuation of both EPZs. The applicant stated that by comparing the available resources in Citrus County with the resources needed, a shortage of ambulances and wheelchair vans is identified. The shortage of wheelchair vans can be addressed using the surplus of wheelchair buses in the county. The shortage of ambulances can be resolved by establishing a mutual aid agreement with Marion County, who has excess ambulance resources. As noted in the response to RAI 13.3-11(E)(2), a discussion of a simultaneous evacuation of CRNP and LNP EPZs has been added to Appendix I of the ETE Report. Also, a recommendation has been added to Section 13 of the ETE Report indicating that a mutual aid agreement is needed between Marion and Citrus Counties for ambulance resource support in the rare event that a simultaneous evacuation is advised.

In RAI 13.3-7(F), the staff requested clarification regarding whether the bus travel time estimate takes into consideration the necessary time to traverse traffic control points. In its response, the applicant stated that the inbound bus speed of 45 mph will be unaffected as buses traverse traffic control points. The applicant added the statement, "All transit trips and other responders entering the EPZ to support the evacuation are assumed to be unhindered by personnel manning TCP," of Section 9 of the ETE Report.

The total number of people expected to evacuate for each scenario and vehicles to be used is discussed in Section 6, "Demand Estimation for Evacuation Scenarios," of the ETE Report. The LNP plume exposure pathway EPZ contains 8 PAZs with boundaries along major roads or rivers. The boundary definitions are provided in Appendix L, "Protective Action Zone Boundaries," of the ETE Report. Evacuation will be performed by regions that include multiple PAZs. A description of the evacuation regions and their associated PAZs can be found in Table 6-1,"Description of Evacuation Regions." A description of the evacuation scenarios used for this study can be found in Table 6-2, "Evacuation Scenario Definitions." The percentage of population groups expected to evacuate for each scenario is described in Table 6-3, "Percentage of Population Groups for Various Scenarios." In RAI 13.3-05(C)(1), the staff requested clarification on the values used in Column 2 (Residents with Commuters in Household) of Table 6-3. In its response, the applicant stated that it is conservatively assumed that all households with at least one commuter will await the return of the commuter before beginning their evacuation trip. Assumption 3 in Section 2.3 of the ETE Report has been revised to reflect this information. The data provided on page F-7 (59 percent of households await return of the commuter) was not used in this study. In RAI 13.3-5(C)(2), the staff requested a discussion on how the percentages in Table 6-3 were developed. In its response, the applicant provided an in-depth discussion of the evacuation percentages for each population group as shown in Table 6-3. However the applicant stated that the employment percentages for the weekend scenarios (Scenarios 3, 4, 8, 9 and 11) are overstated at 75 percent. All weekend and evening scenario employee percentages have been changed to 15 percent (conservatively rounded up from the estimated 12.5 percent). Tables 6-3 and 6-4 have been revised accordingly. This change was incorporated into the IDYNEV input stream and all simulations were re-run. The ETE has been recomputed. Tables 7-1A through 7-1D (7-1C and 7-1D also appear in the Executive Summary); Tables J-1A through J-1D; Figures 7-3 through 7-7; and Figures J-1 through J-11 were also updated accordingly.

Technical Evaluation: [Section II of Appendix 4]
The staff finds the additional information, clarifications, and textual revisions provided in response to RAIs 13.3-3(A)(1)-(A)(3), 13.3-3(B), 13.3-5(A), 13.3-5 (B)(1), 13.3-5(B)(2), 13.3-5(C)(1), 13.3-5(C)(2), 13.3-5(D)(1)-(D)(4), 13.3-6(A), 13.3-6(B), 13.3-6(C), 13.3-6(D), 13.3-6(E), 13.3-6(F), 13.3-6(G)(1), 13.3-6(G)(2), 13.3-7(A), 13.3-7(B), 13.3-7(C), 13.3-7(D), 13.3-7(E)(1), 13.3-7(E)(2), 13.3-7(F), 13.3-8(A), 13.3-8(B), supplemental RAIs 13.3-34 and 13.3-36 to be acceptable because they meet the requirements of Appendix E.IV to 10 CFR Part 50 and conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. The staff confirmed that the changes proposed in the above RAIs have been incorporated into Revision 4 of the LNP ETE Report, with one exception. The staff created Confirmatory Item 13.3-36 to track the inclusion of the table and textual revisions provided in response to supplemental RAI 13.3-36 into the next revision of the LNP ETE Report.

Resolution of Confirmatory Item 13.3-36

Confirmatory Item 13.3-36 is an applicant commitment to update the LNP ETE Report. The staff verified that the LNP ETE Report was appropriately updated (or revised). As a result, Confirmatory Item 13.3-36 is now closed.

The staff finds that the ETE Report provides an estimate of the number of people who may need to be evacuated. This is acceptable because it conforms to the guidance in Section II of Appendix 4 to NUREG-0654/FEMA-REP-1. Three population segments are considered: permanent residents, transients, and persons in special facilities. The permanent population is adjusted for growth, and the population data is translated into two groups: those using automobiles and those without automobiles. The number of vehicles used by permanent residents is estimated using an appropriate automobile occupancy factor. In addition, ETEs for evacuation of the entire plume exposure pathway EPZ were determined. Estimates of transient populations were developed using local data, including peak tourist volumes and employment data. Estimates for special facility populations are also provided. The subareas, for which ETEs were determined, encompass the entire area within the plume exposure pathway EPZ. The maps are generally adequate for the purpose, and the level of detail is approximately the same as United States Geological Survey (USGS) quadrant maps. The assumptions on evacuation are based on simultaneous evacuation of inner and outer sectors.

13.3C.18.4 *Traffic Capacity*

Technical Information in the ETE Report: [Section III of Appendix 4]
Section 4, “Estimation of Highway Capacity,” describes the process used to determine vehicle capacities for roadways in the transportation network. The methods used are generally taken from the HCM published by the Transportation Research Board of the National Research Council. Appendix K, “Evacuation Roadway Network Characteristics,” identifies all evacuation route segments and their characteristics, including capacity. A map of the transportation network is provided in Figure 1-2, “Levy Nuclear Plant Link-Node Analysis Network.” Additional information describing the road network used for evacuation routes was requested in RAI 13.3-10(A). In its response, the applicant stated that Figures 10-2 and 10-3 in the ETE Report have been updated to include highway numbers and road names for the major evacuation routes. Figures 10-1, 10-2 and 10-3 were also modified to include the names of the reception centers. Section 10 of the ETE Report was reviewed for consistency. Table 10-1 has been revised to only show one entry for Bronson High School and indicate that it is a primary shelter and a daycare shelter. Also, the text of Section 10 has been revised to indicate that it is assumed the shelters/reception centers to be used for the LNP EPZ are the same as those identified for the existing CRNP.

In RAIs 13.3-11(A)(1) and 13.3-11(A)(2), the staff requested information related to lane width. In its response, the applicant stated that in Appendix K, the term “full lanes” is used to identify the number of lanes that extend over the entire length of the roadway segment or link; it does not pertain to lane width. A discussion regarding the use of geometric features in modeling was also provided. Additional text has been added to Section 1.3, and Appendix K to further describe the road survey and to clarify what is meant by "Full Lanes.” In RAIs 13.3-11(B)(1) to (B)(3), the staff requested information related to unusual road characteristics. In its response, the applicant stated that the number of bridges, sharp curves, narrow shoulders and other capacity-reducing features on the evacuation network were observed and considered in estimating capacity. The capacity drops to 1714 vehicles per hour per lane across the U.S.

Route 19 Bridge crossing the Cross Florida Barge Canal and the number of lanes decreases to 1 as shown for link (117, 63) in Appendix K. The properties of all links representing bridges are recorded in Appendix K (with all other links), but are not otherwise delineated. For further clarification see response to RAI 13.3-11(A).

In RAIs 13.3-11(C)(1) to (C)(3), the staff requested information related to ideal conditions and roadway capacity. In its response, the applicant stated that the capacity and free flow speed data input to IDYNEV and documented in Appendix K are based upon observations made during the road survey. Where the base conditions are not realized, downward adjustments to the capacity estimate of 1700 pc/hr were made. The link capacities presented in Appendix K are accurate; therefore the ETE are unaffected.

In RAI 13.3-3(G), the staff requested the applicant explain the significance of the identified roadway unusual characteristics, including how they impact the proposed LNP site. In its response, the applicant stated that the responses to RAIs 13.3-11(A), (B), and (C), include a detailed discussion of the road survey. In addition, a large-scale (4 ft by 3 ft) version of Figure 1-2 is provided with node numbers annotated so that links can be cross referenced with Appendix K information. In supplemental RAI 13.3-33, the staff requested that the applicant clarify in the ETE analysis whether any physical characteristics unique to the proposed LNP site exist, which could pose a significant impediment to the development of the LNP Emergency Plan. In its response, the applicant stated that conversations held between KLD, Progress Energy, Emergency Management personnel from the State of Florida and the counties of Citrus, Levy and Marion, revealed "…no physical characteristics unique to the proposed LNP site that could pose a significant impediment to protecting the public under normal conditions at the time the ETE Report was conducted."

In RAIs 13.3-11(D)(1) and 13.3-11(D)(2), the staff requested additional information, in part, on whether the 0.85 reduction factor was applied to all roadways, including freeways. In its response, the applicant provided a reference to the origin of the reduction factor and a description for how it was applied within the ETE Report.

Section 9, "Traffic Management Strategy," presents a traffic control and management strategy that is designed to expedite the movement of evacuating traffic. The traffic management strategy is based on a field survey of critical locations and consultation with emergency management and enforcement personnel. Appendix G, "Traffic Management," provides a description of TCPs and ACPs and provides maps of their location within the plume exposure pathway EPZ.

Section 10, "Evacuation Routes," illustrates the emergency evacuation routes for the three counties surrounding the LNP site. Evacuation routes provide for evacuation first to the plume exposure pathway EPZ boundary and then to reception centers. The TRAD model was used to determine routes that would minimize exposure to risk by balancing traffic demand relative to road capacity. Evacuation routes were also developed to minimize travel outside the plume exposure pathway EPZ and relate traffic volume to reception center capacity. Section 7.2, "Patterns of Traffic Congestion During Evacuation," identifies areas of traffic congestion that arise for the case when the entire plume exposure pathway EPZ (Region R3) is advised to evacuate during the summer, weekend, and midday period under good weather conditions. This is illustrated in Figures 7-3, "Congestion Patterns at 1 hour After the Advisory to Evacuate (Scenario 8)," 7-4, "Congestion Patterns at 1 hour, 30 minutes after the Advisory to Evacuate (Scenario 8)," 7-5, "Congestion Patterns at 2 hours After the Advisory to Evacuate (Scenario 8)," and Figure 7-6, "Congestion Patterns at 2 hours, 30 minutes After the Advisory to

Evacuate (Scenario 8)." Additional information regarding travel times and delay durations during evacuation was requested in RAIs 13.3-14(A) to (F) and 13.3-15(A)-(F).

In RAI 13.3-14(A), the staff requested that a map be provided which identifies where these zonal centroids were located in the model. In its response, the applicant provided a larger scale version of Figure 1. In RAIs 13.3-14(B)(1) and 13.3-14(B)(2), the staff requested clarification on how traffic control affects the modeling parameters and any assumptions on traffic speed, service flow, capacity, and queue discharge through a staffed intersection. In its response, the applicant stated that the traffic control points are modeled as traffic signals with a reasonable allocation of effective green time to each of the competing traffic streams. In RAI 13.3-14(B)(3), the staff requested clarification on the impact on traffic timing and traffic loading if CRNP had an evacuation at the same time as LNP. The applicant stated this information is provided in the response to RAI 13.3-13(F)(3). In RAI 13.3-14(C), the staff requested clarification on whether the evacuation activity, "Depart Place of Work," (Step 3) should also be included in the last row of the event sequence in the table on page 5-3 of the ETE Report. In its response, the applicant provided a discussion of evacuation activities. Based on this discussion the applicant concluded that there is not a need to add Step 3 to the evacuation sequence, "Prepare to leave for evacuation trip." As stated in the second paragraph on page 5-4, event number 5 depends on the time distributions of all activities preceding that event. The table on page 5-3 is intended to provide the definition of each individual activity; for simplicity, all preceding dependent events (excluding event 2) have not been included in this table. Figure 5-1 and the text in Section 5 have been revised as discussed in response to RAI 13.3-6(C). In RAI 13.3-14(D), the staff requested trip generation time elements for the transient population. In its response, the applicant stated that as shown in Table 5-1 of the ETE Report, transient mobilization time (Distribution A) extends over a period of 2 hours, with 78 percent of transients mobilizing in the first hour and the remaining 22 percent in the last hour. The applicant stated that it is reasonable to expect that 2 hours will be sufficient time for those who are boating or diving in the area to return to the shore and begin their evacuation trip. Additional information related to notification of boaters and divers was provided in the response to RAI 13.3-6(B). In RAI 13.3-14(E), the staff requested the basis for the statement that 85 percent of the population within the plume exposure pathway EPZ will become aware of the accident within 30 minutes. In its response, the applicant stated that the notification distribution is assumed based on the presence of the siren alert system. This assumption has been added to Section 2 of the ETE Report and the discussion on notification of the public on page 5-4 has also been revised accordingly.

In RAI 13.3-15(A)(1), the staff requested discussion on how the 100 minute value was derived when Appendix F, "Telephone Survey," states on page F-8 that this activity is completed in approximately 120 minutes and shows a curve extending to 150 minutes. In RAI 13.3-15(A)(2), the staff requested clarification on how the 120 minutes was derived when Figure F-10, "Work to Home Travel," indicates that less than 100 percent have traveled home in 120 minutes, and the curve for this figure projects to 150 minutes. In its responses to these RAIs, the applicant stated that the distribution was "truncated" to 100 minutes on page F-8 and to 120 minutes on Page F-9 to avoid the bias of stragglers. "Truncating" the distributions advances the mobilization of the stragglers. Therefore, the stragglers are not eliminated from the ETE. See the response to RAI 13.3-3(B) for additional detail on the truncation procedure.

In RAI 13.3-15(A)(3)(a), the staff requested a discussion on the difference in data between Appendix F and Section 5. In its response, the applicant stated that the response to RAI 13.3-3(B) discusses that Appendix F presents the raw telephone survey data. Section 5 of the ETE Report presents the trip generation for the EPZ population, which includes some

truncation of the distributions presented in Appendix F. A new Appendix M has been added to the ETE report which describes this truncation procedure as stated in the response to RAI 13.3-3(B). In RAI 13.3-15(A)(3)(b), the staff requested a clarification of the statement under Distribution #4 (Page 5-8), "These data are provided directly from the survey." In its response, the applicant stated that as noted in the response to RAI 13.3-15(A)(3)(a) the distributions provided in Section 5 of the ETE Report are truncated from the raw distributions presented in Appendix F. The statement on pages 5-7 and 5-8 has been revised accordingly. In RAI 13.3-15(A)(4), the staff requested a reconciliation of Figure 5-2, "Evacuation Mobilization Activities," and Figure 5-3, "Comparison of Trip Generation Distributions," with the comments on use of telephone survey data. In its response, the applicant stated that no changes are needed to Figures 5-2 and 5-3. Appendix M has been added and is referenced in Section 5 of the ETE Report to explain the differences between the raw distributions presented in Appendix F and the final distributions presented in Section 5.

In RAI 13.3-15(B), the staff requested clarification as to why Figure 7-7, "Evacuation Time Estimates Winter, Weekend, Midday, Good Weather (Scenario 8)," was not projected to include 100 percent of the population. In its response, the applicant stated that the ETE is defined as the elapsed time after the advisory to evacuate (ATE) when the last person exits the EPZ. Based on this definition, Figure 7-7, which plots evacuating vehicles versus elapsed time after the ATE, ends at the 100th percentile when the last vehicle has exited the EPZ. Figures J-1 through J-11 are presented in the same fashion; the endpoint of each curve is the 100th percentile ETE.

In RAI 13.3-15(C), the staff requested clarification on how a value of 45 percent was derived in Table 8-1. In its response, the applicant stated that Figure F-6 indicates that 55 percent of the households surveyed have 0 commuters. Therefore, 45 percent of households have at least 1 commuter. In RAI 13.3-15(D), the staff requested the queuing locations and estimated delay times on the maps in Figures 7-3, "Congestion Patterns at 1 hour after the Order to Evacuate (Scenario 8)," through Figure 7-6,"Congestion Patterns at 2 hours 30 minutes after the Order to Evacuate (Scenario 8)." In its response, the applicant stated that Figures 7-3 through 7-6 have been revised to include the major roads and to identify congestion points. Table 7-3 provides a description of each congestion point and the link from Figure 1-2 corresponding to that area of congestion. In RAI 13.3-15(E), the staff requested clarification on how a 50 percent increase in demand for buses given in Section 8-1 of the ETE Report could still be accommodated if buses are assumed to be at 68 percent capacity. In its response, the applicant stated that a 50 percent increase in demand is equivalent to applying a factor of 1.5 to the estimated demand. An equation has been added before the final paragraph on page 8-2 of the ETE Report that demonstrates how this factor is used.

Technical Evaluation: [Section III of Appendix 4]
The staff finds the additional information and proposed textual revisions submitted in response to RAIs 13.3-10(A), 13.3-11(B)(1)-(B)(3), 13.3-11(A)(1), 13.3-11(A)(2), 13.3-11(C)(1)-(C)(3), 13.3-11(D)(1,), 13.3-11(D)(2), 13.3-14(A), 13.3-14(E), 13.3-14(B)(1)-(B)(3), 13.3-14(C), 13.3-14(D), 13.3-15(A)(1), 13.3-15(A)(2), 13.3-15(A)(3a), 13.3-15(A)(3b), 13.3-15(A)(4), 13.3-15(B), 13.3-15(C), 13.3-15(D), 13.3-15(E), and supplemental RAI 13.3-33 to be acceptable because they meet the requirements of Appendix E.IV to 10 CFR Part 50 and conform to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. The staff confirmed that the changes proposed in the above RAIs have been incorporated into Revision 4 of the LNP ETE Report. The staff finds that the LNP ETE Report provides a complete review of the evacuation road network. Analyses are made of travel times and potential locations for congestion. The ETEs are not dependent on the establishment of traffic control points and access control points.

Therefore, manpower and equipment shortages have no effect on the ETE calculations. In addition, all evacuation route segments and their characteristics, including capacity, are described.

A traffic control and management strategy that is designed to expedite the movement of evacuating traffic is described. The traffic management strategy is based on a field survey of critical locations and consultation with emergency management and enforcement personnel. The applicant also analyzed travel times and potential locations for serious congestion along the evacuation routes. Therefore, the information provided in the LNP ETE Report with regard to traffic capacity meets the requirements of Appendix E, Section IV to 10 CFR Part 50 and conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1.

13.3C.18.5 *Analysis of Evacuation Times*

Technical Information in the ETE Report: [Section IV of Appendix 4]
Sections 4, 5, and 6 of the ETE Report describe the methods used to estimate the evacuation times. Section 4, “Estimation of Highway Capacity,” describes how data collected during field surveys of the transportation network were combined with methods suggested in the 2000 HCM. Section 5, “Estimation of Trip Generation Time,” provides estimates of the four different distributions of elapsed times associated with mobilization activities undertaken by the public to prepare for the evacuation trip. The elapsed time associated with each activity is represented as a statistical distribution reflecting differences between members of the public. In RAI 13.3-7(I), the staff requested clarification whether stopping and dwell time were considered in the estimation of the average route time proposed for transit services. In its response, the applicant stated that stopping and dwell time was considered as the "pickup time." This discussion of pickup time for transit-dependent persons provided in the response has been added to the discussion of, “Activity: Board Passengers (C--,D),” on page 8-5 of the ETE Report. Also, the IDYNEV model has recently been improved to include a bus route feature. The applicant provided revisions to the ETE Report based on this new feature as discussed in RAI 13.3-8(C). In RAI 13.3-07(J), the staff requested information on the "experience" used to establish the mobilization time of 90 minutes for buses. In its response, the applicant stated that the mobilization time for transit vehicles is based on discussions with local emergency management personnel at this site and several others, and was approved by the counties as indicated by the signed certification letters submitted with the COL. In RAI 13.3-7(L), the staff requested information on why the relocation center locations are not identified on the map in Figure 8-2 of the ETE Report. In its response, the applicant stated that Figure E-1 has been revised to include the locations of the relocation schools. The following footnote has been added to Table 8-3, “Figure E-1 in Appendix E identifies the location of all EPZ schools and the relocation schools they are evacuated to.”

Additional information was requested in RAI 13.3-11(E) regarding the average roadway speeds at various times of the evacuation and whether these speed values would change if CRNP had an evacuation at the same time as LNP. In RAI 13.3-11(E)(1), the staff requested an explanation of how, in Section 8.4 of the ETE Report, the average speed can exceed 50 miles per hour (mph) when more than 70 percent of the roadway segments in Appendix K have free flow speeds between 30 and 50 mph. In its response, the applicant provided a discussion of free flow speeds which is in good agreement with the speeds presented on pages 8-6 through 8-8 of the ETE Report. The applicant also added that the IDYNEV model has recently been improved to include a bus route feature which will provide more accurate route-specific speeds than using the average network-wide speed output by IDYNEV. The ETE has been updated as discussed in response to RAI 13.3-8(C). In RAI 13.3-11(E)(2), the staff requested a

discussion on the impact of the average evacuation travel speeds if an evacuation occurred at the same time at CRNP. In its response, the applicant stated that a sensitivity study was conducted to measure the effects of a simultaneous evacuation of the EPZs for both the LNP and the CRNP during Scenario 6 conditions. The combined EPZ differs from the LNP EPZ with the addition of PAZ C2 within the CRNP EPZ, as shown in Figure 1. The increased congestion in the combined EPZ results in lower average speeds. A discussion of the simultaneous evacuation of the CRNP and LNP EPZs has been added as a sensitivity study in Appendix I as discussed in response to RAI 13.3-7(E)(2).

Section 6, “Demand Estimation for Evacuation Scenarios,” defines the various evacuation cases for which time estimates were made; a case is a combination of a scenario and a region. A scenario is a combination of circumstances, including time of day, day of week, season, and weather conditions. Scenarios define the number of people in each of the affected population groups and their respective mobilization time distributions. A region is defined as a grouping of contiguous evacuation PAZs, which forms either a "keyhole" sector-based area, or a circular area within the plume exposure pathway EPZ, that must be evacuated in response to a radiological emergency. Reception centers are shown on maps in Section 10, “Evacuation Routes.” The assumptions on evacuation are based on simultaneous evacuation of inner and outer sectors.

A summary of the ETE is provided in Section 7, “General Population Evacuation Time Estimates (ETE).” These results cover 13 regions within the LNP plume exposure pathway EPZ and the 11 evacuation scenarios discussed in Section 6. The evacuation times are presented for 13 evacuation regions and 11 scenarios in Appendix J, “Evacuation Time Estimates for All Evacuation Regions and Scenarios and Evacuation Time Graphs for Region R03, for all Scenarios.” Results are presented for 50 percent, 90 percent, 95 percent, and 100 percent of vehicles. In RAI 13.3-13(A), the staff requested a discussion of any assumptions related to how rail traffic may affect the ETE. In its response, the applicant stated there is no commuter rail or Amtrak service in the area. There is a rail line running to the Crystal River Energy Complex, which is primarily used for coal. Trains can be stopped from entering the EPZ in the event of an incident at either the CRNP or LNP. In RAIs 13.3-13(B) and 13.3-13(F)(2), the staff requested the assumptions with regard to shadow evacuation trip generation times and loading of the transportation network. In its response, the applicant stated that shadow vehicles shown in Table 6-4 are loaded on the link-node analysis network (Figure 1-2) using the same trip generation times as EPZ residents with Commuters - Distribution C in Table 5-1. This statement has been added to Section 7.1 for clarification. In RAI 13.3-13(C), the staff requested a clarification regarding how the evacuation time of 5 hours 10 minutes for R03 for Scenario 11 which has 41,898 vehicles in Table 7-1D, can be the same for all other scenarios, some of which can have as few as 23,834 vehicles. In its response, the applicant provided a detailed discussion on how the ETE for the 100th percentile of the evacuating population mimics the trip generation time and lesser percentiles that may be affected by congestions, such as the case with Scenario 11. In RAI 13.3-13(D), the staff requested a discussion on why the time to clear 100 percent of the indicated area for the 5-mile ring, is the same as the time listed for the entire plume exposure pathway EPZ. In its response, the applicant stated that as indicated in the response to RAI 13.3-8(C), PAZ C1 and C3 were mistakenly included in the 5-mile region. As shown in Figure 3-1, PAZ C1 and C3 extend all the way to the EPZ boundary. Therefore, the distance traveled to exit the 10-mile region is similar to that of exiting the 5-mile region. PAZ C1 and C3 have been removed from the 5-mile region and all ETE simulations have been re-run. Tables 7-1A through 7-1D and Tables J-1A through J-1D have been updated as discussed in the response to RAI 13.3-8(C).

In RAI 13.3-13(E), the staff requested a discussion on the note for Distribution No. 2 and No. 3 in Section 5, including the process used to normalize the data. In its response, the applicant stated that to address the occasional “don't know” responses from a large sample, the “don't know” responses are essentially ignored and the distributions are based upon the positive data that is acquired. In RAI 13.3-13(F)(1), the staff requested an explanation of which value in Section 6 is being used for shadow resident vehicles. In its response, the applicant provided a discussion on the calculation of shadow vehicles based on a ratio of employee vehicles to resident vehicles. In RAI 13.3-13(F)(3), the staff requested a clarification of the impact on traffic timing and traffic loading if CRNP had an evacuation at the same time as LNP. In its response, applicant provided a discussion related to simultaneous evacuation more specifically for residents residing in Yankeetown and Inglis. Suggested traffic control points were provided in Figure G-2 of the ETE Report.

Results are provided for good and adverse conditions. In RAI 13.3-3(D), the staff requested clarification regarding why there is an effect to mobilization time for schools and special facilities, but not for the general public. In its response, the applicant stated that the “No Effect” identified in the table on page 2-5 refers to the mobilization time for the general population. The applicant stated that the only portion of this mobilization that involves driving is the time to return home. The mobilization times discussed in Section 8 are for that portion of the population which is dependent on transit resources - schoolchildren, special facility populations and those people who do not have access to a private vehicle. The majority of this mobilization time for the bus driver is spent driving; as a result, the reductions of 10 percent in capacity and in speed for rain are assumed to add a total of 10 minutes to the mobilization time.

The methodology for the general population uses distribution functions. Figures describing the time distribution of evacuating vehicles follow the format of NUREG-0654, Appendix 4, Figure 4. In RAI 13.3-12(A), the staff requested an explanation of why only Region 03 is affected by rain when evacuating 90 percent, 95 percent, or 100 percent of the population. In its response, the applicant stated that the presence of rain reduces capacity and free speed on all network links by 10 percent (page 2-5). When evacuating the entire EPZ (Region 03), this reduction in speed and capacity led to a modest increase (10 minutes or less) in ETE at both the 90th percentile and 95th percentile level of evacuation (compare Scenarios 8 and 9 in Table 7-1 B and Scenarios 1 and 2 in Table 7-1C). As shown in Figure 7-5, all congestion within the EPZ has dissipated by 2 hours after the ATE. Rain does not affect the ETE for the 100th percentile population because capacity is no longer a factor after 2 hours following the ATE. A change in ETE of 10 minutes would not likely change the protective action decision making process.

Section 8, “Transit-Dependent and Special Facility Evacuation Time Estimates,” discusses evacuation plans for schools, residents without vehicles, and special care facilities. These groups are expected to merge with general evacuation traffic following notification and mobilization. In RAI 13.3-7(G), the staff requested an explanation on how transit dependent individuals are expected to get from their residences to the bus routes, and whether this time was factored into the ETE. In its response, the applicant stated that evacuees without access to private transportation are expected to walk to the bus routes. Those who are unable to walk to the route should register with the county as special needs persons. See the response to RAI 13.3-7(D) for discussion of this group.

Separate estimates of population size and necessary transportation were made for schools, special facilities and the transit-dependent populations. Schools are given advanced notification, if possible, in order to determine transportation needs. The estimated students and their transportation needs, based on student to bus ratios, are provided in Table 8-2, “School

Population Demand Estimates." In RAI 13.3-3(E), the staff requested additional detail regarding the assumptions used to support boarding 1100 students in five minutes. In its response, the applicant provided two satellite pictures above the Dunnellon Middle School in support of the student loading time of 5 minutes. In RAI 13.3-7(K), the staff requested a discussion on the assumptions related to the estimated time to load buses for evacuation. In response, the applicant cited information provided in response to RAI 13.3-3(E). In RAI 13.3-8(D), the staff requested clarification on the apparent inconsistency of whether school is in session for Tables 6-3 and 6-4, and a discussion on whether school bus usage accounts for summer school. In response, the applicant stated for Scenarios 1 and 2, the buses are evacuating summer school students. It is assumed that summer school enrollment is approximately 10 percent of enrollment for the regular school year. This assumption has been added to Section 2 of the ETE Report and to the "School and Transit Buses," footnote to Table 6-3. The references to, "school not in session," for the summer season in Section 7.4 and Section J.A has been removed to avoid confusion.

Transportation resources should be adequate to evacuate schools in one wave, but additional resources can be requested from nearby cities if necessary. Mobilization of drivers and students was factored into the total evacuation times. The estimated time to evacuate schools within the plume exposure pathway EPZ is provided in Table 8-5A, "School Evacuation Time Estimates-Good Weather," and Table 8-5B, "School Evacuation Time Estimates-Rain," of the ETE Report. Evacuation of other special facilities is given the same consideration as schools with the exception of increased loading time. The estimated population and necessary transportation resources can be found in Table 8-4, "Special Facility Transit Demand."

Remaining transportation resources and those that become available following the evacuation of schools will be used to evacuate the portion of the population without vehicles. The estimated time to evacuate transit-dependent people within the plume exposure pathway EPZ is provided in Table 8-6A, "Transit Dependent Evacuation Time Estimates-Good Weather," and Table 8-5B, "Transit Dependent Evacuation Time Estimates-Rain." In RAIs 13.3-7(H)(1) and 13.3-7(H)(2), the staff requested the applicant clarify whether buses will make random stops or if the stops are predetermined. In addition, if the stops are predetermined, provide maps that show the bus stop locations, including a discussion on the effect to ETE calculations. In its response, the applicant stated that it is assumed that transit-dependent persons will walk to the nearest route and "flag" down a bus traversing the route. Thus, there are no pre-established pickup points for transit-dependent persons. This assumption has been added to the discussion of, "Activity: Board Passengers (C→D)," on page 8-5 of the ETE Report.

A series of sensitivity tests are documented in Appendix I, "Evacuation Sensitivity Studies," regarding the sensitivity of the results to trip generation time (directly related to time-dependent traffic loading) and to the amount of shadow evacuation.

Technical Evaluation: [Section IV of Appendix 4]
The staff finds the additional information and proposed textual revisions submitted in response to RAIs 13.3-3(D)(E), 13.3-7(E)(2), 13.3-7(G), 13.3-7(J), 13.3-7(K), 13.3-8(D), 13.3-11(E)(1), 13.3-11(E)(2), 13.3-12(A), 13.3-13(A), 13.3-13(B), 13.3-13(C), 13.3-13(D), 13.3-13(E), 13.3-13(F)(1)-(F)(3), 13.3-13(H)(1), 13.3-13(H)(2), 13.3-13(I), and 13.3-13(L) to be acceptable because they meet the requirements of Appendix E.IV to 10 CFR Part 50 and conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. The staff confirmed that the changes proposed in the RAIs above have been incorporated into Revision 4 of the LNP ETE Report. The staff finds that the LNP ETE Report provides a total of 252 ETEs computed for the evacuation of the general public. Each ETE quantifies the aggregate evacuation time estimated

for the population within one of the 21 evacuation regions to completely evacuate from that region, under the circumstances defined for one of 12 evacuation scenarios (13 x 11 = 143). Separate ETEs are calculated for transit-dependent evacuees, including school children.

Distribution functions for notification of the various categories of evacuees were developed. The distribution functions for the action stages after notification predict what fraction of the population will complete a particular action within a given span of time. There are separate distributions for auto-owning households, school population, and transit-dependent populations. These times are combined to form the trip generation distributions.

There are separate distributions for auto-owning households, school population, and transit-dependent populations.

On-road travel and delay times are calculated. An estimate of the time required to evacuate a particular segment of the non-auto-owning population dependent upon public transportation is developed, in a manner similar to that used for the auto-owning population. Therefore, the information provided in the LNP ETE Report with regard to evacuation times meets the requirements of Appendix E, Section IV to 10 CFR Part 50 and conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1.

13.3C.18.6 *Other Requirements*

Technical Information in the ETE Report: [Section V of Appendix 4]
Section 12, "Confirmation Time," of the ETE Report suggests a possible alternative procedure to confirm that the evacuation process is effective in the sense that the public is complying with the Advisory to Evacuate. The suggested procedure employs a stratified random sample and a telephone survey. Based on calculations, it would be necessary to make 300 random phone calls to confirm that 20 percent of the population has not yet evacuated. This process could be completed within 75 minutes if five people are assigned to the task. Since confirmation begins three hours after the advisory, confirmation should be made when the evacuation area is clear. If more than 20 percent of the population is determined to have not yet evacuated, the telephone survey will be repeated after an hour interval until evacuation is complete.

The development of the ETE Report was coordinated with emergency planners from the State of Florida and Levy, Marion, and Citrus County who are involved in emergency response for the site. In RAI 13.3-16, information was requested regarding the review of the ETE Report by State and local organizations involved with emergency response and whether their comments had been included in the ETE Report. In its response, the applicant provided a description of the approval process. In addition, it was stated that the signed certification letters from each EPZ county and from the State of Florida, included in the COL, verify that the offsite agencies approved the ETE document, including the traffic management plan as provided in Section 9 and Appendix G, and the telephone survey instrument as provided in Appendix F of the ETE Report.

Technical Evaluation: [Section V of Appendix 4]
The staff finds the additional information provided in response to RAI 13.3-16 to be acceptable because it meets the requirements of Appendix E, Section IV to 10 CFR Part 50 and the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. In addition, the development of the ETE Report was coordinated with emergency planners from the State of Florida and Levy, Marion, and Citrus County who are involved in emergency response for the site. The staff finds that the LNP ETE Report adequately addresses the description of the procedure to confirm that

the evacuation process is effective. This is acceptable because it conforms to the guidance in Section V of Appendix 4 to NUREG-0654/FEMA-REP-1.

13.3C.18.7 *Conclusion*

On the basis of its review of Revision 4 of the LNP ETE Report as described above, the staff concludes that the information provided in the ETE Report is consistent with those portions of Section 13.3 of NUREG-0800 related to the evacuation time estimate analysis and is consistent with the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. Therefore, the ETE Report is acceptable and meets the applicable requirements of 10 CFR Part 50, Appendix E.IV.

13.3C.19 Inspection, Test, Analysis, and Acceptance Criteria (EP ITAAC)

13.3C.19.1 *Regulatory Basis*

The staff considered the following regulatory requirement and guidance in the evaluation of the information in the COL application related to EP ITAAC:

10 CFR 52.80(a) requires that a COL application include the proposed inspections, tests, and analyses, including those applicable to EP, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the COL, the provisions of the Atomic Energy Act, and the Commission's rules and regulations.

Table 14.3.10-1, "Emergency Planning Generic Inspection, Tests, Analyses, and Acceptance Criteria," of NUREG-0800.

13.3C.19.2 *Proposed EP ITAAC*

Technical Information Related to the Emergency Plan: (52.80(a))
The applicant addresses EP ITAAC in Table 3.8-1, "Emergency Plan Inspections, Tests, Analyses, and Acceptance Criteria," of Part 10 of the COL application. The LNP COL application also incorporates by reference Tier 1 Table 3.1-1, "Inspections, Tests, Analyses, and Acceptance Criteria," from the AP1000 DCD. The results of the staff's evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements. As noted in Section 13.3.4 of this SER, the staff will include the following license condition for LNP Units 1 and 2:

The licensee shall perform and satisfy the ITAAC defined in SER Table 13.3-1, "Emergency Plan ITAAC."

SER Table 13.3-1 consists of the EP ITAAC identified in Table 3.8-1 of Appendix B to Part 10 of the LNP COL application, as modified by letters dated June 3, 2009, December 18, 2009, March 26, 2010, and March 15, 2011, and January 10, 2014.

In its review of Table 3.8-1 of Appendix B to Part 10 of the COL application, the staff used as review guidance, the generic EP ITAAC in Table 14.3.10-1 to Section 14.3.10 of NUREG-0800. Table 14.3.10-1 identifies a generic set of acceptable EP ITAAC. Since these EP ITAAC were established on a generic basis, they are not associated with any particular site or design. As such, several of the generic EP ITAAC requires the COL applicant to provide more specific

acceptance criteria that reflect the plant-specific design and site–specific emergency response plans and facilities.

Based on this comparison, the staff requested additional information in RAIs 14.3.10-1(A) to 14.3.10-1(O), supplemental RAIs 13.3-32(1) to 13.3-32(6), and supplemental RAIs 13.3-44(1) to 13.3-44(5), to address inconsistencies identified between EP ITAAC Table 3.8-1 of the COL application and Table 14.3.10-1 in NUREG-0800. The staff reviewed the applicant's RAI responses, proposed revisions to Table 3.8-1, including Revisions 1 and 2 to Part 10 of the COL application, and found that the applicant adequately addressed most of the inconsistencies. The staff identified the following inconsistencies and issued supplemental RAIs 13.3-49(4)(b), 13.3-51, and 13.3-58 as described below:

- In supplemental RAI 13.3-49(4)(b), the staff requested that the applicant describe the capability of the TSC and EOF equipment and data displays to clearly identify and reflect the affected unit during a declared emergency, or propose EP ITAAC to demonstrate this capability. In response, the applicant stated, in part, that the TSC and EOF equipment and data displays will clearly identify this capability and proposed EP ITAAC 12.1.1.D.2.d to validate this capability exists.

- In RAI 13.3-51, the staff requested, in part, that the applicant to discuss why EP ITAAC 8.4 does not include reference to the EOF as being able to display meteorological parameters consistent with the description of meteorological capabilities provided in Section I.5 of the emergency plan. In response, the applicant proposed to revise EP ITAAC 8.4 to align with Section I.5 of the emergency plan incorporating this capability in the EOF.

- In RAI 13.3-58, the staff requested that the applicant revise EP ITAAC 12.1.1.E.3 and 8.1.B.3 to align with ERO staffing augmentation times as identified in Table B-1 of the emergency plan. In response, the applicant proposed the following revisions, in part, to EP ITAAC:

    - EP ITAAC 8.1.B.3: Demonstrate the ability to activate one radiological monitoring team consisting of two personnel within 30 minutes of event declaration, and a second radiological monitoring team consisting of two personnel within 60 minutes of event declaration.

    - EP ITAAC 12.1.1.E.3.a: One radiological monitoring team consisting of two personnel is ready to be deployed no later than 30 minutes from the declaration of an alert or higher emergency, and a second radiological monitoring team two personnel is ready to be deployed no later than 60 minutes from the declaration of an alert or higher emergency.

    - EP ITAAC 5.1, 7.5, 8.6, 8.7, 8.8, 8.9, 12.1.1.E.4, and 12.1.1.E.4.b will be revised to change its reference from field monitoring teams to radiological monitoring teams consistent with proposed changes to Table B-1 and Section I.4.1 regarding on-site dose assessment in the emergency plan.

    - EP ITAAC 12.1.1.C.1.a will be revised to reflect a demonstration of command and control capabilities by the EC and EOF Director in the TSC and EOF within 60 minutes of ERO notification.

In a letter dated March 15, 2011, the applicant proposed the following revision to EP ITAAC 12.1.3:

- The exercise was completed within the specified time periods of Appendix E to 10 CFR Part 50, offsite objectives were met, and there were no uncorrected offsite deficiencies, or a license condition requires offsite deficiencies to be corrected prior to operation above 5% of rated power as described in 10 CFR 50.54(gg).

The staff created Confirmatory Item 13.3-61 to track the applicant's revision to Table 3.8-1 in Part 10 of the COL application.

Resolution of Confirmatory Item 13.3-61

Confirmatory Item 13.3-61 is an applicant commitment to update EP ITAAC in Part 10 of the COL application. The staff verified that Part 10 of the COL application was appropriately updated (or revised). As a result, Confirmatory Item 13.3-61 is now closed.

Technical Evaluation: (52.80(a))
The responses to the RAIs referenced above conform to NUREG-0800 EP ITAAC guidance and meet the requirements of 10 CFR 52.80(a). Therefore, the staff finds the RAI responses to be acceptable. The staff has incorporated the proposed markup to Table 3.8-1 into SER Table 13.3-1.

By letter dated April 18, 2013, from PEF to NRC, the applicant proposed a revision to the LNP Emergency Plan to address the future state of CR3 as it relates to decommissioning activities and the anticipated relaxation of offsite EP responsibilities for CR3. In consideration of these circumstances, the applicant anticipates the EOF will no longer be required for response to an emergency event at CR3. In LNP Emergency Plan, revision 6, the EOF has been renamed the LNP EOF and is expected to support the future needs of LNP only. The staff anticipates a lapse in time for which the readiness capabilities of the EOF will no longer be required. By letter dated January 10, 2014, from DEF to the NRC, the applicant proposed EP ITAAC 7.2.3 through 7.2.5 to address regulatory guidance criteria in NUREG-0696 and Supplement 1 to NUREG-0737 that are not addressed in the LNP Emergency Plan. In addition, the applicant proposed a revision to the Inspection, Tests, and Analyses (ITA) text for item 7.2 to clarify that an inspection of the as-built EOF will be performed and the facility will meet the regulatory guidance criteria. Prior to fuel load, these EP ITAAC will provide staff assurance confirm that the EOF continues to comply with the uniform building code; the EOF is environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment; and the EOF is provided with industrial security when it is activated to exclude unauthorized personnel and when it is idle to maintain its readiness. Given that the EOF may not be required to maintain its functionality for some time prior to LNP operations, the staff found these ITAAC necessary to ensure that the EOF is constructed as designed, as required by 10 CFR 52.80. Therefore, the staff finds the applicant's proposed EP ITAAC 7.2.3 through 7.2.5 and text revision to ITA 7.2 acceptable since they conform to the guidance in NUREG-0696 and Supplement 1 to NUREG-0737 and meet the requirements in 10 CFR 52.80.

The staff reviewed the EP ITAAC provided in Table 3.8-1 of Appendix B to Part 10 of the LNP COL application, as modified by the applicant's letters dated June 3, 2009, December 18, 2009, March 26, 2010, and March 15, 2011, and January 10, 2014, and confirmed that each of the generic EP ITAAC in NUREG-0800, Table 14.3.10-1, that provides an acceptable set of generic EP ITAAC were included in Table 3.8-1. The staff further confirmed that the proposed EP

ITAAC have been tailored to the specific reactor design and emergency planning program requirements of the LNP site. The complete set of EP ITAAC are provided in SER Table 13.3-1, which is based on Table 3.8-1 of Appendix B to Part 10 of the LNP COL application, as modified by the applicant's letters as described above in this section of the SER. Therefore, the staff finds that the LNP COL application adequately provides EP ITAAC as required by 10 CFR 52.80(a).

13.3C.19.3 *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 EP ITAAC, and there is no outstanding information expected to be addressed in the LNP COL application related to this section. The results of the staff's technical evaluation of the information incorporated by reference in the LNP COL application are documented in NUREG-1793 and its supplements.

As required by 10 CFR 52.80(a), the staff concludes that the EP ITAAC in SER Table 13.3-1 include the proposed EP ITAAC that the licensee shall perform, and that are necessary and sufficient to provide reasonable assurance that, if the ITAAC are performed and met, the facility has been constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the NRC's rules and regulations.

13.4 Operational Programs (Related to RG 1.206, Section C.III.1, Chapter 13, C.I.13.4, "Operational Program Implementation")

13.4.1 Introduction

In SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," dated October 28, 2005, the staff detailed its plan for reviewing operational programs in a COL application. The Commission approved the staff's plan in the related Staff Requirements Memorandum (SRM), dated February 22, 2006. Although numerous programs support the operation of a nuclear power plant, SECY-05-0197 focused on those programs that meet the following three criteria:

1. Required by regulation
2. Reviewed in a COL application
3. Inspected to verify program implementation as described in the FSAR

The programs that meet the above criteria are collectively referred to as "operational programs" and most are identified in SECY-05-0197.

13.4.2 Summary of Application

Section 13.4 of the LNP COL FSAR, Revision 6, incorporates by reference Section 13.4 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 13.4 and in Part 10 of the LNP COL application, "Proposed License Conditions and ITAAC [inspections, tests, analyses, and acceptance criteria])," the applicant provided the following:

AP1000 COL Information Item

- STD COL 13.4-1

The applicant provided additional information in STD COL 13.4-1 to address COL Information Item 13.4-1 and COL Action Item 13.4-1, identified in Appendix F of NUREG-1793 and its supplements. This item states that COL applicants referencing the AP1000 certified design will address each operational program.

License Conditions

- Part 10, License Condition 3, "Operational Program Implementation"
- Part 10, License Condition 6, "Operational Program Readiness"

Both license conditions are related to STD COL 13.4-1. License Condition 3 addresses implementation milestones for those operational programs whose implementation is not addressed in the regulations. License Condition 6 includes the timing of information related to operational programs to support NRC inspection activities.

13.4.3 Regulatory Basis

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

In addition, the regulatory basis for acceptance of the supplementary information presented in this application is identified in the individual chapters of this SER that address the evaluations of the specific operational programs, which are itemized in the next section, as clarified by the regulatory guidance in SECY-05-0197 and RG 1.206.

13.4.4 Technical Evaluation

The staff reviewed Section 13.4 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 staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to operational programs. The results of the 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 13.4.4 of the VEGP SER:

> *Although the staff concluded that the evaluation performed for the standard content is directly applicable to the VEGP COL application, there were differences in the response provided by the VEGP applicant from that provided by the BLN applicant regarding the standard content material. These differences affect the two license conditions and the table listing the operational programs. These differences are evaluated by the staff below, following the standard content material.*
>
> *<u>AP1000 COL Information Item</u>*
>
> - *STD COL 13.4-1*
>
> *The applicant provided supplemental information by adding the following statement to Section 13.4 of the VEGP COL FSAR:*
>
> *Operational programs are specific programs that are required by regulations. Table 13.4-201 lists each operational program, the regulatory source for the program, the section of the FSAR in which the operational program is described, and the associated implementation milestone(s).*
>
> *Each operational program is evaluated by the staff in the applicable SER chapters.*
>
> *<u>License Conditions</u>*
>
> - *License Condition 3, "Operational Program Implementation"*
>
> - *License Condition 6, "Operational Program Readiness"*
>
> *These two proposed license conditions are evaluated by the NRC staff as part of its evaluation of each of the operational programs in the applicable SER chapters.*

The following portion of this technical evaluation section provides the staff's general evaluation of the operational programs and associated license conditions and is reproduced from Section 13.4.4 of the BLN SER:

The NRC staff's review of the acceptability of the supplemental information added by STD COL 13.4-1 and the proposed license conditions is based on four considerations. The first consideration is the acceptability of the individual operational programs, including the implementation of the different phases of these operational programs. The second consideration is whether the applicant correctly identified those operational programs whose implementation requirements are not addressed in the regulations, and, therefore, need to be included in License Condition 3. The third consideration is whether the applicant correctly specified in License Condition 6 the timing of information related to operational programs to support NRC inspection activities. The fourth consideration is whether the list of operational programs in BLN COL FSAR Table 13.4-201 is complete.

In regard to the first consideration, the SER sections referenced in the above table address the NRC staff's regulatory evaluation of the individual operational programs. For each of these operational programs, the staff has either concluded that the applicant has satisfied the applicable regulatory guidance (including the implementation requirements when specified in the regulations), or the staff's review is still ongoing. For those operational program reviews that are ongoing, the staff's final conclusions will be provided in the SER sections referenced in the above table at a later date.

In regard to the second consideration, the NRC staff verified that those operational programs, whose implementation requirements are not specified in the regulations, are captured in License Condition 3.

In regard to the third consideration, the NRC staff compared License Condition 6 to the recommended license condition in SECY-05-0197 related to the timing of information to support NRC inspection activities of operational programs. The staff finds that the applicant used language similar to the recommended license condition specified in SECY-05-0197 to develop License Condition 6. It should be noted that License Condition 6 addresses additional scheduler requirements (Sections b. through d.) that are not related to the operational programs evaluated in this section of the SER, and, therefore, are not evaluated in this SER section.

In regard to the fourth consideration, the NRC staff compared the operational programs provided by the applicant in BLN COL FSAR Table 13.4-201 (included in the above table) to the operational programs specified in SECY-05-0197. The staff finds that the applicant has included all the operational programs specified in SECY-05-0197, including the two operational programs (Motor-Operated Valve Testing Program and the Safeguards Contingency Program) added by the NRC to the list of operational programs provided by the NEI in its letter dated August 31, 2005.

There are differences between BLN COL FSAR Table 13.4-201 and the table of operational programs in SECY-05-0197 with respect to implementation milestone

information. The first difference is the SECY paper states that there are no required implementation milestones in the regulations for the Maintenance Rule Program and the Quality Assurance Program (Operation), while BLN COL FSAR Table 13.4-201 references regulations that require implementation milestones for these two programs. The staff has reviewed the regulation references provided by the applicant and concludes that they do provide appropriate requirements for implementation milestones. Further support for this conclusion is the regulatory guidance in Section C.I.13.4 of RG 1.206. The example table located in this section of the RG references the same implementation regulatory guidance for the Maintenance Rule Program and the Quality Assurance Program (Operation) as does BLN COL FSAR Table 13.4-201.

The second difference is that the SECY paper states that 10 CFR Part 50, Appendix J, specifies implementation requirements for the Containment Leakage Rate Testing Program, while BLN COL FSAR Table 13.4-201 states that the implementation milestones for this program will be controlled by a license condition. The staff has reviewed the implementation milestone proposed in License Condition 3 for the Containment Leakage Rate Testing Program, and finds that it is more stringent than the regulatory guidance in Appendix J. Therefore, the staff finds this difference to be acceptable.

The applicant added an operational program to BLN COL FSAR Table 13.4-201, the Initial Test Program, which is not in the list of operational programs specified in SECY-05-0197. The option of adding operational programs to this list is specifically allowed by SECY-05-0197. Further support for the acceptability of adding the Initial Test Program is that the example table located in Section C.I.13.4 of RG 1.206 also lists this operational program.

Therefore, the NRC staff concludes that the additional information (STD COL 13.4-1) provided by the applicant in BLN COL FSAR Section 13.4, in conjunction with the conditions specified in BLN COL FSAR, Part 10, License Conditions 3 and 6, complies with the applicable regulatory guidance provided in SECY-05-0197.

<u>Evaluation of Site-specific Response to Standard Content</u>

The staff notes that the VEGP applicant separated the fitness-for-duty (FFD) program from the overall security program and added a new operational program, Cyber Security, to the list of operational programs in FSAR Table 13.4-201. The implementation requirements for these additional operational programs comply with the considerations identified above in the standard content material, and are, therefore, acceptable. In addition, the VEGP applicant also made minor changes to operational program implementation details in License Condition 3 and also modified Sections a. through d. associated with License Condition 6. The changes to these two license conditions are evaluated by the staff in the applicable SER chapters and do not affect the evaluation of operational programs covered in this section of the SER. Therefore, the conclusions reached by the NRC staff related to STD COL 13.4-1 are directly applicable to the VEGP COL application.

The BLN SER text refers to an SER table listing operational programs. This table was not reproduced for the VEGP SER since it duplicates the information in VEGP COL FSAR Table 13.4-201.

13.4.5 Post Combined License Activities

The license conditions for each of the operational programs are discussed in the applicable SER chapters. Therefore, there are no post-COL activities related to this section.

13.4.6 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 operational programs, 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 the LNP COL FSAR is acceptable based on the regulatory guidance in SECY-05-0197, in conjunction with the applicable regulations specified in the individual sections of this SER that evaluated each of the operational programs discussed above. The staff based its conclusion on the following:

- STD COL 13.4-1, as related to operational programs, is acceptable because each of the operational programs in LNP COL FSAR Table 13.4-201 has been found acceptable by the NRC staff in other sections of this SER, as noted in Section 13.4.4 above. In addition, the guidance in SECY-05-0197 and RG 1.206 was used to verify that the applicant's list of operational programs is complete.

13.5 <u>Plant Procedures</u>

13.5.1 Introduction

Descriptions of the administrative and operating procedures that the applicant uses to ensure routine operating, off-normal, and emergency activities are conducted in a safe manner are provided. The applicant, in its plant procedures, provided a brief description of the nature and content of the procedures and a schedule for the preparation of appropriate written administrative and operating procedures. The applicant delineated in the description of the procedures the functional position for procedural revision and approval prior to implementation. Inspection of procedures will occur as part of the construction inspection program.

13.5.2 Summary of Application

Section 13.5 of the LNP COL FSAR, Revision 6, incorporates by reference Section 13.5 of the AP1000 DCD, Revision 19.

In addition, in LNP COL FSAR Section 13.5, the applicant provided the following:

AP1000 COL Information Item

- STD COL 13.5-1

The applicant provided additional information in STD COL 13.5-1 to resolve COL Information Item 13.5-1 (COL Action Item 13.5-1), which addresses plant procedures.

- LNP COL 13.5-1

The applicant provided additional information in LNP COL 13.5-1 related to procedures to control radionuclide inventories and personnel doses in the Radwaste Building. This information, as well as related additional FSAR information in LNP COL 11.2-1 and proposed License Condition 13 in Part 10 of the COL application, is reviewed in Section 11.2 of the SER.

13.5.3 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 plant procedures are given in Sections 13.5.1.1 and 13.5.2.1 of NUREG-0800.

The applicable regulations and regulatory guidance are as follows:

- 10 CFR 50.34(a), "Preliminary Safety Analysis Report"
- 10 CFR 50.34(b)
- RG 1.33

13.5.4 Technical Evaluation

The NRC staff reviewed Section 13.5 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. The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to plant procedures. 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 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 13.5.4 of the VEGP SER:

<u>AP1000 COL Information Item</u>

- *STD COL 13.5-1, addressing plant procedures*

The applicant provided the following additional information to resolve COL Information Item 13.5-1, which addresses the plant procedures of the COL applicant. COL Information Item 13.5-1 states:

> *Combined License applicants referencing the AP1000 certified design will address plant procedures including the following:*
>
> - *Normal operation*
> - *Abnormal operation*
> - *Emergency operation*
> - *Refueling and outage planning*
> - *Alarm response*
> - *Maintenance, inspection, test and surveillance*
> - *Administrative*
> - *Operation of post-72 hour equipment*

The commitment was also captured as COL Action Item 13.5-1 in Appendix F of the staff's FSER for the AP1000 DCD (NUREG-1793).

The applicant provided additional text in BLN COL FSAR Section 13.5 to describe the administrative, operating and maintenance procedures that the operating organizational staff uses to conduct routine operating, abnormal, and emergency activities in a safe manner.

In BLN COL FSAR Section 13.5, the applicant described the different classifications of procedures that the operators will use, including normal, abnormal, emergency, refueling and outage, and alarm response procedures. The staff finds this information acceptable because it meets the criteria in NUREG-0800, Chapter 13.5.2.1.

In BLN COL FSAR Section 13.5, the applicant stated that the format and content of procedures are controlled by the applicable AP1000 writer's guideline. The

DCD, Section 13.5.1, describes a referenced document, APP-GW-GLR-040, "Plant Operations Maintenance and Surveillance Procedures," dated August 23, 2007, which includes the AP1000 writer's guidelines. The staff finds this acceptable because the applicant-provided procedure format and content are consistent with the guidance in NUREG-0800, Section 13.5.2.1.

In BLN COL FSAR Section 13.5.1, the applicant describes the nature and content of administrative procedures for both Category (A) - Controls, and Category (B) - Specific Procedures. The staff finds this acceptable because the listed procedures are consistent with the guidance in NUREG-0800, Section 13.5.1.1.

In BLN COL FSAR Section 13.5.2, the applicant stated that EP procedures are discussed in the Emergency Plan and that security procedures are discussed in the Security Plan. The evaluation of EP procedures may be found in Section 13.3 of this SER. The evaluation of security procedures is found in Section 13.6 of this SER.

In BLN COL FSAR Section 13.5.2, the applicant stated the Quality Assurance Program description (QAPD) provides a description of procedural requirements for maintenance, instrument calibration and testing, inspection, and material control. The evaluation of QAPD procedures is found in Section 17.5 of this SER.

In BLN COL FSAR, Section 13.5.2.1, the applicant stated that information related to EOPs is addressed in the DCD. The DCD, Section 13.5.1, describes the program for developing and implementing EOPs and the required content of EOPs procedures in the referenced document, APP-GW-GLR-040. In addition, this information clarifies the procedure development program (PDP) as described in the procedures generation package (PGP) for EOPs, provides a description of the EOP [emergency operating plan] *verification and validation (V&V) program, and describes the program for training operators on EOPs, including an explanation of how the recommendations of TMI Action Plan, Item I.C.1, will be met. The staff finds the program for developing and implementing EOPs acceptable because it meets the criteria in NUREG-0800, Section 13.5.2.1.*

<u>Evaluation of Plant Procedure Issues Not Address in the Standard Content Evaluation</u>

In VEGP COL FSAR Table 1.9-202, "Conformance with SRP Acceptance Criteria," the applicant identified two exceptions to the criteria of NUREG-0800, Section 13.5, which recommend[s] *providing a schedule for procedure development in the FSAR, and including a description of procedures to be used by operators in the FSAR. The staff notes that the BLN COL FSAR Table 1.9-202 includes these same two exceptions to the criteria of Section 13.5 of NUREG-0800. The guidance of NUREG-0800, Section 13.5.2.1, states that while the submittal should describe the different classifications of procedures that operators will use, it is not necessary that each applicant's procedures conform precisely. In addition, the procedures, regardless of title or classification, are to be available to accomplish the functions identified in RG 1.33. NUREG-0800 makes allowance for "general areas." The staff finds the two exceptions to the*

criteria of NUREG-0800, Section 13.5 to be acceptable because the applicant's procedure classification follows the guidance in NUREG-0800, Section 13.5.

In RAI [request for additional information] *13.6-36, the staff requested the VEGP applicant address the requirements of 10 CFR 73.58, "Safety/security requirements for nuclear power plants." In its response dated May 14, 2010, the applicant stated that management controls and processes used to establish and maintain an effective interface between nuclear safety and physical security are addressed by administrative controls. The VEGP applicant committed to revise FSAR Section 13.5.1 to include the safety/security interface implementation process in the list of procedural instructions provided in plant administrative procedures. The NRC staff's review of this safety/security procedural issue, which includes tracking the incorporation of the relevant material into the VEGP COL application, is addressed in Section 13.6.4.1.17 of this SER.*

The staff finds this change acceptable as it is only a change of position title and meets the guidance of NUREG-0800, Section 13.5.1.1. This is Tier 2 information and NRC approval is not required.

13.5.5 Post Combined License Activities

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

13.5.6 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 plant procedures, 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 recommendations of NUREG-0800, Sections 13.5.1.1 and 13.5.2.1. The staff based its conclusion on the following:

- STD COL 13.5-1, as related to plant procedures, is acceptable because it describes the procedures used by the applicant's operating organizational staff to conduct routine administrative, operating, abnormal, and emergency activities in a safe manner, in accordance with the regulatory guidance in NUREG-0800, Sections 13.5.1.1 and 13.5.2.1.

- In LNP COL FSAR Table 1.9-202, the applicant identified two exceptions to the criteria of NUREG-0800, Section 13.5, related to providing FSAR descriptions of, and a development schedule for, procedures to be used by operators. The guidance of NUREG-0800, Section 13.5.2.1, makes allowances for "general areas," stating that while the FSAR submittal should describe the different classifications of procedures used by operators, it is not expected that each applicant's procedures conform precisely. The staff finds the two exceptions to be acceptable because the applicant's procedure classification is consistent with the guidance in NUREG-0800, Section 13.5.

13.6 Physical Security

13.6.1 Introduction

The COL application for the LNP Units 1 and 2 describes the COL applicant's physical protection program, which is intended to meet NRC regulations for protection against the design basis threat (DBT) of radiological sabotage as stated in 10 CFR 73.1, "Purpose and Scope," and provide a high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

The physical protection program includes the design of a physical protection system that ensures the capabilities to detect, assess, interdict, and neutralize threats of radiological sabotage are maintained at all times. The applicant incorporates by reference the standard AP1000 design that includes design of physical protection systems within the design of the vital island and vital structures, as described in the Westinghouse Electric Company (Westinghouse) DC document for the AP1000 standard design Tier 1 and Tier 2 information, including Technical Report (TR)-49, "AP1000 Enhancement Report, TR-94, "AP1000 Safeguards Assessment Report," and TR-96, "Interim Compensatory Measures Report." Part 8 of the COL application consists of the LNP Units 1 and 2 Physical Security Plan (PSP), Training and Qualification Plan (T&QP), and Safeguards Contingency Plan (SCP). Section 13.6 of the LNP COL FSAR describes the physical protection program and the physical protection system that are not addressed within the scope of the standard AP1000 design for meeting NRC performance and prescriptive requirements for physical protection stated in 10 CFR Part 73, "Physical Protection of Plants and Material." Those persons with the correct access authorization and need-to-know may view the safeguards information version of the LNP COL application Section 13.6 SER, which is located in the NRC's Secure Local Area Network, document number ES100017759.

13.6.2 Summary of Application

Section 13.6 of the LNP COL FSAR, Revision 6, incorporates by reference Section 13.6 of the AP1000 DCD, Revision 19.

Part 8 – Safeguards/Security Plans

In a letter dated July 2, 2008, PEF submitted a PSP to the NRC as part of the COL application for proposed LNP Units 1 and 2. In a letter dated July 7, 2009, PEF submitted Revision 1 to the PSP. In a letter dated September 9, 2009, PEF submitted Revision 2 to its PSP. In a letter dated April 19, 2011, PEF submitted Revision 3 to its PSP. In a letter dated June 3, 2011, PEF submitted Revision 4 to its PSP.

In addition, in LNP COL FSAR Section 13.6, the applicant provided the following:

AP1000 COL Information Items

- STD COL 13.6-1

The applicant provided additional information in STD COL 13.6-1 to address COL Information Item 13.6-1, which provides information related to the security plan. The security plan consists of three parts, the PSP, T&QP, and SCP.

- STD COL 13.6-5

The applicant provided additional information in STD COL 13.6-5 to address COL Information Item 13.6-5, which provides information related to the cyber security program. This COL item is evaluated in Section 13.8 of this SER.

License Conditions

- Part 10, License Condition 3, Items D.3 and G.9

The applicant proposed a license condition in Part 10 of the LNP COL application, which provides the milestones for implementing applicable portions of the Security Program.

- Part 10, License Condition 5

The applicant proposed a license condition in Part 10 of the LNP COL application, which proposed the maintenance of the PSP, T&QP, and the SCP when nuclear fuel is onsite (protected area) and continuing until all nuclear fuel is permanently removed from the site.

- Part 10, License Condition 6

The applicant proposed a license condition to provide a schedule to support the NRC's inspection of operational programs including the PSP, T&QP, and the SCP.

13.6.3 Regulatory Basis

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

The applicable regulatory requirements for physical protection are as follows:

- The provisions of 10 CFR 52.79(a)(35)(i) and (ii) require that information submitted for a (COL) describe how the applicant will meet the requirements of 10 CFR Part 73, "Physical Protection of Plants and Material"; and provide a description of the implementation of the PSP. The provisions of 10 CFR 52.79(a)(36)(i) through (v) require that the application include an SCP in accordance with the criteria set forth in Appendix C, "Nuclear Power Plant Safeguards Contingency Plans" to 10 CFR Part 73, and a T&QP in accordance with Appendix B, "General Criteria for Security Personnel" of 10 CFR Part 73, that the applicant provide a description of the implementation of the SCP and the T&QP and that the applicant protect the PSP, SCP and T&QP in accordance with the requirements of 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

- The provisions of 10 CFR Part 73 include performance-based and prescriptive regulatory requirements that, when adequately met and implemented, provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety. A COL applicant must describe how it will meet the regulatory requirements of 10 CFR Part 73 that are applicable to nuclear power plants.

A COL applicant is required to identify and describe design features, analytical techniques, and technical bases for its design and how it will meet provisions of physical protection system requirements in the NRC regulations and guidance provided in NUREG-0800 and RGs listed below. However, the NRC RGs and NUREG-0800 are not regulatory requirements and are not a substitute for compliance with established regulations. Where alternative methods are chosen or differences exist, the COL applicant is required to describe how the proposed alternatives to guidance or acceptance criteria provide acceptable methods of compliance with the NRC regulations.

NUREG-0800 Section 13.6.1, Revision 1, June 15, 2010 was used by the NRC staff to complete the physical security COL review.

Regulatory guidance documents, TRs, and accepted industry codes and standards that an applicant may apply to meet regulatory requirements include, but are not limited to the following:

Documents publicly available:

- RG 5.7, "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas," Revision 1
- RG 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials"
- RG 5.44, "Perimeter Intrusion Alarm Systems," Revision 3
- RG 5.62, "Reporting of Safeguards Events," Revision 1
- RG 5.65, "Vital Area Access Controls, Protection of Physical Protection System Equipment and Key and Lock Controls"
- RG 5.66, "Access Authorization Program for Nuclear Power Plants"
- RG 5.68, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants"
- RG 5.74, "Managing the Safety/Security Interface"
- RG 5.75, "Training and Qualification of Security Personnel at Nuclear Power Reactor Facilities"
- NRC letter dated April 9, 2009, NRC Staff Review of NEI 03-12, "Template for Security Plan, Training and Qualification, Safeguards Contingency Plan, [and Independent Spent Fuel Storage Installation Security Program]" (Revision 6)
- SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," October 28, 2005

The following guidance documents include security-related or safeguards information and are not publicly available:

- RG 5.69, “Guidance for the Application of Radiological Sabotage Design Basis Threat in the Design, Development, and Implementation of a Physical Security Protection Program that Meets 10 CFR 73.55 Requirements”

- RG 5.76, “Physical Protection Programs at Nuclear Power Reactors”

- RG 5.77, “Insider Mitigation Program”

- NEI 03-12, Revision 6, “Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Installation Security Program”

- NUREG/CR-6190, “Update of NUREG/CR-6190 Material to Reflect Postulated Threat Requirements”

13.6.4 Technical Evaluation

The NRC staff reviewed Section 13.6 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 physical security. 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 compared the VEGP PSP, T&QP, and SCP to the corresponding LNP programs. The staff has determined that these plans are sufficiently similar to warrant standard content treatment.

- The staff confirmed that all applicant 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, with the exception discussed in the following paragraph. This standard content material is identified in this SER by use of italicized, double-indented formatting. One clarification to the standard content material presented below is that the NRC staff's detailed evaluation of the physical protection program, which is site-specific, is provided in the safeguards information version of the LNP COL application

Section 13.6 SER, which is located in the NRC's Secure Local Area Network, document number ES100017759.

There were site-specific RAIs issued to the LNP applicant that resulted in site-specific evaluations for several of the Security Plan review areas. There were also site-specific RAIs issued to the VEGP applicant that were not applicable to the LNP application. In addition, there are several Security Plan review areas with site-specific characteristics requiring a specific review by the staff. For these cases, the staff provides the LNP evaluation in the same location as provided in the VEGP SER, but without the use of italicized, double-indented formatting.

The following portion of this technical evaluation section is reproduced from Section 13.6.4 of the VEGP SER:

AP1000 COL Information Item

- *STD COL 13.6-1*

The NRC staff reviewed STD COL 13.6-1 related to COL Information Item 13.6-1, which identified the need for a COL applicant to address the security plan. STD COL 13.6-1 supplemented Section 13.6 of the VEGP COL FSAR by stating the following text is to be added after Section 13.6 of the VEGP ESP SSAR:

> *The Security Plan consists of the Physical Security Plan, the Training and Qualification Plan, and the Safeguards Contingency Plan. The Security Plan is submitted to the Nuclear Regulatory Commission as a separate licensing document in order to fulfill the requirements of 10 CFR 52.79(a)(35) and 52.79(a)(36). The Security Plan meets the requirements contained in 10 CFR Part 73 and will be maintained in accordance with the requirements of 10 CFR 52.98. The Plan is categorized as Security Safeguards Information and is withheld from public disclosure pursuant to 10 CFR 73.21.*

Section 13.6 of the VEGP COL FSAR also refers to FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations," as providing the milestones for implementing the security program and cyber security program.

The NRC staff's evaluation of the PSP is documented in Section 13.6.4.1 of this SER. The NRC staff's evaluation of the T&QP is documented in Section 13.6.4.2 of this SER. The NRC staff's evaluation of the SCP is documented in Section 13.6.4.3 of this SER. The NRC staff's evaluation of the safety/security interface is documented in Section 13.6.4.1.17 of this SER. Section 13.6.5 of this SER includes the post-combined license activities. Section 13.6.6 of this SER includes the NRC staff's overall conclusions regarding each of the plan submissions.

The NRC staff's evaluation of the physical protection program is provided in detail in the safeguards information version of the VEGP COL application Section 13.6 SER, which is located in the NRC's Secure Local Area Network, document number ES1000015157. Due to security restraints, the NRC staff's

evaluation of the physical protection program presented in this publicly-available SER does not include the same level of detail as the safeguards information version. Those persons with the correct access authorization and need-to-know may view the safeguards information version of the VEGP COL application Section 13.6 SER.

License Conditions

- *Part 10, License Condition 3, Items C.5, D.3, and G.9*

The applicant proposed a license condition in Part 10 of the VEGP COL application, which provides the milestones for implementing applicable portions of the Security Program. Specifically, the applicant proposed the following:

> *C. Receipt of Materials – The licensee shall implement each operational program identified below prior to initial receipt of byproduct, source, or special nuclear materials onsite (excluding Exempt Quantities as described in 10 CFR 30.18).*
>
> > *C.5 – Security Program (applicable portions)*
>
> *D. Fuel Receipt – The licensee shall implement each operational program identified below prior to initial receipt of fuel onsite.*
>
> > *D.3 – Security Program (applicable portions)*
>
> *G. Fuel Loading – The licensee shall implement each operational program identified below prior to initial fuel load.*
>
> > *G.9 – Physical Security*

- *Part 10, License Condition 5*

The applicant proposed a license condition in Part 10 of the VEGP COL application, which proposed the maintenance of the PSP, T&QP, and the SCP when nuclear fuel is onsite, and continuing until all nuclear fuel is permanently removed from the site. Specifically, the applicant proposed the following:

> *The licensee shall maintain in effect the provisions of the physical security plan, security personnel training and qualification plan, and safeguards contingency plan, and all amendments made pursuant to the authority of 10 CFR 50.90, 50.54(p), 52.97, and Section VIII of Appendix D to Part 52 when nuclear fuel is onsite, and continuing until all nuclear fuel is permanently removed from the site.*

In a letter dated October 22, 2010, the applicant proposed to revise the [security plan] *milestone included in VEGP COL FSAR Table 13.4-201 to implement the* [security plan] *prior to receipt of fuel onsite (protected area.) The NRC staff finds the implementation milestone for the security ~~program~~[plan] (~~security~~ prior to receipt of fuel onsite (protected area)) appropriate and in accordance with the*

requirement in 10 CFR 73.55, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage." Therefore the staff finds that the proposed License Condition 3, Items C.5, D.3, and G.9 and License Condition 5 are not necessary. The incorporation of proposed changes to the VEGP COL FSAR is tracked as ***Confirmatory Item 13.6-1.***

Resolution of Standard Content Confirmatory Item 13.6-1

Confirmatory Item 13.6-1 is an applicant commitment to revise its FSAR Table 13.4-201 regarding the implementation milestones for the security program. The staff verified that the VEGP COL FSAR was appropriately revised. As a result, Confirmatory Item 13.6-1 is now closed.

- *Part 10, License Condition 6*

The applicant proposed a license condition to provide a schedule to support the NRC's inspection of operational programs including the PSP, T&QP, and the SCP. Specifically, the applicant proposed the following:

> *The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational programs in the FSAR table have been fully implemented or the plant has been placed in commercial service, whichever comes first.*

The staff reviewed the above proposed license condition against the recommendations in SECY-05-0197 as endorsed by the related SRM dated February 22, 2006. The staff concludes these proposed license conditions conform to the guidance in SECY-05-0197 and is, therefore, acceptable.

13.6.4.1 Physical Security Plan

The applicant submitted Part 8 of the COL application for the VEGP PSP, T&QP and SCP, to meet the requirements of 10 CFR 52.79(a)(35) and (36). Part 2, FSAR, Chapter 13, Section 13.6 references the VEGP PSP, T&QP, and SCP in describing the licensing basis for establishing a physical protection program, design of a physical protection system, and security organization, which will have, as its objective, to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety. The VEGP submitted PSP makes references to 10 CFR 50.34(c)(2) and (d)(2). The correct references should be 10 CFR 52.79(a)(35) and (36). It is noted that this is a template error, and both references require that the same criteria be met.

Security plans must describe how the applicant will implement Commission requirements and those site-specific conditions that affect implementation as required by 10 CFR 73.55(c)(1)(i).

The requirements are provided in 10 CFR 73.55(c), and (d) to establish, maintain, and implement a PSP to meet the requirements of 10 CFR 73.55, and 10 CFR Part 73, Appendices B and C. The applicant must show establishment and maintenance of a security organization, the use of security equipment and technology, the training and qualification of security personnel, the implementation of predetermined response plans and strategies, and the protection of digital computer and communication systems and networks. The applicant must have a management system for development, implementation, revision, and oversight of security implementing procedures. The approval process for implementing security procedures will be documented.

The NRC staff has reviewed the applicant's description in PSP Section 1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(c) and (d), and is, therefore, acceptable.

13.6.4.1.1 Introduction and Physical Facility Layout

The provisions of 10 CFR 52.79(a)(35):

(i) A PSP, describing how the applicant will meet the requirements of 10 CFR Part 73 (and 10 CFR Part 11, if applicable, including the identification and description of jobs as required by 10 CFR 11.11(a) of this chapter, at the proposed facility). The plan must list tests, inspections, audits, and other means to be used to demonstrate compliance with the requirements of 10 CFR Parts 11 and 73, if applicable;

(ii) A description of the implementation of the PSP;

The provisions of 10 CFR 52.79(a)(36) require:

(i) An SCP in accordance with the criteria set forth in Appendix C to 10 CFR Part 73. The safeguards contingency plan shall include plans for dealing with threats, thefts, and radiological sabotage, as defined in 10 CFR Part 73 of this chapter, relating to the special nuclear material and nuclear facilities licensed under this chapter and in the applicant's possession and control. Each application for this type of license shall include the information in the applicant's SCP. (Implementing procedures required for this plan need not be submitted for approval);

(ii) A T&QP in accordance with the criteria set forth in Appendix B to 10 CFR Part 73;

(iii) A cyber security plan (CSP) in accordance with the criteria set forth in 10 CFR 73.54 of this chapter;

(iv) A description of the implementation of the SCP, T&QP, and CSP; and

(v) Each applicant who prepares a PSP, an SCP, a T&QP, or a CSP, shall protect the plans and other related Safeguards Information against unauthorized disclosure in accordance with the requirements of 10 CFR 73.21 of this chapter.

The provisions of 10 CFR 52.79(a)(44) require a description of the FFD program required by 10 CFR Part 26 and its implementation.

Requirements are established in 10 CFR 73.55(c)(2) to ensure protection of safeguards information (SGI) against unauthorized disclosure in accordance with 10 CFR 73.21. The applicant's submittal acknowledges that the PSP, the TQ&P and the SCP discuss specific features of the physical security system or response procedures and are SGI. Section 1 of the PSP describes the applicant's commitment to satisfying 10 CFR 50.34(c), 10 CFR 50.34(d) and 10 CFR Part 73 by submitting a PSP, and to controlling the PSP and appendices as Safeguards Information according to 10 CFR 73.21.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.b, requires a description of the physical layout of the site.

Section 1.1 of the LNP PSP provides descriptions of location, site layout, and facility configuration. The PSP describes the physical structures and their locations on the site, description of the protected area, and a description of the site in relation to nearby town, roads, and other environmental features important to the coordination of response operations. The plant layout includes identification of main and alternate entry routes for law enforcement assistance forces and the location of control points for marshalling and coordinating response activities.

In addition, Section 1.2 of the LNP COL application provides general plant descriptions that include details of the 10 to 50 mile radius of the geographical area of the LNP Units 1 and 2 site, a site area map, and general plant and site descriptions. LNP COL FSAR, Chapter 1, references the AP1000 DCD for the principal design and operating characteristics for the design and construction of the LNP Units 1 and 2. Part 1, General Information, of the LNP COL application describes the name of the applicant and principal business locations.

The NRC staff has reviewed the facility physical layout provided in Section 1.1 of the PSP and as supplemented by LNP COL FSAR. The NRC staff determined that the applicant included site-specific conditions that affect the applicant's capability to satisfy the requirements of a comprehensive PSP. The applicant has adequately described the physical structures and their locations onsite and the site in relation to nearby towns, roads, and other environmental features important to the effective coordination of response operations. The applicant described the main and alternate entry routes for law-enforcement assistance forces and the location of control points for marshaling and coordinating response activities in the site-specific law enforcement response plan. The NRC staff concludes that the applicant's security plans have met the requirements for content of a PSP as stated above. Therefore, the NRC staff finds the "Facility Layout" described in the PSP and the LNP COL FSAR is adequate.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.1 of the VEGP SER:

13.6.4.1.2 Performance Objectives

The provisions of 10 CFR 73.55(b)(1) requires, in part, that the applicant shall establish and maintain a physical protection program with an objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety. The provisions of 10 CFR 73.55(b)(2) establish, in part, the requirement to protect a nuclear power reactor against the DBT of radiological sabotage as described in 10 CFR 73.1,[. The provisions of] *10 CFR 73.55(b)(3)(i), and 10 CFR 73.55(b)(3)(ii) require the applicant to establish a physical protection program designed to ensure the capabilities to detect, assess, interdict, and neutralize threats up to and including the DBT of radiological sabotage as stated in 10 CFR 73.1, are maintained at all times, provide defense-in-depth, supporting processes, and implementing procedures, which ensure the effectiveness of the physical protection program.*

Section 2 of the PSP outlines the requirements for the establishment and maintenance of an onsite physical protection system, security organization, and integrated response capability. As part of the objective, the security program design shall incorporate supporting processes such that no single event can disable the security response capability because of defense-in-depth principles including diversity and redundancy. The physical protection systems and programs described herein are designed to protect against the DBT of radiological sabotage in accordance with the requirements of 10 CFR 73.55(a) through (r) or equivalent measures that meet the same high assurance objectives provided by paragraph (a) through (r). VEGP Units 3 and 4 uses the corrective action program to track, trend, correct and prevent recurrence of failures and deficiencies in the physical protection program.

The NRC staff has reviewed the applicant's description in PSP Section 2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b), and is, therefore, acceptable.

13.6.4.1.3 Performance Evaluation Program

Requirements are established in 10 CFR 73.55(b)(4) through (b)(11) for the applicant to analyze and identify site-specific conditions, establish programs, plans, and procedures that address performance evaluations, access authorization, cyber security, insider mitigation, fitness for duty (FFD), corrective actions, and operating procedures. 10 CFR 73.55(b)(6) prescribes specific requirements to establish, maintain, and implement a performance evaluation program in accordance with 10 CFR Part 73, Appendix B, Section VI for implementation of the plant protective strategy.

Section 3.0 of the PSP describes that drills and exercises, as discussed in the T&QP, will be used to assess the effectiveness of the contingency response plan and the effectiveness of the applicant's response strategy. Other assessment methods include formal and informal exercises or drills, self-assessments, internal and external audits and evaluations.

The performance evaluation processes and criteria that assess the effectiveness of the security program, including adequate protection against radiological sabotage, will be established in facility procedures and the deficiencies identified are managed through the corrective action program.

Section 3.0 of the PSP references Section 4.0 of the T&QP, which provides additional details related to the performance evaluation of security personnel in accordance with 10 CFR Part 73, Appendix B, Section VI. Section 4.0 of the T&QP includes the requirements to conduct security force tactical ~~dills~~ [drills] *and force-on-force exercises to evaluate security systems effectiveness and response performances of security personnel. In addition, Section 17 of the PSP describes additional detail regarding the applicant's processes for reviews, evaluations and audits that will complement the performance evaluation program.*

The NRC staff has reviewed the applicant's description in PSP Section 3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b)(6), and is, therefore, acceptable.

13.6.4.1.4 Establishment of Security Organization

The provisions of 10 CFR 73.55(d) establish requirements to describe a security organization, including the management system for oversight of the physical protection program. The security organization must be designed, staffed, trained, qualified, re-qualified, and equipped to implement the physical protection program as required by 10 CFR 73.55(b) and 10 CFR Part 73, Appendices B and C.

Section 4.0 of the PSP describes how the applicant meets the requirements of 10 CFR 73.55(d)(1).

<u>Security Organization Management</u>

Section 4.1 of the PSP describes the organization's management structure. The PSP establishes that the security organization is a critical component of the physical protection program and is responsible for the effective application of engineered systems, technologies, programs, equipment, procedures, and personnel necessary to detect, assess, interdict, and neutralize threats up to and including the DBT of radiological sabotage. The security organization may be proprietary, contractor, or other qualified personnel.

The PSP describes that the organization will be staffed with appropriately trained and equipped personnel, in a command structure with administrative controls and procedures, to provide a comprehensive response. Section 4.1 of the PSP also describes the roles and responsibilities

of the Security Organization. The PSP provides that at least one full-time, dedicated Security Shift Team Leader that has the authority for command and control of all security operations is onsite at all times.

The security force implementing the security functions as described in this section of the plan will be a proprietary force, contractor, or other qualified personnel. The training qualification requirements are described in the T&QP.

The NRC staff has reviewed the applicant's description in PSP Sections 4 and 4.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(d) and is, therefore, acceptable.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.1 of the VEGP SER:

> *13.6.4.1.5 Qualification for Employment in Security*
>
> *The requirements of 10 CFR 73.55(d)(3) state, in part, that the applicant may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped and qualified to perform assigned duties and responsibilities in accordance with Appendix B to 10 CFR Part 73 and the applicant's T&QP.*
>
> *Section 5 of the PSP describes that employment qualifications for members of the security force are delineated in the T&QP.*
>
> *The NRC staff has reviewed the applicant's description in PSP Section 5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(d)(3), and is, therefore, acceptable.*

13.6.4.1.6 Training of Facility Personnel

Consistent with requirements in 10 CFR 73.55(d)(3),10 CFR 73.56, "Personnel access authorization requirements for nuclear power plants"; and 10 CFR Part 73, Appendix B, Section VI.C.1, all personnel who are authorized unescorted access to the applicant's PA receive training, in part to ensure that they understand their role in security and their responsibilities in the event of a security incident. Individuals assigned to perform security-related duties or responsibilities, such as, but not limited to, material searches and vehicle escort are trained and qualified in accordance with the T&QP to perform these duties and responsibilities and to ensure that each individual has the minimum knowledge, skills, and abilities required for effective performance of assigned duties and responsibilities.

Section 6 of the PSP describes the training provided for all personnel who have been granted unescorted access to the applicant's PA.

The NRC staff has reviewed the applicant's description in PSP Section 6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.56 and 10 CFR Part 73, Appendix B, and is, therefore, acceptable.

13.6.4.1.7 Security Personnel Training

The provisions of 10 CFR 73.55(d) require that all security personnel are trained and qualified in accordance with 10 CFR Part 73, Appendix B, Section VI prior to performing their duties.

Section 7 of the PSP describes that all security personnel are trained, qualified and perform tasks at levels specific for their assignments in accordance with the applicant's T&QP.

The NRC staff has reviewed the applicant's description in PSP Section 7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(d), and is, therefore, acceptable. The NRC staff's review of the licensee T&QP is located in Section 13.6.4.2 of this SER.

13.6.4.1.8 Local Law Enforcement Liaison

The following requirement is stated in 10 CFR 73.55(k)(9) "To the extent practicable, licensees shall document and maintain current agreements with applicable law enforcement agencies to include estimated response times and capabilities." In addition, 10 CFR 73.55(m)(2) requires, in part, that an evaluation

of the effectiveness of the physical protection system include an audit of response commitments by local, State and Federal law enforcement authorities.

Section 8 of the PSP provides a detailed discussion of its ongoing relationship with local law enforcement agencies (LLEAs). The plans addressing response, communication methodologies and protocols, command and control structures and marshaling locations are located in the operations procedures, emergency plan procedures and the site-specific law enforcement response plan. The law enforcement response plan is reviewed biennially concurrent with the PSP effectiveness review.

The NRC staff has reviewed the applicant's description in PSP Section 8 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR 73.55(m)(2), and is, therefore, acceptable.

13.6.4.1.9 Security Personnel Equipment

The requirements of 10 CFR 73.55(d)(3) state, in part, the applicant may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped and qualified in accordance with 10 CFR Part 73, Appendix B and the T&QP. The provisions of 10 CFR Part 73, Appendix B, Section VI.G.2(a) state, in part, that the applicant must ensure that each individual is equipped or has ready access to all personal equipment or devices required for the effective implementation of the NRC-approved security plans, the applicant's protective strategy, and implementing procedures. The provisions of 10 CFR Part 73, Appendix B, Sections VI.G.2(b) and (c) delineate the minimum equipment requirements for security personnel and armed response personnel.

Section 9 of the PSP describes the equipment, including armament, ammunition, and communications equipment that is provided to security personnel in order to ensure that security personnel are capable of performing the function stated in the Commission-approved security plans, applicant's protective strategy, and implementing procedures.

The NRC staff has reviewed the applicant's description in PSP Section 9 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(d)(3) and Appendix B, Section VI.G.2, and is, therefore, acceptable.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.1 of the VEGP SER:

13.6.4.1.10 Work Hour Controls

The provisions of 10 CFR Part 26, "Fitness for duty programs," Subpart I, "Managing Fatigue," establish the requirements for managing fatigue. 10 CFR 26.205 establishes requirements for work hours. 10 CFR 26.205(a)

requires that any individual who performs duties identified in 10 CFR 26.4(a)(1) through (a)(5) shall be subject to the requirements of this section.

Section 10 of the PSP describes that the site will implement work hour controls consistent with 10 CFR Part 26, Subpart I, and that site procedures shall describe performance objectives and implementing procedures.

The NRC staff's review of the fitness-for-duty program is found in Section 13.7 of this SER.

13.6.4.1.11 Physical Barriers

The following requirements are established in 10 CFR 73.55(e): "Each applicant shall identify and analyze site-specific conditions to determine the specific use, type, function, and placement of physical barriers needed to satisfy the physical protection program design requirements of 10 CFR 73.55(b). (1) The applicant shall: (i) Design, construct, install and maintain physical barriers as necessary to control access into facility areas for which access must be controlled or denied to satisfy the physical protection program design requirements of paragraph (b) of this section." The regulation 10 CFR 73.55(b)(3)(ii) states, "Provide defense-in-depth through the integration of systems, technologies, programs, equipment, supporting processes, and implementing procedures as needed to ensure the effectiveness of the physical protection program."

Section 11 of the PSP provides a general description of how the applicant has implemented its program for physical barriers, and that this implementation is in accordance with the performance objectives and requirements of 10 CFR 73.55(b).

<u>Owner Controlled Area (OCA) Barriers</u>

Section 11.1 of the PSP describes LNP use of OCA barriers at the site.

<u>Vehicle Barriers</u>

PSP Sections 11.2.1 and 11.2.2 establish and maintain vehicle control measures, as necessary, to protect against the DBT of radiological sabotage, consistent with the physical protection program design requirements of 10 CFR 73.55(b)(3)(ii) and 10 CFR 73.55(e)(10)(i), and in accordance with site-specific analysis. The PSP identifies measures taken to provide high assurance that such an event can be defended against. The applicant's PSP also provides that the inspection, monitoring, and maintenance of the vehicle barrier system (VBS) are included in the facility procedures.

In **RAI 13.6-3**, the NRC staff requested that the applicant provide an additional description of natural terrain features that make-up portions of the outer VBS and provide reference to the criteria used to determine its acceptability and stand-off distances. If applicable, this additional information should be incorporated in the Facility Physical Layout Drawing.

In PEF Response Letter No. 066, dated October 22, 2009, the applicant indicated that the design of the VBS has not been finalized, however, the conceptual design shall consist of both active and passive barriers. Each engineered feature utilized to form a contiguous barrier will be designed and located in accordance with guidance from RG 5.76 and/or NUREG/CR 6190,

as appropriate, in order to provide a standoff distance beyond the minimum distance required for protection of all current DBT criteria.

On the basis of its review, the NRC staff finds the response to RAI 13.6-3 to be acceptable because the proposed changes follow the guidance from RG 5.76 and NUREG/CR 6190. The staff considers this RAI closed.

Waterborne Threat Measures

The provisions of 10 CFR 73.55(e)(10)(ii) require the applicant to "Identify areas from which a waterborne vehicle must be restricted, and where possible, in coordination with local, State, and Federal agencies having jurisdiction over waterway approaches, deploy buoys, markers, or other equipment. In accordance with the site-specific analysis, provide periodic surveillance and observation of waterway approaches and adjacent areas."

Section 11.2.3 of the PSP describes that a site-specific analysis for a water-borne DBT has been conducted and documented. However, there is no waterborne access to LNP, Units 1 and 2.

Protected Area Barriers

The provisions of 10 CFR 73.55(e)(8)(i) require that the protected area perimeter must be protected by physical barriers that are designed and constructed to: (1) limit access to only those personnel, vehicles, and materials required to perform official duties; (2) channel personnel, vehicles, and materials to designated access control portals; and (3) be separated from any other barrier designated as a vital area physical barrier, unless otherwise identified in the PSP.

The descriptions of the protected area (PA) barrier are provided in the PSP Section 11.3. These descriptions meet the definitions of physical barriers and protected areas in 10 CFR 73.2 and requirements of 10 CFR 73.55(e)(8).

Section 11.3 of the PSP describes the extent to which the protected area barrier at the perimeter is separated from a vital area/island barrier. The security plan identifies where the PA barrier is not separated from a vital area barrier.

Section 11.3 of the PSP describes isolation zones. As required in 10 CFR 73.55(e)(7), the isolation zone is maintained in outdoor areas adjacent to the protected area perimeter barrier and is designed to ensure the ability to observe and assess activities on either side of the protected area perimeter.

Vital Area Barriers

The provisions of 10 CFR 73.55(e)(9) require that "Vital equipment must be located only within vital areas, which must be located within a protected area so that access to vital equipment requires passage through at least two physical barriers, except as otherwise approved by the Commission and identified in the security plans." In addition, 10 CFR 73.55(e)(5) requires that certain vital areas shall be bullet resisting.

Section 11.4 of the PSP describes that vital areas are restricted access areas surrounded by physical barriers with the capability to restrict access to only authorized individuals. All vital

areas are constructed in accordance with established regulatory requirements. Section 11.4 also describes that the reactor control room, central alarm station (CAS) and the location within which the last access control function for access to the protected area is performed, must be bullet resisting.

In RAI 13.6-18, the NRC staff asked for clarification regarding functionality in certain vital areas. The PEF Response Letter No. 066, dated October 22, 2009, confirmed that the response provided in R-COLA RAI 13.6-13 (VEGP eRAI 3394) is also applicable to Levy Nuclear Plant.

Target Set Equipment

The provisions of 10 CFR 73.55(f) require the following, "The licensee shall document and maintain the process used to develop and identify target sets, to include the site-specific analyses and methodologies used to determine and group the target set equipment or elements. The licensee shall consider cyber attacks in the development and identification of target sets. Target set equipment or elements that are not contained within a protected or vital area must be identified and documented consistent with the requirements in § 73.55(f)(1) and be accounted for in the licensee's protective strategy. The licensee shall implement a process for the oversight of target set equipment and systems to ensure that changes to the configuration of the identified equipment and systems are considered in the licensee's protective strategy. Where appropriate, changes must be made to documented target sets."

Section 11.5 of the PSP describes that target set equipment or elements that are not contained within a protected or vital area are identified and accounted for in the site protective strategy.

The staff identified several RAIs relating to target sets for the purpose of reviewing the Westinghouse physical protection program. Westinghouse provided design details as background information to assist an applicant with the development of site-specific target set analyses. The staff evaluated the applicant's responses, and found them to be acceptable for the DC review of the AP1000 physical protection program. Westinghouse stated, in TR-94, APP-GW-GLR-066, "AP1000 Safeguards Assessment Report" that target sets were created to aid in the development of the AP1000 physical security system, and that final target sets will be developed by the COL applicant prior to fuel onsite (inside PA).

The NRC staff has reviewed the applicant's description in Sections 11.5 and 14.5 of the PSP, Section 7 of the SCP and information in Westinghouse TR-94, APP-GW-GLR-066, "AP1000 Safeguards Assessment Report" for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in Sections 11.5 and 14.5 of the PSP, Section 7 of the SCP and the information in Westinghouse TR-94 are consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the Sections 11.5 and 14.5 of the PSP and Section 7 of the SCP meets the requirements of 10 CFR 73.55(f)(1), (3), and (4), and is, therefore, acceptable. The target sets, target set analysis and site protective strategy are in the facility implementing procedures, which were not subject to an NRC staff review as part of this COL application, and are, therefore, subject to future NRC inspections in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

Delay Barriers

The provisions of 10 CFR 73.55(e)(3)(ii) require that physical barriers must "provide deterrence, delay, or support access control" to perform the required function of the applicant physical protection program. The PSP describes the use of delay barriers at LNP, Units 1 and 2.

Section 11.6 of the PSP includes a description of the use of Delay Barriers to meet requirement of 10 CFR 73.55(e).

The NRC staff has reviewed the applicant's description in PSP Sections 11, 11.1, 11.2, 11.2.1, 11.2.2, 11.2.3, and Sections 11.3 through 11.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(e), and is, therefore, acceptable.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.1 of the VEGP SER:

> *13.6.4.1.12 Security Posts and Structures*
>
> *The provisions of 10 CFR 73.55(e)(5) require that the reactor control room, the CAS, and the location within which the last access control function for access to the PA is performed, must be bullet-resisting.*
>
> *Section 12 of the PSP describes that security posts and structures are qualified to a level commensurate with their application within the site protective strategy, and that these positions are constructed of bullet resisting materials.*
>
> *The NRC staff has reviewed the applicant's description in PSP Section 12 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(e)(5), and is, therefore, acceptable.*
>
> *13.6.4.1.13 Access Control Devices*
>
> *It is stated in 10 CFR 73.55(g)(1) that, consistent with the function of each barrier or barrier system, the applicant shall control personnel, vehicle, and material access, as applicable, at each access control point in accordance with the physical protection program design requirements of 10 CFR 73.55(b).*
>
> *The provisions of 10 CFR 73.55(g)(6) require control of access control devices as stated: "The licensee shall control all keys, locks, combinations, passwords and related access control devices used to control access to protected areas, vital areas and security systems to reduce the probability of compromise."*

Types of Security-Related Access Control Devices

Section 13.1 of the PSP describes that the applicant uses security-related access control devices to control access to protected and vital areas and security systems.

Control and Accountability

Section 13.2.1 of the PSP describes the control of security related locks. Section 13.2.2 of the PSP describes the controls associated with the changes to and replacements of access control devices and the accountability and inventory control process, and the circumstances that require changes in security-related locks. The applicant uses facility procedures to produce, control, and recover keys, locks, and combinations for all areas and equipment, which serve to reduce the probability of compromise. The issue of access control devices is limited to individuals who have unescorted access authorization and require access to perform official duties and responsibilities. Keys and locks are accounted for through a key inventory control process as described in facility procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 13, 13.1, 13.2, 13.2.1, and 13.2.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meet the requirements of 10 CFR 73.55(g)(1) and (6), and are, therefore, acceptable.

13.6.4.1.14 Access Requirements

Access Authorization and Fitness for Duty

The provisions of 10 CFR 73.55(b)(7) require the applicant shall establish, maintain, and implement an access authorization program in accordance with 10 CFR 73.56 and shall describe the program in the PSP. The provisions of 10 CFR Part 26 require the applicant to establish and maintain a FFD program.

Section 14.1 of the PSP describes that the access authorization program implements regulatory requirements utilizing the provisions in RG 5.66. "Nuclear Power Plant Access Authorization Program," Revision 1, dated July 2009. The NRC staff finds that RG 5.66, is an acceptable method for meeting the requirements of 10 CFR 73.55(b)(7).

The NRC staff has reviewed the applicant's description in PSP Section 14.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b)(7), 10 CFR 73.56 and 10 CFR Part 26 and is, therefore, acceptable.

Insider Mitigation Program

The provisions of 10 CFR 73.55(b)(9) require that the applicant shall establish, maintain, and implement an insider mitigation program and shall describe the program in the PSP. The insider mitigation program must monitor the initial and continuing trustworthiness and reliability of individuals granted or retaining unescorted access authorization to a protected or vital area, and implement defense-in-depth methodologies to minimize the potential for an insider to adversely affect, either directly or indirectly, the applicant's capability to prevent significant core damage and spent fuel sabotage. The insider mitigation program must include elements from: the access authorization program, the FFD program, the cyber security program and the physical protection program.

Section 14.2 of the PSP describes how the applicant will establish, maintain, and implement an insider mitigation program utilizing the guidance in RG 5.77, "Insider Mitigation Program." The insider mitigation program requires elements from the access authorization program described in 10 CFR 73.56; FFD program described in 10 CFR Part 26; the cyber security program described in 10 CFR 73.54; and the physical security program described in 10 CFR 73.55. In addition, Section 14.2 describes the integration of the programs mentioned above to form a cohesive and effective insider mitigation program. The applicant addresses the observations for the detection of tampering. The NRC staff finds that this approach is an acceptable method for meeting the requirements 10 CFR 73.55(b)(9).

The NRC staff has reviewed the applicant's description in PSP Section 14.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b)(9) and is, therefore, acceptable.

Picture Badge Systems

Requirements for badges are stated in 10 CFR 73.55(g)(6)(ii). "The licensee shall implement a numbered photo identification badge system for all individuals authorized unescorted access to the protected area and vital areas." In addition, identification badges may be removed from the protected area under limited conditions and only by authorized personnel. Records of all badges shall be retained and shall include name and areas to which persons are granted unescorted access.

The provisions of 10 CFR 73.55(g)(7)(ii) require that individuals not employed by the applicant but who require frequent or extended unescorted access to the protected area and/or vital areas to perform duties and responsibilities required by the applicant at irregular or intermittent intervals, shall satisfy the access authorization requirements of 10 CFR 73.56 and 10 CFR Part 26 of this chapter, and shall be issued a non-employee photo identification badge that is easily distinguished from other identification badges before being allowed unescorted access to the protected and vital areas. Non-employee photo identification badges must visually reflect that the individual is a non-employee and that no escort is required.

Section 14.3 of the PSP describes the site picture badge system. Identification badges will be displayed while individuals are inside the protected area or vital areas. When not in use, badges may be removed from the protected area by authorized holders, provided that a process exists to deactivate the badge upon exit and positively confirm the individual's true identity and

authorization for unescorted access prior to entry into the protected area. Records are maintained to include the name and areas to which unescorted access is granted of all individuals to whom photo identification badges have been issued.

The NRC staff has reviewed the applicant's description in PSP Section 14.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(g)(6) and (7) and is, therefore, acceptable.

Searches

The provisions of 10 CFR 73.55(h) require, in part, that applicants meet the objective to detect, deter, and prevent the introduction of firearms, explosives, incendiary devices, or other items, which could be used to commit radiological sabotage. To accomplish this, applicant's shall search individuals, vehicles, and materials consistent with the physical protection program design requirements in paragraph (b) of this section, and the function to be performed at each access control point or portal before granting access.

Section 14.4 of the PSP provides an overview description of the search process for vehicle, personnel and materials. The search process is conducted using security personnel, specifically trained non-security personnel and technology. Detailed discussions of actions to be taken in the event unauthorized materials are discovered are found in implementing procedures.

Vehicle Barrier Access Control Point

The provisions of 10 CFR 73.55(h)(2)(ii) through (v) provide the requirements the applicant to search vehicles at the owner controlled area and 10 CFR 73.55(h)(3) provides requirements for searches of personnel, vehicles and materials prior to entering the protected area.

Section 14.4.1 of the PSP describes the process for the search of personnel, vehicles and materials at predetermined locations prior to granting access to designated facility areas identified by the applicant as needed to satisfy the physical protection program. The applicant states that it has developed specific implementing procedures to address vehicle and materials searches at these locations.

PA Packages and Materials Search

Section 14.4.2 of the PSP describes the process for conducting searches of packages and materials for firearms, explosives, incendiary devices, or other items, which could be used to commit radiological sabotage using equipment capable of detecting these items or through visual and physical searches, or both, to ensure that all items are clearly identified before these items can enter the LNP, Units 1 and 2 protected area. Detailed requirements for conducting these searches are found in applicant implementing procedures and include the search and control of bulk materials and products. Applicant implementing procedures also discuss the control of packages and materials previously searched and tamper sealed by personnel trained in accordance with the T&QP.

PA Vehicle Search

Section 14.4.3 of the PSP describes the process for the search of vehicles for firearms, explosives, incendiary devices, or other items, which could be used to commit radiological sabotage using equipment capable of detecting these items or through visual and physical searches, or both, to ensure that all items are clearly identified at the protected area. Detailed requirements for conducting these searches are found in the applicant's implementing procedures. The applicant's implementing procedures also address the search methodologies for vehicles that must enter the protected area under emergency conditions.

PA Personnel Searches

Section 14.4.4 of the PSP describes the process for searches of all personnel requesting access into protected areas. The PSP describes the search for firearms, explosives, incendiary devices, or other items, which could be used to commit radiological sabotage using equipment capable of detecting these items or through visual and physical searches or both to ensure that all items are clearly identified prior to granting access into the protected area. All persons except official Federal, State, and LLEA personnel on official duty are subject to these searches upon entry to the protected area. Detailed discussions of observation and control measures are found in implementing procedures.

PA Access Controls

Section 14.4.5 of the PSP describes the process for controlling access at all points where personnel or vehicles could gain access into the applicant's protected area. The plan notes that principal personnel access to the protected area is through a lockable portal. Personnel are only permitted into the PA after positive ID verification, access authorization verification, and a search is performed per Section 14.4 of the PSP. Vehicles are controlled through positive control methods described in the facility procedures.

Escort and Visitor Requirements

The provisions of 10 CFR 73.55(g)(7) state in part, that the applicant may permit escorted access to protected and vital areas to individuals who have not been granted unescorted access in accordance with the requirements of 10 CFR 73.56 and 10 CFR Part 26 of this chapter. 10 CFR 73.55(g)(8) discusses escort requirements. Applicants are required to implement procedures for processing, escorting and controlling visitors. Procedures shall address confirmation of identity of visitors, maintenance of a visitor control register, visitor badging and escort controls including, training, communications, and escort ratios.

Section 14.4.6 of the PSP describes the process for control of visitors. The PSP affirms that procedures address the identification, processing, and escorting of visitors and the maintenance of a visitor control register. Training requirements for escorting visitors includes responsibilities, communications and escort ratios. All escorts are trained to perform escort duties in accordance with site requirements. All visitors wear a badge that clearly indicates that an escort is required.

The NRC staff has reviewed the applicant's description in PSP Sections 14.4, and 14.4.1 through 14.4.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800,

Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(h)(2), (h)(3), (g)(7) and (g)(8), and are, therefore, acceptable.

Vital Area Access Controls

The provisions of 10 CFR 73.55(g)(4) require that applicants control access into vital areas consistent with established access authorization lists. In response to a site-specific credible threat or other credible information, applicants shall implement a two-person (line-of-sight) rule for all personnel in vital areas so that no one individual is permitted access to a vital area.

The provisions of 10 CFR 73.56(j) require the applicant to establish, implement, and maintain a list of individuals who are authorized to have unescorted access to specific nuclear power plant vital areas during non-emergency conditions. The list must include only those individuals who have a continued need for access to those specific vital areas in order to perform their duties and responsibilities. The list must be approved by a cognizant applicant manager or supervisor who is responsible for directing the work activities of the individual who is granted unescorted access to each vital area, and updated and re-approved no less frequently than every 31 days.

Section 14.5 of the PSP describes vital areas and states that the applicant maintains vital areas locked and protected by an active intrusion alarm system. An access authorization system is established to limit unescorted access that is controlled by an access authorization list which is reassessed and reapproved at least once every 31 days. Additional access control measures are described in the facility procedures.

In **RAI 13.6-9**, the NRC staff asked the applicant to clarify how the minimum vital areas and equipment are protected, including any proposed revision to this section of the security plan. The applicant responded that PSP Section 14.5 will be revised, as necessary, to clearly identify any regulatory minimum vital areas that are bounded by the larger vital areas included in the list.

In PGN Response Letter No. 066, dated October 22, 2009, the applicant stated that the R-COLA RAI 13.6-19 response from Vogtle Electric Generating Plant (VEGP), dated October 16, 2009, is applicable to Levy Units 1 and 2. In a letter dated May 4, 2011, the applicant provided a description which clearly identifies the minimum vital areas. On the basis of its review, the NRC staff finds the revised description in the PSP Revision 4, dated June 3, 2011, to be acceptable, as it provides the additional information on how the applicant meets 10 CFR 73.55(e)(9) and 10 CFR 73.55(g)(4).

The NRC staff has reviewed the applicant's description in PSP Section 14.5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(g)(4) and is, therefore, acceptable.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.1 of the VEGP SER:

> *13.6.4.1.15 Surveillance Observation and Monitoring*
>
> *The provisions of 10 CFR 73.55(i)(1) require that the applicant establish and maintain intrusion detection systems that satisfy the design requirements of*

10 CFR 73.55(b) and provide, at all times, the capability to detect and assess unauthorized persons and facilitate the effective implementation of the protective strategy.

Illumination

The provisions of 10 CFR 73.55(i)(6) require, in part, that all areas of the facility are provided with illumination necessary to satisfy the design requirements of 10 CFR 73.55(b) and implement the protective strategy. Specific requirements include providing a minimum illumination level of 0.2 foot-candles, measured horizontally at ground level, in the isolation zones and appropriate exterior areas within the PA. Alternatively, the applicant may augment the facility illumination system by means of low-light technology to meet the requirements of this section or otherwise implement the protective strategy. The applicant shall describe in the security plans how the lighting requirements of this section are met and, if used, the type(s) and application of low-light technology.

Section 15.1 of the PSP describes that all isolation zones and appropriate exterior areas within the PA have lighting capabilities that provide illumination sufficient for the initiation of an adequate response to an attempted intrusion of the isolation zone, a PA, or a vital area. A discussion of the implementation of technology using fixed and non-fixed low light level cameras or alternative technological means is provided. The applicant has addressed the potential for loss of lighting and the compensatory actions that would be taken if that event were to occur.

Surveillance Systems

The provisions of 10 CFR 73.55(i)(1) require, in part, that the applicant implement, establish, and maintain intrusion detection and assessment, surveillance, observation and monitoring systems to satisfy the design requirements of 10 CFR 73.55(b), and of the applicant's OCA.

Section 15.2 of the PSP describes that surveillance is accomplished by human observation and technology. Surveillance systems include a variety of cameras, video display, and annunciation systems designed to assist the security organization in observing, detecting assessing alarms or unauthorized activities. Certain systems provide real-time and recorded play back of recorded video images. The specifics of surveillance systems are described in facility implementing procedures.

Intrusion Detection Equipment

Section 15.3 of the PSP describes the perimeter intrusion detection system, and the PA and vital area intrusion detection systems. These systems are capable of detecting attempted penetration of the PA perimeter barrier; are monitored with assessment equipment designed to satisfy the requirements of 10 CFR 73.55(i) and provide real-time and play-back/recorded video images of the detected activities before and after each alarm annunciation. The PSP describes how the applicant will meet regulatory requirements for redundancy, tamper indication and uninterruptable power supply.

Central Alarm Station (CAS) and Secondary Alarm Station (SAS) Operation

The provisions of 10 CFR 73.55(i)(4) provide requirements for alarm stations. It is required, in 10 CFR 73.55(i)(4)(i), that both alarm stations must be designed and equipped to ensure that a single act, in accordance with the DBT of radiological sabotage defined in 10 CFR 73.1, cannot disable both alarm stations. The applicant shall ensure the survivability of at least one alarm station to maintain the ability to perform the following functions: 1) detect and assess alarms; 2) initiate and coordinate an adequate response to an alarm; 3) summon offsite assistance; and 4) provide command and control. 10 CFR 73.55(i)(4)(iii) requires that alarm stations must be equal and redundant.

Section 15.4 of the PSP describes the functional operations of the CAS and the SAS. The PSP provides that the alarm stations are equipped, such that no single act will disable both alarm stations. The applicant's PSP provides that each alarm station is properly manned and that no activities are permitted that would interfere with the operator's ability to execute assigned duties and responsibilities.

Security Patrols

Owner Controlled Area (OCA) Surveillance and Response

The provisions of 10 CFR 73.55(e)(6) require that the applicant establish and maintain physical barriers in the OCA as needed to satisfy the physical protection program design requirements of 10 CFR 73.55(b). It is required, in 10 CFR 73.55(i)(5)(ii), in part, that the applicant provide continuous surveillance, observation and monitoring of the OCA and that these responsibilities may be performed by security personnel during continuous patrols, through the use of video technology, or by a combination of both.

Section 15.5.1 of the PSP describes the processes used to meet this requirement. The PSP discusses the process to be used and provides that details regarding the implementation of OCA surveillance techniques are found in facility procedures. The PSP provides a discussion regarding the implementation of manned and video options for patrolling and surveillance of the OCA.

Protected and Vital Area Patrols

The provisions of 10 CFR 73.55(i)(5)(iii) through (viii) require, in part, that armed patrols check unattended openings that intersect a security boundary, such as an underground pathways, check external areas of the PA and vital area portals, periodically inspect vital areas, conduct random patrols of accessible target set equipment, be trained to recognize obvious tampering and if detected, initiate an appropriate response in accordance with established plans and procedures.

Section 15.5.2 of the PSP describes the process employed by the applicant to meet the above requirements. The PSP describes the areas of the facility that will be patrolled and observed, as well as the frequency of these patrols and observations. The applicant has addressed the observations for the detection of tampering in Section 14.2 of the PSP and in the facility procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 15, 15.1 through 15.4, 15.5.1, and 15.5.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b) and (i), and are, therefore, acceptable.

13.6.4.1.16 Communications

The provisions of 10 CFR 73.55(j)(1) through (6) describe the requirements for establishment and maintenance of continuous communication capabilities with both onsite and offsite resources to ensure effective command and control during both normal and emergency situations. Alarm stations must be capable of calling for assistance, on-duty security force personnel must be capable of maintaining continuous communication with each alarm station and vehicle escorts, and personnel escorts must maintain timely communication with security personnel. Continuous communication capabilities must terminate in both alarm stations, between LLEA and the control room. Non-portable communications must remain operable from independence power sources. The applicant must identify areas where communications could be interrupted or not maintained.

Notifications (Security Contingency Event Notifications)

Section 16.1 of the PSP describes that the applicant have a process to ensure that continuous communications are established and maintained between the onsite security force staff and the offsite support agencies.

System Descriptions

Section 16.2 of the PSP describes the establishment and maintenance of the communications system. Detailed descriptions of security systems are included in the facility procedures. VEGP has access to both hard wired and alternate communications systems. Site security personnel are assigned communications devices with which to maintain continuous communications with the CAS and SAS. All personnel and vehicles are assigned communications resources with

which to maintain continuous communications. Continuous communication protocols are available between the CAS, SAS and the control room.

The NRC staff has reviewed the applicant's description in PSP Sections 16, 16.1 and 16.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(j)(1) through (6), and are, therefore, acceptable.

13.6.4.1.17 Review, Evaluation and Audit of the Physical Security Program

The provisions of 10 CFR 73.55(m) require, in part, that each element of the physical protection program will be reviewed at least every 24 months. An initial review is required within 12 months after original plan implementation, or a change in personnel, procedures, equipment or facilities, which could have a potentially adverse affect on security, or as necessary based on site-specific analysis assessments, or other performance indicators. Reviews must be conducted by individuals independent of the security program and must include the plans, implementing procedures and local law enforcement commitments. Results of reviews shall be presented to senior management above the level of the security manager and findings must be entered in the site corrective action program.

Section 17 of the PSP describes that the physical security program is reviewed 12 months following initial implementation and at least every 24 months by individuals independent of both security program management and personnel who have a direct responsibility for implementation of the security program. The physical security program review includes, but is not limited to, an audit of the effectiveness of the physical security program, cyber security plans, implementing procedures, safety/security interface activities, the testing, maintenance, and calibration program, and response commitments by local, State, and Federal law enforcement authorities.

A review shall be conducted as necessary based upon site-specific analyses, assessments, or other performance indicators and as soon as reasonably practical, but no longer than 12 months, after changes occur in personnel, procedures, equipment, or facilities that potentially could adversely affect safety/security.

The results and recommendations of the physical security program review, management's finding on whether the physical security program is currently effective and any actions taken as a result of recommendations from prior program reviews are documented in a report to plant management and to appropriate corporate management at least one level higher than that having responsibility for the day-to-day plant operation. These reports are maintained in an auditable form and maintained for inspection.

Findings from the onsite physical security program reviews are entered into the facility corrective action program.

In RAI 13.6-36, the NRC staff requested that the applicant address the requirements of 10 CFR 73.58, "Safety/security requirements for nuclear power reactors." In its response dated May 14, 2010, the applicant stated that management controls and processes used to establish and maintain an effective interface between nuclear safety and physical security are addressed by administrative procedures. The applicant committed to revise VEGP COL FSAR Section 13.5.1 to include the safety/security interface implementation process in the list of procedural instructions provided in plant administrative procedures.

On the basis of its review, the NRC staff finds that since the applicant will revise VEGP COL FSAR Section 13.5.1 to incorporate the requirements for safety/security interfaces, the response to RAI 13.6-36 meets the requirements of 10 CFR 73.58 and is, therefore, acceptable. The incorporation of changes to the VEGP COL FSAR Section 13.5.1 is being tracked as ***Confirmatory Item 13.6-2****.*

Resolution of Standard Content Confirmatory Item 13.6-2

Confirmatory Item 13.6-2 is an applicant commitment to revise its FSAR Section 13.5 regarding the requirements of safety/security interfaces. The staff verified that the VEGP COL FSAR was appropriately revised. As a result, Confirmatory Item 13.6-2 is now closed.

The NRC staff has reviewed the applicant's description in PSP Section 17 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(m), and is, therefore, acceptable.

13.6.4.1.18 Response Requirements

The provisions of 10 CFR 73.55(k) require, in part, that the applicant establish and maintain a properly trained, qualified, and equipped security force required to interdict and neutralize threats up to and including the DBT defined in 10 CFR 73.1, to prevent significant core damage and spent fuel sabotage. To meet this objective, the applicant must ensure that necessary equipment is in supply, working, and readily available. The applicant must ensure training has been provided to all armed members of the security organization who will be available onsite to implement the applicant's protective strategy as described in the facility procedures and 10 CFR Part 73, Appendix C. The applicant must have facility procedures to reconstitute armed response personnel and have established working agreement(s) with LLEA. The applicant must have implemented a threat warning system to accommodate heightened security threats and coordination with NRC representatives.

Section 18 of the PSP describes an armed response team, responsibilities, training, and equipment, and requires an adequate number of armed response force personnel immediately available at all times to implement each site's protective strategy. The applicant ensures that training is conducted in accordance with the requirements of 10 CFR Part 73, Appendix B that will ensure implementation of the site protective strategy in accordance with 10 CFR Part 73, Appendix C. Procedures are in place to reconstitute the armed response personnel as are agreements with LLEA. Procedures are in place to manage the threat warning system.

In RAI 13.6-27 the NRC staff requested that the licensee clarify PSP, Section 18, which details the minimum number of armed responders continuously in the protected area. The staff requested the applicant explain how this number correlates with the expected number detailed in Westinghouse Technical Report (TR) 94, AP1000 Safeguards Assessment Report.

In a letter dated May 4, 2011, the applicant provided an explanation of how they determined the minimum numbers of Armed Responders needed for the LNP Site. The applicant also provided a metric showing the staffing relationship between Westinghouse TR 94, AP1000 Safeguards Assessment Report, and staffing positions and responsibility for LNP Site Units 1 and 2.

On the basis of its review, the NRC staff finds the response to RAI 13.6-27 to be acceptable. The applicant's metric provided the needed clarification on the minimum number of armed responders continuously in the protected area and the expected number detailed in Westinghouse TR 94, AP1000 Safeguards Assessment Report.

The NRC staff has reviewed the applicant's description in PSP Section 18 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(k) and is, therefore, acceptable.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.1 of the VEGP SER:

> *13.6.4.1.19 Special Situations Affecting Security*
>
> *The provisions of 10 CFR 73.58 require that each operating nuclear power reactor applicant with a license issued under 10 CFR Part 50 or 10 CFR Part 52, shall comply with the following requirements: the applicant shall assess and manage the potential for adverse effects on safety and security, including the site emergency plan, before implementing changes to plant configurations, facility conditions, or security; the scope of changes to be assessed and managed must include planned and emergent activities (such as, but not limited to, physical modifications, procedural changes, changes to operator actions or security assignments, maintenance activities, system reconfiguration, access modification or restrictions, and changes to the security plan and its implementation); where potential conflicts are identified, the applicant shall communicate them to appropriate personnel and take compensatory and/or mitigative actions to maintain safety and security under applicable Commission regulations, requirements, and license conditions.*
>
> *Section 19 of the PSP includes requirements for assessments to manage increased risk of special situations affecting security.*
>
> *<u>Refueling/Major Maintenance</u>*
>
> *Section 19.1 of the PSP describes that, for refueling or major maintenance activities, the PSP describes that security procedures identify measures for implementation of actions prior to refueling or major maintenance activities. These measures include controls to ensure that a search is conducted prior to*

revitalizing an area, that protective barriers and alarms are fully operational, and post-maintenance performance testing to ensure operational readiness of equipment in accordance with 10 CFR 73.55(n)(8).

Construction and Maintenance

Section 19.2 of the PSP describes that during periods of construction and maintenance when temporary modifications are necessary, that the applicant will implement measures that provide for equivalency in the physical protective measures and features impacted by the activities, such that physical protection measures are not degraded. The process for making such changes or modifications is included in the facility procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 19, 19.1, and 19.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(n)(8) and 10 CFR 73.58, and are, therefore, acceptable.

13.6.4.1.20 Maintenance, Testing and Calibration

In accordance with 10 CFR 73.55(n), the applicant is required to establish, maintain, and implement a maintenance, testing, and calibration program to ensure that security systems and equipment, including secondary and uninterruptible power supplies, are tested for operability and performance at predetermined intervals, maintained in operable condition, and have the capability of performing their intended functions. The regulation requires that the applicant describe their maintenance testing and calibrations program in the PSP, and that the implementing procedures describe the details and intervals for conducting these activities. Applicant procedures must identify criteria for documenting deficiencies in the corrective action program and ensuring data protection in accordance with 10 CFR 73.21. The applicant must conduct periodic operability testing of the intrusion alarm system and must conduct performance testing in accordance with the PSP and implementing procedures. Communication equipment must be tested not less than daily, and search equipment must also be tested periodically. Procedures must be established for testing equipment located in hazardous areas, and procedures must be established for returning equipment to service after each repair.

Sections 20.1 through 20.6 of the PSP describe the maintenance, testing and calibration program for security-related equipment. Section 20.1 states that the applicant shall conduct intrusion detection testing in accordance with recommended testing procedures described in RG 5.44," Perimeter Intrusion Alarm System". Each operational component required for the implementation of the security program is at a minimum, tested in accordance with 10 CFR 73.55(n), the PSP and implementing procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 20 and 20.1 through 20.6 for the implementation of the site-specific physical

protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(n), and are, therefore, acceptable.

13.6.4.1.21 Compensatory Measures

The provisions of 10 CFR 73.55(o) require, in part, that the applicant shall identify criteria and measures to compensate for degraded or inoperable equipment, systems, and components to meet the requirements of this section. Compensatory measures must provide a level of protection that is equivalent to the protection that was provided by the degraded or inoperable, equipment, system, or components. Compensatory measures must be implemented within specific time frames necessary to meet the appropriate portions of 10 CFR 73.55(b) and described in the security plans.

Section 21 of the PSP identifies measures and criteria required to compensate for degraded or inoperable equipment, systems, and components in accordance with 10 CFR 73.55(o) to assure that the effectiveness of the physical protection system is not reduced by failure or other contingencies affecting the operation of the security-related equipment or structures. Sections 21.1 through 21.12 of the PSP address PA and vital area barriers, intrusion detection and alarm systems, lighting, fixed and non-fixed closed circuit television, play-back and recorded video systems, computer systems, access control devices, vehicle barrier systems, channeling barrier systems, and other security-related equipment.

The NRC staff has reviewed the applicant's description in PSP Sections 21 and 21.1 through 21.12, for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(o), and are, therefore, acceptable.

13.6.4.1.22 Records

The provisions of 10 CFR Part 26, 10 CFR 73.55(q), 10 CFR 73.56(k) and (o), 10 CFR Part 73, Appendix B. Section VI.H., Appendix C, Section II.C and 10 CFR 73.70, "Records," require that the applicant must retain and maintain all records required to be kept by the Commission regulations, orders, or license conditions until the Commission terminates the license for which the records were developed, and shall maintain superseded portions of these records for at least three years after the record is superseded, unless otherwise specified by the Commission. The applicant is required to keep records of contracts with any contracted security force that implements any portion of the onsite physical protection program for the duration of the contract. The applicant must make all records, required to be kept by the Commission, available to the Commission and the Commission may inspect, copy, retain and remove all such records, reports and documents, whether kept by the applicant or a contractor. Review

and audit reports must be maintained and available for inspection for a period of three years.

Section 22.0 of the PSP addresses the requirements to maintain records. Sections 22.1 through 22.13 address each kind of record that the applicant will maintain and the duration of retention for each record. The following types of records are maintained in accordance with the above mention regulations: access authorization records; suitability, physical and psychological qualification records for security personnel; PA and vital area access control records; PA visitor access records; PA vehicle access; vital area access transaction records; vitalization and de-vitalization records; vital area access list reviews; security plans and procedures; security patrols, inspections and tests; maintenance; CAS and SAS alarm annunciation and security response records; local law enforcement agency records; records of audits and reviews; access control devices; security training and qualification records; firearms testing and maintenance records; and engineering analysis for the vehicle barrier system.

The NRC staff has reviewed the applicant's description in PSP Sections 22 and 22.1 through 22.13 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(q), 10 CFR 73.55(o) and 10 CFR 73.70, and are, therefore, acceptable.

13.6.4.1.23 Digital Systems Security

Section 23 of the PSP addresses digital systems security. The applicant stated in its PSP that it has implemented the requirements of 10 CFR 73.54 and maintains a cyber security plan that describes how it has provided high assurance that safety, security, and emergency preparedness functions are protected against the DBT.

The NRC staff's review of the cyber security plan is found Section 13.8 of this SER.

13.6.4.1.24 Temporary Suspension of Security Measures

The provisions of 10 CFR 73.55(p) allow the applicant to "suspend implementation of affected requirements of this section under the following conditions: In accordance with 10 CFR 50.54(x) and 10 CFR 50.54(y) of this chapter, the licensee may suspend any security measures under this section in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. This suspension of security measures must be approved as a minimum by a licensed senior operator before taking this action. During severe weather when the suspension of affected security measures is immediately needed to protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the license conditions and technical specifications can provide adequate or equivalent protection. This

suspension of security measures must be approved, as a minimum, by a licensed senior operator, with input from the security supervisor or manager, before taking this action."

Suspension of Security Measures in Accordance with 10 CFR 50.54(x) and (y)

Section 24.1 of the PSP addresses suspension of security measures in accordance with 10 CFR 50.54(x) and 10 CFR 50.54(y). Specifically, the plan provides a description of the conditions under which suspension is permissible, the authority for suspension, and the requirements for reporting such a suspension.

Suspension of Security Measures during Severe Weather or Other Hazardous Conditions

As required in 10 CFR 73.55(p), suspension of security measures are reported and documented in accordance with the provisions of 10 CFR 73.71, "Reporting of safeguards events." This suspension of security measures must be approved, as a minimum, by a licensed senior operator, with input from the security supervisor or manager, before taking this action. Suspended security measures must be reinstated as soon as conditions permit.

Section 24.2 of the PSP provides that certain security measures may be temporarily suspended during circumstances such as imminent, severe or hazardous weather conditions, but only when such action is immediately needed to protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the security measures can provide adequate or equivalent protection. Under the PSP, suspended security measures shall be restored as soon as practical.

The NRC staff has reviewed the applicant's description in PSP Sections 24, 24.1, and 24.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(p), and are, therefore, acceptable.

13.6.4.1.25 Appendix A Glossary of Terms and Acronyms

Appendix A, "Glossary of Terms and Acronyms," was reviewed and found to be consistent with the NRC endorsed NEI 03-12, Revision 6 template.

13.6.4.1.26 Conclusions on the Physical Security Plan

On the basis of the NRC staff's review described in Sections 13.6.4.1.1 through 13.6.4.1.25 of this SER, the PSP meets the requirements of 10 CFR 73.55(a) through (r). The target sets, Target Set Analysis and Site Protective Strategy are in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and

10 CFR Part 73, Appendix C, Section II.B.5(iii). The NRC staff concludes that complete and procedurally correct implementation of the PSP will provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

13.6.4.2 <u>Appendix B Training and Qualification Plan</u>

13.6.4.2.1 Introduction

The provisions of 10 CFR 73.55(c)(4) state that the applicant establish, maintain, implement, and follow a T&QP that describes how the criteria set forth in 10 CFR Part 73, Appendix B will be implemented.

The provisions of 10 CFR 73.55(d)(3) state that the applicant may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped, and qualified to perform their assigned duties and responsibilities in accordance with 10 CFR Part 73, Appendix B and the T&QP. Non-security personnel may be assigned duties and responsibilities required to implement the physical protection program and shall:

(i) Be trained through established applicant training programs to ensure each individual is trained, qualified, and periodically requalified to perform assigned duties.

(ii) Be properly equipped to perform assigned duties.

(iii) Possess the knowledge, skills, and abilities to include physical attributes, such as sight and hearing, required to perform their assigned duties and responsibilities.

In addition, 10 CFR Part 73, Appendix B, Section VI.D.2(a) states armed and unarmed individuals shall be requalified at least annually in accordance with the requirements of the Commission-approved T&QP.

The T&QP describes that it is written to address the requirements found in 10 CFR Part 73, Appendix B, Section VI. The objective of the plan is to provide a mechanism to ensure that members of the security organization, and all others who have duties and responsibilities in implementing the security requirements and protective strategy, are properly trained, equipped and qualified. Deficiencies identified during the administration of T&QP requirements are documented in the site corrective action program.

The NRC staff has reviewed the introduction section in the T&QP and has determined that it includes all of the programmatic elements necessary to satisfy the requirements of 10 CFR 73.55 and 10 CFR Part 73, Appendix B, Section VI applicable to the T&QP. Additional section-by-section evaluations and discussions are found in the following paragraphs.

13.6.4.2.2 Employment Suitability and Qualification

The requirements for mental qualifications, documentation, and physical requalification for security personnel (applicant employee and contractor) are described in the following T&QP sections.

Suitability

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.1(a) require, in part, that before employment, or assignment to the security organization, an individual shall: (1) possess a high school diploma or pass an equivalent performance examination designed to measure basic mathematical, language, and reasoning skills, abilities, and knowledge required to perform security duties and responsibilities; (2) attained the age of 21 for an armed capacity or the age of 18 for an unarmed capacity; (3) not have any felony convictions that reflect on the individual's reliability; and (4) individuals in an armed capacity would not be disqualified from possessing or using firearms or ammunition in accordance with applicable State or Federal law, to include 18 U.S.C. 922. Applicants shall use information that has been obtained during the completion of the individual's background investigation for unescorted access to determine suitability. Satisfactory completion of a firearms background check for the individual under 10 CFR 73.19 of this part will also fulfill this requirement. The provisions of 10 CFR Part 73, Appendix B, Section VI.B.1(b) require the qualification of each individual to perform assigned duties and responsibilities must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.1 of the T&QP details the requirements of qualifications for employment in the security organization that follows the regulation in 10 CFR Part 73, Appendix B, Section VI.B.1(a).

Physical Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2 require, in part, that individuals whose duties and responsibilities are directly associated with the effective implementation of the Commission-approved security plans, applicant protective strategy, and implementing procedures, may not have any physical conditions that would adversely affect their performance of assigned security duties and responsibilities.

Section 2.2 of the T&QP details those individuals that are directly associated with implementation of the security plans. Protective strategy and procedures may not have any physical conditions that would adversely affect their performance of assigned security duties and responsibilities. All individuals that are found on the critical task matrix shall demonstrate the necessary physical qualifications prior to duty.

Physical Examination

It is stated in 10 CFR Part 73, Appendix B, Section VI.B.2(a)(2), that armed and unarmed individuals assigned security duties and responsibilities shall be subject to a physical examination designed to measure the individual's physical ability to

perform assigned duties and responsibilities as identified in the Commission-approved security plans, applicant protective strategy, and implementing procedures.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2(a)(3) state, in part, that the physical examination must be administered by a licensed health professional with the final determination being made by a licensed physician to verify the individual's physical capability to perform assigned duties and responsibilities.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2(b) through (e) provide the minimum requirements that individuals must meet, and include requirements for vision, hearing, review of existing medical conditions, and examination for potential addictions.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2(f) address medical examinations before returning to assigned duties following any incapacitation.

Section 2.3 of the T&QP describes the physical examinations for armed and unarmed individuals assigned security duties, as well as other individuals that implement parts of the physical protection program. Minimum requirements exist for physical examinations of vision, hearing, existing medical conditions, addiction or other physical requirements.

The NRC staff has reviewed the applicant's description in T&QP Sections 2.1, 2.2, and 2.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73 Appendix B, Sections VI.B.1 and VI.B.2, and are, therefore, acceptable.

Medical Examinations and Physical Fitness Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.4(a) require, in part, that armed members of the security organization shall be subject to a medical examination by a licensed physician, to determine the individual's fitness to participate in physical fitness tests, and that the applicant shall obtain and retain a written certification from the licensed physician that no medical conditions were disclosed by the medical examination that would preclude the individual's ability to participate in the physical fitness tests or meet the physical fitness attributes or objectives associated with assigned duties.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.4(b) require, in part, that before assignment, armed members of the security organization shall demonstrate physical fitness for assigned duties and responsibilities by performing a practical physical fitness test. The physical fitness test must consider physical conditions such as strenuous activity, physical exertion, levels of stress, and exposure to the elements as they pertain to each individual's assigned security duties. The physical fitness qualification of each armed

member of the security organization must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.4 of the T&QP is explicit in its requirements for medical examinations and physical qualifications.

The NRC staff has reviewed the applicant's description in T&QP Section 2.4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.B.4(a) and 10 CFR Part 73, Appendix B, Section VI.B.4(b), and is, therefore, acceptable.

Psychological Qualifications

General Psychological Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(a) require, in part, that armed and unarmed individuals shall demonstrate the ability to apply good judgment, mental alertness, the capability to implement instructions and assigned tasks, and possess the acuity of senses and ability of expression sufficient to permit accurate communication by written, spoken, audible, visible, or other signals required by assigned duties and responsibilities.

Section 2.5.1 of the T&QP details that individuals whose security tasks and jobs directly associated with the effective implementation of the security plan and protective strategy shall demonstrate the qualities in 10 CFR Part 73, Appendix B, Section VI.B.3(a).

Professional Psychological Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(b) require, in part, that a licensed psychologist, psychiatrist, or physician trained in part to identify emotional instability shall determine whether armed members of the security organization and alarm station operators in addition to meeting the requirement stated in paragraph (a) of this section, have no emotional instability that would interfere with the effective performance of assigned duties and responsibilities.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(c) require that a person professionally trained to identify emotional instability shall determine whether unarmed individuals, in addition to meeting the requirement stated in paragraph (a) of this section, have no emotional instability that would interfere with the effective performance of assigned duties and responsibilities.

Section 2.5.2 of the T&QP provides for the administration of psychological and emotional determination that will be conducted by appropriately licensed and trained individuals.

The NRC staff has reviewed the applicant's description in T&QP Sections 2.5.1 and 2.5.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.B.3(a), (b) and (c), and are, therefore, acceptable.

Documentation

The provisions of 10 CFR Part 73, Appendix B, Section VI.H.1 require, in part, the retention of all reports, records, or other documentation required by Appendix B and 10 CFR 75.55(q).

Section 2.6 of the T&QP describes that qualified training instructors create the documentation of training activities and that security supervisors attest to these records as required. Records are retained in accordance with Section 22 of the PSP.

The NRC staff has reviewed the applicant's description in T&QP Section 2.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.H.1 and is, therefore, acceptable.

Physical Requalification

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.5 require that: (a) at least annually, armed and unarmed individuals shall be required to demonstrate the capability to meet the physical requirements of this appendix and the applicant's T&QP; and (b) the physical requalification of each armed and unarmed individual must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.7 of the T&QP describes that physical requalification is conducted at least annually, and documented as described in the PSP.

The NRC staff has reviewed the applicant's description in T&QP Section 2.7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.B.5 and is, therefore, acceptable.

13.6.4.2.3 Individual Training and Qualification

Duty Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.1 provide for duty training and qualification requirements. The regulation states, in part, that all personnel who are assigned to perform any security-related duty or responsibility shall be trained and qualified to perform assigned duties and responsibilities to ensure that each individual possesses the minimum knowledge, skills, and abilities required to effectively carry out those assigned duties and responsibilities. These areas of training include performing assigned duties and responsibilities in accordance with the requirements of the T&QP and the PSP, and be trained and qualified in the use of all equipment or devices required to effectively perform all assigned duties and responsibilities.

Section 3.1 of the T&QP details the requirements that individuals assigned duties must be trained in their duties, meet minimum qualifications, and be trained and qualified in all equipment or devices required to perform their duties.

The NRC staff has reviewed the applicant's description in T&QP Sections 3.0 and 3.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.1, and is, therefore, acceptable.

On-the-job Training

The provisions of 10 CFR Part 73, Appendix B, Sections VI.C.2(a) through (c) provides requirements for on-the-job training. On-the-job training must include individual demonstration of the knowledge, skills and abilities provided during the training process. Individuals assigned contingency duties must complete a minimum of 40 hours of on-the-job training.

On-the-job training for contingency activities and drills must include, but is not limited to, hands-on application of knowledge, skills, and abilities related to: (1) response team duties; (2) use of force; (3) tactical movement; (4) cover and concealment; (5) defensive positions; (6) fields-of-fire; (7) re-deployment; (8) communications (primary and alternate); (9) use of assigned equipment; (10) target sets; (11) table top drills; (12) command and control duties; (13) applicant's protective strategy.

The T&QP provides a comprehensive discussion of the applicant's approach to meeting the requirements for on-the-job training.

The NRC staff has reviewed the applicant's description in T&QP Section 3.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.C.2(a) through (c), and is, therefore, acceptable.

Critical Task Matrix

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.2(b) require, in part, that each individual who is assigned duties and responsibilities identified in the Commission-approved security plans, licensee protective strategy, and implementing procedures shall, before assignment, demonstrate proficiencies in implementing the knowledge, skills and abilities to perform assigned duties.

The T&QP includes a critical task matrix as Table 1 of the T&QP. This matrix addresses the means through which each individual will demonstrate the required proficiencies. Tasks that individuals must perform are listed in RG 5.75.

The NRC staff has reviewed the applicant's description in T&QP Section 3.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.2(b), and is, therefore, acceptable.

Initial Training and Qualification Requirements

The provisions of 10 CFR Part 73, Appendix B, Sections VI.C.1(a) through (b) provide the requirements for duty training.

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1(a) provide the requirements for demonstration of qualification.

Section 3.4 of the T&QP details that individuals are trained and qualified prior to performing security-related duties within a security organization and must meet the minimum qualifying standards in Sections 3.4.1 and 3.4.2.

Written Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1(b)(1) provide that written exams must include those elements listed in the Commission-approved T&QP to demonstrate an acceptable understanding of assigned duties and responsibilities, to include the recognition of potential tampering involving both safety and security equipment and systems.

Hands on Performance Demonstration

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1(b)(2) require that armed and unarmed individuals shall demonstrate hands-on performance for assigned duties and responsibilities by performing a practical hands-on demonstration for required tasks. The hands-on demonstration must ensure that theory and associated learning objectives for each required task are considered and each individual demonstrates the knowledge, skills, and abilities required to effectively perform the task.

Sections 3.4.1 and 3.4.2 of the T&QP describe the measures that are implemented by the applicant that meet the requirements stated above.

The NRC staff has reviewed the applicant's description in T&QP Sections 3.4, 3.4.1, and 3.4.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.C.1 and D.1, and is, therefore, acceptable.

Continuing Training and Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.2 state, in part, that armed and unarmed individuals shall be re-qualified at least annually in accordance with the requirements of this appendix and the Commission-approved T&QP. The results of requalification must be documented by a qualified training instructor and attested by a security supervisor.

Section 3.5 of the T&QP provides discussion regarding the management of the requalification program to ensure that each individual is trained and qualified. In part, the applicant's plan provides that annual requalification may be completed up to three (3) months before or three (3) months after the scheduled date. However, the next annual training must be scheduled (12) months from the previously scheduled date rather than the date the training was actually completed.

The NRC staff has reviewed the applicant's description in T&QP Section 3.5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.D.2, and is, therefore, acceptable.

Annual Written Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.(b)(3) provide that armed individuals shall be administered an annual written exam that demonstrates the required knowledge, skills, and abilities to carry out assigned duties and responsibilities as an armed member of the security organization. The annual written exam must include those elements listed in the Commission-approved T&QP to demonstrate an acceptable understanding of assigned duties and responsibilities.

Section 3.5.1 of the T&QP provides that each individual will be tested, in part, with an annual written exam that, at a minimum, covers: the role of security personnel; use of deadly force; the requirements in 10 CFR 73.21; authority of private security personnel; power of arrest; search and seizure; offsite law enforcement response; tactics and tactical deployment and engagement.

The NRC staff has reviewed the applicant's description in T&QP Section 3.5.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.D.1.(3), and is, therefore, acceptable.

Demonstration of Knowledge Skills and Abilities

The provisions of 10 CFR Part 73, Appendix B, Sections VI, A., B., C., D., (A.4, B.2(c)(2), B.3(a), B.4(b)(1), B.4(b)(3), B.5(a), C.2(a), C.2(b), C.3(a), C.3(b) C.3(d), D.1(a), D.1(b)(1), D.1(b)(2), D.1(b)(3), and D.1(c)) state, in part, that an individual must demonstrate required knowledge, skills and abilities, to carry out assigned duties and responsibilities.

Section 3.5.2 of the T&QP provides that all knowledge, skills and abilities will be demonstrated in accordance with a systematic approach to training (SAT) program as described in RG 5.75.

The NRC staff has reviewed the applicant's description in T&QP Section 3.5.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.A, B, C, and D and is, therefore, acceptable.

Weapons Training and Qualification

General Firearms Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.E provide that armed members of the security organization shall be trained and qualified in accordance with the requirements of this appendix and the Commission-approved T&QP. Training must be conducted by certified firearms instructors who shall be recertified at least every three (3) years. Applicants shall conduct annual firearms familiarization, and armed members of the security organization must participate in weapons range activities on a nominal four (4) month periodicity.

Section 3.6.1 of the T&QP addresses the requirements in 10 CFR Part 73, Appendix B, Sections VI.E.1(d)(1) through (11) and includes the requirements for training in the use of deadly force and participation in weapons range activities on a nominal four (4) month periodicity.

The NRC staff has reviewed the applicant's description in T&QP Section 3.6.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.E.1, and is, therefore, acceptable.

General Weapons Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.1 Weapons Qualification and Requalification Program require that qualification firing must be accomplished in accordance with Commission requirements and the Commission-approved T&QP for assigned weapons. The results of weapons qualification and requalification must be documented and retained as a record.

Section 3.6.2 of the T&QP provides that all armed personnel are qualified and re-qualified with assigned weapons. All weapons qualification and re-qualification will be documented and retained as a record.

The NRC staff has reviewed the applicant's description in T&QP Section 3.6.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.1, and is, therefore, acceptable.

Tactical Weapons Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.2 require that the applicant conduct tactical weapons qualification. The applicant T&QP must describe the firearms used, the firearms qualification program, and other tactical training required to implement the Commission-approved security plans, applicant protective strategy, and implementing procedures. Applicant developed tactical qualification and requalification courses must describe the performance criteria needed to include the site specific conditions (such as lighting, elevation, fields-of-fire) under which assigned personnel shall be required to carry out their assigned duties.

Section 3.6.3 of the T&QP provides that a tactical qualification course of fire is used to assess armed security force personnel in tactical situations to ensure they are able to demonstrate required tactical knowledge, skills and abilities remain proficient.

The NRC staff has reviewed the applicant's description in T&QP Section 3.6.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.2 and is, therefore, acceptable.

Firearms Qualification Courses

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.3 state, in part, that the applicant shall conduct the following qualification courses for each weapon used: (a) an annual daylight fire qualification course; and (b) an annual night fire qualification course.

Courses of Fire

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.4 describe required courses of fire.

Section 3.6.4 of the T&QP provides a description of the firearms qualification courses used to ensure armed members of the security organization are properly trained and qualified. Courses of fire are used individually for handguns, semiautomatic rifles, and enhanced weapons.

The NRC staff has reviewed the applicant's description in T&QP Section 3.6.4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.3, and 10 CFR Part 73, Appendix B, Section VI.F.4, and is, therefore, acceptable.

Firearms Requalification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.5 provide that armed members of the security organization shall be re-qualified for each assigned weapon at least annually in accordance with Commission requirements and the Commission-approved T&QP, and the results documented and retained as a record. Firearms requalification must be conducted using the courses of fire outlined in 10 CFR Part 73, Appendix B, Sections VI.F.2, VI.F.3, and VI.F.4.

Section 3.6.5 of the T&QP describes that armed members of the security organization re-qualify at least annually with each weapon assigned, using the courses of fire provided in the T&QP.

The NRC staff has reviewed the applicant's description in T&QP Section 3.6.5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.5, and is, therefore, acceptable.

Weapons, Personal Equipment and Maintenance

The provisions of 10 CFR Part 73, Appendix B, Section VI.G provide the requirements for the maintenance of weapons and personal equipment. These requirements provide that the applicant shall provide armed personnel with weapons that are capable of performing the function stated in the Commission-approved security plans, applicant protective strategy, and implementing procedures. In addition, the applicant shall ensure that each individual is equipped or has ready access to all personal equipment or devices required for the effective implementation of the Commission-approved security plans, applicant protective strategy, and implementing procedures.

Section 3.7 of the T&QP describes that personnel are provided with weapons and personal equipment necessary to meet the plans and the protective strategy. The equipment provided is described in Section 9.0 of the PSP, and maintenance is performed as described in Section 20.0 of the PSP.

The NRC staff has reviewed the applicant's description in T&QP Section 3.7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.G, and is, therefore, acceptable. The staff's review of Sections 9.0 and 20.0 of the PSP is in Section 13.6.4.1.9 and 13.6.4.1.20 of this SER.

Documentation

The provisions of 10 CFR Part 73, Appendix B, Section VI.H require that the applicant shall retain all reports, records, or other documentation required by this appendix in accordance with the requirements of 10 CFR 73.55(r). The applicant shall retain each individual's initial qualification record for three (3) years after termination of the individual's employment and shall retain each re-qualification record for three (3) years after it is superseded. The applicant shall document data and test results from each individual's suitability, physical, and psychological

qualification and shall retain this documentation as a record for three (3) years from the date of obtaining and recording these results.

Section 3.8 of the T&QP provides that records are retained in accordance with Section 22 of the PSP.

The NRC staff has reviewed the applicant's description in T&QP Section 3.8 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.H and is, therefore, acceptable.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.2 of the VEGP SER:

13.6.4.2.4 Performance Evaluation Program

<u>10 CFR Part 73, Appendix B, Section VI.C.3, Performance Evaluation Program</u>

(a) Applicants shall develop, implement and maintain a performance evaluation program that is documented in procedures, which describes how the applicant will demonstrate and assess the effectiveness of their onsite physical protection program and protective strategy, including the capability of the armed response team to carry out their assigned duties and responsibilities during safeguards contingency events. The performance evaluation program and procedures shall be referenced in the applicant's T&QP.

(b) The performance evaluation program shall include procedures for the conduct of tactical response drills and force-on-force exercises designed to demonstrate and assess the effectiveness of the applicant's physical protection program, protective strategy and contingency event response by all individuals with responsibilities for implementing the SCP. The performance evaluation program must be designed to ensure, in part, that each member of each shift who is assigned duties and responsibilities required to implement the SCP and applicant protective strategy participates in at least one tactical response drill on a quarterly basis and one force-on-force exercise on an annual basis.

Section 4 of the T&QP details the performance evaluation program consistent with the requirements of 10 CFR Part 73, Appendix B, Sections VI.C.3(a) through (m). Additional details of the performance evaluation program are described in the facility procedures.

The NRC staff has reviewed the applicant's description in T&QP Section 4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.3 and is, therefore, acceptable.

13.6.4.2.5 Definitions

The provisions of 10 CFR Part 73, Appendix B, Section VI.J state, in part, that terms defined in 10 CFR Part 50, 10 CFR Part 70, and 10 CFR Part 73 have the same meaning when used in this appendix. Definitions are found in the PSP, Appendix A, "Glossary of Terms and Acronyms." [On the basis of its review, the NRC staff finds that the definitions sections of the PSP meet the requirements of 10 CFR 73.2, and are, therefore, acceptable.]

Included in this section of the T&QP is the Critical Task Matrix, which is considered SGI and has not been included in this SER.

The NRC staff has reviewed the applicant's description in T&QP of the Critical Task Matrix tasks for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, and are, therefore, acceptable.

13.6.4.2.6 Conclusion on the Training and Qualification Plan

On the basis of the NRC staff's review described in Sections 13.6.4.2.1 through 13.6.4.2.5 of this SER, the T&QP meets the requirements of 10 CFR Part 73, Appendix B. The target sets, Target Set Analysis and Site Protective Strategy are in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). The NRC staff concludes that complete and procedurally correct implementation will provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

13.6.4.3 <u>Appendix C Safeguards Contingency Plan</u>

13.6.4.3.1 Background Information

This category of information identifies the perceived dangers and incidents that the plan addresses and a general description of how the response is organized.

<u>Purpose of the Safeguards Contingency Plan</u>

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.b state that the applicant should discuss general goals, objectives and operational concepts underlying the implementation of the SCP.

Section 1.1 of the SCP describes the purpose and goals of the SCP, including guidance to security and management for contingency events.

Scope of the Safeguards Contingency Plan

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.c delineate the types of incidents that should be covered by the applicant in the SCP, how the onsite response effort is organized and coordinated to effectively respond to a safeguards contingency event and how the onsite response for safeguards contingency events has been integrated into other site emergency response procedures.

Section 1.2 of the SCP details the scope of the SCP to analyze and define decisions and actions of security force personnel, as well as facility operations personnel, for achieving and maintaining safe shutdown.

Perceived Danger

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.a require that, consistent with the DBT specified in 10 CFR 73.1(a)(1), the applicant shall identify and describe the perceived dangers, threats, and incidents against which the SCP is designed to protect.

Section 1.3 of the SCP outlines the threats used to design the physical protection systems.

The applicant adequately addresses perceived danger, provides a purpose of the plan, and describes the scope of the plan.

Definitions

Section 1.4 of the SCP describes that a list of terms and their definitions used in describing operational and technical aspects of the approved SCP as required by 10 CFR Part 73, Appendix C, Section II.B.1.d is found in Appendix A of the PSP.

The NRC staff has reviewed the applicant's description in SCP Sections 1, 1.1, 1.2, 1.3, and 1.4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II. B.3 and are, therefore, acceptable.

13.6.4.3.2 Generic Planning Base

As required in 10 CFR Part 73, Appendix C, Section II.B.2, this section of the plan defines the criteria for initiation and termination of responses to security events, to include the specific decisions, actions, and supporting information needed to respond to each type of incident covered by the approved SCP.

Situations Not Covered by the Contingency Plan

Section 2.1 of the SCP details the general types of conditions that are not covered in the plan.

Situations Covered by the Contingency Plan

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.a require, in part, that the plan identify those events that will be used for signaling the beginning or aggravation of a safeguards contingency according to how they are perceived initially by the applicant's personnel. Applicants shall ensure detection of unauthorized activities and shall respond to all alarms or other indications signaling a security event, such as penetration of a PA, vital area, or unauthorized barrier penetration (vehicle or personnel); tampering, bomb threats, or other threat warnings—either verbal, such as telephoned threats, or implied, such as escalating civil disturbances.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.b require, in part, that the plan define the specific objective to be accomplished relative to each identified safeguards contingency event. The objective may be to obtain a level of awareness about the nature and severity of the safeguards contingency to prepare for further responses; to establish a level of response preparedness; or to successfully nullify or reduce any adverse safeguards consequences arising from the contingency.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.c require, in part, that the applicant identify the data, criteria, procedures, mechanisms and logistical support necessary to achieve the objectives identified.

Section 2.2 of the SCP describes in detail the specific situations covered by the SCP, including objectives and information required for each.

The NRC staff has reviewed the applicant's description in SCP Sections 2, 2.1 and 2.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C Section II.B.2 and are, therefore, acceptable.

13.6.4.3.3 Responsibility Matrix

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4 state that this category of information consists of the detailed identification of responsibilities and specific actions to be taken by the applicant's organizations and/or personnel in response to safeguards contingency events. To achieve this result the applicant must address the following.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.a require, in part, that the applicant develop site procedures that consist of matrixes detailing the organization and/or personnel responsible for decisions and actions associated with specific responses to

safeguards contingency events. The responsibility matrix and procedures must be referenced in the applicant's SCP.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.b require, in part, that the responsibility matrix procedures shall be based on the events outlined in the applicant's generic planning base and include specific objectives to be accomplished, description of responsibilities for decisions and actions for each event, and overall description of response actions for each responding entity.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.c require, in part, that responsibilities are to be assigned in a manner that precludes conflict of duties and responsibilities that would prevent the execution of the SCP and emergency response plans.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.d require, in part, that the applicant ensure that predetermined actions can be completed under the postulated conditions.

Section 3 of the SCP includes the responsibility matrix. The responsibility matrix integrates the response capabilities of the security organization (described in Section 4 of the SCP) with the background information relating to decision/actions and organizational structure (described in Section 1 of the SCP). The responsibility matrix provides an overall description of the response actions and their interrelationships. Responsibilities and actions have been predetermined to the maximum extent possible and assigned to specific entities to preclude conflicts that would interfere with or prevent the implementation of the SCP or the ability to protect against the DBT of radiological sabotage.

The NRC staff has reviewed the applicant's description in SCP Section 3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.4 and is, therefore, acceptable.

13.6.4.3.4 Licensee Planning Base

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3 require, in part, that the applicant planning base include factors affecting the SCP specific for each facility.

Licensee Organization

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.a require in part, that the SCP describe the organization's chain of command and delegation of authority during safeguards contingency events, to include a general description of how command and control functions will be coordinated and maintained.

Duties/Communication Protocols

Section 4.1.1 of the SCP details the duties and communications protocols of each member of the security organization responsible for implementing any portion of the applicant's protective strategy.

Security Chain of Command/Delegation of Authority

Section 4.1.2 of the SCP details the chain of command and delegation of authority during normal operations is discussed in the PSP. The chain of command and delegation of authority during contingency events is also described in the responsibility matrix portions of the SCP. The chain of command and delegation of authority during normal operations is discussed in the PSP.

Physical Layout

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3(b) require, in part, that the SCP include a site map depicting the physical structures located on the site, including onsite independent spent fuel storage installations, and a description of the structures depicted on the map. Plans must also include a description and map of the site in relation to nearby towns, transportation routes (e.g., rail, water, and roads), pipelines, airports, hazardous material facilities, and pertinent environmental features that may have an effect upon coordination of response activities. Descriptions and maps must indicate main and alternate entry routes for law enforcement or other offsite response and support agencies and the location for marshaling and coordinating response activities.

Section 4.2 of the SCP references Section 1.1 of the PSP for layouts of the OCA, PA, vital areas, site maps, and descriptions of site features.

Safeguards Systems

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.c require, in part, that the SCP include a description of the physical security systems that support and influence how the applicant will respond to an event in accordance with the DBT described in 10 CFR 73.1(a). The description must begin with onsite physical protection measures implemented at the outermost perimeter, and must move inward through those measures implemented to protect target set equipment.

Section 4.3 of the PSP describes that safeguards systems are described in PSP Sections 9, 11, 12, 13, 15 and 16, and in facility implementing procedures/documents. Section 8 of the SCP describes how physical security systems will be used to respond to a threat at the site.

Law Enforcement Assistance

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.d require in part, that the applicant provide a listing of available law enforcement agencies and a general description of their response capabilities and their criteria for response and a discussion of working agreements or arrangements for communicating with these agencies.

Section 4.4 of the SCP details the role of LLEA in the site protective strategy. Additional details regarding LLEA are included in Section 8 of the PSP and Section 5.6 of the SCP.

Policy Constraints and Assumptions

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.e require in part, that the SCP include a discussion of State laws, local ordinances, and company policies and practices that govern applicant response to incidents and must include, but is not limited to, the following:

1) use of deadly force; 2) recall of off-duty employees; 3) site jurisdictional boundaries; and 4) use of enhanced weapons, if applicable.

Section 4.5 of the SCP details the site security policies, including the use of deadly force and authority to request offsite assistance.

Administrative and Logistical Considerations

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.f require in part, that the applicant provide descriptions of applicant practices, which influence how the security organization responds to a safeguards contingency event to include, but is not limited to, a description of the procedures that will be used for ensuring that equipment needed to facilitate response will be readily accessible, in good working order, and in sufficient supply.

Section 4.6 of the SCP outlines administrative duties of the Security Manager, Security Shift Team Leader, facility procedures and administrative forms.

The NRC staff has reviewed the applicant's description in SCP Sections 4, 4.1, 4.1.1, 4.1.2, and 4.2 through 4.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.3 and is, therefore, acceptable.

13.6.4.3.5 Response Capabilities

This section outlines the response by the applicant to threats to the facility. The applicant details how they protect against the DBT with onsite and offsite organizations, consistent with the regulation of 10 CFR 50.54(p)(1) and (hh), 10 CFR 73.55(k), 10 CFR Part 73, Appendix B, Section VI and 10 CFR Part 73, Appendix C, Section II.B.3. In addition, 10 CFR Part 73, Appendix C, "Introduction," states, in part, it is important to note that an applicant's SCP is intended to be complementary to any emergency plans developed pursuant to Appendix E to 10 CFR Part 50 and 10 CFR 52.17.

Response to Threats

Section 5.1 of the SCP describes how the protective strategy is designed to defend the facility against all aspects of the DBT. Each organization has defined roles and responsibilities.

Armed Response Team

Section 5.2 of the SCP notes individuals from the Responsibility Matrix and their role in the site protective strategy. This section also notes the minimum number of individuals and their contingency equipment for implementation of the protective strategy. The applicant described the armed response team consistent with 10 CFR 73.55(k)(4), (5), (6), and (7), 10 CFR Part 73, Appendix B, Section VI, and 10 CFR Part 73, Appendix C, Section II.B.3.

Supplemental Security Officer

Section 5.3 of the SCP details the role of supplemental security officers in the site protective strategy. The applicant described the use of supplemental security officers, consistent with the requirements in 10 CFR 73.55(k)(4).

Facility Operations Response

Section 5.4 of the SCP details the role of operations personnel in the site protective strategy, including responsibilities, strategies, and conditions for operator actions as discussed in 10 CFR 50.54(hh).

Emergency Plan Response

Section 5.5 of the SCP notes the integration of the Emergency Plan with the site's protective strategy, and gives some examples of how the Emergency Plan can influence the protective strategy as discussed in 10 CFR 73.55(b)(11).

Local Law Enforcement Agencies (LLEA)

Section 5.6 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the LLEAs that will respond to the site as a part of the protective strategy. Details on the response of the LLEA are located in Section 8 of the PSP.

State Response Agencies

Section 5.7 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the State response agencies that will respond to the site as a part of the protective strategy.

Federal Response Agencies

Section 5.8 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the Federal response agencies that will respond to the site as a part of the protective strategy.

Response to ISFSI Events

Section 5.9 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d describes the Response Requirements for ISFSI as a part of the protective strategy.

The NRC staff has reviewed the applicant's description in SCP Sections 5.0 through 5.9 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR 50.54(p)(1) and (hh), 10 CFR 73.55(k), 10 CFR Part 73, Appendix B, Section VI and 10 CFR Part 73, Appendix C, Section II.B.3 and is, therefore, acceptable. In addition, Appendix C, "Introduction" states, in part, that it is important to note that an applicant's SCP is intended to be

complementary to any emergency plans developed pursuant to Appendix E to 10 CFR Part 50 and 10 CFR 52.17.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.3 of the VEGP SER:

> *13.6.4.3.6 Defense-In-Depth*
>
> *Section 6 of the SCP lists site physical security characteristics, programs, and the strategy elements that illustrate the defense-in-depth nature of the site protective strategy as required in 10 CFR 73.55(b)(3).*
>
> *The NRC staff has reviewed the applicant's description in SCP Section 6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR 73.55(b)(3) and is, therefore, acceptable.*
>
> *13.6.4.3.7 Primary Security Functions*
>
> *Section 7 of the SCP details the primary security functions of the site, and their roles in the site protective strategy. It also notes the development of target sets, and their function in the development of the site's protective strategy.*
>
> *The NRC staff has reviewed the applicant's description in SCP Section 7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR 10 CFR 73.55(b) and is, therefore, acceptable.*

13.6.4.3.8 Protective Strategy

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.c(v) require that applicants develop, implement and maintain a written protective strategy that shall: 1) be designed to meet the performance objectives of 10 CFR 73.55(a) through (k); 2) identify predetermined actions, areas of responsibilities, and timelines for the deployment of armed personnel; 3) include measures that limit the exposure of security personnel to possible attack; 4) include a description of the physical security systems and measures that provide defense-in-depth; 5) describe the specific structure and responsibilities of the armed response organization; and 6) provide a command and control structure.

Section 8 of the SCP describes the site protective strategy.

The NRC staff has reviewed the applicant's description in SCP Section 8 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description

provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.3.c(v) and is, therefore, acceptable.

The following portion of this technical evaluation section is reproduced from Section 13.6.4.3 of the VEGP SER:

> *13.6.4.3.9 Conclusions on the Safeguards Contingency Plan*
>
> *On the basis of the NRC staff's review described in Sections 13.6.4.3.1 through 13.6.4.3.8 of this SER, the SCP meets the requirements of 10 CFR Part 73, Appendix C, in accordance with the DBT of radiological sabotage as stated in 10 CFR 73.1. The target sets, Target Set Analysis and Site Protective Strategy are in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). The NRC staff concludes that complete and procedurally correct implementation of the SCP will provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.*

13.6.5 Post Combined License Activities

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

- License Condition (13-8) - No later than 12 months after issuance of the COL, the licensee shall submit to the Director of NRO, a schedule that supports planning for and conduct of NRC inspection of the physical security programs. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the physical security program has been fully implemented.

13.6.6 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 physical security, 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 the LNP COL FSAR is acceptable based on the applicable regulations specified in Section 13.6.4 of this SER. The staff based its conclusion on the following:

- STD COL 13.6-1, as related to the physical protection program, is acceptable based on the following discussion. The NRC staff's review of the LNP Units 1 and 2 PSP, T&QP, and SCP has focused on ensuring the necessary programmatic elements are included in these plans to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

The NRC staff has determined that these plans include the necessary programmatic elements that, when effectively implemented, will provide the required high assurance. The burden to effectively implement these plans remains with the applicant. Effective implementation is dependent on the procedures and practices the applicant develops to satisfy the programmatic elements of its PSP, T&QP, and SCP. The target set analysis and site protective strategy are in facility implementing procedures which were not subject to NRC staff review as part of this COL application and are therefore subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). As required by Section 3 of the applicant's PSP, a performance evaluation program will be implemented that periodically tests and evaluates the effectiveness of the overall protective strategy. This program requires that deficiencies be corrected. In addition, NRC inspectors will conduct periodic force-on-force exercises that will test the effectiveness of the applicant's protective strategy. Based on the results of the applicant's own testing and evaluation, the NRC's baseline inspections and force-on-force exercises, enhancements to the applicant's PSP, T&QP, and SCP may be required to ensure the overall protective strategy can be effectively implemented. As such, staff approval of the applicant's PSP, T&QP, and SCP is limited to the programmatic elements necessary to provide the required high assurance as stated above. Should deficiencies be identified with the programmatic elements of these plans as a result of the periodic applicant or NRC conducted drills or exercises that test the effectiveness of the overall protective strategy, the applicant shall correct the plans to address these deficiencies in a timely manner and to notify the NRC of these plan changes in accordance with the requirements of 10 CFR 50.54(p) or 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit."

The COL applicant's security plan information is withheld from public disclosure in accordance with the provisions of 10 CFR 73.21.

13.6.A Site-Specific ITAAC for Physical Security

13.6.A.1 Introduction

Part 10, "Proposed License Conditions and ITAAC," Appendix B, "Inspections, Tests, Analysis, and Acceptance Criteria" of the LNP COL application describes the license conditions for the plant's physical protection systems or features to provide physical protection of the site-specific protective strategy and elements of a site security program. The COL application incorporates by reference Tier 1 Section 2.6.9 of the AP1000 DCD, including plant layout and configurations of barriers, and lists ITAAC related to the site-specific design for achieving detection, assessment, communications, delay, and response for physical protection against potential acts of radiological sabotage and theft of special nuclear material.

The design bases or supporting security analyses and assumptions related to the design descriptions of security-related features incorporated by reference from the AP1000 DCD are in TR-94, APP-GW-GLR-066. Descriptions of site-specific security structures, programs and contingency measures are in the LNP PSP, which includes the site PSP, T&QP and the SCP.

13.6.A.2 Summary of Application

Section 14.3 of the LNP COL FSAR, Revision 6, incorporates by reference Section 14.3 of the AP1000 DCD, Revision 19. Part 10, Revision 6 of the LNP COL application incorporates by

reference DCD Tier 1 Section 2.6.9, which includes the physical security-inspections, tests, analyses, and acceptance criteria (PS-ITAAC) that are within the scope of the AP1000 standard design. Site-specific PS-ITAAC that are outside the scope of AP1000 DCD Tier 1 Section 2.6.9 are provided in Table 2.6.9-2 of Appendix B to Part 10 of the LNP COL application.

In addition, in LNP COL FSAR Section 14.3, the applicant provided the following:

Supplemental Information

- STD SUP 14.3-1

The applicant provided supplemental (SUP) information related to physical security in STD SUP 14.3-1 in LNP COL FSAR Section 14.3.2.3.2.

License Condition

- Part 10, License Condition 1

The applicant provided a license condition in Part 10 of the LNP COL application, Revision 2, which will incorporate the ITAAC identified in the tables in Appendix B. The staff evaluates this license condition in Chapter 1 of this SER.

13.6.A.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 are given in 10 CFR Part 73. The regulation includes specific security and performance requirements that, when adequately implemented, are designed to protect nuclear power reactors against acts of radiological sabotage, prevent the theft or diversion of special nuclear material, and protect safeguards information against unauthorized release.

The provisions of 10 CFR 52.80, Subpart A require that information submitted for a COL include the proposed ITAAC that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the ITAAC are met, the facility has been constructed and will operate in conformity with the COL, the provisions of the Atomic Energy Act, and the NRC's regulations.

The LNP Units 1 and 2 design descriptions, commitments, and acceptance criteria for the security features, including the plant's layout and determination of vital equipment and areas, for a certified design are based on physical protection systems or hardware provided for meeting requirements of the following Commission regulations:

- 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants"10 CFR 73.1(a)(1), "Radiological Sabotage"

- 10 CFR 73.55, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage," Appendix B, "General Criteria for Security Personnel"; Appendix C, "Nuclear Power Plant Safeguards Contingency Plans";

Appendix G, “Reportable Safeguards Events”; and Appendix H, “Weapons Qualification Criteria”

- 10 CFR Part 74, “Material control and accounting of special nuclear material”
- 10 CFR 100.21(f), “Non-seismic siting criteria”

Regulatory requirements and acceptance criteria related to physical protection systems or hardware are identified in Section 14.3.12 of NUREG-0800.

Regulatory guidance documents that are applicable to this evaluation are:

- RG 1.91, “Evaluations of Explosions Postulated to Occur at Transportation Routes Near Nuclear Power Plants,” Revision 1
- RG 1.206, “Combined License Applications for Nuclear Power Plants”
- RG 4.7, “General Site Suitability Criteria for Nuclear Power Stations,” Revision 2
- RG 5.7, Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas,” Revision 1
- RG 5.12, “General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials”
- RG 5.44, “Perimeter Intrusion Alarm Systems,” Revision 3
- RG 5.62, “Reporting of Safeguards Events,” Revision 1
- RG 5.65, “Vital Area Access Controls, Protection of Physical Protection System Equipment and Key and Lock Controls”
- RG 5.66, “Access Authorization Program for Nuclear Power Plants”
- Information Notice 86-83, “Underground Pathways into Protected Areas, Vital Areas, and Controlled Access Areas,” September 19, 1986
- Regulatory Information Summary (RIS) 2005-04, “Guidance on the Protection of Unattended Openings that Intersect a Security Boundary or Area,” April 14, 2005. (Exempt from public disclosure in accordance with 10 CFR 2.390, “Public inspections, exemptions, requests for withholding.”)

The COL applicant is required to describe commitments for establishing and maintaining a physical protection system (engineered and administrative controls), organization, programs, and procedures for implementing a site-specific strategy that, if adequately implemented, provide high assurance for protection of the plant against the DBT. The site-specific physical protection system described must be reliable and available and implement the concept of defense-in-depth protection in order to provide a high assurance of protection. The security operational programs and the physical protection system are required to meet the specific performance requirements of 10 CFR Part 26, “Fitness for Duty Programs”; 10 CFR 73.54, “Protection of Digital Computer and Communication Systems and Networks”; 10 CFR 73.55;

10 CFR 73.56, "Personnel access authorization requirements for nuclear power plants"; 10 CFR 73.57, "Requirements for criminal history records checks of individuals granted unescorted access to a nuclear power facility or access to Safeguards Information"; and 10 CFR 73.58. Physical protection hardware within the scope of the AP1000 design is addressed in the AP1000 DCD.

13.6.A.4 Technical Evaluation

The NRC staff reviewed Section 14.3 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 ITAAC for physical security. 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. The staff confirmed that the PEF letter dated September 23, 2010, contained the same technical information provided in the June 11, 2010, VEGP letter discussed in the standard content material below.

The following portion of this technical evaluation section is reproduced from Section 13.6.A.4 of the VEGP SER:

Supplemental Information

- *STD SUP 14.3-1*

STD SUP 14.3-1 adds the following after DCD Section 14.3.2.2 as new Section 14.3.2.3.2:

> *Generic PS-ITAAC have been developed in a coordinated effort between the NRC and the Nuclear Energy Institute (NEI) as outlined in Appendix C.II.I-C of Regulatory Guide 1.206. These*

generic ITAAC have been tailored to the AP1000 design and site-specific security requirements.

In Part 10, Appendix B of the VEGP Units 3 and 4 COL application, SNC describes the ITAAC for the plant's physical protection systems or features to provide physical protection of the site-specific protective strategy and elements of a site security program. The COL application incorporates by reference Tier 1 Section 2.6.9 of the AP1000 DCD, including plant layout and configurations of barriers, and listed ITAAC related to the site-specific design for achieving detection, assessment, communications, delay, and response for physical protection against potential acts of radiological sabotage and theft of special nuclear material. DCD Tier 1 Section 2.6.9 includes the physical security ITAAC that are in the scope of the AP1000 standard design. Site-specific physical security ITAAC that are outside the scope of AP1000 DCD Tier 1 Section 2.6.9 are provided in Table 2.6.9-2 of Appendix B to Part 10 of the VEGP COL application.

The NRC staff's evaluation of the PS-ITAAC (STD SUP 14.2-1) is documented in the Sections 13.6.A.4.1 through 13.6.A.4.3 of this SER.

13.6.A.4.1 Detection and Assessment Hardware

The applicant submitted the following ITAAC for detection and assessment hardware in their letter dated June 11, 2010, "Response to Request for Additional Information Letter No. 047, Supplement 2, Physical Security Inspections, Tests, Analyses, and Acceptance Criteria," This letter was used to complete the evaluation below.

1. *The external walls, doors, ceiling, and floors in the location within which the last access control function for access to the protected area is performed are bullet resistant to at least Underwriters Laboratory Ballistic Standard 752, Level 4. (Item 6 in Appendix A to Section 14.3.12 of NUREG-0800.)*

2. *Physical barriers for the protected area perimeter are not part of vital area barriers. (Item 2.a in Appendix A to Section 14.3.12 of NUREG-0800.)*

3.

   a) *Isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area that allows 20 feet of observation on either side of the barrier. (Item 3.a in Appendix A to Section 14.3.12 of NUREG-0800.)*

   b) *Where permanent buildings do not allow a 20-foot observation distance on the inside of the protected area, the building walls are immediately adjacent to, or an integral part of, the protected area barrier. (Item 3.c in Appendix A to Section 14.3.12 of NUREG-0800.) The isolation zones are monitored with intrusion detection equipment that provides the capability to detect and assess unauthorized*

persons. (Item 3.b in Appendix A to Section 14.3.12 of NUREG-0800.)

4. *The intrusion detection and assessment equipment at the protected area perimeter:*

   a) *Detects penetration or attempted penetration of the protected area barrier and concurrently alarms in both the Central Alarm Station and Secondary Alarm Station. (Item 4.a in Appendix A to Section 14.3.12 of NUREG-0800.)*

   b) *The intrusion detection and assessment equipment at the protected area perimeter remains operable from an uninterruptible power supply in the event of the loss of normal power. (Item 4.c in Appendix A to Section 14.3.12 of NUREG-0800.)*

6. *An access control system with numbered picture badges is installed for use by individuals who are authorized access to protected areas without escort. (Item 9 in Appendix A to Section 14.3.12 of NUREG-0800.)*

8.

   a) *Penetrations through the protected area barrier are secured and monitored. (Item 2.b in Appendix A to Section 14.3.12 of NUREG-0800.)*

   b) *Unattended openings (such as underground pathways) that intersect the protected area boundary or vital area boundary will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation. (Item 2.c in Appendix A to Section 14.3.12 of NUREG-0800.)*

On the basis of its review the NRC staff determined that the applicant has adequately revised Table 2.6.9-2 for Part 10 to the VEGP COL application PS-ITAAC items 2(a), 2(b), 2 (c), 3(a), 3(b), 3(c), 4(a), 4(c), 6(partially), and 9 identified in Appendix A to Section 14.3.12 of NUREG-0800.

The VEGP COL application references the AP1000 DCD, which addressed NUREG-0800, Section 14.3.12 PS-ITAAC 4(b), 5, 6(partially), 10, 11(a), 11(b), 11(c) and 14. The staff has determined that PS-ITAAC 6, described in NUREG-0800, Section 14.3.12 has been fully addressed between the VEGP submission and the AP1000 DCD.

In a supplemental response to RAI 14.3.12-1, the applicant stated:

The information contained in SRP ITAAC number 11(d) is redundant to existing ITAAC in the AP1000 Design Certification Document (DCD). AP1000 DCD security ITAAC numbers 1, 4, 5(a), 5(b), 5(c), 13(a), 13(b), 13(c), and 15(b) demonstrate that the central and secondary alarm stations are equal and

redundant, by being constructed, located, protected, and equipped to the standards for the central alarm station.

In RAI SRP 14.3.12-NSIR-7, Revision 1, Westinghouse stated:

No corresponding ITAAC has been provided for SRP 14.3.12 ITAAC number 11(d). The information contained in SRP ITAAC number 11(d) is redundant to existing ITAACs. AP1000 security ITAAC numbers 1, 4, 5(a), 5(b), 5(c), 13, and 15(b) demonstrate that the central and secondary alarm stations are constructed, located, protected, and equipped to the standards for the central alarm station.

On the basis of its review, the NRC staff determined that the applicant has adequately shown that NUREG-0800, Section 14.3.12 detection and assessment hardware ITAAC 11(d) is addressed.

13.6.A.4.2 Delay or Barrier Design

The applicant submitted the following ITAAC for Delay or Barrier Design in their "Response to Request for Additional Information Letter No. 047, Supplement 2, Physical Security Inspections, Tests, Analyses, and Acceptance Criteria," Dated June 11, 2010. This letter was used to complete the evaluation below.

5. *Access control points are established to:*

    a) *Control personnel and vehicle access into the protected area. (Item 8.a in Appendix A to Section 14.3.12 of NUREG-0800.)*

    b) *Detect firearms, explosives, and incendiary devices at the protected area personnel access points. (Item 8.b in Appendix A to Section 14.3.12 of NUREG-0800.)*

7. *Access to vital equipment physical barriers requires passage through the protected area perimeter barrier. (Item 1.b in Appendix A to Section 14.3.12 of NUREG-0800.)*

On the basis of its review, the NRC staff determined that the applicant has adequately addressed NUREG-0800, Section 14.3.12 delay or barrier design PS-ITAAC 1(b)(partially),8(a) and 8(b).

The VEGP COL application references the AP1000 DCD, which addressed NUREG-0800, Section 14.3.12 PS-ITAAC 1(a), 1(b)(partially), 7, 13(a) and 13(b). The staff has determined that PS-ITAAC 1(b) described in NUREG-0800, Section 14.3.12 has been fully addressed between the VEGP submission and the AP1000 DCD.

13.6.A.4.3 Systems, Hardware, or Features Facilitating Security Response and Neutralization

The applicant submitted the following ITAAC for Systems, Hardware, or Features Facilitating Security Response and Neutralization in their "Response to Request

for Additional Information Letter No. 047, Supplement 2, Physical Security Inspections, Tests, Analyses, and Acceptance Criteria," Dated June 11, 2010. This letter was used to complete the evaluation below.

9. *Emergency exits through the protected area perimeter are alarmed and secured with locking devices to allow for emergency egress. (Item 15 in Appendix A to Section 14.3.12 of NUREG-0800.)*

On the basis of its review, the NRC staff determined that the applicant has adequately addressed NUREG-0800, Section 14.3.12 delay or barrier design PS-ITAAC 15(partially).

The VEGP COL application references the AP1000 DCD, which addressed NUREG-0800, Section 14.3.12 PS-ITAAC 12, 15(partially) 16(a), 16(b) and 16(c). The staff has determined that PS-ITAAC 15 described in NUREG-0800, Section 14.3.12 has been fully addressed between the VEGP submission and the AP1000 DCD.

On the basis of its review, the NRC staff finds that since the applicant revised LNP COL FSAR Part 10 to incorporate the requirements for PS-ITAAC, the response to RAI 14.03.12- 1, 2 & 3 has adequately addressed NUREG-0800, Section 14.3.12, and is therefore, acceptable.

13.6.A.5 Post-Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff proposes to include the following ITAAC for physical security:

- The licensee shall perform and satisfy the ITAAC defined in Table 13.6A-1, "Site Specific Physical Security."

13.6.A.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 PS-ITAAC, 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 LNP COL FSAR and the additional information received in the PEF letter dated September 23, 2010, is acceptable based on the applicable regulations specified in Section 13.6.A.4 of this SER. The staff based its conclusion on the following:

- STD SUP 14.3-1, as related to PS-ITAAC, is acceptable based on the following discussion. The NRC staff finds that the applicant adequately describes the physical security systems or provides and/or facilitates the implementation of the site-specific protective strategy and security programs. The applicant adequately describes the site-specific PS-ITAAC for meeting the requirements of 10 CFR 73.55 and provides the technical bases for establishing a PS-ITAAC for the protection against acts of

radiological sabotage and theft of special nuclear material. The applicant includes systems and features as stated in LNP COL FSAR Chapter 13 and referenced TRs. The applicant has provided adequate descriptions of objectives, prerequisites, test methods, data required, and acceptance criteria for security related ITAAC for the approval of the LNP COL.

Table 13.6A-1 – Site-Specific Physical Security Inspections, Tests, Analyses and Acceptance Criteria

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
1. The external walls, doors, ceiling, and floors in the location within which the last access control function for access to the protected area is performed are bullet- resistant to at least Underwriters Laboratory Ballistic Standard 752, level 4.	Type test, analysis, or a combination of type test and analysis will be performed for the external walls, doors, ceilings, and floors in the location within which the last access control function for access to the protected area is performed.	The external walls, doors, ceilings, and floors in the location within which the last access control function for access to the protected area is performed are bullet- resistant to at least Underwriters Laboratory Ballistic Standard 752, level 4.
2. Physical barriers for the protected area perimeter are not part of vital area barriers.	An inspection of the protected area perimeter barrier will be performed.	Physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.

Table 13.6A-1 – Site-Specific Physical Security Inspections, Tests, Analyses and Acceptance Criteria

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
3.		
a) Isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area that allows 20 feet of observation on either side of the barrier. Where permanent buildings do not allow a 20-foot observation distance on the inside of the protected area, the building walls are immediately adjacent to, or an integral part of, the protected area barrier.	Inspections will be performed of the isolation zones in outdoor areas adjacent to the physical barrier at the perimeter of the protected area.	Isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and allow 20 feet of observation and assessment of the activities of people on either side of the barrier. Where permanent buildings do not allow a 20-foot observation and assessment distance on the inside of the protected area, the building walls are immediately adjacent to, or an integral part of, the protected area barrier and the 20-foot observation and assessment distance does not apply.
b) The isolation zones are monitored with intrusion detection equipment that provides the capability to detect and assess unauthorized persons.	Inspections will be performed of the intrusion detection equipment within the isolation zones.	The isolation zones are equipped with intrusion detection equipment that provides the capability to detect and assess unauthorized persons.

Table 13.6A-1 – Site-Specific Physical Security Inspections, Tests, Analyses and Acceptance Criteria

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
4. The intrusion detection and assessment equipment at the protected area perimeter: a) detects penetration or attempted penetration of the protected area barrier and concurrently alarms in both the central alarm station and secondary alarm station, and b) remains operable from an uninterruptible power supply in the event of the loss of normal power.	Tests, inspections or a combination of tests and inspections of the intrusion detection and assessment equipment at the protected area perimeter and its uninterruptible power supply will be performed.	The intrusion detection and assessment equipment at the protected area perimeter: a) detects penetration or attempted penetration of the protected area barrier and concurrently alarms in the central alarm station and secondary alarm station, and b) remains operable from an uninterruptible power supply in the event of the loss of normal power.
5. Access control points are established to: a) control personnel and vehicle access into the protected area. b) detect firearms, explosives, and incendiary devices at the protected area personnel access points.	Tests, inspections, or combination of tests and inspections of installed systems and equipment at the access control points to the protected area will be performed.	The access control points for the protected area: a) are configured to control personnel and vehicle access. b) include detection equipment that is capable of detecting firearms, incendiary devices, and explosives at the protected area personnel access points.

Table 13.6A-1 – Site-Specific Physical Security Inspections, Tests, Analyses and Acceptance Criteria

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
6. An access control system with numbered picture badges is installed for use by individuals who are authorized access to protected areas and vital areas without escort.	A test of the access control system with numbered picture badges will be performed.	The access authorization system with numbered picture badges can identify and authorize protected area and vital area access only to those personnel with unescorted access authorization.
7. Access to vital equipment physical barriers requires passage through the protected area perimeter barrier.	Inspection will be performed to confirm that access to vital equipment physical barriers requires passage through the protected area perimeter barrier.	Vital equipment is located within a protected area such that access to vital equipment physical barriers requires passage through the protected area perimeter barrier.
8.		
a) Penetrations through the protected area barrier are secured and monitored.	Inspections will be performed of penetrations through the protected area barrier.	Penetrations and openings through the protected area barrier are secured and monitored.
b) Unattended openings (such as underground pathways) that intersect the protected area boundary or vital area boundary will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.	Inspections will be performed of unattended openings that intersect the protected area boundary or vital area boundary.	Unattended openings (such as underground pathways) that intersect the protected area boundary or vital area boundary are protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.

Table 13.6A-1 – Site-Specific Physical Security Inspections, Tests, Analyses and Acceptance Criteria

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
9. Emergency exits through the protected area perimeter are alarmed and secured with locking devices to allow for emergency egress.	Tests, inspections, or a combination of tests and inspections of emergency exits through the protected area perimeter will be performed.	Emergency exits through the protected area perimeter are alarmed and secured by locking devices that allow prompt egress during an emergency.

13.7 Fitness for Duty

13.7.1 Introduction

Pursuant to 10 CFR 52.79(a)(44), COL applications must include a description of the FFD program required by 10 CFR Part 26 and its implementation. The FFD program is designed to provide reasonable assurance that: (1) individuals are trustworthy and reliable as demonstrated by the avoidance of substance abuse; (2) individuals are not under the influence of any substance, legal or illegal, or mentally or physically impaired from any cause, which in any way adversely affects their ability to safely and competently perform their duties; (3) measures are established and implemented for the early detection of individuals who are not fit to perform their duties; (4) the construction site is free from the presence and effects of illegal drugs and alcohol; (5) the work places are free from the presence and effects of illegal drugs and alcohol; and, (6) the effects of fatigue and degraded alertness on an individual's ability to safely and competently perform his or her duties are managed commensurate with maintaining public health and safety.

13.7.2 Summary of Application

LNP COL FSAR Section 13.7 is a new section added after Section 13.6 of the AP1000 DCD. The references that are currently in AP1000 DCD Section 13.7 have been redistributed to other LNP COL FSAR sections. There is no information associated with the FFD program incorporated by reference from the AP1000 DCD.

In addition, in LNP COL FSAR Section 13.7, the applicant provided the following:

Supplemental Information

- STD SUP 13.7-1

The applicant provided standard supplemental information in LNP COL FSAR Section 13.7 describing the FFD program for both the construction phase and the operating phase of the units. The construction phase program will be consistent with NEI 06-06, "Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites," and the construction phase program will be implemented prior to onsite construction of safety- and security-related structures, systems, and components (SSCs). The operations phase program will be consistent with 10 CFR Part 26.

License Conditions

- Part 10, License Condition 6

The applicant proposed a license condition to provide a schedule to support the NRC's inspection of operational programs included in the LNP COL FSAR Table 13.4-201 including the FFD program.

13.7.3 Regulatory Basis

The applicable regulatory requirements for STD SUP 13.7-1 are as follows:

- 10 CFR Part 26

- 10 CFR 52.79(a)(44)

Regulatory guidance for FFD programs is included in RG 1.206.

13.7.4 Technical Evaluation

The NRC staff reviewed Section 13.7 of the LNP COL FSAR to ensure that the COL application represents the complete scope of information relating to this review topic. The NRC staff review confirmed that the information in the application addresses the required information relating to the FFD program.

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 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 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. Instead of confirming that all responses to RAIs identified in the corresponding standard content evaluation were endorsed by the LNP applicant (which is a typical step when comparing the two applications), the NRC staff provides its evaluation of similar RAIs issued to LNP, following the standard content material. The one confirmatory item in the standard content material retains the number assigned in the VEGP SER, and is also addressed following the standard content material.

The following portion of this technical evaluation section is reproduced from Section 13.7.4 of the VEGP SER:

<u>Supplemental Information</u>

- *STD SUP 13.7-1*

The applicant provided a new Section 13.7 in the VEGP COL FSAR describing the FFD program. STD SUP 13.7-1 added the following text to Section 13.7:

> *The Fitness for Duty (FFD) Program (Program) is implemented and maintained in two phases; the construction phase program and the operating phase program. The construction and operations phase programs are implemented as identified in* [FSAR] *Table 13.4-201.*

The construction phase program is consistent with NEI 06-06 ([FSAR] *Reference 201). The workforce population subject to random testing during construction is determined on a weekly basis by averaging the total number of active construction badges over each preceding seven-day period. The random selection from each week's workforce population is identified by a standard computer-generated random number generator using this number of active badges as the range of numbers considered in the weekly random testing selection.*

The operations phase program is consistent with 10 CFR Part 26.

The staff notes that Reference 201 in the above text refers to Revision 4 of NEI 06-06.

The NRC staff's review of STD SUP 13.7-1 included the following: (1) the adequacy of the FFD program for the construction phase; (2) the adequacy of the FFD program for the operations phase; and (3) the implementation schedule proposed by the applicant for both the construction phase and operations phase FFD operational programs.

The NRC staff issued three RAIs to obtain further clarification on the applicant's FFD Program. The first two RAIs discussed below are associated with the resolution of STD SUP 13.7-1.

In RAI 13.6-33, the staff asked how the applicant intends to update its FFD program for the construction phase. NEI 06-06 provides examples of the FFD program that is required and, if this guidance is endorsed by the NRC, will provide an acceptable method of complying with the NRC's regulations. If the NRC endorses NEI 06-06, does the applicant intend to update its FFD program for the construction phase to comply with NEI 06-06? If future revisions to NEI 06-06 are endorsed by the NRC, does the applicant intend to update its FFD program for the construction phase to comply with certain clarifications, additions, and exceptions in these future, endorsed revisions, as necessary?

The applicant replied that it submitted an FFD Program for NRC approval as part of the Limited Work Authorization (LWA) request, and that the program is now being implemented as part of the construction activities. If NEI 06-06 is endorsed by the NRC, SNC plans to transition to a program that follows the guidance in NEI 06-06. The COL application currently commits to NEI 06-06, Revision 4, and will be changed in a future revision to commit to NEI 06-06, Revision 5. The applicant will evaluate substantial changes in subsequent revisions to NEI 06-06 and modify the construction phase FFD program to incorporate those substantial changes determined to be appropriate.

The applicant's response to RAI 13.6-33, as well as its supplemental response, revises Section 13.7 to address the issues discussed above. The relevant portion of the proposed revised text, to be included in a future revision of the VEGP COL FSAR, is included below:

The Fitness for Duty Program (FFD) is implemented and maintained in multiple and progressive phases dependent on the activities, duties, or access afforded to certain individuals at the construction site. In general, two different FFD programs will be implemented: a construction FFD program and an operations FFD program. The construction and operations phase programs are illustrated in [FSAR] *Table 13.4-201.*

The construction FFD program is consistent with NEI 06-06 ([FSAR] *Reference 201). NEI 06-06 applies to persons constructing or directing the construction of safety- and security-related structures, systems, or components performed onsite where the new reactor will be installed and operated. Management and oversight personnel, as further described in NEI 06-06, and security personnel prior to the receipt of special nuclear material in the form of fuel assemblies (with certain exceptions) will be subject to the operations FFD program that meets the requirements of 10 CFR Part 26, Subparts A through H, N, and O. At the establishment of a protected area, all persons who are granted unescorted access will meet the requirements of an operations FFD program. Prior to issuance of a Combined License, the construction FFD program at a new reactor construction site for those subject to Subpart K will be reviewed and revised as necessary should substantial revisions occur to either NEI 06-06 following NRC endorsement or the requirements of 10 CFR Part 26.*

The staff notes that Reference 201 in the above text refers to Revision 5 of NEI 06-06.

In RAI 13.6-34, the staff asked the applicant to: (1) describe how FSAR Table 13.4-201, Item 15, related to the security operational program, comports with 10 CFR 26.3, "Scope," and 10 CFR 26.4, and the guidance provided in the NRC's letter to NEI dated December 2, 2009, entitled "Status of U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 06-06, 'Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites,'" and (2) provide site-specific information to clearly and sufficiently describe the applicant's FFD program. This information would include, but is not limited to, any deviations or exceptions to the requirements of 10 CFR Part 26 as further described in NEI 06-06.

The applicant stated that the response to RAI 13.6-33 provided the changes to the COL application that will describe the FFD program required by 10 CFR Part 26. Site-specific information is also provided in that response to clarify which program will be used to cover the various classifications of workers that must be covered in accordance with 10 CFR Part 26. The applicant's response to RAI 13.6-35 (below) revises FSAR Table 13.4-201, Item 20 to address the guidance provided in the NRC's December 2, 2009 letter. The proposed revision to Item 20 of FSAR Table 13.4-201, to be included in a future revision of the VEGP COL FSAR, is included below:

Item	Program Title	Program Source (required by)	FSAR Section	Implementation Milestone	Implementation Requirements
20.	Fitness for Duty (FFD) Program for Construction (workers and first-line supervisors)	10 CFR 26.4(f)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subpart K
	FFD Program for Construction (management and oversight personnel)	10 CFR 26.4(e)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subparts A - H, N, and O
	FFD Program for Security Personnel	10 CFR 26.4(e)(1)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subparts A - H, N, and O
		10 CFR 26.4(a)(5) or 26.4(e)(1)		Prior to the earlier of: A. Licensee's receipt of SNM in the form of fuel assemblies, or B. Establishment of a protected area, or C. The 10 CFR 52.103(g) finding	10 CFR Part 26, Subparts A - I, N, and O
	FFD Program for FFD Program personnel	10 CFR 26.4(g)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subparts A, B, D - H, N, O, and C per licensee's discretion
	FFD Program for persons required to physically report to the Technical Support Center (TSC) or Emergency Operations Facility (EOF)	10 CFR 26.4(c)	13.7	Prior to the conduct of the first full-participation emergency preparedness exercise under 10 CFR Part 50, App. E, Section F.2.a	10 CFR Part 26, Subparts A - I, N, and O, except for §§ 26.205 – 209
	FFD Program for Operation	10 CFR 26.4(a) and (b)	13.7	Prior to the earlier of: A. Establishment of a protected area, or B. The 10 CFR 52.103(g) finding	10 CFR Part 26, Subparts A - I, N, and O, except for individuals listed in § 26.4(b), who are not subject to §§ 26.205 – 209

In its December 2, 2009, letter to NEI, the NRC stated that during the review and approval process for NEI 06-06, the applicant should provide the following statements in its application:

- *NEI 06-06, Revision 5 was used in the development of the construction site FFD program.*
- *The applicant will review and revise its construction site FFD program as necessary to ensure that it comports with the NRC-endorsed version of NEI 06-06.*

- *If the NRC staff's review of NEI 06-06 results in substantive changes to the most recent, docketed FFD program description provided by the applicant, the applicant must amend its application to reflect the changes.*

The applicant's proposed revisions to FSAR Section 13.7 satisfactorily address the three items described above. The December 2, 2009, letter also provided implementation milestones for consideration by applicants. The staff confirmed that the proposed revisions to FSAR Table 13.4-201, Item 20, include all of the implementation milestones in the December 2, 2009, letter.

Therefore, based on the staff's acceptance of the proposed revisions to FSAR Section 13.7 and to FSAR Table 13.4-201, Item 20, as noted above, the NRC staff concludes that the applicant has satisfactorily addressed STD SUP 13.7-1 by providing sufficient information on the FFD program for both the construction phase and the operating phase of the units. The inclusion of this information in a future revision of the VEGP COL FSAR is ***Confirmatory Item 13.7-1****.*

Resolution of VEGP Site-Specific Confirmatory Item 13.7-1

Confirmatory Item 13.7-1 is an applicant commitment to revise its FSAR Section 13.7 and Table 13.4-201 regarding the FFD program for the construction phase and the operating phase of the units. The staff verified that the VEGP COL FSAR was appropriately revised. As a result, Confirmatory Item 13.7-1 is now closed.

License Conditions

In RAI 13.6-35, the staff asked the applicant if proposed License Condition 3, A.1, and G.7, described in Part 10 of the COL application comports with FSAR Table 13.4-201, Item 15, which itemizes the aspects of the security operational program.

The staff further evaluated the need for License Condition 3, A.1 and G.7, for the VEGP COL application and determined it was not needed because the implementation milestones for FFD are governed by 10 CFR Part 26. The staff communicated this information to SNC, which then submitted Supplement 1 to its response to this RAI, removing this license condition for FFD.

- *Part 10, License Condition 6*

The applicant proposed 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 FFD program.

The proposed license condition is consistent with the policy established in SECY 05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," for operational programs and is acceptable.

Evaluation of LNP RAIs

The NRC staff issued RAIs to the LNP applicant, the first three of which mirrored the RAIs issued to the VEGP applicant. Specifically, RAIs 13.06.01-1, 13.06.01-2, and 13.06.01-3 issued to the LNP applicant correspond to RAIs 13.6-33, 13.6-34, and 13.6-35, respectively, issued to the VEGP applicant. In addition, the NRC staff issued RAI 13.06.01-4 to LNP.

The NRC staff evaluation of the responses provided by the LNP applicant to the four questions related to the FFD program is discussed below. The LNP applicant responded to these four RAIs in a letter dated March 26, 2010.

In response to RAI 13.06.01-1, the LNP applicant stated that it currently commits to NEI 06-06, Revision 4, and will change its application in a future revision to commit to NEI 06-06, Revision 5. The LNP applicant stated that it will evaluate substantial changes in subsequent revisions to NEI 06-06 and modify the construction phase FFD program to incorporate those substantial changes determined to be appropriate. The applicant's response to RAI 13.06.01-1 revises Section 13.7 to address the issues discussed above. The relevant portion of the proposed revised text, to be included in a future revision of the LNP COL FSAR, is included below:

> The Fitness for Duty Program (FFD) is implemented and maintained in multiple and progressive phases dependent on the activities, duties, or access afforded to certain individuals at the construction site. In general, two different FFD programs will be implemented: a construction FFD program and an operations FFD program. The construction and operations phase programs are illustrated in Table 13.4-201.
>
> The construction FFD program is consistent with NEI 06-06 ([FSAR] Reference 201). NEI 06-06 applies to persons constructing or directing the construction of safety- and security- related structures, systems, or components performed onsite where the new reactor will be installed and operated. Management and oversight personnel, as further described in NEI 06-06, and security personnel prior to the receipt of special nuclear material in the form of fuel assemblies (with certain exceptions) will be subject to the operations FFD program that meets the requirements of 10 CFR Part 26, Subparts A through H, N, and 0. At the establishment of a protected area, all persons who are granted unescorted access will meet the requirements of an operations FFD program. Prior to issuance of a Combined License, the construction FFD program at a new reactor construction site for those subject to Subpart K will be reviewed and revised as necessary should substantial revisions occur to either NEI 06-06 following NRC endorsement or the requirements of 10 CFR Part 26.

In response to RAI 13.06.01-2, the LNP applicant stated that the response to RAI 13.06.01-1 provides the changes to the COL application that will describe the FFD program required by 10 CFR Part 26. The site-specific information is also provided in that response to clarify which program will be used to cover the various classifications of workers that must be covered in accordance with 10 CFR Part 26. The response to RAI 13.06.01-3 provides the information on modifications to LNP COL FSAR Table 13.4-201, Item 20 to address the guidance provided in the NRC's December 2, 2009, letter to NEI. That RAI response includes changes to License Condition 3, Items A, C, and D in Part 10 of the COL application to align with the changes to LNP COL FSAR Table 13.4-201. The NRC staff verified that the proposed changes to LNP COL FSAR Table 13.4-201, Item 20 are identical to the proposed changes to the corresponding

VEGP COL FSAR Table 13.4-201, which is provided in the standard content evaluation material above.

In RAI 13.06.01-3, the staff asked the applicant if proposed License Condition in, 3, A, D and G described in Part 10 of the COL application comports with FSAR Table 13.4-201, Item 15, which itemizes the aspects of the security operational program.

In response to RAI 13.06.01-3 the LNP applicant stated the response to R-COLA RAI 13.06-35 (VEGP eRAI 4216) is also applicable to LNP, and it does not require additional review.

The staff further evaluated the need for License Condition 3, A, D and G, for the LNP COL application and determined it was not needed because the implementation milestones for FFD are governed by 10 CFR Part 26. The staff communicated this information to LNP, and removed the license conditions with the issuance of COL FSAR Revision 2.

In RAI 13.06.01-4 the staff asked the applicant to explain the word "onsite," which is contained in the COL application, Part 2, FSAR, Table 13.4-201 (Sheet 7 of 7), item number 20, for FFD Programs for Construction – Mgt & Oversight Personnel, in the milestone description. This was in contrast to the item for FFD Programs for Construction - Workers & First Line Supervisors, which is the same, but does not include "onsite" in its wording. Although construction is defined in 10 CFR 50.10 and 10 CFR 26.5, these definitions do not include the additional word "onsite."

In response to RAI 13.06-4, LNP stated that RAI response 13.06.01-3, FSAR Table 13.4-201 will be modified to address the guidance in the NRC's letter to the Nuclear Energy Institute dated December 2, 2009, entitled "Status of U.S. Nuclear Regulatory Commission review and Endorsement of NEI 06-06. 'Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites,'" which will make all implementation milestones consistent.

The NRC staff compared the responses to the first three RAIs provided by the LNP applicant to the responses provided by the VEGP applicant, and concluded that the responses are essentially identical, after accounting for the differences of an Early Site Permit having been issued for the VEGP site for this issue. Therefore, the conclusions reached by the NRC staff regarding the FFD program at VEGP are applicable to the FFD program at LNP.
RAI 13.06.01-4, the LNP item not included in the VEGP RAIs, was a minor, one-word clarification. The inclusion of the information provided in the RAI responses in a future revision of the LNP COL FSAR is part of **Confirmatory Item 13.7-1** that is discussed in the standard content portion of this safety evaluation above.

<u>Resolution of Levy Site-Specific Confirmatory Item 13.7-1</u>

Confirmatory Item 13.7-1 is an applicant commitment to revise its FSAR Section 13.7 and Table 13.4-201 regarding the FFD program for the construction phase and the operating phase of the units. The staff verified that the LNP COL FSAR was appropriately revised. As a result, Confirmatory Item 13.7-1 is now closed.

13.7.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff finds the following license conditions proposed by the applicant acceptable:

- License Condition (13-9) - The licensee shall submit to the Director of NRO, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspection of the FFD operational program. The schedule shall be updated every 6 months until 12 months before scheduled fuel load, and every month thereafter until either the FFD operational program has been fully implemented or the plant has been placed in commercial service, whichever comes first.

13.7.6 Conclusion

The NRC staff review confirmed that the applicant addressed the required information relating to the FFD program and there is no outstanding information to be addressed in the LNP COL FSAR related to this section.

The staff concludes that the information presented in the LNP COL FSAR is acceptable because it meets the regulatory requirements in 10 CFR Part 26 and 10 CFR 52.79(a)(44). The staff based its conclusion on the following:

- STD SUP 13.7-1, relating to the FFD program, is acceptable because it meets 10 CFR Part 26 and 10 CFR 52.79(a)(44).

13.8 Cyber Security

13.8.1 Introduction

In a letter to the NRC, dated July 23, 2010, PEF submitted Revision 1 of the CSP for LNP Units 1 and 2. The CSP applies to all critical digital assets (CDAs) required for LNP operation. In the submittal, the applicant describes how the requirements of 10 CFR 73.54 will be implemented to protect digital computer and communications systems and networks associated with the following functions from those cyber attacks, up to and including the DBT described in 10 CFR 73.1. The scope of 10 CFR 73.54 includes CDAs associated with the following:

- safety-related and important-to-safety functions
- security functions
- emergency preparedness functions, including offsite communications
- support systems and equipment which, if compromised, would adversely impact safety, security, or emergency preparedness functions

13.8.2 Summary of Application

The applicant addresses cyber security in Section 13.6 of the LNP COL FSAR. Section 13.6 of the LNP COL FSAR, Revision 6, incorporates by reference Section 13.6 of the AP1000 DCD, Revision 19. The applicant's CSP includes deviations from RG 5.71, "Cyber Security Programs for Nuclear Facilities." The staff has evaluated these deviations.

In addition, in LNP COL FSAR Section 13.6, the applicant provides the following:

AP1000 COL Information Item

- STD COL 13.6-5

The applicant provided additional information in STD COL 13.6-5 to address COL Information Item 13.6-5, which provides information related to the cyber security program.

License Conditions

- Part 10, License Condition 2, COL Item 13.6-5 and License Condition 3, Item G.10

The applicant proposed a license condition in Part 10 of the LNP COL application requiring the applicant to implement the cyber security program prior to initial fuel load.

- 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 operational programs included in LNP COL FSAR Table 13.4-201 including the cyber security program.

13.8.3 Regulatory Basis

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

The applicable regulatory requirements for cyber security are as follows:

- 10 CFR 73.1, "Purpose and scope"
- 10 CFR 73.54, "Protection of digital computer and communication systems and networks"
- 10 CFR 73.55, paragraphs (a)(1), (b)(8), and (m)
- 10 CFR 73.58, "Safety/security interface requirements for nuclear power reactors"
- 10 CFR Part 73, "Physical protection of plants and materials," Appendix G, "Reportable Safeguards Events"

The applicable regulatory guidance for cyber security is RG 5.71.

13.8.4 Technical Evaluation

The NRC staff reviewed Section 13.6 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 cyber security. 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's review of the LNP CSP has focused on ensuring that the necessary programmatic elements are included in these plans to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety. The staff reviewed the LNP CSP to assure

the necessary programmatic elements that, when effectively implemented, will provide the required high assurance of adequate protection. Effective implementation is dependent on the procedures and practices the applicant develops to satisfy the programmatic elements of its CSP. The facility implementing procedures are subject to future NRC inspection.

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 the July 23, 2010, LNP submittal transmitting its CSP was identical to the June 14, 2010, VEGP submittal transmitting its CSP, with the only exceptions being to the title of the units, the names of the applicants and the identification of the position charged with oversight of the program.

- 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 finding included verifying that the difference in the position charged with oversight of the program (the Vice President of Nuclear Engineering at LNP and Vice President of Nuclear Operations Support at VEGP) does not affect the staff's conclusions regarding the applicant's CSP. This standard content material is identified in this SER by use of italicized, double-indented formatting. The one confirmatory item in the standard content material retains the number assigned in the VEGP SER.

The following portion of this technical evaluation section is reproduced from Section 13.8.4 of the VEGP SER:

<u>AP1000 COL Information Item</u>

- *STD COL 13.6-5*

The NRC staff reviewed STD COL 13.6-5 related to COL Information Item 13.6-5, which identifies the need for a COL applicant to address cyber security. STD COL 13.6-5 supplemented Section 13.6 of the VEGP COL FSAR by stating the following text is to be added after Section 13.6 of the VEGP ESP SSAR:

> *The Cyber Security Plan is submitted to the Nuclear Regulatory Commission as a separate licensing document to fulfill the requirements contained in 10 CFR 52.79(a)(36) and 10 CFR 73.54. The Cyber Security Plan will be maintained in accordance with the requirements of 10 CFR 52.98. The Plan is withheld from public disclosure pursuant to 10 CFR 2.390.*

Section 13.6 of the VEGP COL FSAR also refers to FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations," as providing the milestone for implementing the cyber security program.

The VEGP applicant submitted its Revision 0 of its CSP in a letter dated June 14, 2010, to demonstrate that the cyber security program will provide high assurance that digital computer and communication systems and networks are adequately protected against cyber attacks, up to and including the DBT as described in 10 CFR 73.1. The CSP has been withheld from public disclosure pursuant to 10 CFR 2.390(d)(1). In its review of this plan, the NRC staff used the guidance in RG 5.71 to determine if the regulatory requirements described in Section 13.8.3 of this SER are satisfied.

The applicant described the cyber security program based on 10 CFR 73.54, including the audit of the effectiveness of the cyber security program as required by 10 CFR 73.55(m), submittal of CSPs and the establishment, maintenance and implementation of a cyber security program required by 10 CFR 73.55(a)(1) and 10 CFR 73.55(b)(8) and reporting requirements in 10 CFR Part 73, Appendix G. The implementation milestones for this program are included in VEGP COL FSAR Table 13.4-201.

As detailed in the remainder of this SER section, the CSP has been reviewed by the NRC staff for format and content utilizing the NRC CSP template in RG 5.71, and found to include all features considered essential for such a program, and is acceptable. In particular, it has been found to comply with the Commission's regulations including 10 CFR 73.54, 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), 10 CFR 73.55(m), and 10 CFR Part 73, Appendix G and conforms to the NRC CSP template set forth in RG 5.71.

The applicant has committed to incorporate this CSP into a future revision of the VEGP COL application to address NRC requirements in 10 CFR 73.54. This action will be tracked as ***Confirmatory Item 13.8-1.***

Resolution of VEGP Site-Specific Confirmatory Item 13.8-1

Confirmatory Item 13.8-1 is an applicant commitment to include the CSP into a future revision of the VEGP COL application. The staff verified that the VEGP COL application was appropriately revised. As a result, Confirmatory Item 13.8-1 is now closed.

13.8.4.1 Establishment of Cyber Security Program

The VEGP CSP describes how SNC will establish a cyber security program to achieve high assurance that the VEGP digital computer and communication systems and networks associated with safety, security, and emergency preparedness, including offsite communications and support systems and equipment which if compromised would adversely impact safety, security and/or emergency preparedness (SSEP) functions, and their digital assets, hereafter defined as CDAs, are adequately protected against cyber attacks up to and including the DBT. RG 5.71 provides a method that the staff considers

acceptable for complying with this regulation. SNC complies with the requirements of 10 CFR 73.54 by providing a CSP that follows the template in Appendix A of RG 5.71, except as noted in Attachment A, "Vogtle Electric Generating Plant Units 3 and 4 Cyber Security Plan Deviations from Regulatory Guide RG 5.71." The VEGP CSP included:

> *Within the scope of the NRC's cyber security rule at 10 CFR 73.54, systems or equipment that perform important to safety functions include structures, systems, and components (SSCs) in the balance of plant (BOP) that could directly or indirectly affect reactivity at a nuclear power plant and could result in an unplanned reactor shutdown or transient. Additionally, these SSCs are under the licensee's control and include electrical distribution equipment out to the first inter-tie with the offsite distribution system.*

The VEGP CSP included a deviation from the guidance to clarify that systems or equipment that perform important to safety functions include SSCs in the balance of plant (BOP) that could directly or indirectly affect reactivity and could result in an unplanned reactor shutdown or transient. This deviation is consistent with Commission policy.

The NRC staff reviewed the VEGP CSP against the template in RG 5.71 and the staff requirements memorandum (SRM), CMWCO-10-0001, "Regulation of Cyber Security at Nuclear Power Plants," dated October 21, 2010.

The applicant states in the VEGP CSP that its security program complies with 10 CFR 73.54 by:

(1) establishing and implementing defensive strategies consistent with the defensive model, described in Section 3.1.5, including the security controls described in Sections 3.1, 3.2, and 3.3.

(2) maintaining the program, as described in Section 4.

Based on the above review, the NRC staff finds that establishment of a cyber security program described in Section 1 of the VEGP CSP is acceptable.

The following SER Sections 13.8.4.2 through 13.8.4.23 correlate to specific sections in Appendix A to RG 5.71. These SER sections use the same headings as the corresponding Appendix A sections, and include the Appendix A numbering system in the titles. SER Section 13.8.4.24 addresses each of the deviations identified in the applicant's CSP.

13.8.4.2 <u>Security Assessment and Authorization (Section A.3.1.1 of Appendix A to RG 5.71)</u>

Section 3.1.1 of the VEGP CSP states that the following will be reviewed every 24 months:

- *A formal documented security planning, assessment, and authorization policy that describes the purpose, scope, roles, responsibilities, management commitments, and coordination among departments and the implementation of the security program and the controls applied in accordance with Section 3.1.6*

- *A formal documented procedure to facilitate the implementation of the cyber security program and the security assessment*

The NRC staff reviewed the above and found that evaluation of the program elements every 24 months is not consistent with Section C.3.1.1 of RG 5.71. The time period between evaluations is 12 months longer than the time period provided in brackets in RG 5.71. However, this 24-month time period conforms to 10 CFR 73.54(g), requiring the applicant to review the cyber security program as a component of the physical security program in accordance with the requirements of 10 CFR 73.55(m), including the periodicity requirements. The requirement of 10 CFR 73.55(m) is that at minimum the applicant review each element of the physical protection program at least every 24 months.

Based on the above review, the NRC staff finds that the security assessment and authorization described in Section 3.1.1 of the VEGP CSP is acceptable.

13.8.4.3 Cyber Security Team (Section A.3.1.2 of Appendix A to RG 5.71)

Section 3.1.2 of the VEGP CSP states that a cyber security team, composed of individuals with broad knowledge, will be established and maintained and that the broad knowledge of the team will include the following areas:

- *Information and digital system technology; this includes cyber security, software development, offsite communications, computer system administration, computer engineering, and computer networking.*

- *Nuclear facility operations, engineering, and safety; this includes overall facility operations and plant technical specification compliance.*

- *Physical security and emergency preparedness; this includes the site's physical security and emergency preparedness systems and programs.*

This section of the VEGP CSP also enumerates the roles and responsibilities of the cyber security team. Aside from the deviations discussed below, this section of the VEGP CSP conforms to the CSP template wording provided in Section A.3.1.2 of RG 5.71.

The VEGP CSP includes several deviations from the text of RG 5.71:

1) *The first deviation clarifies that the cyber security team (CST) will be responsible for "overseeing" preparation of documentation of cyber security controls and that, in fact, non-team members (such as vendor personnel) may perform some of these actions, under the supervision of the CST. This clarification is acceptable to the staff since the*

responsibility to ensure compliance with 10 CFR 73.54 remains with the CST.

2) *The second deviation changes the CST responsibility from "assuring the retention" of assessment documentation to "establishing the retention policy" for assessment documentation. Again, the deviation is acceptable to the staff since the responsibility to ensure compliance with 10 CFR 73.54 remains with the CST.*

3) *The third and final deviation seeks to change the basis for CST determinations being made in a free and objective manner. The RG 5.71 wording states that the CST should be free to make determinations that are not constrained by "operational goals." The deviation changes the respective sentence to say "…by business goals." Again, the deviation is acceptable to the staff since it maintains the same objective of keeping financial considerations out of decision making regarding cyber security.*

Based on the above review, the NRC staff finds that the CST described in Section 3.1.2 of the VEGP CSP is acceptable.

13.8.4.4 <u>Identification of Critical Digital Assets (Section A.3.1.3 of Appendix A to RG 5.71)</u>

Section 3.1.3 of the VEGP CSP states that to identify the critical systems (CSs) at VEGP, the CST identified and documented plant systems, equipment, communication systems, and networks that are associated with the SSEP functions described in 10 CFR 73.54(a)(1), as well as the support systems associated with these SSEP functions in accordance with the approved plant licensing basis.

The VEGP CSP also states that the CST identified and documented CDAs that have a direct, supporting, or indirect role in the proper functioning of CSs.

The steps outlined in the VEGP CSP essentially match the corresponding steps described in RG 5.71 for this same activity. The only difference between the corresponding section in RG 5.71 and the VEGP CSP is the addition of the modifying phrase: "…and defined in the approved plant licensing basis."

10 CFR 73.54(a)(1) requires that the licensee protect digital computer and communication systems and networks associated with: (i) safety-related and important-to-safety functions; (ii) security functions; (iii) emergency preparedness functions, including offsite communications; and (iv) support systems and equipment which, if compromised, would adversely impact SSEP functions.

This deviation is acceptable because SNC proposes to use its licensing basis to identify CSs that are associated with SSEP functions, as 10 CFR 73.54 requires. This statement includes the first step in RG 5.71 to analyze digital computer and communication systems and networks to determine if they include CDAs.

Based on the above review, the NRC staff finds the applicant's proposal, described in Section 3.1.3 of the VEGP CSP, to use 10 CFR 73.54(a)(1) and its licensing basis to identify CDAs to be acceptable.

13.8.4.5 Reviews and Validation Testing (Section A.3.1.4 of Appendix A to RG 5.71)

Section 3.1.4 of the VEGP CSP states that the VEGP CST will be responsible for conducting a review, performing validation activities, and for each CDA, the CST determined:

- *its direct and indirect connectivity pathways*
- *infrastructure interdependencies*
- *the application of defensive strategies, including defensive models, security controls, and other defensive measures*

The CSP also requires that the CST validate the above activities through comprehensive walkdowns, which include a range of activities that conform to those activities specified in RG 5.71 for this purpose.

The requirements, processes and procedures described in this section of the VEGP CSP conform to, and encompass all of the same specifications, outlined in the comparable section of RG 5.71.

Based on the above review, the NRC staff finds that reviews and validation testing described in Section 3.1.4 of the VEGP CSP is acceptable.

13.8.4.6 Defense-In-Depth Protective Strategies (Section A.3.1.5 of Appendix A to RG 5.71)

Section 3.1.5 of the VEGP CSP states that the defensive strategy consists of the defensive model described in Section C.3.2 of RG 5.71, and the detailed defensive architecture of Appendix C, Section 6, defense-in-depth controls in Appendix C, Section 7, and security controls applied in accordance with Section 3.1.6 of the VEGP CSP with one deviation to its defensive architecture. The VEGP defensive architecture, including the deviation is consistent with the security model described in RG 5.71, which provides for isolation of safety-related and security CDAs.

Based on the above review, the NRC staff finds that the defense-in-depth protective strategies described in Section 3.1.5 of the VEGP CSP are acceptable.

13.8.4.7 Application of Security Controls (Section A.3.1.6 of Appendix A to RG 5.71)

Section 3.1.6 of the VEGP CSP states that VEGP Units 3 and 4 established defense-in-depth protective strategies by applying and documenting the following:

- *the defensive model described in Section 3.2 of RG 5.71 (discussed in SER Section 13.8.4.6)*

- *the physical and administrative security controls established by the VEGP Units 3 and 4 Physical Security Program and physical barriers, such as locked doors, locked cabinets, and locating CDAs in the VEGP Units 3 and 4 protected area or vital areas, which are part of the overall security controls used to protect CDAs from attacks*

- *verification of the effectiveness of the implemented operational and management controls described in Appendix C to RG 5.71 and implemented alternatives to the Appendix C controls for each CDA*

- *the technical controls described in Appendix B to RG 5.71 and the operational and management controls described in Appendix C to RG 5.71, consistent with the process described below*

The VEGP CSP deviates from RG 5.71, Section C.3.3 Security Controls and Appendix A.3.1.6, by stating that when a control from Appendices B and C of RG 5.71 is not implemented, the licensee will implement alternate control(s) that "do not provide less protection than the corresponding" control in the appendix. This deviation is consistent with the method used in RG 5.71, which states that controls should provide equal or better protection.

The VEGP CSP also deviates from RG 5.71 by stating that when a control can be proved to be unnecessary, the applicant will perform an analysis demonstrating that the control is not necessary, and will provide a documented justification. Although RG 5.71 specifically calls for an attack vector analysis, and the VEGP CSP does not specifically commit to performing an attack vector analysis, the VEGP CSP does commit to justifying the non-applicability of a control by demonstrating that the attack vector does not exist. This provides for the same outcome as RG 5.71.

Based on the above review, the NRC staff finds that the application of security controls described in Section 3.1.6 of the VEGP CSP is acceptable.

13.8.4.8 <u>Incorporating the Cyber Security Program into the Physical Protection Program (Section A.3.2 of Appendix A to RG 5.71)</u>

Section 3.2 of the VEGP CSP states that the licensee will provide the management interfaces necessary to appropriately coordinate physical and cyber security activities, as follows:

- *establish an organization that is responsible for cyber security and is independent from operations*

- *document physical and cyber security interdependencies*

- *develop policies and procedures to coordinate management of physical and cyber security controls*

- *incorporate unified policies and procedures to secure CDAs from attacks up to and including the DBT*

- *coordinate acquisition of physical or cyber security services, training, devices, and equipment*

- *coordinate interdependent physical and cyber security activities and training with physical and cyber security personnel*

- *integrate and coordinate incident response capabilities with physical and cyber incident response personnel*

- *train senior management regarding the needs of both disciplines*

- *periodically exercise the entire security organization using realistic scenarios combining both physical and cyber simulated attacks*

The VEGP CSP deviates from RG 5.71 by not creating a unified security organization. The commitment to provide for appropriate management interfaces to coordinate the physical and cyber security organizations provides for a level of integration equivalent to a unified organization.

Based on the above review, the NRC staff finds that the incorporation of the cyber security program into the physical protection program described in Section 3.2 of the VEGP CSP is acceptable.

13.8.4.9 <u>Policies and Implementing Procedures (Section A.3.3 of Appendix A to RG 5.71)</u>

Section 3.3 of the VEGP CSP states that the licensee will develop policies and procedures to address the security controls in Appendices B and C to RG 5.71 and review and approve issues and uses, and revise the same according to Section 4 of the CSP. The CSP will also establish specific responsibilities for the positions described in Section 10.10 of Appendix C to RG 5.71, with the following deviation.

The CSP states that this will occur "in accordance with the security control application process in Section 3.1.6 of this Plan." This process requires the applicant to justify and demonstrate that any deviation from the controls in RG 5.71 provide no less protection than the corresponding control in Appendices B and C; therefore, the VEGP CSP will require the same level of protection as the corresponding commitment in RG 5.71.

Based on the above review, the NRC staff finds that the policies and implementing procedures described in Section 3.3 of the VEGP CSP are acceptable.

13.8.4.10 Maintaining the Cyber Security Program (Section A.4 of Appendix A to RG 5.71)

Section 4 of the VEGP CSP states that the applicant will establish the programmatic elements necessary to maintain security throughout the life cycle of the CDAs, and that the applicant has implemented these elements. For new assets, SNC commits to follow the process described in Section 4.2.

Section 4 of the VEGP CSP is nearly identical to Section C.4 of RG 5.71, with the deviation of replacing the bracketed text [Licensee/Applicant] *with VEGP Units 3 and 4, and by including the caveat that the operational and management controls are applied following the process described in Section 3.1.6. The process described in Section 3.1.6 allows the licensee/applicant to not apply a control if it can demonstrate that the control is not necessary by justifying that the attack vector associated with the control does not exist. This approach is consistent with the method used in RG 5.71, and does not reduce the protection to the plant.*

Based on the above review, the NRC staff finds that the maintenance of the cyber security program described in Section 4 of the VEGP CSP is acceptable.

13.8.4.11 Continuous Monitoring and Assessment (Section A.4.1 of Appendix A to RG 5.71)

Section 4.1 of the VEGP CSP states that the licensee will continue to monitor security controls for effectiveness; will ensure that they remain in place throughout the life cycle of the CDA; and will verify that rogue assets are not connected to the infrastructure.

The VEGP CSP includes a single deviation from Section A.4.1 of RG 5.71. The RG states that "[Licensee/Applicant] *continuously monitors security controls consistent with Appendix C to RG 5.71," whereas the VEGP CSP states that "VEGP Units 3 and 4 continues to monitor security controls consistent with Appendix C to RG 5.71."*

This deviation is consistent with the method in RG 5.71, which calls for periodic assessments, which is consistent with the statement "continues to monitor."

Based on the above review, the NRC staff finds that the ongoing monitoring and assessment described in Section 4.1 of the VEGP CSP is acceptable.

13.8.4.12 Periodic Assessment of Security Controls (Section A.4.1.1 of Appendix A to RG 5.71)

Section 4.1.1 of the VEGP CSP states that the licensee will periodically assess that security controls implemented for each CDA remain robust, resilient, and effective in place throughout the life cycle, at least every 24 months.

The NRC staff reviewed the above and found that this period of assessment is not consistent with RG 5.71. The time period between evaluations is 12 months longer than the time period provided in RG 5.71. However, this 24-month time

period conforms to 10 CFR 73.54(g) requiring the licensee/applicant to review the cyber security program as a component of the physical security program in accordance with the requirements of 10 CFR 73.55(m), including the periodicity requirements. The requirements of 10 CFR 73.55(m) are that, at a minimum, the licensee/applicant review each element of the physical protection program, which includes the cyber security program, at least every 24 months.

Furthermore, the VEGP CSP states that controls will be reviewed according to the requirements of the security controls if that period of review occurs more often. This is also consistent with the method provided in RG 5.71.

Based on the above review, the NRC staff finds that the periodic assessment of security controls described in Section 4.1.1 of the VEGP CSP is acceptable.

13.8.4.13 Effectiveness Analysis (Section A.4.1.2 of Appendix A to RG 5.71)

Section 4.1.2 of the VEGP CSP states that the licensee will monitor and measure the effectiveness of the cyber security program and its security controls to ensure that both are implemented correctly, operating as intended, and continuing to provide high assurance that CDAs are protected against cyber attacks. The licensee commits to verifying the effectiveness of the security controls every 24 months, or in accordance with the specific requirements of the implemented security controls, whichever is more frequent.

The NRC staff reviewed the above and found that this period of verification is inconsistent with RG 5.71. The time period between evaluations is 12 months longer than the time period provided in RG 5.71. However, this 24-month time period conforms to 10 CFR 73.54(g) requiring the applicant to review the cyber security program as a component of the physical security program in accordance with the requirements of 10 CFR 73.55(m), including the periodicity requirements. The requirements of 10 CFR 73.55(m) are that, at a minimum, the applicant review each element of the physical protection program, which includes the cyber security program, at least every 24 months.

Furthermore, the VEGP CSP states that verification will also occur according to the requirements of the security controls if that period of verification occurs more often. This is also consistent with the method provided in RG 5.71.

Based on the above review, the NRC staff finds that the effectiveness analysis described in Section 4.1.2 of the VEGP CSP is acceptable.

13.8.4.14 Vulnerability Assessments and Scans (Section A.4.1.3 of Appendix A to RG 5.71)

Section 4.1.3 of the VEGP CSP states vulnerability assessments will be performed as specified in the security controls in Appendices B and C of RG 5.71 to identify new vulnerabilities that have the potential to impact the effectiveness of the cyber security program and the security of the CDAs. The applicant also commits to address vulnerabilities that could cause CDAs to become compromised or could have an adverse impact on SSEP functions. Section 13.1 of Appendix C of RG 5.71 provides that vulnerability assessments should occur no less frequently than once a quarter, at random intervals, and when new potential vulnerabilities are reported and identified.

Section A.4.1.3 of RG 5.71 states that vulnerability assessments will occur no less frequently than quarterly, whereas the VEGP CSP states that this will occur, "as specified in the implemented security controls in Appendices B and C to RG 5.71 and implemented alternatives to the Appendices B and C controls." The process SNC has committed to in Section 3.1.6 of the VEGP CSP requires SNC, if it does not implement the controls in Appendices B and C, to demonstrate that an alternate control does not provide less protection than the corresponding control in Appendices B and C.

Therefore, if SNC does not implement the security control in Section 13.1, or deviates from the requirement for a quarterly vulnerability assessment, it will ensure that this deviation does not provide less protection than performing quarterly vulnerability assessments, and will provide an analysis that demonstrates that the attack vector does not exist and will document this justification for inspection.

Based on the above review, the NRC staff finds that the vulnerability assessments and scans described in Section 4.1.3 of the VEGP CSP are acceptable.

13.8.4.15 Change Control (Section A.4.2 of Appendix A to RG 5.71)

Section 4.2 of the VEGP CSP states that the licensee will systematically plan, approve, test, and document changes to the environment of the CDAs, the addition of CDAs to the environment, and changes to existing CDAs in a manner that provides a high level of assurance that the SSEP functions are protected from cyber attacks. The CSP also commits that the program establish that changes made to CDAs use the design control and configuration management procedures or other procedural processes to ensure that the existing security controls are effective and that any pathway that can be exploited to compromise a CDA is protected from cyber attacks.

The VEGP CSP does not deviate from Section A.4.2 of RG 5.71.

Based on the above review, the NRC staff finds that the change control process described in Section 4.2 of the VEGP CSP is acceptable.

13.8.4.16 Configuration Management (Section A.4.2.1 of Appendix A to RG 5.71)

Section 4.2.1 of the VEGP CSP states that the licensee will implement and document a change management process as described in Section 4.2 of the VEGP CSP. Further, it commits to implement and document the applied configuration management controls described in Appendix C, Section 11 to RG 5.71 following the process described in Section 3.1.6 of the CSP.

The VEGP CSP does not specifically commit to apply the security controls in Section 11 of Appendix C of RG 5.71; however, it does commit to apply the process in Section 3.1.6 of the CSP. The commitment in Section 4.2.1 is consistent with Section A.4.2.2 of RG 5.71 as the applicant has committed, if it does not implement the security controls in Section 11 of RG 5.71, either to implement alternative controls that do not provide less protection than what is in Section 11, or to demonstrate that this control is unnecessary by demonstrating that the attack vectors associated with Section 11 to Appendix C of RG 5.71 do not exist for VEGP.

Based on the above review, the NRC staff finds that the configuration management process described in Section 4.2.1 of the VEGP CSP is acceptable.

13.8.4.17 Security Impact Analysis of Changes and Environment (Section A.4.2.2 of Appendix A to RG 5.71)

Section 4.2.2 of the VEGP CSP states that the applicant will perform a security impact analysis in accordance with Section 4.1.2 before implementing a design or configuration change to a CDA or, when changes to the environment occur, to manage potential risks introduced by the changes. The CSP also commits to evaluate, document, and incorporate into the security impact analysis safety and security interdependencies of other CDAs or systems, as well as updates, and documents the following:

- *the location of the CDA and connected assets*
- *connectivity pathways (direct and indirect)*
- *infrastructure interdependencies*
- *application of defensive strategies, including defensive models, security controls, and others*
- *defensive strategy measures*
- *plant-wide physical and cyber security policies and procedures that secure CDAs from a cyber attack, including attack mitigation and incident response and recovery*

The VEGP CSP commits to perform these impact analyses as part of the change approval process to assess the impacts of the changes on the security posture of

CDAs and security controls, as described in Section 4.1.2 of the VEGP CSP, and to address any identified gaps to protect CDAs from cyber attack, up to and including the DBT as described in Section 4.2.6.

Finally, Section 4.2.2 states that the licensee will manage CDAs for the cyber security of SSEP functions through an ongoing evaluation of threats and vulnerabilities and implementation of each of the applied security controls provided in Appendix B or C of RG 5.71 and implement alternatives to the Appendices B and C controls during all phases of the life cycle. Additionally, SNC has established and documented procedures for screening, evaluating, mitigating, and dispositioning threat and vulnerability notifications received from credible sources. Dispositioning includes implementation of security controls to mitigate newly reported or discovered threats and vulnerabilities.

The language in Section 4.2.2 of the VEGP CSP is identical to that in Section A.4.2.2 of RG 5.71 and includes no deviations.

Based on the above review, the NRC staff finds that the security impact analysis of changes and environment described in Section 4.2.2 of the VEGP CSP is acceptable.

13.8.4.18 <u>Security Reassessment and Authorization (Section A.4.2.3 of Appendix A to RG 5.71)</u>

Section 4.2.3 of the VEGP CSP states that the licensee will have implemented, documented, and maintained a process that ensures that modifications to CDAs are evaluated before implementation so that security controls remain effective and that any pathway that can be exploited to compromise the modified CDA is addressed to protect CDAs and SSEP functions from cyber attacks. This section further states that the VEGP cyber security program establishes that additions and modifications are evaluated, using a proven and accepted method, before implementation to provide high assurance of adequate protection against cyber attacks, up to and including DBTs, using the process described in Section 4.1.2 of the VEGP CSP.

The licensee also commits to disseminate, review, and update the following when a CDA modification is conducted:

- *a formal, documented security assessment and authorization policy, which addresses the purpose, scope, roles, responsibilities, management commitment, coordination among entities, and compliance to reflect all modifications or additions*

- *a formal, documented procedure to facilitate the implementation of the security reassessment and authorization policy and associated controls*

The VEGP CSP does not deviate from Section A.4.2.3 of RG 5.71.

Based on the above review, the NRC staff finds that the security reassessment and authorization described in Section 4.2.3 of the VEGP CSP is acceptable.

13.8.4.19 Updating Cyber Security Practices (Section A.4.2.4 of Appendix A to RG 5.71)

Section 4.2.4 of the VEGP CSP states that the licensee reviews, updates and modifies cyber security policies, procedures, practices, existing cyber security controls, detailed descriptions of network architecture (including logical and physical diagrams), information on security devices, and any other information associated with the state of the cyber security program or the applied security controls provided in Appendices B and C to RG 5.71 and implemented alternatives to the Appendices B and C controls when changes occur to CDAs or the environment.

This information includes the following:

- *plant- and corporate-wide information on the policies, procedures, and current practices related to cyber security*
- *detailed network architectures and diagrams*
- *configuration information on security devices or CDAs*
- *new plant- or corporate-wide cyber security defensive strategies or security controls being developed and policies, procedures, practices, and technologies related to their deployment*
- *the site's physical and operational security program*
- *cyber security requirements for vendors and contractors*
- *identified potential pathways for attacks*
- *recent cyber security studies or audits (to gain insight into areas of potential vulnerabilities); and identified infrastructure support systems (e.g., electrical power; heating, ventilation, and air conditioning; communications; fire suppression) whose failure or manipulation could impact the proper functioning of CSs*

The VEGP CSP does not deviate from Section A.4.2.4 of RG 5.71.

Based on the above review, the NRC staff finds that updating of cyber security practices described in Section 4.2.4 of the VEGP CSP is acceptable.

13.8.4.20 Review and Validation Testing of a Modification or Addition of a Critical Digital Asset (Section A.4.2.5 of Appendix A to RG 5.71)

The VEGP CSP Section 4.2.5 states the licensee will conduct and document the results of reviews and validation tests of each CDA modification and addition using the process described in Section 3.1.4 of the VEGP CSP.

The VEGP CSP does not deviate from Section A.4.2.5 of RG 5.71.

Based on the above review, the NRC staff finds that the Review and Validation Testing of Modifications or Additions of a Critical Digital Asset described in Section 4.2.5 of VEGP CSP is acceptable.

13.8.4.21 <u>Application of Security Controls Associated with a Modification or Addition (Section A.4.2.6 of Appendix A to RG 5.71)</u>

Section 4.2.6 of the VEGP CSP states that when new CDAs are introduced into the environment of VEGP, the licensee:

- *deploys the CDA into the appropriate level of the defensive model described in Section 3.1.5 of this plan;*
- *applies the technical controls identified in Appendix B to RG 5.71 and the operational and management controls described in Appendix C to RG 5.71 in a manner consistent with the process described in Section 3.1.6 of this plan*
- *confirms that the implemented operational and management controls described in Appendix C to RG 5.71, and implemented alternatives to the Appendix C controls, are effective for the CDA*

The plan also commits that when CDAs are modified, the licensee:

- *verifies that the CDA is deployed into the proper level of the defensive model described in Section 3.1.5 of this plan*
- *performs a security impact analysis, as described in Section 4.2.2 of this plan*
- *verifies that the technical controls identified in Appendix B to RG 5.71 and the operational and management controls described in Appendix C to RG 5.71 are addressed in a manner consistent with the process described in Section 3.1.6 of this plan*
- *verifies that the applied security controls discussed above are implemented effectively, consistent with the process described in Section 4.1.2 of this plan*
- *confirms that the implemented operational and management controls discussed in Appendix C to RG 5.71 and implemented alternatives to the Appendix C controls are effective for the CDA*

The VEGP CSP deviates from Section 4.2.6 of RG 5.71 by modifying the phrase "applies the technical controls identified in Appendix B to RG 5.71 in a manner consistent with the process described in Section 3.2 of RG 5.71," to read "applies the technical controls identified in Appendix B to RG 5.71 and the operational and management controls described in Appendix C to RG 5.71 in a manner consistent with the process described in Section 3.1.6 of this plan." This is

consistent with RG 5.71 as the VEGP CSP commits to following the process in Section 3.1.6 of the VEGP CSP, which requires that controls are applied, an alternative that provides equivalent protection is provided, or the licensee demonstrates that the control is not necessary.

The VEGP CSP also deviates from Section A.4.2.6 of RG 5.71 with the modification of this phrase, "verifies that the security controls discussed above are implemented effectively, consistent with the process described in Section 4.1.2 of this plan" to read "verifies that the applied security controls discussed above are implemented effectively, consistent with the process described in Section 4.1.2 of this plan."

This deviation is consistent with the method used in RG 5.71. RG 5.71 assumes that all the controls in Appendices B and C will be applied; whereas, the VEGP CSP commits that if a control is not applied, there will be no reduction in protection as compared to the corresponding control. This method is also captured in RG 5.71 and, therefore, the VEGP CSP is consistent with RG 5.71.

Based on the above review, the NRC staff finds that the application of security controls associated with a modification or addition described in Section 4.2.6 of the VEGP CSP is acceptable.

13.8.4.22 Cyber Security Program Review (Section A.4.3 of Appendix A to RG 5.71)

Section 4.3 of the VEGP CSP states that the applicant has established the necessary measures and governing procedures to implement periodic reviews of applicable program elements, in accordance with the requirements of 10 CFR 73.55(m). Specifically, the VEGP CSP calls for a review of the program's effectiveness at least every 24 months. In addition, reviews are to be conducted as follows:

- *within 12 months following initial implementation of the program*
- *as necessary, based upon site-specific analyses, assessments, or other performance indicators*
- *as soon as reasonably practical, but no longer than 12 months after changes occur in personnel, procedures, equipment, or facilities that potentially could adversely affect cyber security*
- *by individuals independent of those personnel responsible for program management, and any individual who has direct responsibility for implementing the program*

This deviates from RG 5.71 in the specific wording, but includes the same commitments. Specifically, RG 5.71 states that the licensee reviews the program's effectiveness at least every 24 months. In addition, reviews are conducted as follows:

- *within 12 months of the initial implementation of the program*
- *within 12 months of a change to personnel, procedures, equipment, or facilities that potentially could adversely affect security*
- *as necessary based upon site-specific analyses, assessments, or other performance indicators*
- *by individuals independent of those personnel responsible for program implementation and management*

Based on the above review, the NRC staff finds that the cyber security program review described in Section 4.3 of the VEGP CSP is acceptable.

13.8.4.23 Document Control and Records Retention and Handling (Section A.5 of Appendix A to RG 5.71)

Section 5 of the VEGP CSP states the necessary measures and governing procedures to ensure that sufficient records of items and activities affecting cyber security are developed, reviewed, approved, issued, used, and revised to reflect completed work. VEGP will retain records and supporting technical documentation required to satisfy the requirements of 10 CFR 73.54 and 10 CFR 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors against Radiological Sabotage," until the NRC terminates the facility's operating license. Records are retained to document access history, as well as to discover the source of cyber attacks or other security-related incidents affecting CDAs or SSEP functions, or both. VEGP Units 3 and 4 will retain superseded portions of these records for at least three years after the record is superseded, unless otherwise specified by the NRC.

This deviates from RG 5.71 by not specifically detailing the types of records, but instead describes that records will be retained to document access history and information needed to discover the source of cyber attacks and incidents. This is consistent with what is included in RG 5.71, Section 5, and includes all the performance-based characteristics and commitments of that section.

Based on the above review, the NRC staff finds that the document control and records retention handling described in Section 5 of the VEGP CSP is acceptable.

13.8.4.24 Deviations Taken to RG 5.71, Sections C.1 Through C.5

The VEGP CSP states that the plan deviates from Regulatory Positions C.1 through C.5 of RG 5.71, as noted in Attachment A to the CSP. It also deviates from Section A.1 of Appendix A of RG 5.71. For that reason, the staff considers

that the full evaluation of the CSP must include a review of the deviations taken to those sections of RG 5.71 as listed in the VEGP CSP. This section of the SER lists those 69 specific deviations and their evaluated security impact. The following deviations were provided in a table, as part of Attachment A to the CSP.

13.8.4.24.1 RG 5.71, Section C.2, fourth paragraph, first sentence (page 8)

SNC added the term "adequately" to the phrase "…systems and equipment are protected from cyber attack." Since 10 CFR 73.54 specifically makes that same statement, the staff found no reason to object to that clarification. The objective is to provide adequate protection to the identified CDAs.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.2 RG 5.71, Section C.2, fourth paragraph, twelfth bullet, third sub-bullet (page 8)

SNC clarifies that its overall design is based on the Westinghouse AP1000 design and states that the AP1000 DCD commits to Revision 1 of RG 1.152, "Criteria for Digital Computers in Safety Systems of Nuclear Power Plants." Since the applicant is required to have a cyber security program that meets the performance objectives outlined in 10 CFR 73.54 and is not obliged to achieve that requirement exclusively through the example provided by RG 5.71, this clarification, in and of itself, was not considered by the staff as deviating from the requirements established by the rule.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.3 RG 5.71, Section C.2, fifteenth bullet (page 8)

The deviation states that the required policies and procedures have not yet been written, reviewed, and approved, and, thus, are not currently available for inspection and review.

The NRC requires that these policies and procedures be completed and available for review by the completion of the CSP implementation schedule proposed by the applicant, since CSP inspections would not occur until that time. The requirements of 10 CFR 73.55(a)(4) and proposed License Condition 6 provide the necessary controls associated with developing the required policies and procedures of the CSP.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.4 RG 5.71, Section C.3, Figure 1 (Page 10)

The deviation changes the arrows on the left side of Figure 1 from "Continuous Monitoring" to "Ongoing Monitoring."

The NRC intended monitoring to occur periodically, and when required, based on certain inputs into the process. SNC states that "continuous" might imply that monitoring was perpetual and not event driven. This was not the staff's intent with the term "continuous." The staff accepts the use of the term "ongoing" to better reflect the intent of this diagram.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.5 RG 5.71, Section C.3, third paragraph, first sentence (Page 10)

The VEGP CSP changes the statement, "An acceptable method to establish a cyber security program at a facility is by performing the following, (1) analyze the digital computer and communication systems and networks, …" to "An acceptable method to establish a cyber security program at a facility is by performing the following: (1) identify critical systems and critical digital assets as described in Section C.3.1.3, (2) analyze the digital computer and communication systems and networks..."

This deviation is acceptable because SNC proposes to use its licensing basis to identify CSs that are associated with SSEP functions, as 10 CFR 73.54 requires. This statement includes the first step in RG 5.71 to analyze digital computer and communication systems and networks to determine if they include CDAs.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.6 RG 5.71, Section C.3.1, first paragraph, first sentence (page 11)

The VEGP CSP changes the statement, "Consistent with the requirements of 10 CFR 73.54(b)(1), a licensee must conduct a site-specific analysis of digital computer and communication systems and networks to identify CDAs, which are those assets that, if compromised, could adversely impact the SSEP functions of nuclear facilities." to "Consistent with the requirements of 10 CFR 73.54(b)(1), a licensee must conduct a site-specific analysis of digital computer and communication systems and networks to identify CDAs, which are those assets that, if compromised, could adversely impact the CSs of nuclear facilities."

SNC defines a CS as:

> *An analog or digital technology-based system in or outside of the plant that performs or is associated with a safety-related, important-to-safety, security, or emergency preparedness function. These critical systems include, but are not limited to, plant systems, equipment, communication systems, networks, offsite communications, or support systems or equipment, that perform or are associated with a safety-related, important-to-safety, security, or emergency preparedness function as defined by the approved plant licensing basis.*

This definition ties CSs to SSEP functions; therefore, the change is consistent with the method used in RG 5.71, as this means that CSs are all those assets associated with SSEP functions, and, therefore, could adversely impact those SSEP functions.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.7 RG 5.71, Section C.3.1, first paragraph, second bullet (page 11)

The VEGP CSP includes a deviation to correct an editorial omission in RG 5.71. Page 11 of RG 5.71 states that:

An acceptable method for identifying and documenting CDAs is as follows:

- *obtain authorization for security assessment*
- *define roles and responsibilities cyber personnel and form the cyber security team*
- *identify and document CDAs at the facility*
- *review and validate configurations of CDAs*

The VEGP CSP corrects the second bullet to read:

- *define roles and responsibilities of cyber personnel and form the cyber security team*

This deviation which supplies the omitted "of" is consistent with the intent of the referenced bullet.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.8 RG 5.71, Section C.3.1.2, third paragraph, second bullet (page 13)

The VEGP CSP changes the second bullet on Page 13 of RG 5.71 from:

> *documenting all key observations, analyses, and findings during the assessment process so that this information can be used as a basis for applying security controls;*

to:

> *documenting all key observations, analyses, and findings during the assessment process so that this information can be used as a basis for addressing security controls;*

This deviation is acceptable because RG 5.71 allows a licensee to address, as opposed to apply, security controls if it follows the process in Appendix A, Section 3.1.6 of RG 5.71, which is to apply the control, apply an alternative that provides no less protection than the corresponding security control, or to

demonstrate that the control is not necessary because the attack vector, root cause, or vulnerability associated with the control does not exist.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.9 RG 5.71, Section C.3.1.2, third paragraph, sixth bullet (page 13)

The VEGP CSP changes the sixth bullet on Page 13 from:

- *preparing documentation and overseeing implementation of the cyber security controls provided in Appendices B and C to this guide, documenting the basis for not implementing certain cyber security controls provided in Appendix B, or documenting the basis for the implementation of alternate or compensating measures in lieu of any cyber security controls provided in Appendix B; and*

to:

- *overseeing documentation and implementation of the cyber security controls provided in Appendices B and C to this guide, documenting the basis for not implementing certain cyber security controls provided in Appendix B and C, or documenting the basis for the implementation of alternate or compensating measures in lieu of any cyber security controls provided in Appendix B and C; and*

This deviation is acceptable because overseeing the documentation and implementation of security controls by qualified personnel is an approved method. Further, the extension of this method in Appendix C is also acceptable as the licensee has committed to follow the process in Appendix A, Section 3.1.6 of RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.10 RG 5.71, Section C.3.1.2, third paragraph, seventh bullet (page 13)

The VEGP CSP includes a deviation from RG 5.71 that changes bullet 7 from:

> *assuring the retention of all assessment documentation, including notes and supporting information, in accordance with 10 CFR 73.54(h) and the record retention and handling requirements specified in Section C.5 of this guide.*

to:

> *establishing the retention policy of all assessment documentation, including notes and supporting information, in accordance with 10 CFR 73.54(h) and the record retention and handling requirements specified in Section C.5 of this guide.*

This deviation is acceptable as the licensee has committed to establish the retention policy. Although this may be done by a different team, and not the CST, it is consistent with the intent of RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.11 RG 5.71, Section C.3.1.2, fourth paragraph, first sentence (page 13)

The VEGP CSP deviates from RG 5.71 by changing this sentence:

> *The licensee's CST needs to have the authority to conduct an objective assessment, make determinations that are not constrained by operational goals (e.g., cost),*

to:

> *The licensee's CST needs to have the authority to conduct an objective assessment, make determinations that are not constrained by business goals (e.g., cost),*

This deviation is acceptable because the intent of this statement in RG 5.71 is to ensure that cost is not used as a factor in making determinations about the adequacy of security controls, vulnerabilities, identifying CSs and CDAs, and carrying out other assessment functions of the CST.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.12 RG 5.71, Section C.3.1.3, second paragraph (page 14)

The VEGP CSP deviates from RG 5.71 by changing the identification process from CDAs to CSs. This deviation is acceptable because the VEGP CSP commits to continue identifying CSs by identifying digital computers, networks, communication systems and support systems that perform and are associated with SSEP functions, as well as support systems and equipment that, if compromised, would adversely impact the plant's SSEP functions.

This is consistent with the process in RG 5.71, which identifies CDAs through the same process. The licensee further describes CDAs as a CS or part of a CS; therefore, the use of the term CS as opposed to CDA is also consistent with the method used in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.13 RG 5.71, Section C.3.1.3, fifth paragraph, first sentence (page 15)

The VEGP CSP deviates from RG 5.71 by making an editorial correction to RG 5.71. This involves changing:

> *With the identification of the all the CSs ...*

to:

> *With the identification of all the CSs ...*

This change is acceptable because it accomplishes the intent of this phrase in RG 5.71 eliminating the unnecessary "the."

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.14 RG 5.71, Section C.3.1.3, fifth paragraph, second sentence (page 15)

The VEGP CSP deviates from RG 5.71 by changing the following statement from:

> *A CDA may be a component of a CS ...*

to:

> *A CDA may be a complete CS or component of a CS, ...*

This deviation is acceptable because this statement is factually true. A CDA may be a complete CS and the deviation does not change the level of protection provided by the method outlined in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.15 RG 5.71, Section C.3.1.3, fifth paragraph, fifth sentence (page 15)

The VEGP CSP deviates from RG 5.71 by including additional documentation to help identify CSs and CDAs. Specifically VEGP includes "other licensing basis" documents to identify CSs and CDAs.

This deviation is in line with the intent of using existing documentation to identify CSs and CDAs. This section of RG 5.71 describes "helpful information sources for identifying CSs and CDAs" and is not an exhaustive list, nor is it the only method SNC has committed to use to identify CSs and CDAs. Specifically, SNC has committed to identify all digital computers, networks and communication systems associated with SSEP functions, which is what 10 CFR 73.54 requires.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.16 RG 5.71, Section C.3.1.3, eighth paragraph, first bullet (page 16)

The VEGP CSP deviates from RG 5.71 by stating that CDAs may be an entire CS. As previously discussed in Section 13.8.4.24.14 of this SER, it is true that a CDA may be an entire CS; therefore, this definition does not adversely impact either the method used in RG 5.71 or the protection that RG 5.71 provides.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.17 RG 5.71, Section C.3.1.3, eighth paragraph, second bullet (page 16)

The VEGP CSP deviates from RG 5.71 by stating that CDAs may be an entire CS. As previously discussed in Sections 13.8.4.24.14 and 13.8.4.24.16 of this SER, it is true that a CDA may be an entire CS; therefore, this definition does not adversely impact either the method used in RG 5.71 or the protection that RG 5.71 provides.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.18 RG 5.71, Section C.3.2, first paragraph, first sentence (page 18)

The VEGP CSP deviates from RG 5.71 by providing an editorial correction to RG 5.71. Specifically, the VEGP CSP changes the following sentence from:

> *As stated in 10 CFR 73.54(c)(2), the licensee must design its cyber security program to apply and maintain integrate defense-in-depth protective strategies to ensure the capability to detect, prevent, respond to, mitigate, and recover from cyber attacks.*

to:

> *As stated in 10 CFR 73.54(c)(2), the licensee must design its cyber security program to apply and maintain integrated defense-in-depth protective strategies to ensure the capability to detect, prevent, respond to, mitigate, and recover from cyber attacks.*

This deviation captures the intent of this sentence in RG 5.71 by correcting "integrate" to "integrated."

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.19 RG 5.71, Section C.3.2, second paragraph, fourth sentence (page 18)

The VEGP CSP deviates from RG 5.71 by pointing to an editorial error in RG 5.71. Specifically, the VEGP CSP changes the following sentence from:

> *Therefore, defense-in-depth is achieved not only by implementing multiple security boundaries, but also by instituting and maintaining a robust program of security controls that assess, protect, respond, prevent, detect, and mitigates an attack on a CDA and with recovery.*

to:

> *Therefore, defense-in-depth is achieved not only by implementing multiple security boundaries, but also by instituting and maintaining a robust program of security controls that assess, protect, respond, prevent, detect, and mitigate an attack on a CDA and with recovery.*

This deviation captures the intent of this sentence in RG 5.71 by correcting "mitigates" to "mitigate." Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.20 RG 5.71, Section C.3.2, third paragraph, first sentence (page 18)

The VEGP CSP deviates from RG 5.71 by pointing to an editorial error in RG 5.71. Specifically, the VEGP CSP changes the following sentence from:

> *For example, if a failure in prevention were to occur (e.g., a violation of policy) or if protection mechanisms were to be bypassed (e.g., by a new virus that is not yet identified as a cyber attack), mechanisms would still in place to detect and respond to an unauthorized alteration in an impacted CDA, mitigate the impacts of this alteration, and recover normal operations of the impacted CDA before an adverse impact.*

to:

> *For example, if a failure in prevention were to occur (e.g., a violation of policy) or if protection mechanisms were to be bypassed (e.g., by a new virus that is not yet identified as a cyber attack), mechanisms would still be in place to detect and respond to an unauthorized alteration in an impacted CDA, mitigate the impacts of this alteration, and recover normal operations of the impacted CDA before an adverse impact.*

This is acceptable because the change to add the word "be" to the phrase "would still be in place to detect" captures the intent of this sentence by supplying the "be" omitted from RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.21 RG 5.71, Section C.3.2.1, Figure 5 (Page 19)

The VEGP CSP includes a defensive architecture, which deviates from the example provided in RG 5.71. The proposed architecture is acceptable because it provides defense-in-depth, communication isolation for safety and security systems, and multiple nondeterministic boundaries for nonsafety/nonsecurity CDAs. This provides adequate protection for CDAs and ensures that appropriate isolation and boundary protection exists for all CDAs where appropriate.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.22 RG 5.71, Section C.3.2.1, third paragraph (page 19)

The VEGP CSP deviates from RG 5.71 by modifying the characteristics of an acceptable defensive architecture by stating that the architecture includes CSs and CDAs configured in accordance with Section 5 of Appendix B, and Sections 6 and 7 of Appendix C in accordance with the security control application process described in Section 3.3. As previously discussed in Section 13.8.4.24.9 of this SER, the use of the security control application process to address controls is consistent with RG 5.71.

SNC has committed to apply the security control, demonstrate that alternative controls provide no less protection than the corresponding control, or demonstrate through analysis that the attack vector the control addresses does not exist; therefore, the control is not necessary.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.23 RG 5.71, Section C.3.2.1, third paragraph, first bullet (page 19)

The VEGP CSP deviates from RG 5.71 by modifying the example defensive architecture to match the architecture to be used in the AP1000. This deviation is acceptable because it provides the appropriate isolation of safety and security CDAs, and adequate boundaries for nonsafety/nonsecurity CDAs.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.24 RG 5.71, Section C.3.2.1, third paragraph, second bullet (page 19)

The VEGP CSP deviates from RG 5.71 by modifying the example defensive architecture to match the architecture to be used in the AP1000. As previously discussed in Section 13.8.4.6, this deviation is acceptable because it provides the appropriate isolation of safety and security CDAs, and adequate boundaries for nonsafety/nonsecurity CDAs. This is consistent with the defensive model in

RG 5.71, as the VEGP defensive architecture provides boundaries for safety systems that are deterministic.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.25 RG 5.71, Section C.3.2.1, third paragraph, third bullet (page 19)

The VEGP CSP deviates from RG 5.71 regarding communications from digital assets at lower security levels to digital assets at higher security levels. This deviation is acceptable because the defensive architecture prevents specific communication from lower security levels to specific higher security levels. This is consistent with the defensive model in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.26 RG 5.71, Section C.3.2.1, third paragraph, new second bullet (page 19)

The VEGP CSP deviates from RG 5.71 regarding remote access. This is consistent with the guidance in Section C.7 of RG 5.71, which also states that remote access to CDAs at the highest level be prevented.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.27 RG 5.71, Section C.3.2.1, third paragraph, new sixth bullet (page 19)

The VEGP CSP deviates from RG 5.71 by including in its defensive architecture a statement from Section C.7 of RG 5.71 for validating data (software updates, new firmware, etc.) using a method at or above the level of security the CDA that will have data transferred to it. This concept is already acceptable in RG 5.71 and is also included in the defensive architecture, although in a different section of the document. This is consistent with the method used in RG 5.71 and does not adversely impact the protection provided.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.28 RG 5.71, Section C.3.2.1, third paragraph, seventh bullet (page 19)

The VEGP CSP deviates from RG 5.71 by changing the commitment to eliminate applications, services and protocols not necessary to support the design-basis function of the CDAs to eliminate, disable, or render these inoperable. This is consistent with the method in RG 5.71, because in some cases these elements cannot be eliminated, but rather may have to be disabled or otherwise rendered inoperable. In each case, the result is the same. The asset is only configured to perform its design-based function and nothing more, which produces no less protection than the method in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.29 RG 5.71, Section C.3.2.1, third paragraph, eighth bullet (page 19)

The VEGP CSP deviates from RG 5.71 by eliminating the requirement to configure CDAs and boundary protection systems in accordance with Section 5 of Appendix B and Sections 6 and 7 of Appendix C. However, the VEGP CSP does commit to this in the preamble statement as described in Section 13.8.4.24.22 of this SER. Therefore, the VEGP CSP provides the same commitment to perform this as does RG 5.71, albeit in a different part of the same section.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.30 RG 5.71, Section C.3.2.1, fourth paragraph (page 19)

The VEGP CSP deviates from RG 5.71 by deleting the paragraph that commits to applying the security controls. However, the VEGP security plan commits, in Section 3.1.6, to address these controls and is, therefore, consistent with the method used in RG 5.71. The deleted paragraph is, therefore, unnecessary in the VEGP CSP to achieve the same commitment.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.31 RG 5.71, Section C.3.2.1, Prior to fifth paragraph (page 19)

The VEGP CSP deviates from the RG 5.71 defensive architecture. The VEGP architecture is described in Section 13.8.4.6 of this SER.

Based on the review and assessment in Section 13.8.4.6, the NRC staff finds that this deviation is acceptable.

13.8.4.24.32 RG 5.71, Section C.3.3, first paragraph, second sentence (page 20)

The VEGP CSP deviates from RG 5.71 by changing the following sentence:

> *A cyber compromise of CDAs would adversely impact nuclear facilities' SSEP functions that are necessary for protecting public health and safety.*

to:

> *A cyber compromise of CDAs could adversely impact nuclear facilities' SSEP functions that are necessary for protecting public health and safety.*

This deviation is consistent with the intent of RG 5.71, which implies that a compromise could lead to adverse impact and possible radiological sabotage. The intent of the paragraph is to establish the impact that could occur if a CDA were compromised. The security controls are designed around worst case scenarios, and the change in the VEGP CSP from "would" to "could" maintains this logic.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.33 RG 5.71, Section C.3.3, third paragraph, fourth sentence (page 20)

The VEGP CSP deviates from RG 5.71 by making an editorial correction to RG 5.71. This involves changing the statement:

> *Thus to provide high assurance that CDAs are protected from cyber attacks, potential cyber risks of these CDAs must be addressed known potential cyber risks.*

to:

> *Thus to provide high assurance that CDAs are protected from cyber attacks, potential cyber risks of these CDAs must be addressed for known potential cyber risks.*

This is acceptable because the change captures the intent of this sentence by supplying the "for" omitted from RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.34 RG 5.71, Section C.3.3, third paragraph, first sentence (page 20)

The VEGP CSP deviates from RG 5.71 by adding Appendix C to the list of controls that may be addressed using the method in Section 3.1.6 of Appendix A. This is consistent with the intent of RG 5.71, which assumes that all the controls in Appendix C can be implemented as written. However, if the controls can be addressed to demonstrate that an alternative control provides no less protection than the comparable control in Appendix C, or that the control is not necessary by demonstrating that the attack vector does not exist, this would meet the intent of RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.35 RG 5.71, Section C.3.3, third paragraph, first bullet (page 20)

The VEGP CSP deviates from RG 5.71 by adding Appendix C to the list of controls that may be addressed using the method in Section 3.1.6 of Appendix A. This is consistent with the intent of RG 5.71, which assumes that all the controls in Appendix C can be implemented as written. However, if the controls can be

addressed to demonstrate that an alternative control provides no less protection than the comparable control in Appendix C, or that the control is not necessary by demonstrating that the attack vector does not exist, this would meet the intent of RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.36 RG 5.71, Section C.3.3, third paragraph, second bullet (page 20)

The VEGP CSP deviates from RG 5.71 by stating that alternative controls will not provide equal or better protection to the corresponding control, but rather that they will not provide less protection than the corresponding control. This is consistent with the method used in RG 5.71; providing an alternative that does not provide less protection, and does not adversely impact the security program. Therefore, this change in commitment will provide an adequate level of protection and is consistent with the method used in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.37 RG 5.71, Section C.3.3, third paragraph, second bullet, second sub-bullet (page 20)

The VEGP CSP deviates from RG 5.71 by changing the statement:

> *performing and documenting the attack vector and attack tree analyses of the CDA and alternative countermeasures to confirm that the countermeasures provide the same or greater protection as the corresponding security control in Appendix B.*

to:

> *performing and documenting an attack vector and attack tree analysis of the CDA and alternative countermeasures to confirm countermeasures provide no decrease in the effectiveness of protection as compared to the corresponding security control identified in Appendix B or C.*

This deviation is acceptable because whether the licensee performs a single analysis or multiple analyses, the method is comparable provided that it will demonstrate that there is no decrease in protection. Further, the modification of the second part of the sentence is also acceptable because the intent of this method in RG 5.71 is to ensure that alternative controls do not provide less protection than the corresponding control. Therefore, a commitment to ensure that alternatives do not provide less protection produces a comparable level of protection as stating that the alternatives provide equal or better protection. Finally, the addition of the Appendix C controls to this method is acceptable because the licensee has committed to apply the control, apply an alternative that provides no less protection than the comparable control or not to apply the control and demonstrate that the attack vector does not exist.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.38 RG 5.71, Section C.3.3, third paragraph, second bullet, third sub-bullet (page 20)

The VEGP CSP deviates from RG 5.71 in a similar manner to deviations in Section 13.8.4.24.37 of this SER by changing the commitment to implement alternative countermeasures that provide at least the same degree of protection as the corresponding security control in Appendix B, to implementing alternative controls to provide no decrease in the effectiveness of protection as compared to the corresponding security control identified in Appendices B and C of RG 5.71.

This method is consistent with the method in RG 5.71 as it also meets the criteria for the performance based characteristics of 10 CFR 73.54. As long as the implemented alternative control does not provide less protection than the corresponding control in RG 5.71, the intent of this section of RG 5.71 has been met. Alternative controls are considered to be adequate only if they provide equivalent protection, and the VEGP CSP commits to that minimum standard.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.39 RG 5.71, Section C.3.3, third paragraph, third bullet (page 20)

The VEGP CSP deviates from RG 5.71 by not stating that SNC will specifically perform an attack vector and attack tree analysis to demonstrate that one of the specific security controls is not necessary. SNC does commit to performing an analysis to demonstrate that the attack vector does not exist (i.e., is not applicable), thereby obviating the need for a specific security control.

This method is consistent with the method in RG 5.71 as it commits to demonstrating a conclusion, specifically, that the attack vector does not exist. If the licensee can demonstrate this, and not use an attack vector or attack tree analysis, the results are still the same and, therefore, the method would produce a result that does not provide less protection than the method in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.40 RG 5.71, Section C.3.3, fourth paragraph, second sentence (page 20)

The VEGP CSP deviates from RG 5.71 by making an editorial correction to RG 5.71. This involves changing the statement:

> *When a security control is determined to have an adverse affect, alternate controls should be used by the licensee to protect the CDA from cyber attack up to and including the DBT consistent with the process described above.*

to:

> *When a security control is determined to have an adverse effect, alternate controls should be used by the licensee to protect the CDA from cyber attack up to and including the DBT consistent with the process described above.*

This is acceptable because the change captures the intent of this sentence in RG 5.71, by correcting "affect" to "effect."

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.41 RG 5.71, Section C.3.3, fifth paragraph, second sentence (page 21)

The VEGP CSP deviates from RG 5.71 by making an editorial correction to RG 5.71. This involves changing the statement:

> *If these effectiveness or vulnerability analyses identify a gap in the cyber security program, the licensee may need to implement additional security measures and controls not provided in Appendixes B and C.*

to:

> *If these effectiveness or vulnerability analyses identify a gap in the cyber security program, the licensee may need to implement additional security measures and controls not provided in Appendices B and C.*

This change is acceptable because it captures the intent of this sentence in RG 5.71, by correcting "Appendixes" to "Appendices."

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.42 RG 5.71, Sections C.3.3.1.1 through C.3.3.1.5, first paragraph and last bullet (pages 21 and 22)

The VEGP CSP deviates from RG 5.71 by stating that it will not apply all of the security controls in RG 5.71, but rather will address them. The VEGP CSP already commits to the RG 5.71 process, which is:

1) *applying controls;*

2) *applying an alternative control that does not provide less protection than the corresponding control; or*

3) not applying a control, but demonstrating that the corresponding attack vector does not exist.

The intent of RG 5.71 is to address the controls in Appendices B and C. This can be accomplished in accordance with Section 3.1.6 of Appendix A, to which SNC has committed.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.43 RG 5.71, Section C.3.3.1.1, first paragraph, second bullet, fourth sub-bullet (page 21)

The VEGP CSP deviates from RG 5.71 by committing to audit CDAs at an interval defined for the CDA, or within 5 days following revocation of an individual's unescorted access, due to a lack of trustworthiness or reliability, or as soon as reasonably practical upon changes in personnel. Although this method uses a different frequency than the method in RG 5.71, which calls for annual assessments, or assessments immediately upon changes in personnel, this frequency does meet the requirements of 10 CFR 73.55(m), which allows the licensee to define these intervals based on its own assessments of need.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.44 RG 5.71, Sections C.3.3.2.1 through C.3.3.2.5, first paragraph and last bullet (pages 23 and 24)

The VEGP CSP deviates from RG 5.71 in a fashion similar to the deviation cited in Section 13.8.4.24.42 of this SER by committing not to apply the controls, but rather to address them. As previously stated, this deviation is consistent with the method in RG 5.71, and also meets the intent of the RG, provided that the licensee follows the process in Section 3.1.6 of Appendix A, to which SNC has committed.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.45 RG 5.71, Sections C.3.3.2.6 through C.3.3.2.9, first paragraph and last bullet (pages 24-26)

The VEGP CSP deviates from RG 5.71 in a fashion similar to the deviation cited in Sections 13.8.4.24.42 and 13.8.4.24.44 of this SER by committing to apply the controls, but rather to address them. As previously stated, this deviation is consistent with the method in RG 5.71, and also meets the intent of the RG, provided that the licensee follows the process in Section 3.1.6 of Appendix A, to which SNC has committed.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.46 RG 5.71, Section C.3.3.2.9, first paragraph, first bullet (page 25)

The VEGP CSP deviates from RG 5.71 by making an editorial correction to RG 5.71. This involves changing the first bullet:

- *develop, disseminate, and annually review and update the configuration management policy and program which defines the purpose of the nuclear facility's configuration management policy, scope, roles, requirements, responsibilities, and management commitments necessary to provide, with high assurance, that (1) when a modification to a CDA does not reduce the existing security and (2) any unauthorized or inadvertent modification of a CDA is prevented.*

to:

- *develop, disseminate, and annually review and update the configuration management policy and program which defines the purpose of the nuclear facility's configuration management policy, scope, roles, requirements, responsibilities, and management commitments necessary to provide, with high assurance, that (1) a modification to a CDA does not reduce the existing security and (2) any unauthorized or inadvertent modification of a CDA is prevented.*

This is acceptable because it captures the intent of this sentence in RG 5.71, by striking the word "when" after "(1)." This editorial mistake will be corrected in a future revision.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.47 RG 5.71, Section C.3.3.3.1, first paragraph and last bullet (page 26)

The VEGP CSP deviates from RG 5.71 in a fashion similar to the deviations cited in Sections 13.8.4.24.42, 13.8.4.24.44 and 13.8.4.24.45 of this SER, and by committing not to apply the controls, but rather to address them. As previously stated, this deviation is consistent with the method in RG 5.71, and also meets the intent of RG 5.71, provided that the licensee follows the process in Section 3.1.6 of Appendix A, to which SNC has committed.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.48 RG 5.71, Section C.3.3.3.1, second paragraph (page 26)

The VEGP CSP deviates from RG 5.71 by committing to Revision 1 of RG 1.152 and not Revision 2 of RG 1.152 as stated in RG 5.71. The results of the NRC staff's technical evaluation of the digital instrumentation and controls design of the AP1000 are documented in Chapter 7 of NUREG-1793 and its supplements. SNC's use of the defensive architecture as discussed in Section 13.8.4.6 is acceptable to the staff.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.49 RG 5.71, Section C.3.3.3.2, first paragraph, second sentence (page 26)

The VEGP CSP deviates from RG 5.71 by committing to provide adequate protection of high assurance against cyber attacks. Although this commitment is worded differently than the commitment provided in RG 5.71, it does meet the requirement of 10 CFR 73.54(a), which states that licensees "shall provide high assurance that digital computer and communication systems and networks are adequately protected against cyber attacks, up to and including the design basis threat as described in 10 CFR 73.1."

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.50 RG 5.71, Section C.3.4, second paragraph, first sentence (page 26)

The VEGP CSP deviates from RG 5.71 as described in Section 13.8.4.8 of this SER by committing not to integrate management of physical and cyber security, but rather to provide the management interfaces necessary to appropriately coordinate the physical and cyber security activities. The VEGP CSP includes a commitment to establish an organization that is responsible for cyber security and is independent of operations. The combination of an independent organization responsible for cyber security, and management coordination between physical and cyber security meets the requirements of the rule and does not provide less protection than the method described in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.51 RG 5.71, Section C.3.4, second paragraph, first bullet (page 27)

The VEGP CSP deviates from RG 5.71 as also described in Section 13.8.4.8 of this SER by committing not to form a unified security organization, but rather to establish a cyber security organization that is responsible for cyber security and is independent from operations. The combination of an independent organization responsible for cyber security, and management coordination as described in Section 13.8.4.24.50 of this SER between physical and cyber security meets the requirements of the rule, and does not provide less protection than the method described in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.52 RG 5.71, Section C.4, first paragraph, first sentence (page 27)

The VEGP CSP deviates from RG 5.71 by changing the phrase:

Once the security program is in place...

to:

Once the cyber security program is in place...

This deviation is acceptable because the CSP only applies to the applicant's cyber security program.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.53 RG 5.71, Section C.4, first paragraph, first bullet (page 28)

The VEGP CSP deviates from RG 5.71 as previously described in Section 13.8.4.11 of this SER by changing the phrase "continuous monitoring and assessment" to "ongoing monitoring and assessment." This description is consistent with the method in RG 5.71 by establishing intervals for these assessments, which include the same elements as in RG 5.71, and meeting the periodicity requirements of 10 CFR 73.55(m).

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.54 RG 5.71, Section C.4.1, section heading and first paragraph, first sentence (page 28)

The VEGP CSP deviates from RG 5.71 as previously described in Sections 13.8.4.11 and 13.8.4.24.53 of this SER by changing the phrase "continuous monitoring and assessment" to "ongoing monitoring and assessment." This description is consistent with the method in RG 5.71 by establishing intervals for these assessments, which include the same elements in RG 5.71 and meeting the periodicity requirements of 10 CFR 73.55(m).

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.55 RG 5.71, Section C.4.1, second paragraph, first sentence (page 28)

The VEGP CSP deviates from RG 5.71 as previously described in Sections 13.8.4.11, 13.8.4.24.53 and 13.8.4.24.54 of this SER by changing the phrase "continuous monitoring and assessment" to "ongoing monitoring and assessment." This description is consistent with the method in RG 5.71 by establishing intervals for these assessments, which include the same elements as in RG 5.71 and meeting the periodicity requirements of 10 CFR 73.55(m).

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.56 RG 5.71, Section C.4.1, second paragraph, first bullet (page 28)

The VEGP CSP deviates from RG 5.71 by making an editorial correction to RG 5.71. This involves changing the phrase:

> *ongoing assessments of verify that the security controls...*

to:

> *ongoing assessments to verify that the security controls...*

This change is acceptable because it captures the intent of this sentence in RG 5.71, by substituting "to" for "of."

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.57 RG 5.71, Section C.4.1, third paragraph, first and second sentences (page 28)

The VEGP CSP deviates from RG 5.71 as previously described in Sections 13.8.4.11, 13.8.24.53, 13.8.4.24.54 and 13.8.4.24.55 of this SER by changing the phrase "continuous monitoring and assessment" to "ongoing monitoring and assessment." This description is consistent with the method in RG 5.71 by establishing intervals for these assessments, which include the same elements as in RG 5.71, and meeting the periodicity requirements of 10 CFR 73.55(m).

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.58 RG 5.71, Section C.4.1.1, first paragraph, second sentence (page 28)

Section 3.1.1 of the VEGP CSP states that status of security controls will be verified in accordance with the requirements of 10 CFR 73.55(m).

The NRC staff reviewed the above and found that reviewing security controls in accordance with 10 CFR 73.55(m) is in accordance with RG 5.71. The time period between evaluations may be longer than the time period provided in RG 5.71. However, this period cannot exceed 24 months, which conforms to 10 CFR 73.54(g), requiring the applicant to review the cyber security program as a component of the physical security program in accordance with the requirements of 10 CFR 73.55(m), including the periodicity requirements. The requirements of 10 CFR 73.55(m) are that, at minimum, the applicant review each element of the physical protection program at least every 24 months.

The licensee has also committed to address C.13 of Appendix C to RG 5.71, "Security Assessment and Risk Management," which calls for vulnerability assessments on a quarterly basis. SNC commits to apply this control, apply an alternative that provides no less protection than C.13, or demonstrate that any

attack vectors associated with vulnerabilities that may be discovered through quarterly assessments do not exist. The VEGP CSP also includes addressing controls that specifically include defined verification periods and that detect when some controls are not working correctly.

This, coupled with the CSP conforming to requirements of 10 CFR 73.55(m), which includes an initial assessment within 12 months of the program inception, and as necessary based on site-specific analyses, assessments, or other performance indicators, provides a level of protection consistent with the method in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.59 RG 5.71, Section C.4.1.2, first paragraph, third sentence (page 29)

Section 3.1.1 of the VEGP CSP states that effectiveness of security controls will be verified in accordance with the requirements of 10 CFR 73.55(m). As previously discussed in Section 13.8.4.12 of this SER, the NRC staff reviewed the above and found that the period of effectiveness analysis is comparable with that of RG 5.71.

The time period between evaluations is 12 months longer than the time period provided in RG 5.71. However, this 24-month time period conforms to 10 CFR 73.54(g) requiring the applicant to review the cyber security program as a component of the physical security program in accordance with the requirements of 10 CFR 73.55(m), including the periodicity requirements. The requirements of 10 CFR 73.55(m) are that, at minimum, the applicant review each element of the physical protection program, which includes the cyber security program, at least every 24 months and within 12 months of the implementation of the program, or within 12 months when changes that may adversely impact the security program occur.

Furthermore, the VEGP CSP states that controls will be reviewed according to the requirements of the security controls if that period of review occurs more often. This is also consistent with the method provided in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.60 RG 5.71, Section C.4.1.3, first paragraph, second sentence (page 29)

VEGP CSP Section 4.1.3 deviates from RG 5.71 by stating that vulnerability assessments will occur periodically. RG 5.71, Section C.4.1.3 states that vulnerability assessments will occur no less frequently than on a quarterly basis.

As previously described in Section 13.8.4.14 of this SER, the VEGP CSP states vulnerability assessments will be performed as specified in the security controls in Appendices B and C of RG 5.71, and when new vulnerabilities that could affect the effectiveness of the cyber security program and the security of the CDAs are

identified. The licensee also commits to addressing vulnerabilities that could cause CDAs to become compromised or could have an adverse impact on SSEP functions. Section 13.1 of Appendix C of RG 5.71, which VEGP commits to address in accordance with the process in Section 3.1.6 of Appendix A, provides that vulnerability assessments should occur no less frequently than once a quarter, at random intervals, and when new potential vulnerabilities are reported and identified. SNC has not deviated from the interval.

The process the applicant has committed to in Section 3.1.6 of the VEGP CSP requires SNC, if it does not implement Section 13.1 of Appendix C, to implement an alternate control that does not provide less protection than the corresponding control in Appendices B and C, or to demonstrate that any attack vectors associated with vulnerabilities that may be discovered through quarterly assessments do not exist.

Therefore, if SNC does not implement the security control in Appendix C, Section 13.1 of RG 5.71, or deviates from the guidance for a quarterly vulnerability assessment, it will ensure that this deviation does not provide less protection than performing quarterly vulnerability assessments, and will provide an analysis that demonstrates that the attack vector does not exist and will document this justification for inspection.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.61 RG 5.71, Section C.4.2, first paragraph, second sentence (page 30)

The VEGP CSP deviates from RG 5.71 by committing not to implement the security controls in Section 11 of Appendix C of RG 5.71, but rather to address those controls in accordance with Section C.3.3 of RG 5.71.

As previously described in Section 13.8.4.7 of this SER, the VEGP CSP deviates from RG 5.71 by committing to address security controls rather than committing to apply them. The VEGP CSP states that when a control from Appendices B and C of RG 5.71, such as Section 11 of Appendix C, is not implemented that the licensee will implement alternate control(s) that "do not provide less protection that the corresponding" control in the appendix. This deviation is consistent with the method used in RG 5.71, which states that controls should provide equal or better protection.

As also previously discussed in Section 13.8.4.7 of this SER, the VEGP CSP deviates from RG 5.71 by stating that when a control can be proven to be unnecessary, the applicant will perform an analysis demonstrating that the control is not necessary, and will provide a documented justification. Therefore, SNC commits that in addressing the security controls in Appendix C, Section 11 of RG 5.71 that it will either apply the control, apply an alternative that does not provide less protection or will demonstrate that the control is not necessary because the attack vectors do not exist. This method is consistent with the method used in RG 5.71, which also allows for controls to be addressed.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.62 RG 5.71, Section C.4.2.1, first paragraph, third sentence (page 30)

The VEGP CSP deviates from RG 5.71 in a manner similar to the previous deviation in Section 13.8.4.24.61 of this SER. Specifically, that configuration management will be used to ensure that each of the controls is addressed in Appendices B and C of RG 5.71, as opposed to implemented. This method is consistent with the method in RG 5.71, as the applicant commits to follow the process in Section C.3.3 of RG 5.71, which requires that the applicant implement the control, apply an alternative control that does not provide less protection than the corresponding control in RG 5.71, or demonstrate that the attack vector associated with the control does not exist. Therefore, the VEGP CSP method will provide no less protection than the method provided for in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.63 RG 5.71, Section C.4.2.1, second paragraph, third sentence (page 30)

The VEGP CSP deviates from RG 5.71 by including the statement, "in accordance with the process described in Section C.3.3 of this guide." As previously discussed in Section 13.8.4.14 of this SER, the method in Section C.3.3 is consistent with the method in RG 5.71, which requires that the licensee either implement the control, apply an alternative control that does not provide less protection than the corresponding control in RG 5.71, or demonstrate that the attack vector associated with the control does not exist. Therefore, the VEGP CSP method will provide no less protection than the method provided for in RG 5.71.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.64 RG 5.71, Section C.4.3, second paragraph (page 31)

The VEGP CSP deviates from RG 5.71, as previously discussed in Section 13.8.4.22 of this SER, by stating that the applicant has established the necessary measures and governing procedures to implement periodic reviews of applicable program elements, in accordance with the requirements of 10 CFR 73.55(m). Specifically, the VEGP CSP calls for a review of the program's effectiveness at least every 24 months. In addition, reviews are to be conducted as follows:

- *within 12 months following initial implementation of the program*
- *as necessary based upon site-specific analyses, assessments, or other performance indicators*

- *as soon as reasonably practical, but no longer than 12 months, after changes occur in personnel, procedures, equipment, or facilities that potentially could adversely affect cyber security*

- *by individuals independent of those personnel responsible for program management and any individual who has direct responsibility for implementing the program*

This deviates from RG 5.71 in the specific wording, but includes the same commitments as RG 5.71. Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.65 RG 5.71, Section C.5, second paragraph, second and third sentences (page 32)

As previously discussed in Section 13.8.4.23, the VEGP CSP deviates from RG 5.71 documentation retention commitments. Specifically, VEGP CSP Section 5 states the records are retained to document access history and information needed to discover the source of cyber attacks and incidents. The VEGP CSP deletes the phrase:

> *Records required for retention include, but are not limited to, digital records, log files, audit files, and nondigital records that capture, record, and analyze network and CDA events.*

The VEGP CSP commits to retaining all access history records, records to discover the source of cyber attacks or other security-related incidents affecting CDAs or SSEP functions, or both. This is consistent with what is included in RG 5.71 Section 5, as it includes all the performance-based characteristics and commitments of that section.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.66 RG 5.71, Glossary (Page 35)

The VEGP CSP's definition of a CDA deviates from the definition provided in RG 5.71. Specifically, the VEGP CSP deviates by stating that a CDA can be a CS or a subcomponent of a CS. This definition does not materially change the use of the term, and is correct: A CDA can be a CS. This definition is consistent with the definition in RG 5.71. The VEGP CSP, by the use of this definition, does not provide for less protection than RG 5.71, nor does this reduce the scope of the assets required to be protected under the rule.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.67 RG 5.71, Glossary (Page 35)

The VEGP CSP deviates from the definition of a CS in RG 5.71 by adding the caveat "as defined by the plant licensing basis." RG 5.71 states that a CS is an

analog or digital technology based system in or outside the plant that performs or is associated with a safety-related, important-to-safety, security, or emergency preparedness function. These CSs include, but are not limited to, plant systems, equipment, communication systems, networks, offsite communications, or support systems or equipment, that perform or are associated with safety-related, important-to-safety, security, or emergency preparedness functions.

The addition of the phrase "as defined by the plants' licensing basis," limits the scope of the functions to those that are defined by the licensing basis. As previously discussed in Section 13.8.4.4 of this SER, the staff ~~was concerned that this modifier might cause the licensee to exclude CSs, which ought to be included, according to the rule~~ [found this modification acceptable]. *10 CFR 73.51(a)(1) requires that the licensee protect digital computer and communication systems and networks associated with: (i) safety-related and important-to-safety functions; (ii) security functions; (iii) emergency preparedness functions, including offsite communications; and (iv) support systems and equipment, which if compromised would adversely impact SSEP functions. However, further reviews resulted in the staff finding that the VEGP CSP scoping discussion adequately described a process to include all CDAs within the scope of 10 CFR 73.54(a)(1).*

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.24.68 RG 5.71, Glossary (Page 35)

The VEGP CSP deviates from the RG 5.71 definition of cyber attack by replacing the phrase "conducted by threat agents having either malicious or non-malicious intent" with the phrase "conducted by threat agents." The NRC staff finds this deviation to be acceptable because deletion of the intent of a threat agent, be it malicious or non-malicious, still provides a commitment to protect against threats by threat agents.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

13.8.4.1.1 RG 5.71, Appendix A, Introduction (Page A-1)

The VEGP CSP deviates from the RG 5.71 scope discussion by including within scope systems or equipment that perform important to safety functions including structures, systems, and components (SSCs) in the balance of plant (BOP) that could directly or indirectly affect reactivity at a nuclear power plant and could result in an unplanned reactor shutdown or transient. Additionally, these SSCs are under the licensee's control and include electrical distribution equipment out to the first inter-tie with the offsite distribution system. The NRC staff finds this deviation to be acceptable because it is consistent with Commission policy.

Based on the above review and assessment, the NRC staff finds that this deviation is acceptable.

License Conditions

- *Part 10, License Condition 2, COL Item 13.6-5 and License Condition 3, Item G.10*

The applicant proposed two license conditions in Part 10 of the VEGP COL application, which will require the applicant to implement the cyber security program prior to initial fuel load.

In a letter dated October 22, 2010, the applicant provided supplemental information which proposed to amend the milestone included in Part 2, FSAR Table 13.4-201 to implement the cyber security program prior to receipt of fuel onsite (protected area.) The NRC staff finds the proposed implementation milestone for the cyber security program (security prior to receipt of fuel onsite (protected area)) appropriate and in accordance with the requirement in 10 CFR 73.55(a)(4). Therefore the staff finds that the proposed License Conditions 2 and 3 are not necessary.

- *Part 10, License Condition 6*

The applicant proposed 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 cyber security program. Although the CSP is not identified as an operational program in SECY-05-0197, the proposed license condition is consistent with the policy established in SECY-05-0197 for operational programs in general, and is acceptable.

13.8.5 Post Combined License Activities

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

- License Condition (13-10) - No later than 12 months after issuance of the COL, the licensee shall submit to the Director of NRO a schedule that supports planning for and conduct of NRC inspection of the cyber security program implementation. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the cyber security program has been fully implemented.

13.8.6 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 cyber security, 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 NRC staff has reviewed the CSP for format and content using the NRC CSP template in RG 5.71, and found it to include all features considered essential to such a program. In particular the staff has found it to comply with applicable commission regulations including

10 CFR 73.1, 10 CFR 73.54, 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), 10 CFR 73.55(m), 10 CFR 73.58, and 10 CFR Part 73, Appendix G.