Part 10

South Carolina Electric and Gas
V. C. Summer Nuclear Station, Units 2 & 3
COL Application

COLA Table of Contents Navigation Page

V. C. Summer Nuclear Station, Units 2 and 3

COL Application

Part 10

Proposed License Conditions and ITAAC

Revision 5

Proposed License Conditions

1. ITAAC (Inspections, Tests, Analyses, and Acceptance Criteria):

There are several ITAAC identified in the COLA. Once incorporated into the COL, the regulations identify the requirements that must be met. The incorporation below includes references to the sensitive unclassified non-safeguards information (including proprietary information) and safeguards information, contained in the AP1000 DCD. Such DCD information is included in this combined license application in the same manner as it is included in the AP1000 DCD, i.e., references in the DCD are included as references in the FSAR, and material incorporated by reference into the DCD is incorporated by reference into the FSAR. Appropriate agreements are in place to provide for the licensee's rights to possession (including constructive possession) and use of the withheld sensitive unclassified non-safeguards information (including proprietary information) and safeguards information referenced in the AP1000 DCD for the life of the project.

PROPOSED LICENSE CONDITION:

The ITAAC identified in the tables in Appendix B are hereby incorporated into this Combined License. After the Commission has made the finding required by 10 CFR 52.103(g), the ITAAC do not constitute regulatory requirements; except for specific ITAAC, which are the subject of a Section 103(a) hearing, their expiration will occur upon final Commission action in such proceeding.

2. COL HOLDER ITEMS:

There are several COL information items that cannot be resolved prior to issuance of the Combined License. The referenced AP1000 design certification has already justified why each COL holder item (as identified in the AP1000 DCD Tier 2 Table 1.8-2) cannot be resolved before the COL is issued, provides sufficient information on these items to support the NRC licensing decision, and identifies an appropriate implementation milestone. Each COL information item that cannot be resolved completely before the COL is issued is also identified as a COL holder item in the COL application FSAR Table 1.8-202. Therefore, in accordance with the guidance in Regulatory Guide 1.206, section C.III.4.3, the following License Condition is proposed to address these COL holder items. Holder items (per DCD Table 1.8-2) that are addressed by the COLA are not included in the proposed condition. These include COL information item numbers 3.11-1, 9.5-6, 10.1-1, and 13.6-5.

PROPOSED LICENSE CONDITION:

Each COL holder item identified below shall be completed by the identified implementation milestone through completion of the action therein identified.

SUMMARY OF COMBINED LICENSE INFORMATION HOLDER ITEMS			
COL Item No.	**Subject**	**From DCD Tier 2 Subsection**	**Implementation Milestone**
3.6-1	As-Designed Pipe Rupture Hazards Analysis	3.6.4.1	Prior to installation of the piping and connected components in their final location
After a Combined License is issued, the following activity will be completed by the COL holder. An as-designed pipe rupture hazard evaluation will be available for NRC review. The completed as-designed pipe rupture hazards evaluation will be in accordance with the criteria outlined in DCD Subsections 3.6.1.3.2 and 3.6.2.5. Systems, structures, and components identified to be essential targets and appropriate mitigation features (Reference is DCD Table 3.6-3) will be confirmed as part of the evaluation, and updated information will be provided as appropriate. A pipe rupture hazards analysis is part of the piping design. The evaluation will be performed for high and moderate energy piping to confirm the protection of systems, structures, and components (SSCs), which are required to be functional during and following a design basis event. The locations of the postulated ruptures and essential targets will be established and required pipe whip restraints and jet shield designs will be included. The evaluation will address environmental and flooding effects of cracks in high and moderate energy piping. The as-designed pipe rupture hazards evaluation is prepared on a generic basis to address COL applications referencing the AP1000 design.			
3.7-3	Seismic Interaction Review	3.7.5.3	Prior to initial fuel load
The seismic interaction review will be updated by the Combined License holder for as-built information. This review is performed in parallel with the seismic margin evaluation. The review is based on as-procured data, as well as the as-constructed condition. The as-built seismic interaction review is not provided with the COL application, but is completed prior to fuel load.			
3.7-4	Reconciliation of Seismic Analyses of Nuclear Island Structures	3.7.5.4	Prior to initial fuel load
The Combined License holder will reconcile the seismic analyses described in subsection 3.7.2 for detail design changes, such as those due to as-procured or as-built changes in component mass, center of gravity, and support configuration based on as-procured equipment information. Deviations are acceptable based on an evaluation consistent with the methods and procedure of Section 3.7 provided the amplitude of the seismic floor response spectra, including the effect due to these deviations, does not exceed the design basis floor response spectra by more than 10 percent. The Combined License holder will complete this reconciliation prior to fuel load.			
3.9-7	As-Designed Piping Analysis	3.9.8.7	Prior to installation of the piping and connected components in their final location
After a Combined License is issued, the following activity will be completed by the COL holder: The as-designed piping analysis is provided for the piping lines chosen to demonstrate all aspects of the piping design. A design report referencing the as-designed piping calculation packages, including ASME Section III piping analysis, support evaluations and piping component fatigue analysis for Class 1 piping using the methods and criteria outlined in DCD Table 3.9-19 is made available for NRC review. The availability of the piping design information and design reports for the piping packages is identified to the NRC.			

SUMMARY OF COMBINED LICENSE INFORMATION HOLDER ITEMS			
COL Item No.	**Subject**	**From DCD Tier 2 Subsection**	**Implementation Milestone**
4.4-2	Confirm Assumptions for Safety Analyses DNBR Limits	4.4.7	Prior to initial fuel load
Combined License applicants referencing the AP1000 certified design will address changes to the reference design of the fuel, burnable absorber rods, rod cluster control assemblies, or initial core design from that presented in the DCD. Following selection of the actual plant operating instrumentation and calculation of the instrumentation uncertainties of the operating plant parameters as discussed in subsection 7.1.6 and prior to fuel load, the Combined License holder will calculate the design limit DNBR values. The calculations will be completed using the RTDP with these instrumentation uncertainties and confirm that either the design limit DNBR values as described in Section 4.4 remain valid, or that the safety analysis minimum DNBR bounds the new design limit DNBR values plus DNBR penalties, such as rod bow penalty.			
5.3-1	Reactor Vessel Pressure – Temperature Limit Curves	5.3.6.1	Prior to initial fuel load
The COL Holder shall update the P/T limits using the PTLR methodologies approved in the AP1000 DCD using the plant-specific material properties or confirm that the reactor vessel material properties meet the specifications and use the Westinghouse generic PTLR curves.			
5.3-4	Reactor Vessel Materials Properties Verification	5.3.6.4.1	Prior to initial fuel load
The Combined License holder will complete prior to fuel load verification of plant-specific belt line material properties consistent with the requirements in subsection 5.3.3.1 and Tables 5.3-1 and 5.3-3. The verification will include a pressurized thermal shock evaluation based on as-procured reactor vessel material data and the projected neutron fluence for the plant design objective of 60 years. This evaluation report will be submitted for NRC staff review.			
9.1-7	Coupon Monitoring Program	9.1.6	Prior to commercial operation
A spent fuel rack Metamic coupon monitoring program will be implemented when the plant is placed into commercial operation. This program will include tests to monitor bubbling, blistering, cracking, or flaking; and a test to monitor for corrosion, such as weight loss measurements and/or visual examination. The program will also include testing to monitor changes in physical properties of the absorber material, including neutron attenuation and thickness measurements.			
10.2-1	Turbine Maintenance and Inspection	10.2.6	Prior to initial fuel load
The Combined License holder will submit to the NRC staff for review prior to fuel load, and then implement a turbine maintenance and inspection program. The program will be consistent with the maintenance and inspection program plan activities and inspection intervals identified in subsection 10.2.3.6. The Combined License holder will have available plant-specific turbine rotor test data and calculated toughness curves that support the material property assumptions in the turbine rotor analysis after the fabrication of the turbine and prior to fuel load.			
14.4-2	Test Specifics and Procedures	14.4.2	Prior to initial fuel load
NOTE: Addressed by proposed License Condition #6.			
14.4-3	Conduct of Test Program	14.4.3	
NOTE: Addressed by proposed License Conditions #3 and #6.			
14.4-4	Review and Evaluation of Test Results	14.4.4	
NOTE: Addressed by proposed License Condition #9.			
14.4-6	First-Plant-Only and Three-Plant-Only Tests	14.4.6	
NOTE: Addressed by proposed License Conditions #7 and #9.			

SUMMARY OF COMBINED LICENSE INFORMATION HOLDER ITEMS			
COL Item No.	**Subject**	**From DCD Tier 2 Subsection**	**Implementation Milestone**
15.0-1	Documentation of Plant Calorimetric Uncertainty Methodology	15.0.15.1	
NOTE: Addressed by proposed ITAAC Table 2.5.4-2, item 4.			
19.59.10-1	As-Built SSC HCLPF Comparison to Seismic Margin Evaluation	19.59.10.5	Prior to initial fuel load
The Combined License holder referencing the AP1000 certified design will review differences between the as-built plant and the design used as the basis for the AP1000 seismic margins analysis prior to fuel load. A verification walkdown will be performed with the purpose of identifying differences between the as-built plant and the design. Any differences will be evaluated and the seismic margins analysis modified as necessary to account for the plant-specific design and any design changes or departures from the certified design. Spacial interactions are addressed by COL information item 3.7-3. Details of the process will be developed by the Combined License holder. The Combined License holder referencing the AP1000 certified design should compare the as-built SSC HCLPFs to those assumed in the AP1000 seismic margin evaluation prior to fuel load. Deviations from the HCLPF values or assumptions in the seismic margin evaluation due to the as-built configuration and final analysis should be evaluated to determine if vulnerabilities have been introduced. The requirements to which the equipment is to be purchased are included in the equipment specifications. Specifically, the equipment specifications include: 1. Specific minimum seismic requirements consistent with those used to define the Table 19.55-1 HCLPF values. This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). The test response spectra are chosen so as to demonstrate that no more than one percent rate of failure is expected when the equipment is subjected to the applicable seismic margin ground motion for the equipment identified to be applicable in the seismic margin insights of the site-specific PRA. The range of frequency response that is required for the equipment with its structural support is defined. 2. Hardware enhancements that were determined in previous test programs and/or analysis programs will be implemented.			
19.59.10-2	Evaluation of As-Built Plant Versus Design in AP1000 PRA and Site-Specific PRA External Events	19.59.10.5	Prior to initial fuel load
The Combined License holder referencing the AP1000 certified design will review differences between the as-built plant and the design used as the basis for the AP1000 PRA and Table 19.59-18 prior to fuel load. The plant-specific PRA-based insight differences will be evaluated and the plant-specific PRA model modified as necessary to account for the plant-specific design and any design changes or departures from the design certification PRA.			
19.59.10-3	Internal Fire and Internal Flood Analyses	19.59.10.5	Prior to initial fuel load
The Combined License holder referencing the AP1000 certified design will review differences between the as-built plant and the design used as the basis for the AP1000 internal fire and internal flood analyses prior to fuel load. Plant-specific internal fire and internal flood analyses will be evaluated and the analyses modified as necessary to account for the plant-specific design and any design changes or departures from the certified design.			

SUMMARY OF COMBINED LICENSE INFORMATION HOLDER ITEMS			
COL Item No.	**Subject**	**From DCD Tier 2 Subsection**	**Implementation Milestone**
19.59.10-4	Implement Severe Accident Management Guidance	19.59.10.5	Prior to startup testing
NOTE — addressed by proposed License Condition #6.			
19.59.10-5	Equipment Survivability	19.59.10.5	Prior to initial fuel load
The Combined License holder referencing the AP1000 certified design will perform a thermal lag assessment of the as-built equipment listed in Tables 6b and 6c in Attachment A of APP-GW-GLR-069 to provide additional assurance that this equipment can perform its severe accident functions during environmental conditions resulting from hydrogen burns associated with severe accidents. This assessment is performed prior to fuel load and is required only for equipment used for severe accident mitigation that has not been tested at severe accident conditions. The Combined License holder will assess the ability of the as-built equipment to perform during severe accident hydrogen burns using the Environment Enveloping method or the Test Based Thermal Analysis method discussed in EPRI NP-4354.			

3. OPERATIONAL PROGRAM IMPLEMENTATION:

The provisions of the regulations address implementation milestones for some operational programs. The NRC will use license conditions to ensure implementation for those operational programs whose implementation is not addressed in the regulations. COL application FSAR Subsection 13.4, Table 13.4-201, identifies several programs required by regulations that must be implemented by a milestone to be identified in a license condition.

PROPOSED LICENSE CONDITION:

The licensee shall implement the programs or portions of programs identified below on or before the associated milestones identified below.

A. Construction Initiation

The licensee shall implement each operational program identified below prior to initiating construction of nuclear safety- or security-related structures, systems, or components.

None identified.

B. 18 Months Prior to Fuel Load

The license shall implement each operational program identified below at least 18 months prior to scheduled date of initial fuel load.

B.1 — Reactor Operator Training

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.1 — Radiation Protection (applicable portions)
C.2 — Fire Protection Program (applicable portions)
C.3 — Non Licensed Plant Staff Training Program (applicable portions)
C.4 — Deleted
C.5 — Deleted
C.6 — SNM Material Control and Accounting Program

D. Fuel Receipt

The licensee shall implement each operational program identified below prior to initial receipt of fuel onsite.

D.1 — Fire Protection (applicable portions)
D.2 — Radiation Protection (applicable portions)
D.3 — Special Nuclear Material Physical Protection Program
D.4 — Deleted

E. Construction Testing

The licensee shall implement each operational program identified below prior to initial construction testing.

E.1 — Initial Test Program — Construction Testing
E.2 — The implementation of construction and inspection procedures for steel concrete composite (SC) construction activities for seismic Category I nuclear island modules (including shield building SC modules) before and after concrete placement, and inspection of such construction before and after concrete placement.

F. Preoperational Testing

The licensee shall implement each operational program identified below prior to initial preoperational testing.

F.1 — Initial Test Program — Preoperational Testing

G. Fuel Loading

The licensee shall implement each operational program identified below prior to initial fuel load.

G.1 — Environmental Qualification
G.2 — Pre-Service Testing
G.3 — Process and Effluent Monitoring and Sampling
G.4 — Radiation Protection (applicable portions)
G.5 — Motor-Operated Valve Testing
G.6 — Fire Protection
G.7 — Deleted
G.8 — Containment Leakage Rate Testing
G.9 — Physical Security
G.10 — Cyber Security

H. Startup Testing

The licensee shall implement each operational program identified below prior to initial startup testing.

H.1 — Initial Test Program - Startup Testing

I. MODE 4 — Not used.

J. Initial Criticality

The licensee shall implement each operational program identified below prior to initial criticality.

J.1 — Reactor Vessel Material Surveillance

K. Waste Shipment

The licensee shall implement each operational program identified below prior to initial radioactive waste shipment.

K.1— Radiation Protection

4. NOT USED.

5. SECURITY PROGRAM:

A. SECURITY PROGRAM IMPLEMENTATION

An implementation license condition approved in the SRM regarding SECY-05-0197 applies to the security program.

PROPOSED LICENSE CONDITION:

The licensee shall maintain in effect the provisions of the physical security plan, security personnel training and qualification plan, safeguards contingency plan, and cyber security 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 (protected area), and continuing until all nuclear fuel is permanently removed from the site.

B. SPECIAL NUCLEAR MATERIAL PHYSICAL PROTECTION

A license condition is proposed to address when the boundary for physical protection of new fuel as SNM is required to be extended from the controlled access area (CAA) in accordance with the requirements of 10 CFR 73.67 to the operational protected area (PA) in accordance with 10 CFR 73.55.

PROPOSED LICENSE CONDITION:

The licensee shall receive and store new fuel as SNM in a controlled access area (CAA) in accordance with the requirements of 10 CFR 73.67, until such time as an operational protected area (PA) that satisfies the requirements of 10 CFR 73.55(e)(8) is established. If new fuel is already stored in a CAA that is within the

boundary of the proposed PA, then upon declaration of an operational PA, the remaining requirements of 10 CFR 73.55 shall be implemented. The PA shall be established and declared operational prior to initial fuel load.

6. OPERATIONAL PROGRAM READINESS:

The NRC inspection of operational programs will be the subject of the following license condition in accordance with SECY-05-0197.

PROPOSED LICENSE CONDITION:

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 also address:

a. the implementation of site specific Severe Accident Management Guidance.

b. the reactor vessel pressurized thermal shock evaluation at least 18 months prior to initial fuel load.

c. the approved preoperational and startup test procedures (including the site-specific startup administration manual (procedure) prior to initiating the plant initial test program) in accordance with FSAR Subsection 14.2.3.

d. the flow accelerated corrosion (FAC) program implementation, including the construction phase activities.

e. full implementation of the operational and programmatic elements of responding to an event associated with a loss of large areas of the plant due to explosions or fire, prior to initial fuel load.

f. the spent fuel rack Metamic coupon monitoring program implementation.

g. the implementation of construction and inspection procedures for concrete filled steel plate modules activities before and after concrete placement, use of construction mock-ups, and inspection of modules before and after concrete placement as discussed in DCD Subsection 3.8.4.8.

h. the availability of documented instrumentation uncertainties to calculate a power calorimetric uncertainty, prior to initial fuel load.

i. the availability of administrative controls to implement maintenance and contingency activities related to the power calorimetric uncertainty instrumentation, prior to initial fuel load.

7. FIRST-PLANT-ONLY AND FIRST-THREE-PLANT-ONLY TESTING

Certain design features of the AP1000 plant will be subjected to special tests to establish unique phenomenological performance parameters of the AP1000 design. Because of the standardization of the AP1000 design, these special tests (designated as first-plant-only tests and first-three-plant-only tests) are not required on subsequent plants. Once these tests are completed by the first plant (or first three plants) and appropriate documentation identified, the subsequent plants need only reference the applicable documentation to show that the first plant (or first three plants) completed the required testing. Accordingly, the following license condition is proposed:

First-Plant-Only and First-Three-Plant-Only Testing

A licensee shall provide written identification of the applicable references for documentation for the completion of the testing to the Director of the Office of New Reactors (or equivalent NRC management) within thirty (30) calendar days of the licensee confirmation of acceptable test results.

Subsequent plant licensees crediting completion of testing by the first-plant or by the first-three-plants shall provide a report referencing the applicable documentation identified by the first (or first three) plant(s) confirming the testing to the Director of the Office of New Reactors (or equivalent NRC management). This report shall be provided to NRC either prior to initiation of pre-operational testing, or within sixty (60) days of the identification of the documentation for the completion of the testing by the first plant (or third plant, as appropriate), whichever is later.

8. STARTUP TESTING:

COL application FSAR Section 14.2 specifies certain startup tests that must be completed after fuel load. Operating licenses typically have included the following condition related to startup testing.

PROPOSED LICENSE CONDITION:

Any changes to the Initial Startup Test Program described in Chapter 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 or Section VIII of Appendix D to 10 CFR Part 52 shall be reported in accordance with 50.59(d) within one month of such change.

9. STARTUP PROGRAM TEST RESULTS

Certain milestones within the startup testing phase of the initial test program (i.e., pre-critical testing, criticality testing, and low-power (<5% RTP) testing) are controlled through license conditions to ensure that relevant test results are reviewed, evaluated, and approved by the designated licensee management before proceeding with the power ascension test phase. Accordingly, the following license conditions are proposed:

Pre-operational Testing

Following completion of pre-operational testing, the licensee shall review and evaluate individual test results. Test exceptions or results which do not meet acceptance criteria are identified to the affected and responsible organizations, and corrective actions and retests, as required, are performed.

Pre-critical and Criticality Testing

1. Following completion of pre-critical and criticality testing, the licensee shall review and evaluate individual test results. Test exceptions or results which do not meet acceptance criteria are identified to the affected and responsible organizations, and corrective actions and retests, as required, are performed.

2. The licensee shall provide written notification to the Director of the Office of New Reactors (or equivalent NRC management) within fourteen (14) calendar days of completion of the pre-critical and criticality testing.

Low-Power (<5% RTP) Testing

1. Following completion of low-power (<5% RTP) testing, the licensee shall review and evaluate individual test results. Test exceptions or results which do not meet acceptance criteria are identified to the affected and responsible organizations, and corrective actions and retests, as required, are performed.

2. The licensee shall provide written notification to the Director of the Office of New Reactors (or equivalent NRC management) within fourteen (14) calendar days of completion of the low power testing.

At-Power (5%–100% RTP) Testing

1. Following completion of at-power testing (at or above 5% RTP up to and including testing at 100% RTP), the licensee shall review and evaluate individual test results. Test exceptions or results which do not meet acceptance criteria are identified to the affected

and responsible organizations, and corrective actions and retests, as required, are performed.

2. The licensee shall provide written notification to the Director of the Office of New Reactors (or equivalent NRC management) within fourteen (14) calendar days of completion of the at-power testing.

10. ENVIRONMENTAL PROTECTION PLAN:

Operating licenses typically have included the following condition related to environmental protection.

PROPOSED LICENSE CONDITION:

The issuance of this COL, subject to the Environmental Protection Plan and the conditions for the protection of the environment set forth herein, is in accordance with the National Environmental Policy Act of 1969, as amended, and with applicable sections of 10 CFR 51, “Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions,” as referenced by Subpart C of 10 CFR 52, “Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants,” and all applicable requirements therein have been satisfied.

11. EMERGENCY PLAN EMERGENCY CLASSIFICATION SYSTEM (EMERGENCY ACTION LEVELS)

The licensee shall submit a fully developed set of plant-specific Emergency Action Levels (EALs) for VCSNS Units 2 and 3 in accordance with NEI-07-01 Revision 0. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load. The submitted EALs will be written with no deviations.

Appendix A. Environmental Protection Plan (Nonradiological)

1.0 OBJECTIVES OF THE ENVIRONMENTAL PROTECTION PLAN

The purpose of the Environmental Protection Plan (EPP) is to provide for protection of nonradiological environmental resources during construction and operation of the nuclear facility. The principal objectives of the EPP are as follows:

1. Verify that the facility is constructed and operated in an environmentally acceptable manner, as established by the Final Environmental Impact Statement (FEIS) and other NRC environmental impact assessments.

2. Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.

3. Keep NRC informed of the adverse environmental effects of facility construction and operation and of actions taken to control those adverse effects.

Environmental issues identified in the FEIS which relate to water quality matters are regulated by the licensee's National Pollutant Discharge Elimination System (NPDES) permit.

2.0 ENVIRONMENTAL PROTECTION ISSUES

In the FEIS dated **[Insert Date]** (NUREG-**[XXXX]**), the staff considered the environmental impacts associated with construction and operation of the VCSNS Units 2 and 3. The environmental impacts associated with the construction activities authorized by 10 CFR 52.25 and impacts associated with operations in accordance with the facility Combined License (COL) are expected to be less than or equal to the impacts assessed in the FEIS.

3.0 CONSISTENCY REQUIREMENTS

3.1 CONSTRUCTION ACTIVITIES

The licensee shall take the necessary actions identified in NUREG-**[XXXX]** to avoid unnecessary environmental impacts from construction activities. These actions include conducting construction activities in accordance with various environmental permit requirements.

The Licensee shall maintain records of construction activities. These records shall include an assessment of whether the environmental impact of construction activities is consistent with that evaluated in the EIS.

3.2 OPERATIONS

The licensee shall take the necessary actions identified in NUREG-**[XXXX]** to avoid unnecessary environmental impacts. These actions include operating the facility in accordance with various environmental permit requirements.

3.3 REPORTING RELATED TO THE CLEAN WATER ACT

The certifications and permits required under the Clean Water Act provide mechanisms for protecting water quality and aquatic biota. The NRC will rely on the decisions made by the U.S. Environmental Protection Agency and the State of South Carolina under the authority of the Clean Water Act for any requirements for water quality and aquatic monitoring.

The licensee shall provide the NRC with a copy of the NPDES permit issued by the South Carolina Department of Health and Environmental Control (DHEC) Title 48 South Carolina Code of Laws within 60 days of approval.

3.4 PLANT DESIGN AND OPERATION

The licensee may make changes in plant design or operation or perform tests or experiments affecting the environment provided such activities do not involve an unreviewed environmental question and do not involve a change in the EPP (this provision does not relieve the licensee of the requirements of 10 CFR 50.59 or Appendix D to 10 CFR Part 52). Changes in plant design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Section 3.5 are not subject to the requirements of this Section.

Before engaging in additional construction or operational activities which may significantly affect the environment, the licensee shall prepare and record an environmental evaluation of such activity. Activities are excluded from this requirement if all measurable nonradiological environmental effects are confined to the onsite areas previously disturbed during plant construction. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activity and obtain prior NRC approval. When such activity involves a change in the EPP, such activity and change to the EPP may be implemented only in accordance with an appropriate license amendment as set forth in Section 5.3 of this EPP.

A proposed change, test, or experiment shall be deemed to involve an unreviewed environmental question if it concerns:

1. A matter which may result in a significant increase in any adverse environmental impact previously evaluated in the FEIS, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board;

2. A significant change in effluents or power level; or

3. A matter not previously reviewed and evaluated in the FEIS, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board, which may have a significant adverse environmental impact.

The licensee shall maintain records of changes in plant design or operation and of tests and experiments carried out pursuant to this subsection. These records shall include written evaluations which provide bases for determination that the change, test, or experiment does not involve an unreviewed environmental question or constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0. The licensee shall include, as part of the Annual Environmental Operating Report (in accordance with Subsection 5.4.1), brief descriptions, analyses, interpretations, and evaluations of such changes, tests, and experiments.

3.5 CHANGES REQUIRED FOR COMPLIANCE WITH OTHER ENVIRONMENTAL REGULATIONS

Changes in plant design or operation and performance of tests or experiments which are required to achieve compliance with other Federal, State, and local environmental regulations are not subject to the requirements of Section 3.4.

4.0 ENVIRONMENTAL CONDITIONS

4.1 UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS

The licensee shall evaluate and report to the NRC Operation Center within 24 hours (followed by a written report in accordance with Subsection 5.4.2) any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to construction or operation. The following are examples: excessive bird impaction events; unusual onsite plant or animal disease outbreaks; mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973; unusual fish kills; unusual increase in nuisance organisms or conditions; and unanticipated or emergency discharge of waste water or chemical substances that impact waters of the State.

Routine monitoring programs are not required to implement this condition.

5.0 ADMINISTRATIVE PROCEDURES

5.1 REVIEW AND AUDIT

The licensee shall provide for review and audit of compliance with the EPP. The audits shall be conducted independently and shall not be conducted by the individual or groups responsible for performing the specific activity. A description

of the organization structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 RECORDS RETENTION

The licensee shall make and retain records associated with this EPP in a manner convenient for review and inspection and shall make them available to the NRC on request.

The licensee shall retain records of construction and operation activities determined to potentially effect the continued protection of the environment until the date of termination of the license. Records of modifications to station structures, systems, and components determined to potentially affect the continued protection of the environment shall be retained for the life of the station. All other records, data, and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 CHANGES IN ENVIRONMENTAL PROTECTION PLAN

Requests for changes in the EPP shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence prior to the NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revisions to the EPP.

5.4 REPORTING REQUIREMENTS

5.4.1 Routine Reports

An Annual Environmental Operating Report describing implementation of this EPP for the previous year shall be submitted to the NRC prior to May 15 of each year. The period for the first report shall begin with the date of issuance of the Combined Licenses for Units 2 and 3, and the initial report shall be submitted prior to May 15 of the year following issuance of the Combined Licenses for Units 2 and 3. At the discretion of the licensee, the Annual Environmental Operating Report for Units 2 and 3 may be combined with the Annual Operating Report submitted for VCSNS Unit 1.

The report shall include summaries and analyses of the results of the environmental protection activities required by EPP for the report period, including a comparison with related preoperational studies, operational controls (as appropriate), and previous nonradiological environmental monitoring reports, and an assessment of the observed impacts of the plant operation on the environment. If unexpected harmful effects or evidence of trends toward

irreversible damage to the environment are observed, the licensee shall provide a detailed analysis of the data and a proposed course of mitigating action.

The Annual Environmental Operating Report shall include:

1. A list of EPP noncompliances and the corrective actions taken to remedy them.

2. A list of changes in station design or operation, tests, and experiments made in accordance with Subsection 3.4 which involved potentially significant unreviewed environmental questions.

3. A list of nonroutine reports submitted in accordance with Subsection 5.4.2.

In the event that some results are not available by the report due date, the report shall be submitted noting and explaining the missing results. The missing results shall be submitted as soon as possible in a supplementary report.

5.4.2 Nonroutine Reports

A written report shall be submitted to the NRC within 60 days of occurrence of a nonroutine event that has a significant impact on the environment. The report shall:

1. Describe, analyze, and evaluate the event, including extent and magnitude of the impact, and plant operating characteristics.

2. Describe the probable cause of the event.

3. Indicate the action taken to correct reported event.

4. Indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems.

5. Indicate the agencies notified and their preliminary responses.

Events reportable under this subsection which also require reports to other Federal, State or local agencies shall be reported in accordance with those reporting requirements in lieu of the requirements of this subsection. The NRC shall be provided with a copy of such report at the same time it is submitted to the other agency.

Appendix B. Inspections, Tests, Analysis and Acceptance Criteria

AP1000 DCD Tier 1 ITAAC

The Tier 1 information (including the ITAAC) of the referenced DCD is incorporated by reference with the following departures and/or supplements.

Physical Security ITAAC

The physical security ITAAC that are in the scope of the Westinghouse AP1000 standard design are included in the referenced DCD Tier 1 Subsection 2.6.9 as incorporated by reference above. Site-specific physical security ITAAC that are outside the scope of the Westinghouse AP1000 standard design in DCD Tier 1 Subsection 2.6.9 are provided in the attached Table 2.6.9-2. Include these ITAAC after the DCD Tier 1 Table 2.6.9-1 ITAAC.

Plant-Specific ITAAC

Add the following information to the information provided in the referenced DCD Tier 1 following Section 2.3.29:

2.3.30 Storm Drain System
No entry for this system.

2.3.31 Raw Water System
No entry for this system.

2.3.32 Yard Fire Water System
No entry for this system.

Add the following information to the information provided in the referenced DCD Tier 1 Section 2.5.4, as a new item 4 under the Design Description section:

4. The plant operating instrumentation installed for feedwater flow measurement is one that has been specifically approved by the NRC; the power calorimetric uncertainty calculation includes uncertainties for the associated instrumentation based on an NRC approved methodology; and the calculated calorimetric values are bounded by the uncertainty value assumed for the initial reactor power in the safety analysis.

Add the following information to the information provided in the referenced DCD Tier 1 Section 2.5.4, as a new, final line item in Table 2.5.4-2:

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4. The plant calorimetric uncertainty and plant instrumentation performance is bounded by the 1% calorimetric uncertainty value assumed for the initial reactor power in the safety analysis.	Inspection will be performed of the plant operating instrumentation installed for feedwater flow measurement, its associated power calorimetric uncertainty calculation, and the calculated calorimetric values.	a) The as-built system takes input for feedwater flow measurement from a Caldon [Cameron] LEFM CheckPlus™ System; b) the power calorimetric uncertainty calculation documented for that instrumentation is based on an accepted Westinghouse methodology and the uncertainty values for that instrumentation are not lower than those for the actual installed instrumentation; and c) the calculated calorimetric power uncertainty measurement values are bounded by the 1% uncertainty value assumed for the initial reactor power in the safety analysis.

Add the following information to the information provided in the referenced DCD Tier 1 following Section 2.5.10:

2.5.11 Meteorological and Environmental Monitoring System
No entry for this system.

2.5.12 Closed Circuit TV System
No entry for this system.

Add the following information to the information provided in the referenced DCD Tier 1 following Section 2.6.11:

2.6.12 Transmission Switchyard and Offsite Power System Inspection, Test, Analysis and Acceptance Criteria

Table 2.6.12-1 provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the offsite power system.

The following non-system based site specific ITAAC are provided:

Emergency Planning ITAAC

The emergency planning ITAAC are included in the attached Table 3.8-1. Include these ITAAC after DCD Tier 1 Section 3.7.

Pipe Rupture Hazard Analysis ITAAC
The ITAAC for Pipe Rupture Hazard Analysis are included in attached Table 3.8-2.

Piping Design ITAAC
The ITAAC for Piping Design are included in attached Table 3.8-3.

TABLE 2.6.9-2 – SITE-SPECIFIC PHYSICAL SECURITY INSPECTIONS, TESTS, ANALYSES AND ACCEPTANCE CRITERIA (SHEET 1 OF 3)

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 Underwriter's 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.
3.a) Isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area that allow 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 2.6.9-2 – SITE-SPECIFIC PHYSICAL SECURITY INSPECTIONS, TESTS, ANALYSES AND ACCEPTANCE CRITERIA (SHEET 2 OF 3)

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 is capable of detecting firearms, incendiary devices, and explosives at the protected area personnel access points.
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.

TABLE 2.6.9-2 – SITE-SPECIFIC PHYSICAL SECURITY INSPECTIONS, TESTS, ANALYSES AND ACCEPTANCE CRITERIA (SHEET 3 OF 3)

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
8.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.
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.

TABLE 2.6.12-1
OFFSITE POWER SYSTEM (SHEET 1 OF 2)

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
1. A minimum of one offsite circuit supplies electric power from the transmission switchyard to the interface with the onsite ac power system.	Inspections of the as-built offsite circuit will be performed.	At least one offsite circuit is provided from the transmission switchyard interface to the interface with the onsite ac power system.
2. Each offsite circuit interfacing with the onsite ac power system is adequately rated to supply assumed loads during normal, abnormal and accident conditions.	Analyses of the offsite power system will be performed to evaluate the as-built ratings of each offsite circuit interfacing with the onsite ac power system against the load assumptions.	A report exists and concludes that each as-built offsite circuit is rated to supply the load assumptions, during normal, abnormal and accident conditions.
3. During steady state operation, each offsite circuit is capable of supplying required voltage to the interface with the onsite ac power system that will support operation of assumed loads during normal, abnormal and accident conditions.	Analyses of the as-built offsite circuit will be performed to evaluate the capability of each offsite circuit to supply the voltage requirements at the interface with the onsite ac power system.	A report exists and concludes that during steady state operation each as-built offsite circuit is capable of supplying the voltage at the interface with the onsite ac power system that will support operation of assumed loads during normal, abnormal and accident conditions.
4. During steady state operation, each offsite circuit is capable of supplying required frequency to the interface with the onsite ac power system that will support operation of assumed loads during normal, abnormal and accident conditions.	Analyses of the as-built offsite circuit will be performed to evaluate the capability of each offsite circuit to supply the frequency requirements at the interface with the onsite ac power system.	A report exists and concludes that during steady state operation each as-built offsite circuit is capable of supplying the frequency at the interface with onsite ac power system that will support operation of assumed loads during normal, abnormal and accident conditions.
5. The fault current contribution of each offsite circuit is compatible with the interrupting capability of the onsite ac power system short circuit interrupting devices.	Analyses of the as-built offsite circuit will be performed to evaluate the fault current contribution of each offsite circuit at the interface with the onsite ac power system.	A report exists and concludes the short circuit contribution of each as-built offsite circuit at the interface with the onsite ac power system is compatible with the interrupting capability of the onsite fault current interrupting devices

TABLE 2.6.12-1
OFFSITE POWER SYSTEM (SHEET 2 OF 2)

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
6. The reactor coolant pumps continue to receive power from either the main generator or the grid for a minimum of 3 seconds following a turbine trip.	Analyses of the as-built offsite power system will be performed to confirm that power will be available to the reactor coolant pumps for a minimum of 3 seconds following a turbine trip when the buses powering the reactor coolant pumps are aligned to either the UATs or the RATs.	A report exists and concludes that voltage at the high-side of the GSU, and the RATs, does not drop more than 0.15 pu from the pre-trip steady-state voltage for a minimum of 3 seconds following a turbine trip when the buses powering the reactor coolant pumps are aligned to either the UATs or the RATs.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 1 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
1.0 Emergency Classification System			
10 CFR 50.47(b)(4) — A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.	1.1 A standard emergency classification and emergency action level (EAL) scheme exists, and identifies facility system and effluent parameters constituting the bases for the classification scheme. [D.1**] [**D.1 corresponds to NUREG-0654/FEMA-REP-1 evaluation criteria.]	1.1 An inspection of the Control Room, Technical Support Center (TSC), and Emergency Operations Facility (EOF) will be performed to verify that they have displays for retrieving facility system and effluent parameters that are specified in the Emergency Classification and EAL scheme and the displays are functional.	1.1 The specified parameters as listed in DCD Table 7.5-1 and FSAR Table 7.5-201 are retrievable in the Control Room, TSC and EOF, and the ranges of the displays encompass the values specified in the Emergency Classification and EAL Technical Basis Document.
2.0 Notification Methods and Procedures			
10 CFR 50.47(b)(5) — Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.	2.1 The means exists to notify responsible State and local organizations within 15 minutes after the licensee declares an emergency. [E.1]	2.1. A test of the ESSX line will be performed to demonstrate the capabilities for providing initial notification to the offsite authorities after a simulated emergency classification.	2.1 Using the ESSX line the State of South Carolina and the counties of Fairfield, Lexington, Newberry and Richland received notification within 15 minutes after the declaration of an emergency from the Control Room and the EOF. A test of each facility ESSX line was successful using the standard South Carolina notification form.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 2 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
2.0 Notification Methods and Procedures (continued)			
	2.2 The means exists to notify emergency response personnel. [E.2]	2.2 A test of the primary and back-up ERO notification systems will be performed.	2.2 Emergency response personnel received the notification message and mobilization communication was validated by personnel response to the notification system and by telephone during off-hours. Also demonstrated work hours electronic notification and plant page system during working hours.
	2.3 The means exists to notify and provide instructions to the populace within the plume exposure EPZ. [E.6]	2.3 The full test of the ANS capabilities will be conducted.	2.3 The ANS was demonstrated to notify and provide instructions to the public and was demonstrated to meet the design objectives, as stated in the emergency plan.
3.0 Emergency Communications			
10 CFR 50.47(b)(6) — Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.	3.1 The means exists for communications among the Control Room, TSC, EOF, principal State and local emergency operations centers (EOCs), and radiological field assessment teams. [F.1.d]	3.1 A test will be performed of the capabilities. The test for the contact with the principal EOCs and the radiological field assessment teams will be from the Control Room and the EOF. See also ITA 5.1.1.	3.1 Communications (both primary and secondary methods/systems) were established among the Control Room and the EOF with the South Carolina Emergency Management Division (SCEMD) warning point and EOC; Fairfield County Warning Point and EOC; Richland County Warning Point and EOC; Newberry County Warning Point and EOC; and Lexington County Warning Point and EOC. Communications were established between the Control Room and the EOF with the VCSNS radiological field monitoring teams. See also AC 5.1.4.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 3 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
3.0 Emergency Communications (continued)			
	3.2 The means exists for communications from the Control Room, TSC, and EOF to the NRC headquarters and regional office EOCs (including establishment of the Emergency Response Data System (ERDS) [or its successor system] between the onsite computer system and the NRC Operations Center.) [F.1.f]	3.2 A test is performed of the capabilities to communicate using ENS from the Control Room, TSC and EOF to the NRC headquarters and regional office EOCs. HPN is tested to ensure communications between the TSC and EOF with the NRC Operations Center. ERDS is established [or its successor system] between the onsite computer systems and the NRC Operations Center.	3.2 Communication was established from the Control Room, TSC and EOF to the NRC headquarters and regional office EOCs utilizing the ENS. The TSC and EOF demonstrated communications with the NRC Operations Center using HPN. The access port for ERDS [or its successor system] successfully completed a transfer of data to the NRC Operations Center.
4.0 Public Education and Information			
10 CFR 50.47(b)(7) — Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.	4.1 The licensee has provided space which may be used for a limited number of the news media. [G.3.b]	4.1 An inspection of the facility/area provided for the news media will be performed in the Joint Information Center (JIC). The space provides adequate equipment to support JIC operation, including communications with the site and with the Emergency Operation Centers in the state and counties as well as a limited number of news media.	4.1 The licensee has provided space which may be used for a limited number of the news media in the Joint Information Center. This space provides the needed equipment per approved administrative procedures.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 4 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
5.0 Emergency Facilities and Equipment			
10 CFR 50.47(b)(8) — Adequate emergency facilities and equipment to support the emergency response are provided and maintained.	5.1 The licensee has established a TSC and onsite OSC. [H.1, H.9]	5.1.1 An inspection of the TSC and OSC will be performed, including a test of the capabilities. These facilities will meet the criteria of NUREG-0696 with exceptions.	5.1.1 The TSC has at least 3000 ft^2 of floor space. 5.1.2 The TSC is located outside the Protected Area and advanced communication capabilities are available and utilized to ensure communications between the emergency response facilities. Procedures are in place to enhance passage through security checkpoints expeditiously. 5.1.3 The TSC ventilation system includes a high efficiency particulate air (HEPA) and charcoal filter and radiation monitors are installed. 5.1.4 TSC communications equipment is installed per specifications and is operable. Communications have been initiated and found to be acceptable in giving and receiving voice communications with the Control Room, the OSC and the EOF.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 5 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
5.0 Emergency Facilities and Equipment (continued)			
			5.1.5 The TSC has the means to receive, store, process, and display plant and environmental information as listed in DCD Table 7.5-1 and FSAR Table 7.5-201, and to initiate emergency measures and conduct emergency assessment. 5.1.6 There is an OSC located inside the Unit that is separate from the Control Room and within the Protected Area. 5.1.7 OSC communications equipment is installed, and voice transmission and reception have been demonstrated between the OSC, OSC Teams, the TSC, and Control Room. 5.1.8 A reliable and backup electrical supply is available for the TSC.
	5.2 The licensee has established an EOF. [H.2]	5.2 An inspection of the EOF will be performed, including a test of the capabilities. The EOF is located outside of the 10 mile Emergency Planning Zone.	5.2.1 The EOF working space size is consistent with NUREG-0696 (75 ft^2/ person), and is large enough for required systems, equipment, records and storage.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 6 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
5.0 Emergency Facilities and Equipment (continued)			
			5.2.2 The EOF habitability is consistent with Table 2 of NUREG-0696. • Distance at or beyond 10 mi of the TSC • Built to meet the criteria of the County Building Code 5.2.3 EOF communications equipment is installed, and voice transmission and reception are accomplished with the Control Room, TSC, radiological monitoring teams, NRC, state and county agencies using typical data generated during facility activation. 5.2.4 Radiological data identified in the EP Unit Annex, meteorological data, and plant system data pertinent to determining offsite protective measures as listed in DCD Table 7.5-1 and FSAR Table 7.5-201 are available and displayed when activated in the EOF.
6.0 Accident Assessment			
10 CFR 50.47(b)(9) — Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.	6.1 The means exists to provide initial and continuing radiological assessment throughout the course of an accident. [I.2]	6.1 A test will be performed to demonstrate 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 Control Room.	6.1 The means exist to provide initial and continuing radiological assessment through displays of instrumentation indicators in the Control Room, TSC and EOF during the course of drills and/or exercises.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 7 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
6.0 Accident Assessment (continued)			
	6.2 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. [I.3]	6.2 A test will be performed to demonstrate that the means exist 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.	6.2 Emergency Planning Implementing Procedures, through use in training and a drill, provided direction to accurately calculate the source terms and the magnitude of the release of postulated accident scenario releases.
	6.3 The means exists to 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. [I.4]	6.3 A test will be performed to demonstrate that the impact of a radiological release to the environment is able to be assessed by utilizing the relationship between effluent monitor readings, and onsite and offsite exposures and contamination for various meteorological conditions.	6.3 Response personnel demonstrated that the means exist to 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 under drill conditions.
	6.4 The means exists to acquire and evaluate meteorological information. [I.5]	6.4 A test will be performed to acquire and evaluate meteorological data/ information.	6.4 Meteorological data was available at the EOF, TSC, Control Room, offsite NRC Operations Center, and the state of South Carolina. This data was in the format needed for the appropriate emergency planning implementing procedures.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 8 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
6.0 Accident Assessment (continued)			
	6.5 The means exists to make rapid assessments of actual or potential magnitude and locations of radiological hazards through liquid or gaseous release pathways, including activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times. [I.8]	6.5 A test will be performed of the capabilities to make rapid assessments of actual or potential magnitude and locations of radiological hazards through liquid or gaseous release pathways, including activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times.	6.5 The field monitoring team(s) was activated and evaluated. They demonstrated an ability to make rapid assessment of actual or potential magnitude and locations of any radiological hazards through simulated liquid or gaseous release pathways. A qualified field team was notified, activated, briefed and dispatched from the EOF during a radiological release scenario. The team demonstrated the procedural guidance in team composition, use of monitoring equipment, communication from the field, and locating specific sampling locations.
	6.6 The capability exists to detect and measure radioiodine concentrations in air in the plume exposure EPZ, as low as 10-7 µCi/cc (microcuries per cubic centimeter) under field conditions. [I.9]	6.6 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 (microcuries per cubic centimeter) under field conditions.	6.6 A field monitoring team was dispatched during a radiological release scenario and demonstrated the use of sampling and detection equipment for air concentrations in the plume exposure EPZ, as low as 10^{-7} µCi/cc.
	6.7 The means exists to estimate integrated dose from the projected and actual dose rates, and for comparing these estimates with the EPA protective action guides (PAGs). [I.10]	6.7 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 EPA protective action guides.	6.7 The means were demonstrated to estimate integrated dose from the dose assessment program and the field monitoring team reading during a radioactive release scenario. The results were compared with the EPA PAGs.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 9 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
7.0 Protective Response			
10 CFR 50.47(b)(10) — A range of protective actions has been developed for the plume exposure EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure EPZ appropriate to the locale have been developed.	7.1 The means exists to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator, including: [J.1] 1. employees not having emergency assignments; 2. visitors; 3. contractor and construction personnel; and 4. other persons who may be in the public access areas, on or passing through the site, or within the owner controlled area.	7.1 A test will be performed of the capabilities to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator.	7.1 The means exist and was successfully demonstrated to warn and advise onsite individuals including: 1. non-essential employees; 2. visitors; 3. contractor and construction personnel; and 4. other personnel within the owner controlled area.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 10 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills			
10 CFR 50.47(b)(14) – Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.	8.1 Licensee conducts a full participation exercise to evaluate major portions of emergency response capabilities, which includes participation by each state and local agency within the plume exposure EPZ, and each state within the ingestion control EPZ. [N.1]	8.1 A full participation exercise (test) will be conducted within the specified time periods of Appendix E to 10 CFR Part 50.	8.1.1 The exercise was completed within the specified time periods of Appendix E to 10 CFR Part 50, onsite exercise objectives were met, including: A. *Accident Assessment and Classification* 1. Demonstrate the ability to identify initiating conditions, determine emergency action levels (EAL) parameters, and correctly classify the emergency throughout the exercise. Standard Criteria: a. Determine the correct emergency classification level based on events which were in progress, considering past events and their impact on the current conditions within 15 minutes from the time the initiating condition(s) or EAL is exceeded during the exercise.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 11 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			B. *Notifications* 1. Demonstrate the ability notify responsible state and local government agencies within 15 minutes and the NRC within 60 minutes after declaring an emergency. Standard Criteria: a. Accurately transmit information in accordance with Emergency Plan Implementing Procedures within 15 minutes of the emergency declaration. 2. Demonstrate the ability to alert, notify, and mobilize site emergency response personnel during the exercise. Standard Criteria: a. Complete the designated actions in accordance with Emergency Plan Implementing Procedures and perform the announcement concerning the initial event classification of Alert or higher during the exercise. b. Mobilize site emergency responders in accordance with Emergency Plan Implementing Procedures at the initial event classification for an Alert or higher during the exercise.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 12 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			3. Demonstrate the ability to warn or advise onsite individuals of emergency conditions. Standard Criteria: a. Initiate notification of onsite protective actions. 4. Demonstrate the capability of the Alert and Notification System (ANS) to operate properly when required. Standard Criteria: a. 90% of the sirens operate properly, as indicated by the feedback system. C. *Emergency Response* 1. Demonstrate the ability to direct and control emergency operations Standard Criteria a. Command and control is demonstrated by the Control Room (simulator) in the early phase of the emergency and by the Technical Support Center (TSC) and Emergency Operations Facility (EOF) within 75 minutes of the emergency declaration.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 13 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			2. Demonstrate the ability to transfer emergency direction from the Control Room (simulator) to the EOF. Standard Criteria: a. Turnover briefings are conducted in accordance with Emergency Plan Implementing Procedures. 3. Demonstrate the ability to prepare for around-the-clock staffing requirements. Standard Criteria: a. Complete 24-hour staffing assignments. 4. Demonstrate the ability to perform assembly and accountability for personnel in the Protected Area within 30 minutes of the declaration of a Site Area Emergency or higher classification. Standard Criteria: a. Protected Area personnel assembly and accountability completed within 30 minutes of the declaration of a Site Area Emergency or higher classification.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 14 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			D. *Emergency Response Facilities* 1. Demonstrate activation of the Operational Support Center (OSC), and full functional operation of the TSC and EOF within 75 minutes of a declaration of Alert or higher emergency classification. Standard Criteria: a. The TSC, OSC, and EOF are activated within 75 minutes of the declaration of an Alert of higher emergency classification. 2. Demonstrate the adequacy of equipment, security, provisions, and habitability precautions for the TSC, OSC, and EOF, as appropriate. Standard Criteria: a. Demonstrate the adequacy of the emergency equipment in the emergency response facilities as specified in Emergency Plan Implementing Procedures, as appropriate. b. The security force implements and follows applicable security plan procedures as appropriate during the exercise. c. Demonstrate the capability of TSC and EOF equipment and data displays to clearly identify and reflect the affected unit.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 15 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			3. Demonstrate the adequacy of communications for emergency support resources. Standard Criteria: a. Emergency response facility personnel are able to operate primary or backup communication systems in accordance with Emergency Plan Implementing Procedures as needed during the exercise. b. Primary or backup emergency response communication systems listed in the Emergency Plan Implementing Procedures are available and operational for the duration of the exercise.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 16 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			E. *Radiological Assessment and Control* 1. Demonstrate the ability to obtain onsite radiological surveys and samples Standard Criteria: a. Health Physics personnel demonstrate the ability to obtain appropriate instruments and perform surveys as needed during the exercise. b. Airborne samples are taken, as appropriate, in accordance with Emergency Plan Implementing Procedures during the exercise. 2. Demonstrate the ability to continuously monitor and control radiation exposure to emergency workers. Standard Criteria: a. Emergency workers are issued self-reading dosimeters when radiation levels require, and exposures are controlled to 10 CFR Part 20 limits (unless the Emergency Coordinator authorizes emergency limits), as appropriate during the exercise. b. Exposure records are available during the exercise.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 17 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			3. Demonstrate the ability to assemble and deploy field monitoring teams. Standard Criteria: a. Field Monitoring Teams are briefed, obtain equipment, and are dispatched in accordance with Emergency Plan Implementing Procedures. 4. Demonstrate the ability to collect and disseminate field team data Standard Criteria: a. Field teams collect data for dose rate and airborne radioactivity levels, as applicable, in accordance with emergency plan implementing procedures b. Field team communicates data to the EOF in accordance with Emergency Plan Implementing Procedures during the exercise.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 18 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			5. Demonstrate the ability to develop dose projections Standard Criteria: a. Timely and accurate dose projections are performed in accordance with Emergency Plan Implementing Procedures during the exercise. 6. Demonstrate the ability to develop appropriate Protective Action Recommendations (PARs) and notify appropriate authorities within 15 minutes, once data is available, after the declaration of a General Emergency or change in PARs during the exercise. Standard Criteria: a. Total Effective Dose Equivalent (TEDE) and Committed Dose Equivalent (CDE) dose projections from the dose assessment computer code are developed in accordance with Emergency Plan Implementing Procedures during the exercise. b. PARs are developed and transmitted within 15 minutes of data availability during the exercise.

Table 3.8-1 Inspections, Tests, Analysis, and Acceptance Criteria (Sheet 19 of 19)

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			8.1.2 Onsite emergency response personnel were mobilized in sufficient numbers to fill emergency response positions, and they successfully performed their assigned responsibilities. 8.1.3 The exercise was completed within the specified time periods of Appendix E to 10 CFR Part 50, offsite exercise objectives were met, and there were no uncorrected offsite exercise 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).
9.0 Implementing Procedures			
10 CFR Part 50, App. E.V – No less than 180 days prior to the scheduled issuance of an operating license for a nuclear power reactor or a license to possess nuclear material, the applicant's detailed implementing procedures for its emergency plan shall be submitted to the Commission.	9.1 The licensee has submitted detailed implementing procedures for its emergency plan no less than 180 days prior to fuel load.	9.1 An inspection of the submittal letter will be performed.	9.1 The licensee submitted detailed implementing procedures for the onsite emergency plan no less than 180 days prior to fuel load.

List of Acronyms for Table 3.8-1 :

ANS–Alert and Notification System
EAL–Emergency Action Level
EAS–Emergency Alerting System
ENS–Emergency Notification System
EOC–Emergency Operations Center
EOF–Emergency Operations Facility
EPZ–Emergency Planning Zone
ERDS–Emergency Response Data System
ERO–Emergency Response Organization
ESSX–Electric Switch System Exchange
FEMA–Federal Emergency Management Agency
HEPA–High Efficiency Particulate Air
KI–Potassium Iodide
OSC–Operations Support Center
PAG–Protective Action Guide
SCEMD–South Carolina Emergency Management Division
TSC–Technical Support Center
VCSNS–V. C. Summer Nuclear Station

List of Acronyms for Table 3.8-1 (Continued):

EPA–Environmental Protection Agency
EP–Emergency Plan
HPN–Health Physics Network
JIC–Joint Information Center

Table 3.8-2
Pipe Rupture Hazards Analysis (Sheet 1 of 1)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Systems, structures, and components (SSCs), that are required to be functional during and following a design basis event shall be protected against or qualified to withstand the dynamic and environmental effects associated with analyses of postulated failures in high and moderate energy piping.	Inspection of the as-designed pipe rupture hazard analysis report will be conducted. The report documents the analyses to determine where protection features are necessary to mitigate the consequence of a pipe break. Pipe break events involving high-energy fluid systems are analyzed for the effects of pipe whip, jet impingement, flooding, room pressurization, and temperature effects. Pipe break events involving moderate-energy fluid systems are analyzed for wetting from spray, flooding, and other environmental effects, as appropriate.	An as-designed pipe rupture hazard analysis report exists and concludes that the analysis performed for high and moderate energy piping confirms the protection of systems, structures, and components required to be functional during and following a design basis event.

Table 3.8-3
Piping Design (Sheet 1 of 1)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The ASME Code Section III piping is designed in accordance with ASME Code Section III requirements.	Inspection of ASME Code Design Reports (NCA-3550) and required documents will be conducted for the set of lines chosen to demonstrate compliance.	ASME Code Design Report(s) (NCA-3550) (certified, when required by ASME Code) exist and conclude that the design of the piping for lines chosen to demonstrate all aspects of the piping design complies with the requirements of ASME Code Section III.