Appendix A

Post COL Activities

License Conditions, Inspections, Tests, Analyses, and Acceptance Criteria, and Final Safety Analysis Report Commitments

A.1 License Conditions

The Nuclear Regulatory Commission's (NRC's) regulations at Title 10 of the *Code of Federal Regulations* (10 CFR) 52.97, "Issuance of combined licenses," requires a combined license (COL) to specify any terms and conditions of the COL the Commission deems appropriate. A license condition is not needed when an existing NRC regulation requires a future regulatory review of a matter to ensure adequate safety during design, construction, inspection activities or operation for a new plant. The staff is proposing that the Commission include the following license conditions, which are set forth below, to control various safety matters.

Proposed License Condition	SER Section	Description
1-1	1.5.5	Subject to the conditions and requirements incorporated herein, the Commission hereby licenses South Carolina Electric and Gas (SCE&G): (a) (i) Pursuant to the Act and 10 CFR Part 70, to receive and possess at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, described in the final safety analysis report (FSAR), as supplemented and amended; (ii) Pursuant to the Act and 10 CFR Part 70, to use special nuclear material as reactor fuel, after a Commission finding under 10 CFR 52.103(g) has been made, in accordance with the limitations for storage and amounts required for reactor operation, and described in the FSAR, as supplemented and amended; (b) (i) Pursuant to the Act and 10 CFR Parts 30, and 70, to receive, possess, and use, at any time, before a Commission finding under 10 CFR 52.103(g). such byproduct, source, and special nuclear material as: sealed neutron sources for reactor startup; sealed sources for reactor instrumentation and radiation monitoring equipment calibration; and fission detectors in amounts as necessary; (ii) Pursuant to the Act and 10 CFR Parts 30, 40, and 70,

Proposed License Condition	SER Section	Description
		to receive, possess, and use, after a Commission finding under 10 CFR 52.103(g), any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment, calibration, and as fission detectors in amounts as necessary; (c) (i) Pursuant to the Act and 10 CFR Parts 30, and 70, to receive, possess, and use before a Commission finding under 10 CFR 52.103(g), in amounts not exceeding those specified in 10 CFR 30.72, any byproduct, source, or special nuclear material that is (1) in unsealed form; (2) on foils or plated surfaces, or (3) sealed in glass, for sample analysis or instrument calibration or other activities associated with radioactive apparatus or components; (ii) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use, after a Commission finding under 10 CFR 52.103(g), in amounts as required, any byproduct, source, or special nuclear material without restriction as to chemical or physical form, for sample analysis or instrument calibration or other activity associated with radioactive apparatus or components, but does not uranium hexafluoride; and (d) pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
1-2	1.5.5	Prior to initial receipt of special nuclear materials (SNM) onsite, the licensee shall implement the SNM Material Control and Accounting program. 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 inspections of the SNM Material Control and Accounting program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the SNM Material Control and Accounting program has been fully implemented.
1-3	1.5.5	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 non-licensed plant staff training program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the non-licensed plant staff training

Proposed License Condition	SER Section	Description
		program has been fully implemented.
1-4	1.5.5	Prior to initial receipt of SNM on site, the licensee shall implement the SNM physical protection program. 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 SNM physical protection program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the SNM physical protection program has been fully implemented.
1-5	1.5.5	The licensee shall not revise or modify the provisions of Sections 5.3, 5.4, 5.6, 5.9 and 5.10 of the Special Nuclear Material (SNM) Physical Protection Plan until the requirements of 10 CFR 73.55 are implemented.
2.5.1-1	2.5.1.5	The applicant must perform geologic mapping of future excavations for safety-related structures; evaluate any geologic features discovered in these excavations; and notify the NRC once excavations for safety-related structures are open for examination by the NRC staff. (Note in accordance with Section 2.5.1.4.2 of this SER this license condition is not applicable to VCSNS Unit 2).
3-1	3.6.5	Prior to installation of the piping and connected components in their final location, the licensee shall complete the as-designed pipe rupture hazards analysis in accordance with the criteria outlined in the AP1000 Design Control Document (DCD), Sections 3.6.1.3.2 and 3.6.2.5.
3-2	3.7.2.5	Prior to initial fuel load, the licensee shall update the seismic interaction review in the AP1000 DCD Section 3.7.3.5 for as-built information. This review must be performed in parallel with the seismic margin evaluation. The review shall be based on as-procured data, as well as the as-constructed condition.
3-3	3.7.2.5	Prior to initial fuel load the licensee shall reconcile the seismic analyses described in Section 3.7.2 of the AP1000 DCD for detailed 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. The acceptability of deviations must be based on an evaluation consistent with the methods and procedures in Section 3.7 of the AP1000 DCD provided that the amplitude of the seismic floor response spectra (FRS), including the effects due to these deviations, does not exceed the design basis FRS by more than 10 percent.
3-4	3.8.5.5	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 inspections of the implementation of construction and inspection procedures for steel concrete composite (SC) construction activities for seismic

Proposed License Condition	SER Section	Description
		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. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the procedures program have been fully implemented.
3-5	3.9.6.5	Prior to initial fuel load, the licensee shall implement the Preservice Testing and the motor-operated valve (MOV) Testing Programs.
3-6	3.9.6.5	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 inspections of the Inservice Testing Program (including preservice and MOV testing). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the Inservice Testing Program (including preservice and MOV testing) has been fully implemented.
3-7	3.11.5	Prior to initial fuel load, the licensee shall implement the Environmental Qualification Program.
3-8	3.11.5	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 inspections of the Environmental Qualification Program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the Environmental Qualification Program has been fully implemented.
3-9	3.12.5	Prior to installation of the piping and connected components in their final location, the licensee shall complete the as-designed piping analysis for the piping lines chosen to demonstrate all aspects of the piping design as identified in FSAR Section 3.9.8 and shall inform the Director of NRO of the availability of the piping design information and design reports for the piping packages.
4-1	4.5	Prior to initial fuel load, the licensee shall calculate the instrumentation uncertainties of the actual plant operating instrumentation to confirm that either the design limit departure from nucleate boiling ratio (DNBR) values remain valid or that the safety analysis minimum DNBR bounds the new design limit DNBR values plus DNBR penalties, such as rod bow penalty.
5-1	5.2.4.5	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 inspections of the Preservice Inspection (PSI)/Inservice Inspection (ISI) Programs (including the augmented ISI Program). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the PSI/ISI Programs (including the augmented ISI Program) have been fully implemented or the

Proposed License Condition	SER Section	Description
		plant has been placed in commercial service, whichever comes first.
5-2	5.3.2.5	The licensee shall implement the Reactor Vessel (RV) Material Surveillance Program prior to initial criticality.
5-3	5.3.2.5	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 inspections of the RV Material Surveillance program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the RV Material Surveillance Program has been fully implemented..
5-4	5.3.3.5	Prior to initial fuel load, the licensee shall update the pressure temperature (P-T) limits using the pressure temperature limits report (PTLR) methodologies approved in the AP1000 DCD using the plant-specific material properties or confirm that the RV material properties meet the specifications and use the Westinghouse generic PTLR curves.
5-5	5.3.4.5	Prior to initial fuel load, the licensee shall complete verification of plant-specific belt line material properties consistent with the requirements in FSAR Section 5.3.3.1 and FSAR Tables 5.3-1 and 5.3-3. The verification shall include a pressurized thermal shock (PTS) evaluation based on as-procured RV material data and the projected neutron fluence for the plant design objective of 60 years. This evaluation report shall be submitted for an NRC staff review at least 18 months prior to initial fuel load.
5-6	5.4.5	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 inspections of the Steam Generator (SG) PSI/ISI Program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the SG PSI/ISI Program has been fully implemented or the plant has been placed in commercial service, whichever comes first.
6-1	6.2.5	The licensee shall implement the Containment Leakage Rate Testing Program prior to initial fuel load.
6-2	6.2.5	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 inspections of the Containment Leakage Rate Testing Program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the Containment Leakage Rate Testing Program has been fully implemented.
6-3	6.6.5	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 inspections of the PSI and ISI Programs. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month

Proposed License Condition	SER Section	Description
		thereafter until either the PSI and ISI Programs have been fully implemented or the plant has been placed in commercial service, whichever comes first.
9-1	9.1.2.5	Prior to initial fuel load, the licensee shall implement the spent fuel rack metamic coupon monitoring program. 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 inspections of the Spent Fuel Rack Metamic Coupon Monitoring Program implementation. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the Spent Fuel Rack Metamic Coupon Monitoring Program has been fully implemented.
9-2	9.5.1.5	The licensee shall implement the Fire Protection (FP) Program or portions of the FP Program identified below on or before the associated milestones identified below: • Applicable portions of the FP Program – prior to initial receipt of byproduct, source, or special nuclear materials onsite (excluding Exempt Quantities as described in 10 CFR 30.18). • Applicable portions of the FP Program – prior to initial receipt of fuel onsite. • FP Program – prior to initial fuel load.
9-3	9.5.1.5	No later than 12 months after issuance of the COL, the licensee shall submit to the Director of the NRO a schedule that supports planning for and conduct of NRC inspections of the FP Program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the FP Program has been fully implemented or the plant has been placed in commercial service, whichever comes first.
10-1	10.1.5	Prior to initial fuel load, the licensee shall implement the flow accelerated corrosion (FAC) program including construction phase activities. 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 inspections of the FAC Program implementation including the construction phase activities. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the FAC Program has been fully implemented.
10-2	10.2.5	Prior to initial fuel load, the licensee shall implement a turbine maintenance and inspection program, which will be consistent with the maintenance and inspection program plan activities and inspection intervals identified in FSAR Section 10.2.3.6. No later than 12 months after issuance of the COL, the licensee shall submit to the Director of NRO a schedule that supports planning

Proposed License Condition	SER Section	Description
		for and conduct of NRC inspections of the turbine maintenance and inspection program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the turbine maintenance and inspection program has been fully implemented.
11-1	11.4.5	Prior to initial fuel load, the licensee shall implement an operational program for process and effluent monitoring and sampling. The program shall include the subprogram and documents for a Process Control Program.
11-2	11.4.5	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 inspections of the operational program for process and effluent monitoring and sampling (including process control program). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the operational program for process and effluent monitoring and sampling (including process control program) has been fully implemented.
11-3	11.5.5	Prior to initial fuel load, the licensee shall implement an operational program for process and effluent monitoring and sampling. The program shall include the following subprograms and documents: • Radiological Effluent Technical Specifications/Standard Radiological Effluent Controls • Offsite Dose Calculation Manual • Radiological Environmental Monitoring Program
11-4	11.5.5	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 inspections of the operational program for process and effluent monitoring and sampling (including Radiological Effluent Technical Specifications/Standard Radiological Effluent Controls, Offsite Dose Calculation Manual, and Radiological Environmental Monitoring Program). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the above operational program has been fully implemented.
12-1	12.5-5	The licensee shall implement the Radiation Protection Program (RPP) including the as low as is reasonably achievable (ALARA) principle (or applicable portions thereof) on or before the associated milestones identified below: a. Receipt of Materials – Prior to initial receipt of byproduct, source, or special nuclear materials onsite (excluding exempt quantities as described in 10 CFR 30.18, “Exempt

Proposed License Condition	SER Section	Description
		quantities") • Fuel Receipt – Prior to initial receipt of fuel onsite • Fuel Loading – Prior to initial fuel load • Waste Shipment – Prior to initial radioactive waste shipment
12-2	12.5.5	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 inspections of the operational program (RPP). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until this operational program has been fully implemented.
13-1	13.2.5	The licensee shall implement the Reactor Operator Training Program at least 18 months prior to the scheduled date of initial fuel load.
13-2	13.2.5	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 operational programs (the Non-Licensed Plant Staff Training Program (required in accordance with 10 CFR 50.120), Reactor Operator Training Program, and Reactor Operator 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.
13-3	13.3.5	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 Emergency Planning (EP) Program implementation. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the EP operational program has been fully implemented.
13-4	13.3.5	The licensee shall submit a fully developed set of plant-specific emergency action levels (EALs) for VCSNS Units 2 and 3 in accordance with Nuclear Energy Institute (NEI) 07-01, "Methodology for Development of Emergency Action Levels Advanced Passive Light Water Reactors," Revision 0, with no deviations. The EALs shall have been discussed and agreed upon with State and local officials. These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.
13-5	13.6.5	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

Proposed License Condition	SER Section	Description
		security programs. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the physical security program has been fully implemented.
13-6	13.7.5	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 fitness for duty (FFD) operational program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the FFD operational program has been fully implemented.
13-7	13.8.5	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 inspections 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.
14-1	14.2.3.5	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 inspections of the approved preoperational and startup procedures (including the site-specific startup administration manual.) The schedule shall be updated every 6 months until the approved preoperational and startup procedures have been implemented. Prior to initiating the Initial Test Program, the approved preoperational and startup procedures (including the site-specific startup administration manual) will be available.
14-2	14.2.3.5	Within one month of a change, any changes to the Initial Startup Test Program described in Chapter 14 of the VCSNS COL FSAR made in accordance with the provisions of 10 CFR 50.59, "Changes, tests and experiments," or Section VIII, "Processes for Changes and Departures of Appendix D, "Design Certification Rule for the AP1000 Design," to 10 CFR Part 52, "Licenses, certifications, and approvals for nuclear power plants," shall be reported in accordance with 10 CFR 50.59(d).
14-3	14.2.5.5	<u>First-Plant-Only and First-Three-Plant-Only Testing</u> The licensee shall notify the Director of the NRO, in writing, when it determines that is has completed the design-specific testing identified below and confirmed that the test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specific functions in accordance with the FSAR: a. The licensee shall perform "first plant only" tests. b. The licensee shall perform "first three plants" tests.

Proposed License Condition	SER Section	Description
14-4	14.2.8.5	The licensee shall implement the Initial Test Program (applicable portions) on or before the associated milestones identified below: • Construction Testing - Prior to initial construction testing • Preoperational Testing - Prior to initial preoperational testing • Startup Testing - Prior to initial fuel load
14-5	14.2.8.5	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 inspections of the Operational Program (Initial Test Program). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until this operational program (ITP) has been fully implemented.
14-6	14.2.8.5	<u>Pre-operational Testing</u> Following completion of pre-operational testing, the licensee shall review and evaluate individual test results and confirm the test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specific functions in accordance with the FSAR. <u>Pre-critical and Criticality Testing</u> 1. Following completion of pre-critical and criticality testing, the licensee shall review and evaluate individual test results and confirm the test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specific functions in accordance with the FSAR. 2. The licensee shall provide written notification to the Director of NRO upon completion of pre-critical and criticality testing. Upon submission of this notification, the licensee is authorized to perform low-power testing as described in the FSAR and operate the facility at reactor steady-state core power levels, not in excess of 170 megawatts thermal (5-percent power), in accordance with the conditions specified herein. <u>Low-Power (<5% Rated Thermal Power) Testing</u> 1. Following completion of low-power testing (<5% rated thermal power [RTP]), the licensee shall review and evaluate individual test results and confirm that the test

Proposed License Condition	SER Section	Description
		results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specific functions in accordance with the FSAR. 2. The licensee shall provide written notification to the Director of NRO upon completion of the low power testing. Upon submission of this notification, the licensee is authorized to perform power ascension testing as described in the FSAR and operate the facility at reactor steady-state core power levels, not in excess of 3400 megawatts thermal (100 percent power), in accordance with the conditions specified herein. <u>At-Power (5%-100% RTP) Testing</u> 1. Following completion of at-power testing (at or above 5 percent RTP up to and including testing at 100 percent RTP), the licensee shall review and evaluate individual test results and confirm that the results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specific functions in accordance with the FSAR. 2. The licensee shall provide written notification to the Director of NRO upon completion of the at-power testing.
15-1	15.0.5	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 inspections of licensee calculations for power calorimetric uncertainty and administrative controls to implement maintenance and contingency activities related to the power calorimetric uncertainty instrumentation. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the license condition has been fully implemented. This schedule shall address: • The availability of documented instrumentation uncertainties to calculate a power calorimetric uncertainty (prior to initial fuel load). • The availability of administrative controls to implement maintenance and contingency activities related to the power calorimetric uncertainty instrumentation (prior to initial fuel load).
17-1	17.6.5	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 inspections of the Maintenance

Proposed License Condition	SER Section	Description
		Rule (MR) program. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the MR program has been fully implemented.
19-1	19.59.5	The licensee shall review differences between the as-built plant and the design used as the basis for the AP1000 seismic margin analysis (SMA) prior to initial fuel load. The licensee shall perform a verification walkdown to identify differences between the as-built plant and the design. The licensee shall evaluate any differences and shall modify the seismic margin analysis as necessary to account for the plant-specific design and any design changes or departures from the certified design. The licensee shall compare the as-built structure, system, and component (SSC) high confidence, low probability of failures (HCLPFs) to those assumed in the AP1000 seismic margin evaluation prior to initial fuel load. The licensee shall evaluate deviations from the HCLPF values or assumptions in the seismic margin evaluation due to the as-built configuration and final analysis to determine if vulnerabilities have been introduced.
19-2	19.59.5	The licensee shall review differences between the as-built plant and the design used as the basis for the AP1000 probabilistic risk assessment (PRA) and Table 19.59-18 prior to initial fuel load. The plant-specific PRA-based insight differences shall be evaluated and the plant-specific PRA model modified as necessary to account for the plant-specific design and any design changes or departure from the certification PRA.
19-3	19.59.5	The licensee shall review differences between the as-built plant and the design used as the basis for the AP1000 internal fire and internal flood analysis prior to initial fuel load. The licensee shall evaluate the plant-specific internal fire and internal flood analyses and shall modify the analyses as necessary to account for the plant-specific design and any design changes or departures from the certified design.
19-4	19.59.5	Prior to startup testing, the license shall implement the site-specific severe accident management guidelines. 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 inspections of the implementation of site-specific severe accident management guidelines. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the site-specific severe accident management guidelines have been fully implemented.
19-5	19.59.5	Prior to initial fuel load the licensee shall perform a thermal lag assessment of the as-built equipment listed in Tables 6b and 6c in Attachment A of APP-GW-GLR-069, “Equipment Survivability Assessment,” to provide additional assurance that this equipment can perform its severe accident functions during environmental

Proposed License Condition	SER Section	Description
		conditions resulting from hydrogen burns associated with severe accidents. This assessment is required only for equipment used for severe accident mitigation that has not been tested at severe accident conditions. The license shall assess the ability of the as-built equipment to perform during accident hydrogen burns using the environment enveloping method or the test based thermal analysis method described in Electric Power Research Institute (EPRI) NP-4354, "Large Scale Hydrogen Burn Equipment Experiments."
19.A-1	19.A.5	Prior to initial fuel load, the licensee shall implement the operational and programmatic elements of its mitigative strategies for responding to a LOLA event developed in accordance with 10 CFR 50.54(hh)(2). 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 inspections 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 fires. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until these operational and programmatic elements have been fully implemented. The licensee shall maintain the guidance and strategies developed in accordance with10 CFR 50.54(hh)(2).

Appendix A

License Conditions, Inspections, Tests, Analyses, and Acceptance Criteria, and Final Safety Analysis Commitments

A.2 Inspections, Tests, Analyses, and Acceptance Criteria

The staff has indentified the certain ITAAC that it will recommend the Commission impose with respect to a COL issued to the applicant. The following is a list of those ITAAC. In addition to the ITAAC contained in this list, the ITAAC found in the AP1000 DCD Revision 19 Tier 1 material will also be incorporated into the COL should a COL be issued to the applicant.

1. The licensee shall perform and satisfy the pipe rupture hazards analysis ITAAC defined in SER Table 3.6-1, "Pipe Rupture Hazards Analysis ITAAC."

Table 3.6-1. Pipe Rupture Hazards Analysis ITAAC

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 SSCs required to be functional during and following a design basis event.

2. The licensee shall perform and satisfy the waterproof membrane ITAAC defined in SER Table 3.8-1, “Waterproof Membrane ITAAC.”

Table 3.8-1. Waterproof Membrane ITAAC

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The friction coefficient to resist sliding is 0.7 or higher.	Testing will be performed to confirm that the mudmat-waterproofing-mudmat interface beneath the nuclear island basemat has a minimum coefficient of friction to resist sliding of 0.7.	A report exists and documents that the as-built waterproof system (mudmat-waterproofing-mudmat interface) has a minimum coefficient of friction of 0.7 as demonstrated through material qualification testing.

3. The licensee shall perform and satisfy the piping design analysis ITAAC in SER Table 3.12-1, “Piping Design ITAAC.”

Table 3.12-1. Piping Design ITAAC

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

4. The licensee shall perform and satisfy the ITAAC defined in Table 8.2A-1, “Offsite Power System.”

Table 8.2A-1. Offsite Power System

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
1. A minimum of one offsite circuit supplies electric power from the transmission network to the interface with the onsite alternating current (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 power 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 power source 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.

Table 8.2A-1. Offsite Power System

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
5. The fault current contribution of each offsite circuit is compatible with the interrupting capability of the onsite 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.
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 unit auxiliary transformers (UATs) or the reserve auxiliary transformers (RATs).	A report exists and concludes that voltage at the high-side of the generator stepup transformer (GSU), and the RATs, does not drop more than 0.15 per unit (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.

5. The licensee shall perform, and satisfy the acceptance criteria of the EP ITAAC set forth in SER Table 13.3-1.

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	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 AP1000 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	2.1 The means exists to notify responsible State and local organizations within 15 minutes after the licensee declares an emergency. [E.1] 2.2 The means exists to notify emergency response personnel. [E.2]	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. 2.2 A test of the primary and back-up ERO notification systems will be performed.	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. 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.

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
established.			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 emergency planning Zone (EPZ). [E.6]	2.3 The full test of the Alert and Notification System (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 emergency operations center (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.
	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	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. The health physics network (HPN) is tested to ensure communications between the TSC and EOF with the NRC Operations Center. ERDS is	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

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
	Operations Center.) [F.1.f]	established [or its successor system] between the onsite computer systems and the NRC Operations Center.	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.
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 3,000 square feet 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

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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. 5.1.5 The TSC has the means to receive, store, process, and display plant and environmental information, as listed in AP1000 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. It 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.

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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 The licensee has established an EOF. [H.2]	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. 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 AP1000 DCD Table 7.5.1 and FSAR Table 7.5-201, are available and displayed when activated in the EOF.

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
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.
	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

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			emergency planning implementing procedures.
	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.
7.0 Protective Response			
10 CFR 50.47(b)(10) — A	7.1 The means exists to warn and	7.1 A test will be performed of the	7.1 The means exist and was

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
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.	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.	capabilities to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator.	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.
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.

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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. B. *Notifications* 1. Demonstrate the ability to 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

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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. 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

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			emergency and by the Technical Support Center (TSC) and Emergency Operations Facility (EOF) within 75 minutes of the emergency declaration. 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 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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. 3. Demonstrate the adequacy of communications for emergency support resources.

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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. 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

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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. 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.

Table 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			b. Field team communicates data to the EOF in accordance with Emergency Plan Implementing Procedures during the exercise. 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 13.3-1. VCSNS Units 2 and 3 ITAAC

Planning Standard	EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
			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 percent of rated power.
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 13.3-1:

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

6. The licensee shall perform and satisfy the ITAAC defined in Table 13.6A-1, "Site-Specific Physical Security Inspections, Tests, Analyses, and Acceptance Criteria."

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.	Type test, analysis, or a combination of type test and analysis will be performed for the walls, doors, ceilings, and floors in the location within which the last access control function for access to the protected area is performed.	A report exists and concludes that the 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.
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 to verify that physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.	A report exists and concludes that physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.
3. 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.	An inspection of the isolation zone will be performed to verify that isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area which allows 20 feet of observation of the activities of people on either side of the barrier. Where permanent buildings do not allow a 20 foot observation distance on the inside of the protected area barrier, the inspection will confirm that the building walls are immediately adjacent to, or an integral part of, the protected area barrier.	A report exists and concludes that isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and allow 20 feet of observation of the activities of people 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 and the 20-foot observation distance does not apply.

Table 13.6A-1. Site-Specific Physical Security Inspections, Tests, Analyses and Acceptance Criteria

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
4. Intrusion detection system can detect penetration or attempted penetration of the protected area perimeter.	Tests, inspections or a combination of tests and inspections of the intrusion detection system will be performed to verify the system can detect penetration or attempted penetration of the protected area barrier and that subsequent alarms annunciate in both the Central Alarm Station and Secondary Alarm Station.	A report exists and concludes that the intrusion detection system can detect penetration or attempted penetration of the protected area barrier and subsequent alarms annunciate in the Central Alarm Station and Secondary Alarm Station.
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.	A test, inspection, or combination of tests and inspections of installed systems and equipment will be performed to verify that access control points to the protected area exist and that: (a) Personnel and vehicle access into the protected area is controlled. (b) Detection equipment is capable of detecting explosives, incendiary devices, and firearms at the protected area personnel access points.	A report exists and concludes that: (a) Access points for the protected area are configured to control access. (b) 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 without escort.	A test of the access control system with numbered picture badges will be performed to verify that unescorted access to protected areas is granted only to authorized personnel.	A report exists and concludes that the access authorization system with numbered picture badges can identify and authorize protected area access only to those personnel with unescorted access authorization.

7. The licensee shall perform and satisfy the plant calorimetric uncertainty and plant instrumentation performance analysis ITAAC defined in SER Table 15.0-1, "Power Calorimetric Uncertainty Methodology."

Table 15.0-1. Power Calorimetric Uncertainty Methodology

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4. The plant calorimetric uncertainty and plant instrumentation performance is bounded by the 1 percent 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 NRC-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 measure values are bounded by the 1 percent uncertainty value assumed for the initial reactor power in the safety analysis.

Appendix A

License Conditions, Inspections, Tests, Analyses, and Acceptance Criteria, and Final Safety Analysis Report Commitments

A.3 Final Safety Analysis Report (FSAR) Commitments

The following FSAR commitments are identified as the responsibility of the licensee:

SER Section	Description
1.4.5	A site-specific construction plan and startup schedule will be provided after issuance of the COL.
2.5.4.5	The applicant has committed to developing a thermal control plan to be used during the placement of the fill concrete under the Nuclear Island of VCSNS Unit 2 based on ACI 207 series guidelines. The thermal control plan will have the elements described in VCSNS COL FSAR Section 2.5.4.12.
5.2.5.5	Prior to initial fuel load, the operating procedures, that include identifying, monitoring, trending, and managing the prolonged low-level RCS leakage, will be developed.
6.4.5	FSAR Commitment 6.4-1. The licensee's CR operator training program shall address the following: • Regulatory Position C.5, "Emergency Planning," of RG 1.78 • Regulatory Position 2.5, "Hazardous Chemicals," of RG 1.196 • Regulatory Position 2.2.1, "Comparison of System Design, Configuration, and Operation with Licensing Basis," of RG 1.196 • Regulatory Position 2.7.1, "Periodic Evaluations and Maintenance," of RG 1.196
9.1.4.5	The light load handling program, including system inspections, will be implemented prior to receipt of fuel onsite.
9.1.5.5	The overhead heavy-load handling program, including system inspections, will be implemented prior to receipt of fuel onsite.