

Southern Nuclear Operating Company

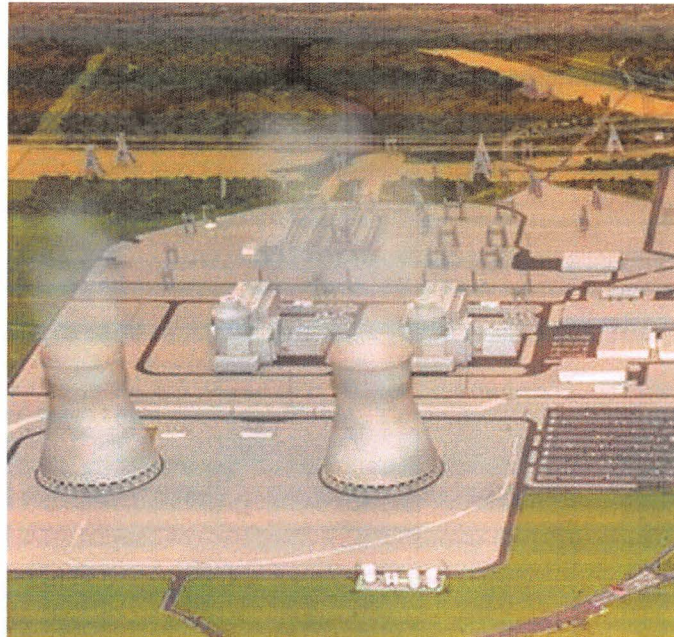
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Enclosure

**Vogtle Electric Generating Plant Units 3 & 4
Fukushima Response NEI 12-01 On-Shift Staffing Analysis Phase 2 Report,
Revision 3.0, Standard Emergency Plan Annex, Revision 6.0**

(This Enclosure consists of 24 pages, not including this cover page)

Vogtle Electric Generating Plant Units 3 & 4



Fukushima Response NEI 12-01 On-Shift Staffing Analysis Phase 2 Report, Revision 3.0 Standard Emergency Plan Annex, Revision 6.0


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Prepared By	Date
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Introduction

This report documents Revision 3.0 of the Vogtle Electric Generating Plant Unit 3 (VEGP 3) on-shift staffing analysis performed for a Beyond Design Basis External Event (BDBEE). The analysis was performed in accordance with guidance included in NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communication Capabilities," NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," and NMP-GM-038, "Diverse and Flexible Coping Strategies (FLEX) Program." The intent of this assessment is to identify the response of on-shift and augmented resources to an Extended Loss of Power (ELAP) incident impacting VEGP 3&4. The assessment addresses Phase 2 of the analysis applicable to implementation of existing Emergency Operating Procedure (EOP) and proposed FLEX strategies for prolonged loss of offsite power applicable to multi-unit sites during the initial and transition phases of the event utilizing the methodology of NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing Capabilities." An initial on-shift staffing analysis was completed in October 2018 using the on-shift staffing identified in the SNC Standard Emergency Plan Annex for VEGP Units 3 and 4, Revision 4.0, Table 2.2.A. This analysis was updated April 2022 using the on-shift staffing identified in the SNC Standard Emergency Plan Annex for VEGP Units 3 and 4, Revision 6.0.

This analysis was conducted using current EOP/AOP revisions and proposed FLEX Strategy Guidelines. Use of these procedures is acceptable in accordance with NEI 12-01, page 4, Section 1.3.1.2:

"In accordance with the Order, each licensee must develop new strategies for mitigating the effects of beyond-design-basis external events. To ensure accurate results, the staffing assessment for response functions related to NTTF Recommendation 4.2 must be based on actions delineated in the procedures and guidelines developed in response to the Order. Once the site-specific actions associated with the new response strategies are defined (e.g., down to the procedure or guideline step level), the staffing needed to perform these actions can be assessed with the necessary level of accuracy."

Revision 2.0 of this report provided the initial Phase 2 report for Vogtle 3&4 applicable to implementation of existing EOP and proposed FLEX strategies for prolonged loss of offsite power during the first 24 hours of an ELAP (the initial response phase).

Staffing Assessment Process Overview

EOP guidance for responding to an ELAP affecting VEGP 3&4 and proposed Flex Strategy Guidelines (FSGs) were evaluated during the NEI 12-01 Phase 2 Staffing Assessment by a multi-disciplined team. The staffing assessment also addressed the ability of the on-shift staff to perform any required emergency response functions that would be degraded or lost prior to the delayed arrival of the augmented Emergency Response Organization (ERO).

The Phase 2 staffing analysis guidance requires that the ELAP scenario be evaluated using the minimum staffing in the Emergency Plan (NEI 12-01) along with the supplemental staff allowed by the minimum administrative staffing (NEI 12-06). SNC personnel determined that the staffing analysis would be conducted using only the minimum staffing identified in the Emergency Plan. SNC Standard Emergency Plan Annex for VEGP Units 3 and 4, Revision 6.0, Table 2.2.A, documents the approved minimum on-shift staff. Table 1 summarizes the available personnel used for performance of the NEI 12-01 Phase 2 staffing assessment.

Table 1

Position Title	VEGP 3&4 On-shift	VEGP 1&2 Shared Resource
Shift Manager (SM/STA)	1	1
Shift Supervisor (SRO)	2	
Shift Support Supervisor (SRO/FBL) ^{Note 1}	1	1
Licensed Operator	1	1
Reactor Operator (RO)	4	
System Operator (SO) ^{Note 1}	6	
RP Technician	2	
Chemistry Technician		1
Maintenance Supervisor		
Mechanic		
Electrician		
I&C Technician		
Total On-Shift Personnel:	17	4
Fire Brigade ^{Note 1}	5	
Rescue Operations/First Aid ^{Note 2}		2
Security Personnel	Sec plan	

Note 1 – Fire Brigade is a collateral duty of Operations requiring 5 personnel without safe shutdown responsibilities. The Fire Brigade consists of 1 Fire Brigade Leader (Shift Support Supervisor) and 4 Fire Brigade Members (System Operators). These individuals are not assigned safe shutdown responsibilities.

Note 2 – Rescue/First Aid is a collateral duty of RP personnel.

NEI 12-01 Phase 2 Assessment Results

Using NEI 12-01 guidance, the minimum on-shift staff as defined in SNC Standard Emergency Plan Annex for VEGP Units 3 and 4, Revision 6.0, Table 2.2.A, performed all actions required by the applicable EOPs, Abnormal Operating Procedures (AOPs) and Emergency Plan Implementing Procedures (EPIPs) in the first hour period relying only on installed structures, systems and components incorporated into the AP1000 design for passive response during the initial phase of the event. Once the ELAP condition was identified, the minimum on-shift staff performed required EOP, AOP, EPIPs, and proposed FSGs, including applicable proposed Strategy Implementation Guidelines (SIGs), within the applicable time constraints through twenty-four (24) hours. No conflicts or overlaps in functions or tasks required to be performed by on-shift operations and support personnel were identified during this analysis.

As limited site access begins to be restored within the six (6) to twenty-four (24) hour timeframe augmented Emergency Response Organization (ERO) personnel will be available to provide relief to the minimum on-shift staff as needed.

The analysis identified the two most personnel resource asset limiting FLEX strategies as:

- FSG-5, Debris Removal
- SIG-9, Deploy small portable generator and RapidCase/Setup RapidCase.

Phase 2 Staffing Assessment Details

The initial assessment of the Phase 2 On-shift Staffing Analysis (OSA) for VEGP 3 was conducted on October 10 and 30, 2018, using the guidance of NEI 12-01, NEI 12-06 and NEI 10-05. This assessment was validated by VEGP 3&4 personnel on May 27, 2021, with the report being updated in June 2021 to include actions applicable to Unit 4.

Revision 3.0 of this report was developed in May 2022, to incorporate Emergency Plan changes as approved by the NRC via SER dated 09/17/2021 ML21217A021

The following personnel were present to complete the October 2018 assessment and May 2021 validation:

Table 2 – Staffing Analysis Team

Personnel (Position/Title)	Number	Subject Matter Expertise
Shift Supervisor (SRO) ^{Note 1}	1	Emergency Operating Procedure (EOP) actions for SROs, ROs, and SOs
		Abnormal Operating Procedure (AOP) actions for SROs, ROs, and SOs
		FLEX Support Guideline (FSG) actions for SROs, ROs, and SOs
		Operating Procedure actions
		Emergency Director (E Plan) actions
Operations Procedure Writer ^{Note 1}	1	AOP/EOP Procedure actions/revisions
Reactor Operator	1	AOP actions for ELAP
Nuclear Plant Operator	1	AOP/FLEX field actions
FLEX Program (SME - SRO)	1	FLEX Support Guideline (FSG) Implementation
FLEX Program (SME - Corporate) ^{Note 1}	1	FLEX Support Guideline (FSG) Implementation
Operations Training Manager	1	EOP/AOP/FLEX actions
RP Supervisor	1	RP Support
Chemistry Supervisor	1	Chemistry Support
Security Supervisor/Specialist	1	Security Support
Emergency Preparedness Specialist/Coordinator (Site ^{Note 1} and Corporate)	2	Security Response actions
		Accountability Response actions
		Emergency Plan response actions
EP Consultant ^{Note 1}	3	NEI 10-05, NEI 12-01, NEI 12-06 staffing analyses
		Emergency Preparedness
^{Note 1} – Provided support for May 2022 Validation.		

Assumptions

The extended loss of AC power event was evaluated using the following assumptions, consistent with NEI 12-01, NEI 12-06 and applicable assumptions from NEI 10-05.

NEI 12-01 - Assumptions for Staffing Assessment:

1. A large-scale external event occurs (earthquake) that results in:
 - all on-site units affected
 - extended loss of AC power
 - impeded access to the units
2. Initially, all on-site reactors are operating at full power and are successfully shut down.
3. A Hostile Action directed at the affected site does not occur during the period that the site is responding to the event.
4. The event impedes site access as follows:

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		FLEX Support Guideline (FSG) actions for SROs, ROs, and SOs
		Operating Procedure actions
		Emergency Director (E Plan) actions
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Reactor Operator	1	AOP actions for ELAP
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FLEX Program (SME - SRO)	1	FLEX Support Guideline (FSG) Implementation
FLEX Program (SME - Corporate) <i>Note 1</i>	1	FLEX Support Guideline (FSG) Implementation
Operations Training Manager	1	EOP/AOP/FLEX actions
RP Supervisor	1	RP Support
Chemistry Supervisor	1	Chemistry Support
Security Supervisor/Specialist	1	Security Support
Emergency Preparedness Specialist/Coordinator (Site <i>Note 1</i> and Corporate)	2	Security Response actions
		Accountability Response actions
		Emergency Plan response actions
EP Consultant <i>Note 1</i>	3	NEI 10-05, NEI 12-01, NEI 12-06 staffing analyses
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 - all on-site units affected
 - extended loss of AC power
 - impeded access to the units
2. Initially, all on-site reactors are operating at full power and are successfully shut down.
3. A Hostile Action directed at the affected site does not occur during the period that the site is responding to the event.
4. The event impedes site access as follows:

- A. Post-event time: 6 hours – No site access. This duration reflects the time necessary to clear roadway obstructions, use different travel routes, mobilize alternate transportation capabilities (e.g., private resource providers or public sector support), etc.
 - B. Post-event time: 6 to 24 hours – Limited site access. Individuals may access the site by walking, personal vehicle or via alternate transportation capabilities (e.g., private resource providers or public sector support).
 - C. Post-event time: 24+ hours – Improved site access. Site access is restored to a near-normal status and/or augmented transportation resources are available to deliver equipment, supplies and large numbers of personnel.
- 5. On-shift personnel are limited to the minimum complement allowed by the site emergency plan.
 - 6. The staffing assessment uses the applicable actions from the Station Blackout (SBO) coping strategies in place at the time of the assessment.
 - 7. The staffing assessment includes the INPO IER improvement actions already implemented at the time of the assessment.
 - 8. Equipment credited in current coping strategies remains available for use.

NEI 10-05 - Applicable Assumptions:

- 9. On-shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned actions.
- 10. The on-shift staff possesses the necessary Radiation Worker qualifications to obtain normal dosimetry and to enter Radiologically Controlled Areas (but not high, locked high or very high radiation areas) without the aid of a Radiation Protection Technician.
- 11. Personnel assigned to the major response area of Plant Operations & Safe Shutdown meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to achieve and maintain safe shutdown. Staff performance within this area is not evaluated as part of this assessment unless a role/function/task from another major response area is assigned as a collateral duty.
- 12. On-site security organization: Performance of this function is regularly analyzed through other station programs and will not be evaluated here unless a role or function from another major response area is assigned as a collateral duty.
- 13. Individuals holding the position of Radiation Protection Technician or Chemistry Technician are qualified to perform the range of tasks expected of their position.
- 14. The task of making a simple and brief communication has minimal impact on the ability to perform other assigned functions/tasks and is therefore an acceptable collateral duty for all positions. This assumption does not apply to emergency notification to an Offsite Response Organization (ORO) or the NRC.
- 15. The task of performing a peer check has minimal impact on the ability to perform other assigned functions/tasks and is therefore an acceptable collateral duty for all positions.
- 16. The analyzed events occur during off-normal work hours at a time when augmented ERO responders are not at the site (e.g., during a backshift, weekend, or holiday). For purposes of this analysis, and consistent with NEI 12-01 assumption #4, 360 minutes (6 hours) will be used as the time period for the conduct of on-shift ERO response actions.

NEI 12-06 Assumptions

- 17. Prior to the event the reactor has been operating at 100 percent rated thermal power for at least 100 days or has just been shut down from such a power history as required by plant procedures in advance of the impending event.

18. At the time of the postulated event, the reactor and supporting systems are within normal operating ranges for pressure, temperature, and water level for the appropriate plant condition. All plant equipment is either normally operating or available from the standby state as described in the plant design and licensing basis.
19. No specific initiating event is used. The initial condition is assumed to be a loss of off-site power (LOOP) at a plant site resulting from an external event that affects the off-site power system either throughout the grid or at the plant with no prospect for recovery of off-site power for an extended period. The LOOP is assumed to affect all units at a plant site.
20. All installed sources of emergency on-site ac power and SBO Alternate ac power sources are assumed to be not available and not imminently recoverable.
21. Cooling and makeup water inventories contained in systems or structures with designs that are robust with respect to seismic events, floods, and high winds, and associated missiles are available.
22. Normal access to the ultimate heat sink is lost, but the water inventory in the UHS remains available and robust piping connecting the UHS to plant systems remains intact. The motive force for UHS flow, i.e., pumps, is assumed to be lost with no prospect for recovery.
23. Fuel for FLEX equipment stored in structures with designs which are robust with respect to seismic events, floods and high winds and associated missiles, remains available.
24. Permanent plant equipment that is contained in structures with designs that are robust with respect to seismic events, floods, and high winds, and associated missiles, are available.
25. Other equipment, such as portable ac power sources, portable back up dc power supplies, spare batteries, and equipment for 50.54(hh)(2), may be used provided it is reasonably protected from the applicable external hazards per Sections 5 through 9 and Section 11.3 of this guidance and has predetermined hookup strategies with appropriate procedures/guidance and the equipment is stored in a relative close vicinity of the site
26. Installed electrical distribution system, including inverters and battery chargers, remain available provided they are protected consistent with current station design.
27. No additional events or failures are assumed to occur immediately prior to or during the event, including security events and fires.
28. Reliance on the fire protection system ring header as a water source is acceptable only if the header meets the criteria to be considered robust with respect to seismic events, floods, and high winds, and associated missiles.
29. Initial coping is through installed plant equipment, without any ac power or makeup to the UHS. This covers the 0-72 hour's basis for passive systems performance for core, containment and spent fuel pool cooling. (AP1000 specific)

Plant Specific Assumptions

30. Hand-held radio batteries have a capability of approximately four (4) hours under anticipated load. Radios work line of sight.
31. Plant public address system, using GAI Tronics, is available for two (2) hours on batteries.
32. Sound powered phones are available for use during the initial and transition phases.
33. Five (5) battery-operated satellite phones, including extra batteries and chargers will be available for use by emergency response personnel for onsite and offsite communications. These units are also utilized to contact the Emergency Operations Facility (EOF). Two (2) additional satellite phones, including extra batteries and chargers are available for emergency response in the EOF.
34. All equipment credited in current coping strategies remains available for use.
35. The JIC is located approximately 15 miles from the site and is available as a staging facility. The JIC is provided with a back-up propane generator.

36. The EOF is located in Birmingham, Alabama, which is > 275 miles from the site and is available to provide required support.
37. VEGP 1&2 response will have priority for ERO augmented staffing if limited ingress requires prioritization of tasks and resources. Within 12 hours critical staffing at VEGP 1&2 will not impact augmented ERO resources for VEGP 3&4.

Methodology

The on-shift staffing assessment was performed using NEI 12-01, NEI 12-06 and NEI 10-05. Subject matter experts and consultants provided analysis support. The assessment was conducted via a tabletop procedural analysis using VEGP 3&4 procedures to determine if tasks have been sufficiently analyzed for performance by the minimum on-shift staff as designated in the Emergency Plan. The following provides a summary of the process that was used.

Each on-shift position from the SNC Standard Emergency Plan Annex for VEGP Units 3 and 4, Revision 6.0, Table 2.2.A, was entered in Appendix 1, NEI 10-05 Table 1. For position titles with more than one position holder, a unique sequential number was assigned to each position. The site emergency plan reference that describes the requirement for the position to be on-shift was then entered into column 3 of Appendix 1, NEI 10-05 Table 1. Using only the on-shift positions entered in the table, the following Appendix 1 tables were completed by entering the shift position that fills a described role, or performs a specific function or task:

- NEI 10-05 Table 2 - Minimum Operations Crew Necessary to Implement AOPs and EOPs, FSGs or SAMGs if applicable
- Table 2A – Procedure Task Timing (timeline of activities corresponding to NEI 10-05 Table 2)
- NEI 10-05 Table 3 – Firefighting (not applicable for this event analysis)
- NEI 10-05 Table 4 – Radiation Protection & Chemistry (timeline of RP and Chemistry activities)
- NEI 10-05 Table 5 - Emergency Plan Implementation
- Table 5A – E-Plan Implementation (timeline of activities corresponding to NEI 10-05 Table 5)

Following completion of each of the above tables, each on-shift position assigned to the associated table was located on Appendix 1, NEI 10-05 Table 1. For each position, the table number and associated line number was then entered in column 4, "Role in Table#/Line#". If the associated task required additional actions, a 'Yes' was placed in the last column and the additional action recorded in the results section of this report.

The OSA was conducted using the following process:

1. Selection of the multi-disciplined work group
2. Scheduling the tabletop for VEGP 3&4 to allow free access to required procedures and administrative documents
3. Conduct of a pre-job briefing outlining the requirements of NEI 12-01, NEI 12-06 and NEI 10-05
4. Review of the event initial conditions and assumptions
5. Performance of the tabletop procedural analysis
6. Documentation of the results of the tabletop by EC² using the NEI 10-05 forms modified to extend to 24 hours.

This review provided the team with a basic understanding of the event and resulting emergency classifications. The SRO reviewed EOP, AOP and FSG actions and identified them to the team. Specific site procedures referenced during assessment of this postulated event are provided in Table 2A. Resources needed to perform initial and transition phase response actions were identified from the EOP, AOP, or FSG procedures and documented. The team determined when other on-shift resources, such as the RP or Chemistry Technician, would be required and identified the time required to perform expected emergency plan functions. This information was documented on the applicable tables in Appendix 1 of this report. Finally, the on-shift resources and their actions were summarized in the tables using the NEI 10-05 documentation process in Appendix 1, NEI 10-05 Table 1.

Security Considerations

Implementation of the VEGP 3&4 FLEX coping strategies does not require the use of Security Officers to perform duties unrelated to their assigned roles (e.g., debris removal/equipment movement and staging). Security Officers

will perform functions within their current roles such as monitoring and controlling site/protected area access and providing compensating measures for any vital area doors that may need to remain open to facilitate room environmental conditions.

Strategy Resource Loading

An evaluation of each FSG was also conducted to determine the resources needed to accomplish the tasks associated with the strategy and the estimated duration of the task.

Table 3 – VEGP 3&4 FLEX Strategy Resource Allocation

FSG	Description	Resources	Duration	Notes
	Purge generator H ₂	SO (2)	5 hrs	Action directed by 3/4-AOP-302 Step 2 RNO
	Disable automatic ADS actuation	SO (2)	0.5 hrs	Action directed by 3/4-AOP-302
NMP-OS-019-405 FSG-5 NMP-OS-019-425 FSG-5	Damage Assessment and FLEX Equipment Staging			
	Assess Plant Conditions - Field Actions	SO (2)	1.0 hrs	Performed IAW FSG-5
	Assess Haul Path	SEC (2)	1.0 hrs	Evaluate path and overhead line status
	Debris Removal	ERO (2)	2.0 hrs	Initiated after VEGP 1&2
SIG-9	Communications – Setup RAPIDCASE/RAPIDCOM			
	Deploy small portable generator for U3 RAPIDCASE	SO1 SO2	1.0 hrs	U3 portable generator and RAPIDCASE deployment performed in series
	Deploy and setup U3 RAPIDCASE	SO1 SO2	2.0 hrs	
	Deploy small portable generator for U4 RAPIDCASE	SO5/FBM3 SO6/FBM4	1.0 hrs	U4 portable generator and RAPIDCASE deployment performed in series
	Deploy and setup U4 RAPIDCASE	SO5/FBM3 SO6/FBM4	2.0 hrs	
	Deploy and Setup RAPIDCOM	ERO (1)	1.0 hrs	RAPIDCOM can be deployed within six hours after a debris path has been cleared.

 Resource Limiting

Appendix 1 - Staffing Tables


**VEGP 3&4 On-Shift Personnel Assignments Used During Phase 2 Staffing Analysis
(Standard Emergency Plan)**

On-Shift Operator Assignments

Position	Designation	Assignment
Shift Manager	SM1	U3/4 Shift Manager/Emergency Director/STA
Shift Supervisor	SRO1	U3 Shift Supervisor
Shift Support Supervisor	SRO2	Shift Support Supervisor/Fire Brigade Leader
Shift Supervisor	SRO3	U4 Shift Supervisor
Reactor Operator	RO1	U3 Operator At Controls (OATC)
Reactor Operator	RO2	U3 Licensed Operator – Balance of Plant (BOP)
Reactor Operator	RO3	U4 Operator At Controls (OATC)
Reactor Operator	RO4	U4 Licensed Operator – Balance of Plant (BOP)
Licensed Operator	SC1	Shift ENN/ENS Communicator (SRO)
System Operator	SO1	U3 SO
System Operator	SO2	U4 SO
System Operator	SO3/FBM1	Fire Brigade Member
System Operator	SO4/FBM2	Fire Brigade Member (Rover SO)
System Operator	SO5/FBM3	Fire Brigade Member (Diesel Building SO)
System Operator	SO6/FBM4	Fire Brigade Member

Other On-Shift Assignments Used During Analysis

Position	Designation	Assignment
RP Technician	RP1	RP Support
RP Technician	RP2	RP Support
CAS Operator	SEC1	CAS Support/Accountability
Security Supervisor	SEC2	Security Shift Supervisor
Security Officer	SEC3	Roving Patrol
Shift Manager	SM3	U1&2 Shift Manager/Emergency Director
Shift Support Supervisor	SRO4	U1&2 Shift Support Supv/Fire Brigade Leader
Licensed Operator	SC2	Shift ENN/ENS Communicator
Chemistry Technician	CT1/DA	Chemistry Support/Dose Assessment



 VEGP 1&2 Shared Resources

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (mins)	Role in Table#/Line#	Unanalyzed Task	Action Required?
13.	System Operator (SO4/FBM2)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	N/A	T2/L11	Yes	Yes ^{Note 2}
14.	System Operator (SO5/FBM3)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	N/A	T2/L12	No	No
15.	System Operator (SO6/FBM4)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	N/A	T2/L13	Yes	Yes ^{Note 2}
16.	RP Technician (RP1)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	360	T4/L1	No	No
17.	RP Technician (RP2)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	360	N/A	N/A	N/A
18.	Chemistry Technician (CT1/DA)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	75	T4/L5 T5/L9	No	No
19.	CAS Operator (SEC1)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	N/A	N/A	N/A	N/A
20.	Security Shift Supervisor (SEC2)	SNC Standard E Plan Annex for VEGP Unit 3&4, Table 2.2.A	N/A	N/A	N/A	N/A
21.	Security Officer-Roving Patrol (SEC3)	N/A	N/A	T2/L14	Yes	Yes ^{Note 2}

Notes: Although multiple functions have been identified for some positions, no conflict exists requiring further action. Performance of these functions by the identified positions is either acceptable by NEI 10-05 guidance, **OR** the functions are the same, **OR** the functions are performed sequentially without issue.

^{Note 1} – Training on use of satellite phones for offsite/NRC communications during an ELAP

^{Note 2} – Training on FLEX/SIG response actions

 Resource available to support FSG/SIG actions
 VEGP 1&2 Shared Resources

NEI 10-05 TABLE 2 - Plant Operations & Safe Shutdown

**Two Units – Two Control Rooms (VEGP 3 and 4)
Minimum Operations Crew Necessary to Implement
AOPs and EOPs, or FSGs/SIGs if applicable**

Line	Generic Title/Role	On-Shift Position	Task Performance Validation
1.	Shift Manager	U3 Shift Manager/ED (SM1)	Operations Training
2.	Shift Supervisor	U3 Shift Supervisor(SRO1)	Operations Training
3.	Shift Supervisor	U4 Shift Supervisor (SRO3)	Operations Training
4.	Reactor Operator (OATC)	U3 Operator At Controls - OATC (RO1)	Operations Training
5.	Reactor Operator (BOP)	U3 Licensed Operator –BOP (RO2)	Operations Training
6.	Reactor Operator (OATC)	U4 Operator At Controls - OATC (RO3)	Operations Training
7.	Reactor Operator (BOP)	U4 Licensed Operator –BOP (RO4)	Operations Training
8.	Non-Licensed Operator	U3 System Operator (SO1)	Operations Training
9.	Non-Licensed Operator	U4 System Operator (SO2)	Operations Training
10.	Non-Licensed Operator	System Operator (SO3/FBM1)	Operations Training
11.	Non-Licensed Operator	System Operator (SO4/FBM2)	Operations Training
12.	Non-Licensed Operator	System Operator (SO5/FBM3)	Operations Training
13.	Non-Licensed Operator	System Operator (SO6/FBM4)	Operations Training

Notes: See Table 2A for AOP/EOP/FLEX actions

**Other (non-Operations) Personnel Necessary to Implement
AOPs and EOPs, or FSGs/SIGs if applicable**

Line	Generic Title/Role	On-Shift Position	Task Performance Validation
14.	Security Officer	Security Officer (SEC3) - Roving Patrol	Security Training

Notes: See Table 2A for AOP/EOP/FLEX actions

VEGP 1&2 Shared Resource

12-01 Phase 2 OSA applicable to VEGP 3&4

Table 2A – Procedure Task Timing

Procedure Step/Actions			Performance Time After Procedure Implementation																												
			Minutes – Hour 1						Hour																						
Step	Task	Resource	0-10	10-20	20-30	30-40	40-50	50-60	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3-EOP-E-0, Reactor Trip or Safeguards Actuation, Rev 1.1; 4-EOP-E-0, Reactor Trip or Safeguards Actuation, Rev xx																															
Step 1 – 2	Immediate operator actions	SRO1 SRO3 RO1 RO2 RO3 RO4	X																												
Step 4	Transition to ES-0.1	SRO1 SRO3 RO1 RO2 RO3 RO4	X																												
3-EOP-ES-0.1, Reactor Trip Response, Rev 1.2; 4-EOP-ES-0.1, Reactor Trip Response, Rev xx																															
Step 1 – 16	Verify plant stabilization	SRO1 SRO3 RO1 RO2 RO3 RO4	X																												
Step 17a RNO	Ensure seal oil pump running	SRO1 SRO3 RO1 RO3		x																											
Step 17b – 17d RNO	Direct implementation of 3/4-AOP-302 and continue to step 26 of 3/4-EOP-ES-0.1	SRO1 SRO3 RO1 RO3		x																											
Step 26 - 41	Maintain plant conditions	RO1 RO3		X (Periodic)																											
Fold out page criteria	Transition to E-0	SRO1 SRO3 RO1 RO3	X																												

12-01 Phase 2 OSA applicable to VEGP 3&4

Table 2A – Procedure Task Timing

Procedure Step/Actions			Performance Time After Procedure Implementation																												
			Minutes – Hour 1						Hour																						
Step	Task	Resource	0-10	10-20	20-30	30-40	40-50	50-60	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3-EOP-E-0, Reactor Trip or Safeguards Actuation, Rev 1.1 (continued); 4-EOP-E-0, Reactor Trip or Safeguards Actuation, Rev xx																															
Step 5	Implement NMP-EP-141-004	SM1		X																											
Step 6 – 22	Verify proper operation of safeguards	RO1 RO3		X																											
Step 24	Implement Att1	RO2 RO4		X																											
Step 24 – 27	Assessment of FPB Transition to E-1	RO1 RO3			X																										
3-EOP-E-1, Loss of Reactor or Secondary Coolant, Rev 1.0; 4-EOP-E-1, Loss of Reactor or Secondary Coolant, Rev xx																															
Step 1 - 2	Check secondary integrity	RO1 RO3			X																										
Step 3	Check switchyard busses energized – go to step 24 and implement 3/4-AOP-302	RO1 RO3			X																										
Step 24 – 30	Evaluate plant conditions and power and return to step 24	RO1 RO3			X																										
3-AOP-302, Loss of AC Power, Rev 1.1; 4-AOP-302, Loss of AC Power, Rev xx																															
Step 1	Check switchyard busses energized -	RO2 RO4			X																										
Step 1 RNO	Dispatch operator to evaluate DG's/attempt local start	RO2 RO4			X																										
Step 1 RNO	Evaluate DG's and attempt local start	SO5/FBM3			X																										
Step 2 RNO	Purge generator H2	SO3/FBM1 SO4/FBM2							X																						
Step 5b RNO	Go to Att 3	RO2 RO4			X																										
Att 3 step 1c RNO	Verify MCR isolation and initiate 3-AOP-501	RO2 RO4				X																									

12-01 Phase 2 OSA applicable to VEGP 3&4
Table 2A – Procedure Task Timing

Procedure Step/Actions			Performance Time After Procedure Implementation																												
			Minutes – Hour 1						Hour																						
Step	Task	Resource	0-10	10-20	20-30	30-40	40-50	50-60	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Att 3 step 3	Check IDS 72hr UPS busses energized	RO2 RO4				X																									
Att 3 step 4	Check 120 VAC distribution panel energized	RO2 RO4				X																									
Att 3 step 5 RNO	Go to step 13	RO2 RO4				X																									
Att 3 step 13 RNO	Check ADS actuation criteria	RO2 RO4				X																									
Att 3 step 27	Check if Passive Containment Cooling actuated	RO2 RO4					X																								
Att 3 step 27b RNO	Go-to Step 30	RO2 RO4					X																								
Att 3 step 30 RNO	Verify ADG should be started	RO2 RO4					X																								
Att 3 step 31	Check stable plant conditions	RO2 RO4					X																								
Att 3 step 32	Review P72's hours for applicability	SRO1 SRO3					X																								
Att 3 step 33	Check outside air >35 degrees	RO2 RO4					X																								
Att 3 step 34	Continue efforts to restore power to IDS batteries (periodic)	RO2 RO4					X																								
3-AOP-501, Loss of Main Control Room Air Conditioning, Rev 1.0, 4-AOP-501, Loss of Main Control Room Air Conditioning, Rev x.x																															
Step 1	Check MCR rad monitors not in HIGH-2 ALARM:	RO2 RO4					X																								
Step 2 RNO	Go To Attachment 1, Alternate MCR Cooling	RO2 RO4					X																								
Att 1 step 1	Check MCR Isolation - ON	RO2 RO4					X																								
Att 1 step 2	Suspend movement of irradiated fuel	RO2 RO4					X																								
Att 1 step 3	Request that RP establish surveys in the MCR area.	RO2 RO4					X																								
Att 1 step 4	Restrict heat inputs to MCR	RO2 RO4					X																								

12-01 Phase 2 OSA applicable to VEGP 3&4

Table 2A – Procedure Task Timing






Procedure Step/Actions			Performance Time After Procedure Implementation																												
			Minutes – Hour 1						Hour																						
Step	Task	Resource	0-10	10-20	20-30	30-40	40-50	50-60	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Att 1 step 5	Check if stage 1 loads have been shed	RO2 RO4							X																						
Att 1 step 6	Ensure VBS Fans are stopped	RO2 RO4							X																						
Att 1 step 7-9	Ensure MCR boundary MOVs closed	RO2 RO4							X																						
Att 1 step 10	Ensure at least one MCR Supply SOV is open	RO2 RO4							X																						
Att 1 step 11	Ensure at least one MCR Relief AOV is open	RO2 RO4							X																						
Att 1 step 12	Ensure MCR/CSA AHU Exh Control Dampers in manual and closed	RO2 RO4							X																						
Att 1 step 13	Check MCR air temperature is less than 75°F	RO2 RO4							X																						
Att 1 step 14	Check VES Capacity is greater than 327,574 scf	RO2 RO4							X																						
Att 1 step 15	Check MCR air flow is greater than 60 scfm	RO2 RO4							X																						
Att 1 step 16	Ensure one MCR Humidifier is in service	RO2 RO4								X																					
Att 1 step 17.a RNO	Continue to step 18 (perform step 17.b 180 minutes after MCR isolation)	RO2 RO4								X																					
Att 1 step 18.a RNO	Continue to step 19 (perform step 18.b-18.c 24 hours after MCR isolation)	RO2 RO4								X																					
Att 1 step 19	Check if MCR Ancillary Fans should be started and return to AOP-302, Att 3 Step 1C RNO3	RO2 RO4								X																					
Att 1 step 17.b	Check stage 2 load shed	RO2 RO4												X																	

12-01 Phase 2 OSA applicable to VEGP 3&4

Table 2A – Procedure Task Timing

Procedure Step/Actions			Performance Time After Procedure Implementation																												
			Minutes – Hour 1						Hour																						
Step	Task	Resource	0-10	10-20	20-30	30-40	40-50	50-60	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
NMP-OS-019-405, Vogtle Unit 3 FSG-5, Initial Assessment and FLEX Equipment Staging, Rev 1.0; NMP-OS-019-425, Vogtle Unit 4 FSG-5 Initial Assessment and FLEX Equipment Staging, Rev x.x																															
Steps 1-3	Initial plant assessment – haul path/staging areas IAW Attachment 1	SEC3 (roving patrol)							X																						
	Initial plant assessment IAW Attachment 1	SO1 SO2							X																						
Step 4	Debris Removal	ERO (2)							X											X											
Step 5	Deploy small portable generator for U3 RapidCase IAW NMP-OS-019-469 (SIG 9), Communications, Rev 1.0	SO1 SO2								X																					
	Deploy U3 RapidCase IAW NMP-OS-019-469	SO1 SO2									X																				
	Deploy small portable generator for U4 RapidCase IAW NMP-OS-019-469 (SO5/FBM3 SO6/FBM4								X																					
	Deploy U4 RapidCase IAW NMP-OS-019-469	SO5/FBM3 SO6/FBM4									X																				
	Deploy RapidCom IAW NMP-OS-019-469	ERO (1)																			X										

Notes: Field communications provided through use of sound-powered phones and plant radios (once RapidCase is installed).
Procedures for Unit 4 are still in development, however, guidance from Vogtle Unit 3 procedures are applicable to Vogtle Unit 4 and were used as appropriate.

-  Pre-Augmentation
-  Post-Augmentation
-  EOP/AOP Action/Strategy
-  FLEX Strategy (FSG/SIG/NMP)
-  Task completion time

NEI 10-05 TABLE 3 – Firefighting

Line	Performed By	Task Analysis Controlling Method
1.	N/A	N/A
2.	N/A	N/A
3.	N/A	N/A
4.	N/A	N/A
5.	N/A	N/A

Notes: Not required by scenario – Fire Brigade members available to support BDBEE response actions.

NEI 10-05 TABLE 4 – Radiation Protection & Chemistry




Line	Position Performing Function/Task	Performance Time Period After Event Initiation														
		Minutes						Hours								
		0-10	10-20	20-30	30-40	40-50	50-60	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
1.	In-Plant Survey Describe: U3 and U4 MCR radiological survey <i>Note 1</i> On-Shift Position: RP1						X (Periodic/Hourly)						Augmented ERO (Periodic/Hourly)			
2.	Out of Plant Survey (inside PA) On-Shift Position:															
3.	Personnel Monitoring On-Shift Position:															
4.	Job Coverage – On-Shift Position:															
5.	Dose Assessment On-Shift Position: CT1/DA		X					Augmented ERO								
6.	Other Site-Specific RP – Describe: On-Shift Position:															
7.	Chemistry function/task #1 – Describe: On-Shift Position:															
8.	Chemistry function/task #2 – Describe: On-Shift Position:															

Notes: NMP-EP-147, Offsite Dose Assessment, Rev 5.0

EOF augmented resources available to support actions after T+90 minutes

Onsite augmented resources available to support actions after T=6 hours



Note 1 – Periodic (hourly) radiological survey of U3 and U4 MCR IAW 3-AOP-501, Rev 1.0 and 4-AOP-501, Rev x.x Attachment 1 step 3

 Task completion time
 Task performed by Augmented ERO
 VEGP 1&2 Shared Resource

NEI 10-05 TABLE 4 – Radiation Protection & Chemistry

Line	Position Performing Function/Task	Performance Time Period After Event Initiation (hours)													
		10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
1.	In-Plant Survey Describe: U3 and U4 MCR radiological survey <i>Note 1</i> On-Shift Position: Augmented ERO	Augmented ERO (Periodic/Hourly)													
2.	Out of Plant Survey On-Shift Position:														
3.	Personnel Monitoring On-Shift Position:														
4.	Job Coverage On-Shift Position:														
5.	Dose Assessment On-Shift Position: Augmented ERO	Augmented ERO													
6.	Other Site-Specific RP – Describe: On-Shift Position:														
7.	Chemistry function/task #1 – Describe: On-Shift Position:														
8.	Chemistry function/task #2 – Describe: On-Shift Position:														

Notes: NMP-EP-147, Offsite Dose Assessment, Rev 5.0
 EOF augmented resources available to support actions after T+90 minutes
 Onsite augmented resources available to support actions after T=6 hours
Note 1 – Periodic (hourly) radiological survey of U3 and U4 MCR IAW 3-AOP-501, Rev 1.0 and 4-AOP-501, Rev x.x Attachment 1 step 3

 Task completion time
 Task performed by Augmented ERO

NEI 10-05 TABLE 5 – Emergency Plan Implementation

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency	SM1	EP/Ops Training and EP Drill Program
2.	ERO notification	SC1	EP/Ops Training and EP Drill Program
3.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	SC1	EP/Ops Training and EP Drill Program
4.	Abbreviated NRC notification for DBT event	N/A	EP/Ops Training and EP Drill Program
5.	Complete State/local notification form	SM1	EP/Ops Training and EP Drill Program
6.	Approve State/local notifications	SM1	EP/Ops Training and EP Drill Program
7.	Approve Offsite PARs	SM1	EP/Ops Training and EP Drill Program
8.	Perform State/local notifications <i>Note 1</i>	SC1	EP/Ops Training and EP Drill Program
9.	Dose Assessment <i>Note 2</i>	CT1/DA	EP/Security Training and EP Drill Program
10.	Complete NRC event notification form	SM1	EP Training and EP Drill Program
11.	Perform NRC notifications <i>Note 3</i>	SC1	EP/Ops Training and EP Drill Program
12.	Activate ERDS <i>Note 4</i>	N/A	EP/Ops Training and EP Drill Program
13.	Perform other site-specific event notifications <i>Note 5</i>	SC1	EP/Ops Training and EP Drill Program
14.	Personnel accountability	N/A	EP/Ops Training and EP Drill Program
15.	Approve extension to allowable dose limits	N/A	EP/Ops Training and EP Drill Program

Notes: EAL – SA1, Alert
NMP-EP-141, Event Classification, Rev 3.0
NMP-EP-141-004, Vogtle 3&4 Emergency Action Levels and Basis, Rev 3.0
NMP-EP-142, Emergency Notification, Rev 5.0
NMP-EP-147, Offsite Dose Assessment, Rev 5.0
Note 1 – Initial notification made by satellite phone, State and local notifications are assumed by the EOF once activated.
Note 2 – Initial Dose Assessments performed at initial Alert declarations. No release in progress. Dose Assessment is assumed by the EOF once activated.
Note 3 – NRC notifications are assumed by EOF personnel once activated.
Note 4 – ERDS unavailable due to ELAP.
Note 5 – SC1 notifies Duty Manager (DM) IAW NMP-EP-142, Emergency Notification, after Alert communication completed. EOF notifies INPO, ANI, SAFER and other groups once activated.

VEGP 1&2 Shared Resource

Table 5A - E-Plan Implementation Timeline

Function/Task	On-shift Position	Time from Event Initiation (minutes)																	
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
Declare the Emergency	SM1	SA1																	
ERO notification	SC1					X													
Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	SC1					X													
Abbreviated NRC notification for DBT event	N/A																		
Complete State/local notification form	SM1				X														X
Approve State/local notifications	SM1					X													X
Approve Offsite PARs	SM1																		
Perform State/local notifications ^{Note 1}	SC1						X												X
Dose Assessment ^{Note 2}	CT1/DA				X														X
Complete NRC event notification form	SM1							X											
Perform NRC notifications ^{Note 3}	SC1										X								X
Activate ERDS ^{Note 4}	N/A																		
Perform other site-specific event notifications ^{Note 5}	SC1								X										
Personnel accountability	N/A																		
Approve extension to allowable dose limits	N/A																		

Notes: ^{Note 1} – Initial notification made by satellite phone, State and local notifications are assumed by the EOF once activated.
^{Note 2} – Initial Dose Assessments performed at initial Site Area and General Emergency declarations. No release in progress. Dose Assessment is assumed by the EOF once activated.
^{Note 3} – NRC notifications are assumed by EOF personnel once activated.
^{Note 4} – ERDS unavailable due to ELAP.
^{Note 5} – SC1 notifies Duty Manager (DM) IAW NMP-EP-142, Emergency Notification, after Alert communication completed. EOF notifies INPO, ANI, SAFER and other groups once activated.

Task completion time
Task performed by Augmented resources
VEGP 1&2 Shared Resource