
**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) Unit 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12**

ATTACHMENT I

Analysis of Proposed Radiation Emergency Plan Change

1.0 DESCRIPTION

Virgil C. Summer Nuclear Station, Unit 1 (VCSNS) is proposing changes to its Radiation Emergency Plan (EP). The proposed changes include the following: activation time of the Emergency Response Facilities (ERF), including the Emergency Operations Facility (EOF), Technical Support Center (TSC), and Operational Support Center (OSC) within 75 minutes of an ALERT or higher declaration; relocation of the Technical Support Center to a new location within the basement of the Nuclear Operations Building (NOB); realignment of Emergency Response Organization (ERO) positions, titles, and responsibilities to support a future multi-unit site; transfer of the offsite notification responsibilities directly from the Control Room to the EOF; relocation of the EOF engineering support personnel to the new Technical Support Center; and administrative changes to support the above changes. The changes have been evaluated under 10 CFR 50.54(q) and reductions in effectiveness have been identified; therefore the changes require prior NRC approval.

2.0 PROPOSED CHANGE

(Note: Attachment II provides a description and correlation to the Licensee's Justification and Evaluation (Attachment III) for each proposed change to the Radiation Emergency Plan).

2.1 Activation of the Emergency Response Facilities

The activation time requirement for ERFs is proposed to be changed to within 75 minutes with all facilities activating at an Alert classification or higher. The current activation requirement is within 60 minutes of the declaration of an Alert or higher for the TSC and OSC, and within 60 minutes of the declaration of a Site Area Emergency or higher for the EOF.

2.2 Relocation of the Technical Support Center

The new TSC is proposed to be relocated in the basement of the NOB. This location is southwest and outside of the Unit 1 Protected Area and is approximately 1900 ft from the Unit 1 control room. The separation of the TSC from the control room (CR) will be approximately 10 to 15 minutes. This 10 to 15 minute timeframe is based on a person leaving the CR, processing through the Owner Controlled Area and the Protected Area Security Control Points, and entering the NOB to access the TSC.

The new facility design and layout provides a larger facility with updated audio/visual equipment to establish and maintain command and control of on-site evaluations and mitigation strategy development. Features of the new TSC include a dedicated emergency diesel generator, additional telephones, and computer resources. The TSC phone lines will be increased from 15 to 46 and the number of networked personal computers will be increased from 13 to 32. This increase will allow the ERO to access plant data, drawings, procedures, and other computer applications. The TSC is also designed to meet the protected envelope functional requirements for habitability and ventilation similar to the Control Room.

2.3 Realignment of Emergency Response Organization

The proposed changes to ERO positions, titles, and responsibilities are to support the new TSC and to align the ERO to support multi-unit emergencies once VCSNS Units 2 & 3 become operational.

2.4 Transfer Offsite Notification Responsibilities Directly to the EOF

The notification responsibilities are proposed to transfer from the control room directly to the EOF. Since the EOF will be activated at an Alert or higher classification, the transfer of offsite communications directly from the control room to the EOF removes an interim step to transfer from the control room to the TSC and then to the EOF.

2.5 Relocate EOF Engineering to New Technical Support Center

Engineering Support functions are proposed to be relocated from the EOF to the TSC as part of the ERO realignment. As a result, all Engineering evaluation and mitigation functions will be directed in one location. A limited engineering presence will be maintained within the EOF to provide technical support to the EOF and offsite agencies.

2.6 Administrative Items

Several Administrative changes are also necessary to support the proposed changes to the Radiation Emergency Plan. The changes include updates to figures, appendices, and annexes; inclusion of references to future Units 2 & 3; correction of reference items such as National Response Framework, Federal Emergency Management Agency; and update regulatory cross references. These administrative changes are needed to support the proposed changes to the plan.

3.0 BACKGROUND

In 2011, the NRC amended 10 CFR 50.54(q) to require the use of the license amendment process in 10 CFR 50.90, "Application for Amendment of License, Construction Permit, or Early Site Permit," when applying for prior NRC approval of those changes determined to be a reduction in effectiveness.

A staffing analysis was conducted in October of 2012 to comply with the new EP Rulemaking in 2011. This analysis was incorporated by reference into the Radiation Emergency Plan as Appendix 7. Through this analysis, it was determined that during emergency conditions, the minimal on-shift staff could support an emergency response for 90 minutes until the ERO augmentation occurred and ERFs were staffed. As a result of this determination and with the

activation of the TSC, OSC, and EOF at an Alert, the activation times are being proposed to change to within 75 minutes from the time of declaration of an Alert or higher classification. This change also aligns the Unit 1 emergency plan to the Units 2 & 3 Combined Operating License Application (COLA) Emergency Plan which was approved by the NRC in the Final Safety Evaluation Report (FSER) (ML110450305, ML110310185, and ML111320113).

VCSNS began evaluating locations for a new central onsite command and control facility when the V.C. Summer Nuclear Station Units 2 and 3 COLA, was submitted. Given the proximity to all 3 units, the new NOB was selected for the TSC. Unit 1 initiated the TSC design and construction process with the intent to include Units 2 and 3 emergency response personnel once the units become operational. This change is the first step in the process to implement the new TSC for Unit 1. The VCSNS Units 2 & 3 COLA Emergency Plan includes the use of the new TSC and was approved by the FSER (ML110450305, ML110310185, and ML111320113) issued by the NRC. Other proposed emergency plan changes improve efficiency and logistics, and align the ERO structure to that approved in the FSER for Units 2 & 3 to support the eventual multi-unit emergency response.

4.0 TECHNICAL ANALYSIS

4.1 Activation of the Emergency Response Facilities

The activation time requirement for ERFs is proposed to be changed to within 75 minutes with all facilities activating at an Alert classification or higher. The current activation time in the VCSNS Emergency Plan is within 60 minutes of the declaration of an Alert or higher for the TSC and OSC and within 60 minutes of the declaration of a Site Area Emergency or higher for the EOF. This proposed increase in activation time to within 75 minutes of an Alert or higher declaration is a reduction in effectiveness from the current emergency plan requirements. The EOF will be activated at the same time as the TSC. The proposed change is supported by the staffing analysis that was completed to comply with EP Rulemaking. This analysis determined that during emergency conditions, the minimal on-shift staffing can provide emergency response for 90 minutes or until the ERO augmentation occurs.

NUREG-0654 Criterion II.A. 4 states that "Each principal organization shall be capable of continuous (24-hr) operations for a protracted period..."; Criterion II.B.3 states that "each licensee shall identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function." and Criterion II.B.5 "The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency...". The term short period is recognized in NUREG-0654 table B-1 as 30 and 60 minutes.

The on-shift staffing analysis demonstrated that all emergency functions can and will be assigned to and performed by on-shift personnel, until augmented by the ERO. Upon declaration of an Alert or higher classification, the on-shift staffing is to support the control room personnel. This staffing fulfills the NUREG-0654 Criterion II.B.5 for 30-minute responders and provides additional support to the on-shift ERO to facilitate the proposed within 75 minute response for on-call ERO personnel. It is VCSNS's intent to expend its best efforts to meet the augmentation criteria regarding staffing ERF with sufficiently skilled individuals capable of

responding to an emergency. VCSNS realizes that due to diversity of normal residential patterns for the stations' staff, possible adverse weather conditions and road congestion, these time frames may not always be obtainable. Advances in technologies such as computers, plant data display systems, and the augmentation of the EOF at an Alert or higher classification will allow for a more timely response to emergencies. The new TSC enhances response time since it is outside the protected area.

All functions of the EOF, TSC, and OSC will be maintained and will continue to meet the guidelines of NUREG-0654, 10 CFR 50.47(b), and 10 CFR 50 Appendix E. The emergency plan will continue to provide requirements for the assignment of responsibilities and augmentation of the ERO to support the on-shift personnel on a continuous emergency response basis. The emergency plan requirements are supported by the performance and inclusion of the On-Shift Staffing Analysis. The analysis ensures emergency actions and responsibilities can be supported until the augmented ERO arrives and activates the Emergency Response Facilities.

The proposed within 75 minutes response time will align the VCSNS Unit 1 Radiation Emergency Plan with the Units 2 & 3 Emergency Plan approved in the FSER (ML110450305, ML110310185, and ML111320113) issued by the NRC.

4.2 Relocation of the Technical Support Center

The proposed change to relocate the TSC is a reduction in effectiveness from the current emergency plan requirements. Table 1 provides a direct comparison between the capabilities of the current TSC facility and proposed new facility.

Table 1 TSC Resource Comparison

Resource	Current Facility	Proposed Facility
ERO Positions Assigned	TSC - 13 VCS, 6 NRC	TSC - 32 VCS, 12 NRC with Back-up OSC - ~15 VCS
Square Footage (total)	~2,500	~14,300
Rest Rooms	Facilities shared with Control Room for men and women	Full men's and women's facilities with showers
Break/Serving Area	Kitchenette shared with Control Room	Break Area with tables and serving area, ice, water, refrigerator, etc.
Work Stations (total)	13	44
Telephones (PBX)	13	44
Telephones (Satellite)	1	1
Telephone (Dedicated Lines)	1	1
Radios	Hand-held only	10 desk top for dedicated positions and hand-held
Computers/Data Connections	13	32 with 9 in Back-up OSC
Projectors (A/V System)	2	5 with additional 15 A/V display capabilities in adjacent work areas

Resource	Current Facility	Proposed Facility
Back-up OSC	None	~880 sq ft with 9 work stations and command table
NRC Area	8 x 8 cubicle	390 sq ft with 4 work stations and conference table

The new TSC will continue to meet the intent and guidelines of NUREG-0696, “Functional Criteria for Emergency Response Facilities” and NUREG-0737 “Clarification of TMI Action Plan Requirements” with the exception of the TSC location. The new TSC will be located within the basement of the NOB. This location is outside of and southwest of the Unit 1 Protected Area and is approximately 1900 feet from the Unit 1 control room. The distance between the CR and the TSC is about a 10 to 15 minute walk. This 10 to 15 minute timeframe is based on a person leaving the CR, processing through Owner Controlled Area and Protected Area Security Control Points, and entering the NOB to access the TSC. The proposed TSC location does not lend itself to face-to-face communications with the Unit 1 control room as recommended by NUREG-0696, section 2.2. The location of the TSC is an alternative method to NUREG-0696 requiring the TSC to be within two minutes of the control room and that there be no major security barriers between the two facilities.

While the proposed location of the new TSC does not allow for direct face-to-face communications between the Shift Supervisor in the CR and the Emergency Director in the TSC, adequate communications lines and designated positions will ensure continued and effective communication. The site currently demonstrates the effectiveness of the communications lines and designated positions as a substitute for face-to-face communications during emergency plan drills with the VCSNS Simulator CR and the current TSC. Therefore, relocation of the TSC to the new NOB will not prevent VCS from meeting the intent of the guidance in NUREG-0696.

The new location also provides for improved off-hours staffing capabilities since responders will not have to process through Owner Controlled or Protected Area Security access locations to reach the TSC. The relocation of the TSC will make activation timelier and improve the capability for transfer of critical tasks from the Control Room. The relocation of the TSC allows activation of and access to the TSC during a security event more practical and timely by not relocating personnel into an area where the hostile action may be directed. The location of the TSC will also provide managerial and technical support to plant operations personnel via the communication links during emergency conditions without congesting the control room. The new TSC will also have access to the plant computer and Safety Parameter Display System (SPDS) displays. There is not an anticipated need to traverse from the TSC to the CR therefore the Protected Area security barrier will not create any adverse impact on the function of the new TSC being located outside of the Protected Area. Should the need arise, security personnel are assigned in the TSC to enhance the movement of personnel between the TSC and the control room.

The working space is considerably larger than the existing facility and will reduce current crowded working conditions (reference Table 1). This change will strengthen the TSC command and control function by allowing the TSC ERO a larger, better-designed working area.

The TSC is sized to accommodate a minimum of 40 personnel and their supporting equipment. This includes provisions for at least three NRC representatives. The larger work area facilitates additional state of the art equipment for TSC personnel to perform their ERO functions. The new facility will strengthen the ERO by creating a centralized onsite command and control organization and a single evaluation and mitigation decision structure for the entire site.

The TSC was constructed to meet the 2006 International Building Code. The superstructure of the facility was designed for IBC site class D, design category C, Business occupancy category II. The TSC and NOB structure are fully equipped with sprinklers and constructed with non-combustible construction. The basement ceiling systems, mechanical ductwork, plumbing, piping, sprinkler piping, and electrical systems are seismically braced throughout the TSC. Access to the TSC will be controlled through two direct points of ingress/egress, on the north and south ends of the basement (central and south portions of the NOB, respectively). These points do not open directly to the exterior of the building, but are accessed through stairways or elevators from the upper floors. Control of personnel entering will be done using access card readers connected to site security access control computers.

The TSC was designed to meet the protected envelope functional requirements for habitability and ventilation similar to the Control Room as identified in NUREG-0696 and Section II.B.2 of NUREG-0737. The HVAC system is designed with High Efficiency Particulate Air filters and charcoal filters with a mixed air capability from both inside the facility and exterior. The system when placed in emergency mode, via a designated button in the TSC command area, closes specified motorized dampers, disables EF-1 (rest rooms exhaust fan), and energizes FFU-1 (filtered HVAC). Once this takes place, the TSC pressurizes to a minimum of 0.125 inwc. An alarm panel is located within the command area of the TSC that will alert personnel of a change in pressurization which causes the positive pressure to fall below 0.125 inwc.

Although these changes are reductions in effectiveness, the changes will continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. The TSC will continue to maintain adequate facilities and equipment. The new TSC will ensure the station's emergency response will protect the public health and safety while monitoring, evaluating, and developing mitigation strategies in response to the emergency conditions.

The function, location, staffing requirements, size, equipment, building structure, and environmental controls for the new TSC, have been previously reviewed and approved in the FSER for the VCSNS Units 2 & 3 Emergency Plan (ML110450305, ML110310185, and ML111320113).

4.3 Realignment of Emergency Response Organization

VCSNS will operate three nuclear units, once construction of Units 2 & 3 is complete. The reorganization of the ERO structure will support the future multi-unit site. This reorganization will result in a reduction in effectiveness from the current emergency plan requirements, but meets the intent and requirements of 10 CFR 50 Appendix E. The organization change aligns Unit 1 ERO and ERO organizational structures to those that have been previously reviewed and approved in the FSER for the VCSNS Units 2 & 3 Emergency Plan (ML110450305, ML110310185, and ML111320113).

Reductions in effectiveness are caused by the addition and deletion of Emergency Response Organization positions and realignment of responsibilities, both assigned to the individual positions and within the emergency response facilities. The cumulative effect of these changes to the emergency plan contributes to the reduction in effectiveness. These changes will continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. The changes will continue to ensure the responsibilities of emergency response are assigned and the response organization has adequate staff to augment the on-shift staff on a continuous emergency response basis. The overall size of the ERO may change with some positions being added and some being deleted, but the functions and responsibilities of the ERO will not. The changes will allow a modified command and control structure to support a multi-unit site. There will also be additional designated expertise for each of the three units. Functions and responsibilities are being rearranged to support the overall changes to the plan. The ERO will continue to be able to provide the evaluation, mitigation, offsite support, and public alert and warning for each emergency and for any of the four emergency classifications.

A table of the responsibility changes for each ERO position is provided in Enclosure B, E-plan ERO Position Responsibility Change & Comparison of Attachment III, VCSNS EP-100 (TSC & ERO) LAR Change Justification/Evaluation.

4.4 Transfer Offsite Notification Responsibilities Directly to the EOF

The initial emergency notification(s) will be completed by the control room and then responsibility for subsequent classifications transferred to the ERO in the EOF once the EOF is activated. This change is a reduction in effectiveness from the current emergency plan requirements. The activation of the EOF at an Alert or higher classification allows the transfer of the responsibilities to be completed in a more timely and effective method. The EOF is the facility responsible for interfacing with offsite emergency management agencies and is the most effective location to make the notifications and Protective Action Recommendations.

The proposed change removes the requirement to transfer the classification and notification functions from the control room to the TSC and then from the TSC to the EOF. This will make the transfer a one-time evolution and make the subsequent notifications more efficient since a second turnover is not required. The removal of responsibilities from the TSC allows the Emergency Director and the TSC to focus their attention on evaluation and mitigation of the emergency conditions within the plant. Turnover and coordination used to transfer the communications from the control room to the TSC and eventually to the EOF will be used to transfer it directly to the EOF.

The reduction in effectiveness is caused by the removal of notification functions from the TSC and the deletion of communication positions in the TSC. However, the changes will continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. The changes will continue to provide the means and capabilities to notify state, local, federal, and other offsite response agencies in the event of an emergency at an ALERT or higher emergency classification. With the activation of the EOF at an ALERT, the EOF will provide the same functions as if they were received from the TSC. The EOF will continue to provide an offsite focus of responsibilities to ensure public health and safety is protected.

The change will not add additional responsibilities to the EOF or the ERO that are not currently being performed as part of an emergency response.

4.5 Relocate EOF Engineering Functions to the New Technical Support Center

Emergency response engineering assessment and mitigation functions are being relocated from the EOF to the TSC. Relocating the engineering functions to the TSC is a reduction in effectiveness from the current emergency plan requirements. This change will place all technical engineering resources in one emergency facility and under one engineering decision maker to focus on the onsite emergency.

The removal of engineering responsibilities from the EOF will allow the EOF to focus on measures that protect the public health and safety, and to obtain additional resources from offsite vendors or agencies to support the emergency. The EOF ERO will maintain an individual with engineering expertise to advise EOF personnel on plant engineering matters. Engineering personnel will report to the TSC Technical Support Manager, who will allocate engineering resources to address priorities established by the TSC. Having all engineering expertise in one location improves efficiency by eliminating the need for coordination and communications between the engineering groups.

The changes will continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. The changes will continue to ensure the responsibilities for emergency response are assigned and that adequate facilities and equipment are available. This change also adds additional expertise to support each unit. The changes do alter the methods, equipment, and personnel for evaluating and controlling a radiological release; for evaluation of system, structure, or component failures; and for plans with recovery and reentry. However, these functions will remain in place within the Emergency Response Organization and as a requirement in the emergency plan.

4.6 Administrative Items

Several Administrative changes are also necessary to support the proposed changes to the Radiation Emergency Plan. The changes include updates to figures, appendices, and annexes; inclusion of references to future Units 2 & 3, correction of reference items such as National Response Framework and Federal Emergency Management Agency; and update regulatory cross references. These administrative changes support the other changes to the plan and reduce the effectiveness of the plan.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements / Criteria

10 CFR 50.47(b) and 10 CFR 50 Appendix E establish emergency planning standards that require 1) adequate staffing; 2) satisfactory performance of key functional areas and critical tasks; and 3) timely augmentation of the response capability. The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met. The proposed changes have also been evaluated in accordance with 10 CFR 50.54(q) and result in a reduction in the effectiveness of the emergency plan and therefore, prior NRC

approval is required. The proposed changes to the plan, will continue to meet the requirements of 10 CFR 50 Appendix E and the planning standards of 10 CFR 50.47(b).

5.2 No Significant Hazards Consideration

VCSNS has evaluated whether or not a significant hazards consideration is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No. The proposed changes to the VCSNS emergency plan do not impact the physical function of plant structures, systems, or components (SSC) or the manner in which SSCs perform their design function. The proposed changes neither adversely affect accident initiators or precursors, nor alter design assumptions. The proposed changes do not alter or prevent the ability of SSCs to perform their intended function to mitigate the consequences of an initiating event within assumed acceptance limits. No operating procedures or administrative controls that function to prevent or mitigate accidents are affected by the proposed changes. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No. The proposed changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed or removed) or a change in the method of plant operation. The proposed changes will not introduce failure modes that could result in a new accident, and the change does not alter assumptions made in the safety analysis. The proposed changes to the location of the TSC, activation times of facilities, and aligning ERO structure are not initiators of any accidents. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No. Margin of safety is associated with the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed changes do not impact operation of the plant or its response to transients or accidents. The changes do not affect the Technical Specifications or the operating license. The proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Additionally, the proposed changes will not relax any criteria used to establish safety limits and will not relax any safety system settings. The safety analysis acceptance criteria are not affected by these changes. The proposed changes will not result in plant operation in a configuration outside the design basis. The proposed changes do not adversely affect systems that respond to safely shut down the plant and to maintain the plant in a safe shutdown condition. The

emergency plan will continue to activate an emergency response commensurate with the extent of degradation of plant safety.

Based on the above, SCE&G concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

6.0 ENVIRONMENTAL CONSIDERATIONS

The proposed changes to the Radiation Emergency Plan maintain the environmental bounds of the current environmental assessment associated with the VCSNS Unit 1. The proposed changes will not affect plant safety and will not have an adverse effect on the probability of an accident occurring. The proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure.

The construction of the NOB is now complete. The NOB was designed in accordance with State and local Uniform Building Codes. Therefore, proposed changes do not result in changes to land use or water use, or result in changes to the quality or quantity of non-radiological effluents. No changes to the National Pollution Discharge Elimination System permit are needed. The addition of a diesel generator was reviewed to ensure compliance with the State of South Carolina's air regulations and was determined to have no impacts on the air or ambient air quality. There are no impacts to historical and cultural resources. Therefore, no changes to or different types of non-radiological environmental impacts are expected as a result of these changes.

In conclusion, the proposed changes to the Radiation Emergency Plan will not have an adverse impact on the environment.

7.0 PRECEDENCE

This request is similar in nature to the other requests authorized by the NRC for Clinton Power Station [ML061920575, ML063530752, and ML070540270] and Three Mile Island Nuclear Station, Unit 1 [ML023460148]. However, the amended rule in 2011 changed the language to specify that licensees must use the license amendment process in 10 CFR 50.90 for changes evaluated as a potential reduction in effectiveness. The function, location, staffing requirements, size, equipment, building structure, and environmental controls for the new TSC, have been previously reviewed and approved in the FSER for VCSNS Units 2 & 3 Emergency Plan (ML110450305, ML110310185, and ML111320113).

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ATTACHMENT II

Cross Reference of Radiation Emergency Plan Changes to Attachment I Section 2.0

Cross Reference of Radiation Emergency Plan Changes to Attachment I Section 2.0

LAR Section	Item Number Attachment III	Change Summary
2.1	4	Part 2 Section B.1 – Changed activation of the ERO to reflect the full ERO activation at an Alert, Site Area Emergency, or General Emergency (Alert or higher classification)
2.1	9	Part 2 Section B.5.a – Changed the augmentation time of the ERO from “within about 60 minutes” to “within 75 minutes”
2.1	39	Part 2 Section D.1.b – Changed activation of the ERO to reflect the full ERO activation at an Alert
2.1	40	Part 2 Section D.1.c – Changed activation of the ERO to reflect the full ERO activation at a Site Area Emergency
2.1	42	Part 2 Section E.2.a – Changed activation of the ERO to reflect the full ERO activation at an Alert, Site Area Emergency, or General Emergency (Alert or higher classification) and removed reference to activating the JIC
2.1	46	Part 2 Section H.1.c – Added the OSC guidance to include references to the new Back-up OSC in the new TSC and the Remote OSC in the EOF Building (formally the Back-up), changed reference to the JIC Building to the EOF Building, added guidance to support a multi-unit ERO, and added guidance on the back-up and remote OSC
2.1	47	Part 2 Section H.5 – Changed the augmentation time of the ERO from 60 minutes to 75 minutes and changed activation of the ERO to reflect the full ERO activation at an Alert, Site Area Emergency, or General Emergency (Alert or higher classification)
2.1	50	Part 2 Section I.8 – Changed activation of the ERO to reflect the activation of Field Teams at an Alert or higher classification
2.1	54	Annex 1 Section 4.1.B – Changed the augmentation time of the ERO from “within about 60 minutes” to “within 75 minutes”
2.2	45	Part 2 Section H.1.b – Added guidance and references for the relocation of the TSC into the basement of the Nuclear Operations Building, noted the addition of the Security Manager to the TSC, updated the accommodations, back-up facilities, and remote facilities, added guidance to support a multi-unit ERO, and added guidance on the back-up and remote OSC and TSC

2.2	53	Old Annex 1 Section 4.1.B – Removed references to the Technical Support Center
2.2	46	Part 2 Section H.1.c – Added the OSC guidance to include references to the new Back-up OSC in the new TSC and the Remote OSC in the EOF Building (formally the Back-up), changed reference to the JIC Building to the EOF Building, added guidance to support a multi-unit ERO, and added guidance on the back-up and remote OSC
2.3	2	Part 2 Section A.4 – Added guidance that personnel in unaffected unit(s) may be used to assist with emergencies in other units
2.3	6	Part 2 Section B.2 – Added guidance on multi-unit event command and control
2.3	10	Part 2 Section B.5.a.2 - Added the ERO position for Emergency Support Operator and the location and responsibilities for this position and guidance for the multi-unit ERO
2.3	11	Part 2 Section B.5.a.3 – Added guidance for the multi-unit ERO
2.3	12	Part 2 Section B.5.a.4 - Added guidance for Technical Support Supervisors to include personnel from each Protected Area/Technology (multi-unit)
2.3	13	Part 2 Section B.5.a.5 - Added ERO position for Technical Support Communicator and the location and responsibilities for this position and guidance for the multi-unit ERO
2.3	14	Part 2 Section B.5.a.6 - Added guidance for Operations Supervisor to include personnel from each Protected Area/Technology (multi-unit)
2.3	15	Old Part 2 Section B.5.a.8 – Deleted the State/County Communicator and its responsibilities from the TSC
2.3	16	Part 2 Section B.5.a.8 – Added the Emergency Notification System (ENS) Communicator position to the Control Room
2.3	18	Part 2 Section B.5.a.10 – Transferred the duties of the ERO position for Security Supervisor (OSC) to the TSC and changed the titles to Security Manager and the location and responsibilities for this position
2.3	19	Part 2 Section B.5.a.11 – Added reference to the ERO position for Chemistry Supervisor and the location and responsibilities for this position
2.3	20	Part 2 Section B.5.a.12 – Added reference to the ERO position for Maintenance Supervisor and the location and responsibilities for this position
2.3	21	Part 2 Section B.5.a.13– Added guidance for Operational Support Center Supervisors to include personnel from each Protected Area/Technology (multi-unit)
2.3	22	Part 2 Section B.5.a.14 – Added guidance for Operational Support Center Damage Control Teams to include personnel from each Protected Area/Technology (multi-unit)
2.3	23	Old Part 2 Section B.5.a.11 – Transferred the responsibilities of the Security Supervisor (OSC) to the TSC and changed the title to Security Manager
2.3	24	Part 2 Section B.5.b. – Changed activation of the ERO to reflect the full ERO activation at an Alert, Site Area Emergency, or General

		Emergency (Alert or higher classification) and added the discretion to activate at an Unusual Event
2.3	28	Old Part 2 Section B.5.b.8 – Deleted the General Services Coordinator and its responsibilities from the EOF
2.3	29	Part 2 Section B.5.b.8 – Revised the title and responsibilities of the Plant Security Advisor (formally Security Coordinator)
2.3	30	Part 2 Section B.5.b.9 – Added reference to the ERO position for Health Physics Network (HPN) Communicator and the location and responsibilities for this position
2.3	31	Part 2 Section B.5.b.10 – Added the description of the ERO position for Field Teams and the location and responsibilities for this position to the body of the plan
2.3	32	Part 2 Section B.5.b.11 – Added the description of the ERO position for Plant Operations Advisor and the location and responsibilities for this position to the body of the plan
2.3	34	Part 2 Figure B-1b – Updated the organization chart to reflect changes to ERO positions in the plan
2.3	35	Part 2 Figure B-1c – Updated the organization chart to reflect changes to ERO positions in the plan
2.3	36	Part 2 Figure B-1d – Updated the organization chart to reflect changes to ERO positions in the plan
2.3	37	Part 2 Table B-1a – Updated the table to include changes affecting ERO positions, augmentation times, and responsibilities
2.3	38	Part 2 Section D.1.a - Added guidance for a multi-unit ERO
2.3	41	Part 2 Section D.2 – Added guidance on the Units 2 & 3 EALs
2.3	44	Part 2 Section H.1 & 1.a – Added guidance to support a multi-unit ERO
2.3	49	Part 2 Section H.12 – Revised provisions for KI in the Control Room
2.3	51	Part 2 Section J.4.d – Added the IED and ED with the OEM
2.3	56	Annex 2 & 3 – Added Unit specific guidance for VCSNS Units 2 & 3
2.4	7	Part 2 Section B.2 – Transferred responsibilities for notifications directly to the EOF from the Control Room
2.4	8	Part 2 Section B.4 – Changed the ED responsibilities to remove the responsibilities to make notifications and Protective Action Recommendations
2.4	15	Old Part 2 Section B.5.a.8 – Deleted the State/County Communicator and its responsibilities from the TSC
2.4	25	Part 2 Section B.5.b.2 – Changed the responsibility for preparing notification forms to approving
2.4	27	Part 2 Section B.5.b.6 – Added the ERO position for Communications Coordinator and the location and responsibilities for this position to the EOF
2.5	10	Part 2 Section B.5.a.2 – Added the ERO position for Emergency Support Operator and the location and responsibilities for this position and guidance for the multi-unit ERO
2.5	13	Part 2 Section B.5.a.5 – Added ERO position for Technical Support Communicator and the location and responsibilities for this position

		and guidance for the multi-unit ERO
2.5	26	Part 2 Section B.5.b.3 – Revised the title and responsibilities of the Plant Engineering Advisor (formally Technical Support Coordinator)
2.5	33	Part 2 Section B.5.c.3 – Transferred the responsibilities of the Lead Technical Briefer to the position of Plant Engineering Advisor
2.6	1	All sections – Updated the grammatical references from a single unit to multi-unit nomenclatures (unit to units, annex to annexes, control room to control rooms, etc.)
2.6	3	All sections – Added reference for “unaffected unit”/“affected unit”
2.6	5	Part 2 Section B.1 – Relocated reference to the specific number of Auxiliary Operators to the Annexes and added a generic reference
2.6	17	Part 2 Section B.5.a.9 – Added “(Reactor)” and grammatically corrected the title of the Technical Support Staff and added guidance on a multi-unit ERO
2.6	43	Part 2 Section F.1 - 4 – Changed guidance to be more generic to support Units 1, 2, & 3
2.6	48	Part 2 Section H.10 – Added guidance that additional supplies may be obtained from other units
2.6	52	Part 2 Section N.3 – Added guidance for rotation of drills among Unit specific facilities and personnel
2.6	55	Annex 1 Section 5.2 – Added guidance for an onsite assembly area

Document Control Desk
Attachment III
LAR-13-02396
RC-14-0039

**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) Unit 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12**

ATTACHMENT III

VCSNS EP-100 (TSC & ERO) LAR Change Justification/Evaluation

VCS EP-100 (TSC & ERO) LAR Change Justification/Evaluation

TITLE: EP-100, Radiation Emergency Plan, Rev xx NRC Submittal (TSC & ERO)		DATE: 1/24/2014
DESCRIPTION OF PROPOSED CHANGE:		
<p>The Emergency Plan is being revised to:</p> <ul style="list-style-type: none"> • incorporate the new Technical Support Center (TSC) • to revise the activation requirements and times for the Emergency Response Organization and Facilities • to reorganize the ERO structure to support the new TSC, responsibilities, and assignments • to add the guidance for multi-units. <p>A 10 CFR 50.54(q) evaluation was performed and recorded by VCS under VCS #: E2012-013 Revision 2.</p>		
DESCRIPTION AND REVIEW OF LICENSING BASIS AFFECTED BY THE PROPOSED CHANGE:		
<p>NUREG-0717, SER related to V. C. Summer Nuclear Station Unit 1, Supplements 2 and 3 require and state VCS has a radiological emergency response plan that includes elements of NUREG-0654, Revision 1 (1979 criteria), NUREG-0696, 10 CFR 50.47, and 10 CFR 50 Appendix E and will provide adequate planning basis for an acceptable state of emergency preparedness and meets these requirements. EP-100 Revision 5 is the revision in which the latest Safety Evaluation Report (SER) was issued in August 1982. Since this revision numerous other revisions have been made under the 10 CFR 50.54(q) process. This revision maintains the intent, purpose, and function of the emergency plan as evaluated up to the current Revision 63.</p>		
DESCRIBE HOW THE PROPOSED CHANGE COMPLIES WITH RELEVANT EMERGENCY PREPAREDNESS REGULATION(S) AND PREVIOUS COMMITMENT(S) MADE TO THE NRC:		
<p>NUREG-0654, 10 CFR 50.47, and 10 CFR 50 Appendix E provide regulatory guidance and requirements for a radiological emergency plan content. One commitment for maintaining a core thermal (reactor) engineer is also referenced in the plan and will not be affected by this change. This revision does affect how the regulatory or commitment requirements will be met. Changes affecting the requirements of 10 CFR 50.47 and 10 CFR 50 Appendix E are evaluated in this evaluation. This revision also changes the means and methods in which NUREG-0696 requirements will be met due to building a new TSC and relocating the facility and reassigning ERO personnel and ERO functions. The revision also affects the Security and Emergency Plan interfaces in accordance with 10 CFR 73.58, which was evaluated under site procedure SAP-0163 by site Security personnel and there is no adverse impact on the Security Plan or interface.</p>		
DESCRIPTION OF IMPACT OF THE PROPOSED CHANGE ON THE EFFECTIVENESS OF EMERGENCY PLAN FUNCTIONS:		
<p>Enclosure A of this evaluation provides the detailed evaluation of these elements and the revisions affecting them. In many cases, as evaluated in the Enclosure, individual changes may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments, and relocation of the TSC, these changes do reduce the effectiveness of the emergency plan and require prior approval by the NRC.</p>		
EVALUATION CONCLUSION:		
Answer the following questions about the proposed change.		
1. Does the proposed change comply with the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
2. Does the proposed change maintain the effectiveness of the emergency plan (i.e., no reduction in effectiveness)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

Enclosure A – Planning Standard, Function, and Program Element Evaluation

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
1.	All sections - updated the grammatical references from a single unit to multi-unit nomenclatures (unit to units, annex to annexes, control room to control rooms, etc.)	Throughout	n/a	<p>Justification: The grammatical references are administrative supporting the details of this revision and do not affect the plan or its requirements.</p> <p>Evaluation: As individual changes, the changes may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.</p>
2.	Added guidance that personnel in unaffected unit(s) may be used to assist with emergencies in other units	Part 2 Section A.4	10 CFR 50.47(b)(1)	<p>Justification: VCS Units 1, 2, and 3 are physically located on the same property site. Each plant has designated minimum staffing, including Operations, Health Physics, Chemistry, Mechanical Maintenance, Electrical Maintenance, and I&C Maintenance personnel. The personnel from these disciplines on the unaffected unit(s) will be used to augment the affected unit(s) staffing to perform actions they are trained and qualified to perform, such as radiological accident assessment, repair and corrective actions, search and rescue, chemistry/radiochemistry, etc. This staffing augmentation will fulfill the NUREG-0654 Criterion II.B.5 for 30-minute responders and provides additional support to the on-shift ERO to permit a 75-minute response for on-call ERO personnel. The time frames for rapid augmentation of nuclear power plant staff in the event of an emergency are not rigid guidance requirements but rather times set by VCSNS. It is VCS's intent to expend its best efforts to meet the augmentation criteria regarding staffing Emergency Response Facilities with sufficiently skilled individuals capable of handling an emergency. While Unit 3 is under</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>construction, Units 1 and 2 will maintain the capability to augment affected unit shift personnel.</p> <p>VCS will operate three nuclear units, once construction of Units 2 & 3 are completed. Each Unit will have its own Operational Support Center (OSC) with full staffing to support an emergency within its unit. The use of personnel between units from unaffected units will provide additional resources trained and qualified for immediate response. During an emergency each OSC will maintain its minimum staffing requirements.</p> <p>Evaluation: The use of unaffected unit personnel for responses in other affected units, by itself does not reduce the effectiveness of the emergency plan. However, when combined with an emergency at a unit sharing its staff, response times and availability of personnel may be delayed, thus reducing the overall effectiveness of an emergency response to another unit. This is a reduction in effectiveness and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
3.	Added reference for "unaffected unit"/ "affected unit"	Throughout	10 CFR 50.47(b)(1)	<p>Justification: The words affected and unaffected refer to VCS Units either in or not in an emergency condition, respectively. Since these terms are used to determine which Control Room will be the lead during an emergency, the command and control responsibilities now differ. The change is an administrative identifier to separate which personnel or units may or may not be in an emergency requiring activation in accordance with the plan.</p> <p>Evaluation: Since the term affects the command and controls structure of the emergency plan, it does reduce the effectiveness of the initial response to an emergency and requires prior approval by</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.
4.	Changed activation of the ERO to reflect the full ERO activation at an Alert, Site Area Emergency, or General Emergency (Alert or higher classification)	Part 2 Section B.1	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8)	<p>Justification: Activation and Essential Staffing designations are being placed in the emergency plan to provide guidance on activating emergency facilities in a timely manner to assume critical functions from the Control Room. These designations in staffing give facility managers a clear and concise staffing requirement for activation and allow the facility to be activated without essential staffing and prior to briefing the entire facility. The designation for activation and essential allow activations based on the ability to assume critical functions before all designated ERF personnel arrive at the facility. In addition, the requirements for when the EOF is to be activated are also changing.</p> <p>The EOF, TSC, and OSC will be activated at an Alert or higher classification. The EOF earlier activation is required to ensure other changes in staffing and responsibilities are implemented effectively and efficiently. The EOF will be aligned to be the overall responsible facility for SCE&G and SCANA corporate emergency responses. This will be done while coordinating offsite state and local agency communications, offsite radiological monitoring, procurement, and media and public interfaces. This facility will be directed by a member of the VCS senior management team and supported by SCANA corporate resources, as needed. Changes to the staffing of the EOF includes: position title changes, position reporting alignment, and facility responsibility changes. The ERO positions titles changes and responsibility changes are detailed in Enclosure B, Emergency Response Organization Position Responsibility Change & Comparison, of this document.</p> <p>The organization alignment of the EOF personnel and</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>responsibilities includes a single reporting structure for the entire facility including the Joint Information Center (JIC) and the EOF proper. The EOF will have a facility manager that reports directly to the (Emergency Control Officer (ECO)). The Company Spokesperson for the JIC will also report to the ECO.</p> <p>The function of the EOF remains intact with exception of portions of its engineering resources. The EOF engineering resources that support mitigation evaluations and development will be relocated to the TSC. Limited engineering resources will remain in the EOF to support offsite notifications, technical assistance for press releases, and to respond to technical questions from offsite agencies and organizations. Relocation of the engineers to the TSC will place needed engineering resources in the same location and under the direction of a single engineering decision maker, thus enhancing the capability to respond to, evaluate, and mitigate an emergency.</p> <p>The existing communication functions will not change. However, the EOF will no longer assume state and county communications from the TSC, but will activate earlier (at an Alert) in the emergency and will assume state and local communications directly from the Control Room. This function currently is transferred from the Control Room to the TSC and then to the EOF. The transfer of communications directly from the Control Room to the EOF places the communication responsibilities in its final facility in a timelier manner and improves efficiency by removing an intermediate transfer of the responsibilities. This allows the EOF to establish communications immediately with the state and county agencies eliminating possible confusion for multiple transfers and places the offsite responsibility solely on the EOF.</p> <p>Functions of the EOF will be maintained as described with enhancements and will continue to meet the requirement of</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>NUREG-0654, 10 CFR 50.47(b), and 10 CFR 50 Appendix E. Due to advances in technologies such as computers, direct telephone links, plant data display systems, etc. and the augmentation of the emergency facilities at an Alert or higher classification; these enhancements will allow timelier responses to emergencies and the ability to protect public health and safety.</p> <p>Evaluation: As individual changes, the changes in the activation requirements for the EOF and the change in organization and function may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.1 of the LAR ATTACHMENT I.</p>
5.	Relocated reference to the specific number of Auxiliary Operators to the Annexes and added a generic reference	Part 2 Section B.1	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2)	<p>Justification: The specific number of Auxiliary Operators (AO) was increased to five after the staffing study for VCS Unit 1 was completed and the emergency plan revised per the regulation. The specific number of AOs in Part 2 Section B.1 is not generic to all Units, thus the reference must be general and the specific number included in the applicable Unit Annexes. The Unit 1 Annex has the specific number, five (5).</p> <p>Evaluation: As an individual change, the change may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				the LAR ATTACHMENT I.
6.	Added guidance on multi-unit event command and control	Part 2 Section B.2	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	<p>Justification: The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained or drilled at VCS. The guidance added changes the command and control structure for emergencies to ensure proper response by ERO personnel. The addition is needed to clearly delineate the structure to support a multi-unit site.</p> <p>Evaluation: Since the term affects the command and controls structure of the emergency plan, it does reduce the effectiveness of the response to an emergency and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
7.	Transferred responsibilities for notifications directly to the EOF from the Control Room	Part 2 Section B.2	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(5)	<p>Justification: The notification of and development of PARs for an emergency is critical to protecting public health and safety. This and other emergency information is provided to offsite agencies for each classification made and for follow-up notifications. The initial emergency notification(s) will be completed by the Control Room and then transferred to the augmented ERO in the EOF. The activation of the EOF at an Alert or higher classification allows the transfer of the responsibilities to be completed in a more timely and effective method. The EOF is the facility responsible for interfacing with offsite emergency management agencies and is the most effective location to make notifications.</p> <p>This change will remove the current requirement to transfer this responsibility from the Control Room to the TSC and then from the TSC to the EOF. The change will make the transfer a one-time evolution. Subsequent notifications will be more efficient since a second turnover is not required. This removes the responsibilities</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>from the TSC and allows the Emergency Director to focus attention on evaluations and mitigations of the emergency conditions within the plant. Similar turnover and coordination used to transfer the communications from the Control Room to the TSC and eventually to the EOF will be used to transfer them directly to the EOF.</p> <p>The change will not add any responsibilities to the EOF or the ERO that are currently not performed as part of an emergency. The revision does remove the responsibility from the TSC and deletes communication positions in the TSC, allowing them to focus on onsite responses.</p> <p>Evaluation: As individual changes, the changes in the transfer of emergency communications and Protective Action Recommendations may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan. Notification of state and local governmental agencies within 15 minutes after declaration of an emergency and providing follow-up notifications will continue to be made. This will ensure systems are established for prompt communication among principal emergency response organizations and systems are established for prompt communication to emergency response personnel. These changes require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.4 of the LAR ATTACHMENT I.</p>
8.	Changed the ED responsibilities to remove the responsibilities to make notifications and Protective	Part 2 Section B.4	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(5)	Justification: The notification of and development of PARs for an emergency is critical to protecting public health and safety. This and other emergency information is provided to offsite agencies for each classification made and for follow-up notifications. The initial

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
	Action Recommendations		10 CFR 50.47(b)(9)	<p>emergency notification(s) will be completed by the Control Room and then transferred to the augmented ERO in the EOF. The activation of the EOF at an Alert or higher classification allows the transfer of the responsibilities to be completed in a more timely and effective method. The EOF is the facility responsible for interfacing with offsite emergency management agencies and is the most effective location to make these notifications and PARs due to its focus being offsite emergency response and support.</p> <p>The change removes the guidance to transfer from the Control Room to the TSC and then from the TSC to the EOF. This will make the transfer a one-time evolution and make the subsequent notifications more efficient since a second turnover is not required. This removes the responsibilities from the TSC and allows the Emergency Director to focus on evaluations and mitigations of the emergency conditions within the plant. Similar turnover and coordination used to transfer the communications from the Control Room to the TSC and eventually to the EOF will be used to transfer them directly to the EOF.</p> <p>The change will not add any responsibilities to the EOF or the ERO that are currently not performed as part of an emergency. The revision does remove the responsibility from the TSC, allowing TSC personnel to focus on onsite response.</p> <p>Evaluation: As individual changes, the changes in the transfer of emergency communications and Protective Action Recommendations may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan. Notification of state and local governmental agencies within 15 minutes after declaration of an emergency or</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>PAR approval and providing follow-up notifications will continue to be made. This will ensure systems are established for prompt communication among principal emergency response organizations and systems are established for prompt communication to emergency response personnel. These changes require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.4 of the LAR ATTACHMENT I.</p>
9.	<p>Changed the augmentation time of the ERO from "within about 60 minutes" to "within 75 minutes"</p>	Part 2 Section B.5.a	<p>10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2)</p>	<p>The evaluation for the change in activation time is provided in enclosure C of this attachment.</p>
10.	<p>Added the ERO position for Emergency Support Operator and the location and responsibilities for this position and guidance for the multi-unit ERO</p>	Part 2 Section B.5.a.2	<p>10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)</p>	<p>Justification: The position of Emergency Support Operator is being added to the ERO to support Operations communications and transfer of information from the Control Room to the TSC or vice versa. This position is a dedicated phone talker between facilities.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained at VCS. The guidance added changes the command and control structure for emergencies to ensure proper response by personnel. The addition is needed to clearly delineate the structure and reduce the overall potential confusion for going to a multi-unit site.</p> <p>Evaluation: As an individual change the addition of the Operator does not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, relocation of the TSC, and the change to a multi-unit emergency response organization; these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 and 4.5 of the LAR ATTACHMENT I.
11.	Added guidance for the multi-unit ERO	Part 2 Section B.5.a.3	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	<p>Justification: The Emergency Director position will be responsible for overall onsite emergency response for all three Units. Since the classification of emergencies will be a site level classification and the Emergency Response Organization will include response personnel from each Protected Area (two technologies), overall decision making, evaluation, and mitigation responsibilities will be added to this position. Although the conduct of these responsibilities may be done in the same manner currently trained and demonstrated in drills, the logistics of managing a multi-unit site during an emergency does change the overall management of command and control. The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained at VCS. The guidance added, clearly delineates the structure and reduces the overall potential confusion for going to a multi-unit site. The overall changes to the plan ensures the Emergency Director will have the needed support from other ERO positions with specific Unit/technology knowledge to effectively maintain the overall command and control and fulfill the responsibilities of the onsite decision maker.</p> <p>Evaluation: Since the guidance affects the command and controls structure of the emergency plan, it reduces the effectiveness of the initial response to an emergency and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
12.	Added guidance for Technical Support Supervisors to include	Part 2 Section B.5.a.4	10 CFR 50.47(b)(1)	See justification and evaluation for item 6

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
	personnel from each Protected Area/Technology (multi-unit)		10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	
13.	Added the ERO position for Technical Support Communicator and the location and responsibilities for this position and guidance for the multi-unit ERO	Part 2 Section B.5.a.5	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	<p>Justification: The position of Technical Support Communicator is being added to the ERO to support Engineering communications and transfer of technical information from the TSC where decisions are being evaluated and made to the EOF. The EOF is the facility where technical information of the response must be developed and provided to the public, and to or from the OSC or Control Room, where if needed, technical information can be implemented or gathered and provided to evaluators and decision makers. This position is a dedicated phone talker between facilities.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained at VCS. The guidance added changes the command and control structure for emergencies to ensure proper response by personnel. The addition is needed to clearly delineate the structure and reduce the overall potential confusion for going to a multi-unit site.</p> <p>Evaluation: As an individual change the addition of the Communicator does not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, relocation of Engineering resources to the TSC, relocation of the TSC and the change to a multi-unit emergency response organization; these changes reduce the effectiveness of the emergency plan and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				and 4.5 of the LAR ATTACHMENT I.
14.	Added guidance for Operations Supervisors to include personnel from each Protected Area/Technology (multi-unit)	Part 2 Section B.5.a.6	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	See justification and evaluation for item 6
15.	Deleted the State/County Communicator and its responsibilities from the TSC	Old Part 2 Section B.5.a.8	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(6)	<p>Justification: The responsibilities for offsite notifications are being directly transferred to the EOF from the Control Room as evaluated in item 7. The change in responsibilities removes a need to transfer this function from the Control Room to the TSC and then to the EOF. This provides offsite agencies with a direct line of communications with the emergency facility focused on offsite notifications and responses in a more timely and effective manner.</p> <p>This change removes a need for offsite interface from the TSC. These responsibilities were previously assigned to the TSC due to the EOF responding and activating the facility within about 60 minutes of a Site Area Emergency. The EOF personnel will now respond and activate the facility within 75 minutes of the declaration of an Alert or higher classification. Therefore this activation at an earlier classification allows transfer of offsite notifications directly to the EOF. Additional justification details are in Enclosure B (item 9).</p> <p>Evaluation: As an individual change, the change in responsibilities reduce the effectiveness of the emergency plan. Also, when combined with the changes in activation times and relocation of the TSC; these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				E. See the Technical Evaluation Section 4.3 and 4.4 of the LAR ATTACHMENT I.
16.	Added reference to the Emergency Notification System (ENS) Communicator position to the Control Room	Part 2 Section B.5.a.8	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(6)	<p>Justification: The position of ENS Communicator has been a part of the ERO and filled by designated on-shift personnel. The communicator responds to the Control Room (CR) during an emergency to facilitate questions and responses for the counterpart lines supported by VCS for the NRC. The ENS Communicator in the CR will work directly with the communicator in the TSC, once activated, responding to inquiries by the regulator. The reference is being added to ensure the VCS emergency response maintains first hand contact for indication and plant decision discussions in response to the emergency, due to relocation of the TSC.</p> <p>Evaluation: As individual changes, the addition of an ENS Communicator may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, relocation of Engineering resources to the TSC, and relocation of the TSC; these changes reduce the effectiveness of the emergency plan to ensure the responsibility for emergency response is assigned and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
17.	Added "(Reactor)" and grammatically corrected the title of the Technical Support Staff and added guidance on a multi-unit ERO	Part 2 Section B.5.a.9	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(8)	<p>Justification: These changes are all administrative changes supporting the implementation of the previously listed changes.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained at VCS. The guidance added changes the command and control structure for emergencies to ensure proper response by all personnel. The addition is needed to clearly delineate the structure and reduce the</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>overall potential confusion for going to a multi-unit site.</p> <p>Evaluation: These changes must be implemented based on the changes, justifications, and evaluations previously listed in this document. As individual changes, these may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC and the addition of multi-unit guidance, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.</p>
18.	Transferred the duties of the ERO position for Security Supervisor (OSC) to the TSC and changed the titles to Security Manager and the location and responsibilities for this position	Part 2 Section B.5.a.10	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(8)	<p>Justification: The assignment of the Security Manager to the TSC ensures the proper level of evaluator and decision maker for onsite responses to emergencies at a multi-unit site. Placing this position in the TSC provides the Security oversight for the entire onsite response. This position will also interface directly with the Security Advisor in the EOF and the onsite Security Force to ensure the safety and security of responders to the facilities.</p> <p>This manager will be able to support the TSC through management of Security resources, providing insight to the TSC for Security defensive strategies and actions, and the capability to evaluate the effects of the emergency on the Security Plan and personnel. The Manager will be directly involved with the emergency evaluation needs and will have the capacity to dispatch or relocate Security assets to support the response.</p> <p>The addition of this position will not burden the human factors engineering of the TSC, as this position was factored into the layout and design of the facility.</p>

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				<p>The TSC is being relocated and designed to provide adequate work space for the Security Manager and access to site procedures, drawings, and other documents. The workspace will provide a computer, a telephone, and other assets to support this position.</p> <p>The functions are being reassigned to the Manager, because the Security Manager position is being added to the TSC. The Security Manager will ensure the Security Plan is maintained and will direct the operations of the Security Force. Thus the functions of security command and control are not being removed from the emergency plan, but are being reassigned and placed in the overall onsite emergency decision facility.</p> <p>Evaluation: As an individual change, the transfer of the Security functions to the Security Manager in the TSC may not reduce the effectiveness of the emergency plan. However, when combined together, with the change in activation times and relocation of the TSC and the addition of multi-unit guidance; these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
19.	Added reference to the ERO position for Chemistry Supervisor and the location and responsibilities for this position	Part 2 Section B.5.a.11	10 CFR 50.47(b)(1)	<p>Justification: The change is an administrative change and does not affect the plan or its requirements. No responsibilities were added or removed based on this change. These positions were already listed either in the emergency position descriptions, the tables of ERO positions, or as shift personnel for each Unit.</p> <p>Evaluation: As an individual change, the change may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments,</p>

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				and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.
20.	Added reference to the ERO position for Maintenance Supervisor, the location and responsibilities for this position, and multi-unit guidance	Part 2 Section B.5.a.12	10 CFR 50.47(b)(1)	<p>Justification: The change is an administrative change and does not affect the plan or its requirements. No responsibilities were added or removed based on this change. These positions were already listed either in the emergency position descriptions, the tables of ERO positions, or as shift personnel for each Unit. See also the justification and evaluation for item 6.</p> <p>Evaluation: As individual changes, the changes may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
21.	Added guidance for Operational Support Center Supervisors to include personnel from each Protected Area/Technology (multi-unit)	Part 2 Section B.5.a.13	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	See justification and evaluation for item 6
22.	Added guidance for Operational Support Center Damage Control Teams to	Part 2 Section B.5.a.14	10 CFR 50.47(b)(1)	See justification and evaluation for item 6

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
	include personnel from each Protected Area/Technology (multi-unit)		10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	
23.	Transferred the responsibilities of the Security Supervisor (OSC) to the TSC and changed the title to Security Manager	Old Part 2 Section B.5.a.11	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(8)	<p>Justification: The assignment of the Security Manager to the TSC ensures the proper level of evaluator and decision maker for onsite responses to emergencies at a multi-unit site. Placing this position in the TSC provides the Security oversight for the entire onsite response. This position will also interface directly with the Security Advisor in the EOF and the onsite Security Force to ensure the safety and security of responders to the facilities.</p> <p>This manager will be able to support the TSC through management of Security resources, providing insight to the TSC for Security defensive strategies and actions, and the capability to evaluate the effects of the emergency on the Security Plan and personnel. The Manager will be directly involved with the emergency evaluation needs and will have the capacity to dispatch or relocate Security assets to support the response.</p> <p>The addition of this position will not burden the human factors engineering of the TSC, as this position was factored into the layout and design of the facility.</p> <p>The TSC is being relocated and designed to provide adequate work space for the Security Manager and access to site procedures, drawings, and other documents. The workspace will provide a computer, a telephone, and other assets to support this position.</p> <p>The functions are being reassigned to the Manager, because the Security Manager position is being added to the TSC. The Security</p>

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				<p>Manager will ensure the Security Plan is maintained and will direct the operations of the Security Force. Thus the functions of security command and control are not being removed from the emergency plan, but are being reassigned and placed in the overall onsite emergency decision facility.</p> <p>Evaluation: As an individual change, the transfer of the Security functions to the Security Manager in the TSC may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, relocation of the TSC and addition of multi-unit guidance; these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
24.	Changed activation of the ERO to reflect the full ERO activation at an Alert, Site Area Emergency, or General Emergency (Alert or higher classification) and added the discretion to activate at an Unusual Event	Part 2 Section B.5.b.	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8)	See justification and evaluation for item 4
25.	Changed the responsibility for "preparing" notification forms to "approving"	Part 2 Section B.5.b.2		<p>Justification: The action of preparing is assigned to the Communications Coordinator in the EOF. The OEM is the manager responsible for reviewing and approving the forms before they are sent to offsite agencies. This allows the OEM to have an independent review and approval of the form to help ensure it is accurate.</p> <p>Evaluation: As individual changes, the changes may not reduce the</p>

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				<p>effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.4 of the LAR ATTACHMENT I.</p>
26.	<p>Revised the title and responsibilities of the Plant Engineering Advisor (formerly Technical Support Coordinator)</p>	Part 2 Section B.5.b.3	10 CFR 50.47(b)(1)	<p>Justification: Changing the title of the Plant Engineering Advisor will not affect emergency response. This position will support the EOF as the Engineering point of contact and advisor to the EOF and JIC for actions being evaluated or taken by personnel in the TSC, for offsite notifications, creating press releases, and preparing for press conferences. Removing the responsibility of engineering support for the TSC and adding the responsibility to support VCS State and County Liaisons, will permit the Plant Engineering Advisor to focus on the offsite technical support and response needed for the emergency. The revised responsibilities for this position will provide a better understanding to the offsite understanding of how the emergency and the actions taken may affect public health and safety. This will provide offsite agencies with a more dedicated resource for technical information to support Protective Active Decisions (PAD).</p> <p>Emergency response Engineering functions are being relocated to the TSC, with exception of a Plant Engineering Advisor. Relocating the engineering functions will place needed technical engineering resources, focused on the onsite emergency, in one emergency facility and under one engineering decision maker.</p> <p>The change in Engineering responsibilities within the EOF will allow the EOF to place efforts and emergency evaluations and decision makings on protecting the public health and safety. Support of the</p>

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				<p>onsite requests will no longer be needed. This will allow the EOF to focus its technical expertise on the offsite responses and support. This change will provide the TSC with additional engineering resources to evaluate, plan, and implement mitigation strategies and to evaluate resources needed to support the emergency from offsite vendors or agencies.</p> <p>Adding the additional resources to the responsibilities of the TSC Technical Support Manager does not add additional burden to this position, it removes a third party position that took phone request for onsite needs and directed personnel, previously located in the EOF, to support the needs of the TSC. Relocation of engineering resources will not burden the human factors engineering or capabilities of the TSC. The TSC was designed to support the additional personnel.</p> <p>The TSC is being relocated and designed to provide adequate work space for Engineering resources and access to site procedures, drawings, and other documents. The workspace will provide more computers, telephones, and engineering assets than previously available in the EOF and old TSC.</p> <p>Response times for personnel reassigned from the EOF to the TSC will be affected. Personnel previously assigned to the EOF responded and activated the facility within about 60 minutes of a Site Area Emergency. The reassignment of personnel will be implemented along with the requirement to respond and activate the TSC within 75 at an Alert or higher classification. Therefore this activation is at an earlier classification, providing the ERO with more timely responders and resources.</p> <p>Evaluation: As an individual change, the title change and the change in responsibilities for the Plant Engineering Advisor do not</p>

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				<p>reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, relocation of Engineering resources to the TSC, and relocation of the TSC; these changes reduce the effectiveness of the emergency plan to ensure the responsibility for emergency response is assigned and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.5 of the LAR ATTACHMENT I.</p>
27.	<p>Added the ERO position for Communications Coordinator and the location and responsibilities for this position to the EOF</p>	Part 2 Section B.5.b.6	<p>10 CFR 50.47(b)(1) 10 CFR 50.47(b)(5)</p>	<p>Justification: The position of Communications Coordinator was added to create a single point of contact for completing the Emergency Notification Forms and coordinating the contact of state, local, and federal agencies for information on emergency classifications, protective actions decisions being made, siren activations, offsite response actions, etc. The responsibilities of this position are not new, but are being relocated from other positions to support the changes addressed in item 7 above, in which emergency notifications will be made from the EOF and will no longer be made from the TSC.</p> <p>The Coordinator will maintain a focus on timely and accurate notifications, thus ensuring the offsite agencies have the means to make timely and effective decisions to protect public health and safety. This EOF is sized and configured to support this position.</p> <p>Evaluation: As an individual change, the change in responsibilities may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, reassignment of notification responsibilities, and relocation of the TSC; these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix</p>

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				E. See the Technical Evaluation Section 4.4 of the LAR ATTACHMENT I.
28.	Deleted the General Services Coordinator and its responsibilities from the EOF	Old Part 2 Section B.5.b.8	10 CFR 50.47(b)(1)	<p>Justification: The Coordinator position has been removed from the emergency plan. The Coordinator is a purchasing agent for the company and the role may be filled by VCS purchasing agents located in the EOF or may be filled by any corporate purchasing agent located at other corporate locations. The process of purchasing does not change due to an emergency.</p> <p>On call purchasing personnel will support purchasing needs either at the corporate offices or at the EOF. The details of the duties are being maintained within the emergency plan implementing procedures to ensure the responsibilities are not removed from supporting the ERO.</p> <p>Evaluation: The position is an administrative position and not recommended or required as a minimum staffing position in NUREG 0654 or regulations. However, removal of this position from the Emergency Plan reduces the effectiveness of the plan and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
29.	Revised the title and responsibilities of the Plant Security Advisor (formerly Security Coordinator)	Part 2 Section B.5.b.8	10 CFR 50.47(b)(1)	<p>Justification: The title has been changed to more accurately identify the role and responsibilities as an Advisor to the ERO in the EOF. The Advisor is not a decision maker for onsite actions, but will provide the interface with the Security Manager in the Technical Support Center and provide insight as to what actions are being taken onsite that may require interface with offsite law enforcement agencies. This Advisor will be responsible for monitoring and coordinating Security support at the EOF, in coordination with the</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>security decision maker in the TSC.</p> <p>Evaluation: As an individual change, the change in title may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, reassignment of Security responsibilities, and relocation of the TSC; these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
30.	<p>Added reference to the ERO position for Health Physics Network (HPN) Communicator and the location and responsibilities for this position</p>	Part 2 Section B.5.b.9	<p>10 CFR 50.47(b)(1) 10 CFR 50.47(b)(6)</p>	<p>Justification: The position of the Communicator is a collateral duty for Health Physics personnel but was not identified as a specific ERO position. This change formalizes the position to ensure proper communications are established and maintained during an emergency. The position keeps the Regulator apprised of the radiological conditions of the emergency and the mitigation and monitoring actions being taken for the offsite environs. This position may also communicate with SC Department of Health and Environmental Control (DHEC) personnel to coordinate field team and dose projection transfer of information to the regulator.</p> <p>This position already has a designated work location within the EOF.</p> <p>Evaluation: As an individual change, the formal addition of this position does not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, relocation of Engineering resources to the TSC, and relocation of the TSC; these changes reduce the effectiveness of the emergency plan and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				the LAR ATTACHMENT I.
31.	Added the description of the ERO position for Field Teams and the location and responsibilities for this position to the body of the plan	Part 2 Section B.5.b.10	10 CFR 50.47(b)(1)	<p>Justification: The position of Field Teams has been identified in the Emergency Plan staffing tables but has not had a formal description of responsibilities in the plan. This change better describes these positions as part of the overall emergency response and staffing.</p> <p>Evaluation: As an individual change, the change may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times and a multi-unit ERO, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
32.	Added the description of the ERO position for Plant Operations Advisor and described the location and responsibilities for this position in the plan	Part 2 Section B.5.b.11	10 CFR 50.47(b)(1)	<p>Justification: The position of Plant Operations Advisor has been identified in the Emergency Plan staffing tables but has not had a formal description of responsibilities in the plan. This change better describes the position as part of the overall emergency response and staffing.</p> <p>Evaluation: As an individual change, the change may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times and a multi-unit ERO, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>

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33.	Transferred the responsibilities of the Lead Technical Briefer to the position of Plant Engineering Advisor	Part 2 Section B.5.c.3	10 CFR 50.47(b)(1)	<p>Justification: The Plant Engineering Advisor will assume the duties of reviewing and assisting in the development of press releases and if needed, support media press conferences that were performed by the Lead Technical Briefer. The relocation of the Engineering staff from the EOF to the TSC will remove many of the oversight responsibilities from the Plant Engineering Advisor, thus allowing this position to take on an engineering advisory role in the EOF.</p> <p>Evaluation: The additional responsibilities as a whole may not reduce the effectiveness of the emergency plan. However, when combined together and with the changes in relocating engineering resources and a multi-unit ERO, this change reduces the effectiveness of the emergency plan and require prior approval by the NRC. The change continues to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.5 of the LAR ATTACHMENT I.</p>
34.	Updated the organization chart to reflect changes to ERO positions in the plan	Part 2 Figure B-1b	10 CFR 50.47(b)(1)	<p>Justification: These changes support implementation of other listed emergency plan changes.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained or drilled at VCS. The guidance added, changes the command and control structure for emergencies to ensure proper response by personnel. The addition is needed to clearly delineate the structure and reduce the overall potential confusion for transitioning to a multi-unit site.</p> <p>Evaluation: These changes must be implemented based on the changes, justifications, and evaluations previously listed in this document. As individual changes, these may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the</p>

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				effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.
35.	Updated the organization chart to reflect changes to ERO positions in the plan	Part 2 Figure B-1c	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8)	<p>Justification: These changes support implementation of other listed emergency plan changes.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained or drilled at VCS. The guidance added, changes the command and control structure for emergencies to ensure proper response by personnel. The addition is needed to clearly delineate the structure and reduce the overall potential confusion for transitioning to a multi-unit site.</p> <p>Evaluation: These changes must be implemented based on the changes, justifications, and evaluations previously listed in this document. As individual changes, these may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
36.	Updated the organization chart to reflect changes to ERO positions in the plan	Part 2 Figure B-1d	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6)	<p>Justification: These changes support implementation of other listed emergency plan changes.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained or drilled at VCS. The guidance added, changes the command and control structure for emergencies to ensure proper response by personnel. The</p>

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			10 CFR 50.47(b)(8)	<p>addition is needed to clearly delineate the structure and reduce the overall potential confusion for transitioning to a multi-unit site.</p> <p>Evaluation: These changes must be implemented based on the changes, justifications, and evaluations previously listed in this document. As individual changes, these may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
37.	Updated the table to include changes affecting ERO positions, augmentation times, and responsibilities	Part 2 Table B-1a	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8)	<p>Justification: These changes support implementation of other listed emergency plan changes.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained or drilled at VCS. The guidance added, changes the command and control structure for emergencies to ensure proper response by personnel. The addition is needed to clearly delineate the structure and reduce the overall potential confusion for transitioning to a multi-unit site.</p> <p>Evaluation: These changes must be implemented based on the changes, justifications, and evaluations previously listed in this document. As individual changes, these may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				Evaluation Section 4.3 of the LAR ATTACHMENT I.
38.	Added guidance for a multi-unit ERO	Part 2 Section D.1.a	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	See justification and evaluation for item 6
39.	Changed activation of the ERO to reflect the full ERO activation at an Alert	Part 2 Section D.1.b	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8)	See justification and evaluation on item 4
40.	Changed activation of the ERO to reflect the full ERO activation at a Site Area Emergency	Part 2 Section D.1.c	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8))	See justification and evaluation on item 4
41.	Added guidance on the Units 2 & 3 EALs	Part 2 Section D.2	10 CFR 50.47(b)(4)	Justification: Emergency Action Levels (EAL) are required in accordance with 10 CFR 50.47(b)(4) to ensure the site is adequately evaluating plant conditions to determine if an emergency classification is required. The addition of the Units 2 & 3 EALs ensure these action levels developed in accordance with NEI 07-01, which was endorsed by the NRC, are maintained as a part of the Emergency Plan. The EALs are maintained under a separate

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>controlled document, but required the same evaluations and reviews as an emergency plan change.</p> <p>Evaluation: As individual changes, the changes may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in multi-unit responses, activation times, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
42.	<p>Changed activation of the ERO to reflect the full ERO activation at an Alert, Site Area Emergency, or General Emergency (Alert or higher classification) and removed reference to activating the JIC</p>	Part 2 Section E.2.a	<p>10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8)</p>	<p>See justification and evaluation on item 4</p>
43.	<p>Changed guidance to be more generic to support Units 1, 2, & 3</p>	Part 2 Section F.1 - 4	<p>10 CFR 50.47(b)(6) 10 CFR 50.47(b)(8) 10 CFR 50.57(b)(10)</p>	<p>Justification: This is an administrative change to transfer Unit specific information/guidance from the generic sections of the emergency plan into the annex specific to Units. No unit specific guidance was removed from the plan. The alarms and public address systems are used to provide notification of emergencies and protective actions to site personnel.</p> <p>Evaluation: As individual changes, the changes may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The</p>

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				changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.
44.	Added guidance to support a multi-unit ERO	Part 2 Section H.1 & 1.a	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(10) 10 CFR 50.47(b)(14)	<p>Justification: The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained at VCS. The guidance added, changes the command and control structure for emergencies to ensure proper response by ERO personnel. The addition is needed to clearly delineate the structure to support a multi-unit site.</p> <p>Evaluation: Since the term affects the command and controls structure of the emergency plan, it does reduce the effectiveness of the initial response to an emergency and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
45.	Added guidance and references for the relocation of the TSC into the basement of the Nuclear Operations Building, noted the transfer of the Security Manager to the TSC, updated the accommodations, back-up facilities, and remote facilities, added guidance to support a multi-unit ERO, and added guidance on the back-up and remote OSC and TSC	Part 2 Section H.1.b	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(8)	The evaluation of the TSC is in Enclosure D to this attachment. The evaluation on the transfer of the Security Manager is discussed in item 18 above. The evaluation of the guidance to support a multi-unit ERO is discussed in item 11 above. The back-up OSC is a portion of the designated work space within the new TSC. The additional guidance for the remote TSC and OSC is added to capture emergency facilities to be used in the event the site access is impeded or inaccessible due to an emergency. These changes ensure the plan has guidance for all emergency facilities.

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
46.	Added the OSC guidance to include references to the new Back-up OSC in the new TSC and the Remote OSC in the EOF Building (formerly the Back-up), changed reference to the JIC Building to the EOF Building, added guidance to support a multi-unit ERO, and added guidance on the back-up and remote OSC	Part 2 Section H.1.c	10 CFR 50.47(b)(8)	<p>Justification: The description change is an administrative change based on relocation of the TSC into the new NOB.</p> <p>The Remote OSC and the Remote TSC have been located at the Joint Information Center (JIC) Building since it was incorporated into the emergency plan in 2009 under 10 CFR 50.54(q). The EOF is located in the JIC Building. The description was updated to reflect this.</p> <p>The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained at VCS. The guidance added changes the command and control structure for emergencies to ensure proper response by personnel. The addition is needed to clearly delineate the structure and reduce the overall potential confusion for going to a multi-unit site.</p> <p>Evaluation: As individual changes, the change to include reference to the Back-up OSC in the TSC, the description of the Remote TSC in the JIC Building, and multi-unit guidance may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.1 and 4.2 of the LAR ATTACHMENT I.</p>
47.	Changed the augmentation time of the ERO from 60 minutes to 75 minutes and changed activation of the ERO to reflect the full ERO activation at an Alert, Site	Part 2 Section H.5	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2)	<p>See justification and evaluation for item 4 and Enclosure C (item 9)</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
	Area Emergency, or General Emergency (Alert or higher classification)			
48.	Added guidance that additional supplies may be obtained from other units	Part 2 Section H.10	10 CFR 50.47(b)(8)	<p>Justification: VCS will operate three nuclear units, once construction of Units 2 & 3 are completed. Each Unit will have its own Operational Support Center (OSC) with full staffing to support an emergency within its unit. The use of supplies between units from unaffected units will provide more resources for immediate response.</p> <p>Evaluation: The use of unaffected unit supplies for responses in other affected units, by itself does not reduce the effectiveness of the emergency plan. However, when combined with an emergency at a unit sharing its staff, response times and availability of personnel may be delayed, thus reducing the overall effectiveness of an emergency response to another unit. This is a reduction in effectiveness and requires prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.</p>
49.	Revised provisions for KI in the Control Room	Part 2 Section H.12	10 CFR 50.47(b)(10)	<p>Justification: The TSC will maintain the responsibility to make the decision to offer Potassium Iodide (KI) to onsite personnel. However, with the relocation of the TSC to the new Nuclear Operations Building, the TSC is no longer adjacent to the Control Room and the distribution of KI will be more effective and timely from the OSC.</p> <p>Evaluation: As individual changes, the change to provide KI to the Control Room from the OSC may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in ERO titles, ERO assignments, and relocation of the TSC,</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.
50.	Changed activation of the ERO to reflect the activation of Field Teams at an Alert or higher classification	Part 2 Section I.8	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(9)	The evaluation for the change in activation time is provided in enclosure C of this attachment.
51.	Added the IED and ED with the OEM	Part 2 Section J.4.d	10 CFR 50.47(b)(1)	<p>Justification: These changes are administrative changes supporting and complete the implementation of the previously listed changes.</p> <p>Evaluation: These changes must be implemented based on the changes, justifications, and evaluations previously listed in this document. As individual changes, these may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.</p>
52.	Added guidance for rotation of drills among the Unit specific facilities and personnel	Part 2 Section N.3	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2) 10 CFR 50.47(b)(14)	<p>Justification: The need to rotate drills among all Units and personnel ensures that emergency responders are trained and drilled in simulated conditions to make them more proficient in protecting public health and safety for either Unit/Technology experiencing an emergency. The VCS ERO is a single organization with only the Control Rooms and Operational Support Centers being specifically assigned to each Unit. These facilities may not be</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				<p>directly involved in an emergency condition but may provide support to the affected Unit.</p> <p>Evaluation: As individual changes, the changes may not reduce the effectiveness of the emergency plan. However, when combined with the change in ERO assignments and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.</p>
53.	Removed references to the Technical Support Center	Old Annex 1 Section 4.1.B	10 CFR 50.47(b)(8)	<p>Justification: This is an administrative change supporting changes listed in this revision. The description of the TSC was relocated from the Annex to Part 2 of the plan due to the facility being relocated and becoming an overall emergency response facility for the site and not a unit specific facility. The Annex contains information that is specific to VCS Unit 1.</p> <p>Evaluation: As an individual change, the change in the location of the TSC word description may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.2 of the LAR ATTACHMENT I.</p>
54.	Changed the augmentation time of the ERO from "within about 60 minutes" to "within 75 minutes"	Annex 1 Section 4.1.B	10 CFR 50.47(b)(1) 10 CFR 50.47(b)(2)	See justification and evaluation for item 9

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
55.	Added guidance for an onsite assembly area	Annex 1 Section 5.2	10 CFR 50.47(b)(10)	<p>Justification: The addition of the onsite assembly area will allow VCS a designated location to assemble personnel onsite that are not directly involved in the response to an emergency. This will allow the ERO to provide a briefing and release information to personnel before dismissing them. The location chosen is outside of the Unit 1 Protected Area and outside the proposed Units 2 & 3 Protected Area, thus the designated location will not affect the ability to complete accountability during an emergency. The ERO already has designated assembly/holding area leaders assigned and these personnel will be responsible for managing, briefing, and dismissing non-essential personnel under direction of the Emergency Director in the TSC.</p> <p>Evaluation: As an individual change, the change to include an assembly area may not reduce the effectiveness of the emergency plan. However, when combined together and with the change in activation times, ERO titles, ERO assignments, and relocation of the TSC, these changes reduce the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.6 of the LAR ATTACHMENT I.</p>
56.	Added Unit specific guidance for VCS Units 2 & 3	Annex 2 & 3	10 CFR 50.47(b)(1)	<p>Justification: The logistics of a multi-unit site adds aspects of command and control which were not previously used and trained at VCS. The guidance added changes the command and control structure for emergencies to ensure proper response by personnel. The addition is needed to clearly delineate the structure and reduce the overall potential confusion for going to a multi-unit site.</p> <p>Evaluation: Since the term affects the command and controls structure of the emergency plan, it reduces the effectiveness of the initial response to an emergency and requires prior approval by the</p>

Item	Change Summary	Affected EP-100 Rev 63 Section(s)	Planning Standard/ Function/ Element(s)	Change Justification/Evaluation
				NRC. The changes continue to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. See the Technical Evaluation Section 4.3 of the LAR ATTACHMENT I.

Enclosure B, Emergency Response Organization Position Responsibility Change & Comparison

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
Shift Supervisor	Control Room	<ul style="list-style-type: none"> • Evaluate conditions and declare an emergency • Act in the capacity of the Interim Emergency Director • Manage the emergency and initial emergency responses and actions • Maintain reactor and systems control • Activate ERO • Initiate ERDS • Perform the duties outlined for the ED, OEC, and ECO. • NUREG 0654 Table B-1 Functional Area – Plant Operations and Assessment of Operations Aspects (Room Staff) • NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) • NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 	Shift Supervisor	Control Room	<ul style="list-style-type: none"> • Evaluate conditions and declare an emergency • Act in the capacity of the Interim Emergency Director • Manage the emergency and initial emergency responses and actions • Maintain reactor and systems control • Activate ERO • Initiate ERDS • Perform the duties outlined for the ED, OEC, and ECO. • NUREG 0654 Table B-1 Functional Area – Plant Operations and Assessment of Operations Aspects (Room Staff) • NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) • NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Shift Engineer	Control Room	<ul style="list-style-type: none"> • Technical advisor for core cooling and containment integrity • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Shift Engineer	Control Room	<ul style="list-style-type: none"> • Technical advisor for core cooling and containment integrity • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		<ul style="list-style-type: none"> Perform accident assessments and evaluate operating conditions as the Shift Technical Advisor Diagnose off-normal events 			<ul style="list-style-type: none"> Perform accident assessments and evaluate operating conditions as the Shift Technical Advisor Diagnose off-normal events 	
Control Room Operators	Control Room	<ul style="list-style-type: none"> Operating plant equipment from the Control Room NUREG 0654 Table B-1 Functional Area – Plant Operations and Assessment of Operations Aspects 	Control Room Operators	Control Room	<ul style="list-style-type: none"> Operating plant equipment from the Control Room NUREG 0654 Table B-1 Functional Area – Plant Operations and Assessment of Operations Aspects 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Auxiliary Operators	Control Room	<ul style="list-style-type: none"> Operating plant equipment outside of the Control Room 	Auxiliary Operators	Control Room	<ul style="list-style-type: none"> Operating plant equipment outside of the Control Room 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
State/County Communicator	Control Room/TSC	<ul style="list-style-type: none"> Notification of station personnel, state agencies, county agencies, and the NRC NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 	State/County Communicator	Control Room	<ul style="list-style-type: none"> Notification of station personnel, state agencies, county agencies, and the NRC NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
None	N/A	N/A	ENS Communicator	Control Room	<ul style="list-style-type: none"> Provide updates and respond to inquiries from the NRC 	Added this position to formalize the support of the NRC telephone line.
Emergency Director	TSC	<ul style="list-style-type: none"> Supervises and directs the Onsite ERO Provides for control and operation of the plant, mitigation of the emergency, protection of station personnel, and emergency support Organizes and coordinates onsite efforts Implement in-plant recovery operations Classifying emergencies 	Emergency Director	TSC	<ul style="list-style-type: none"> Supervises and directs the Onsite ERO Provides for control and operation of the plant, mitigation of the emergency, protection of station personnel, and emergency support Organizes and coordinates onsite efforts Implement in-plant recovery operations Classifying emergencies 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures. Additional details of these responsibilities were added to properly identify the position's emergency role. No additional duties have been added.

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		<ul style="list-style-type: none"> • NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) • SAMG decision maker 			<ul style="list-style-type: none"> • NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) • SAMG decision maker 	
Technical Support Supervisor	TSC	<ul style="list-style-type: none"> • SAMG evaluator • Directs the engineering staff in the performance of technical assessments of the emergency and the assistance in recovery • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Technical Support Supervisor	TSC	<ul style="list-style-type: none"> • SAMG evaluator • Directs the engineering staff in the performance of technical assessments of the emergency and the assistance in recovery • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures. Additional details of these responsibilities were added to properly identify the position's emergency role. No additional duties have been added.
None	N/A	N/A	Technical Support Communicator	TSC	<ul style="list-style-type: none"> • Transmits and receives technical information or engineering decisions or request to the EOF, OSC, or JIC • NUREG 0654 Table B-1 Functional Area – Notification and Communications (Plant Status) 	This position has been added to the ERO to ensure engineering resources are available for assessment and evaluation, but not delayed by communicating with other facilities.
None	N/A	N/A	Security Manager	TSC	<ul style="list-style-type: none"> • Manages the Security Force actions and support • Physical Security and access control 	The Supervisor's title was changed and the position was relocated to the TSC. This provides a security decision maker with all other emergency response decision makers.
None	N/A	N/A	Maintenance Supervisor	TSC	<ul style="list-style-type: none"> • Supervises Maintenance personnel • Assist in mitigation evaluations and repairs for mechanical, electrical, and I&C 	The Supervisor position was added to the emergency plan to ensure proper oversight and command and control were in place for maintenance activities.
None	N/A	N/A	Chemistry Supervisor	TSC	<ul style="list-style-type: none"> • Supervises chemistry sampling and analyses • Directs extent and nature of 	The Supervisor position was added to the emergency plan to ensure proper oversight and command and control were in place for

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
					radiological and chemistry actions	chemistry activities
Operations Supervisor	TSC	<ul style="list-style-type: none"> Determines the extent of the emergency and recommends corrective actions Provide technical assistance to the Shift Supervisor NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Operations Supervisor	TSC	<ul style="list-style-type: none"> Determines the extent of the emergency and recommends corrective actions Provide technical assistance to the Shift Supervisor NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Radiological Assessment Supervisor	TSC	<ul style="list-style-type: none"> NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support Of Operational Accident Assessment; HP Supervisor 	Radiological Assessment Supervisor	TSC	<ul style="list-style-type: none"> NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support Of Operational Accident Assessment; HP Supervisor Supervises activities for onsite radiological assessments. 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures. Additional details of these responsibilities were added to properly identify the position's emergency role. No additional duties have been added.
None	N/A	N/A	ENS Communicator	TSC	<ul style="list-style-type: none"> Provide updates and respond to inquiries from the NRC NUREG 0654 Table B-1 Functional Area – Notification and Communications (Plant Status) 	Added this position to formalize the support of the NRC telephone line.
Core Thermal Engineer	TSC	<ul style="list-style-type: none"> Evaluate damage assessment reports Support mitigation recommendations, strategies, and procedure development NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical 	Core Thermal Engineer	TSC	<ul style="list-style-type: none"> Evaluate damage assessment reports Support mitigation recommendations, strategies, and procedure development NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures. Additional details of these responsibilities were added to properly identify the position's emergency role. No additional

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		Support)			Support)	duties have been added.
Electrical Engineer	TSC	<ul style="list-style-type: none"> Evaluate damage assessment reports Support mitigation recommendations, strategies, and procedure development NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Electrical Engineer	TSC	<ul style="list-style-type: none"> Evaluate damage assessment reports Support mitigation recommendations, strategies, and procedure development NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures. Additional details of these responsibilities were added to properly identify the position's emergency role. No additional duties have been added.
Mechanical Engineer	TSC	<ul style="list-style-type: none"> Evaluate damage assessment reports Support mitigation recommendations, strategies, and procedure development NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Mechanical Engineer	TSC	<ul style="list-style-type: none"> Evaluate damage assessment reports Support mitigation recommendations, strategies, and procedure development NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Technical Support) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures. Additional details of these responsibilities were added to properly identify the position's emergency role. No additional duties have been added.
State/County Communicator	TSC	<ul style="list-style-type: none"> Notification of station personnel, state agencies, county agencies, and the NRC NUREG 0654 Table B-1 Functional Area – Notification & Communication; Emergency Communications 	None	N/A	N/A	Communications will no longer be transferred to the TSC. Communications will transfer from the Control Room directly to the EOF.
OSC Supervisor	OSC	<ul style="list-style-type: none"> Manages the activities of the OSC Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and 	OSC Supervisor	OSC	<ul style="list-style-type: none"> Manages the activities of the OSC Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		Corrective Actions (Repair and Corrective Actions)			Corrective Actions (Repair and Corrective Actions)	
Damage Control – Health Physics	OSC	<ul style="list-style-type: none"> • Implements mitigation strategies and procedures • Performs plant radiological evaluations • Post radiological conditions • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Dose Assessment) • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Onsite Radiological Monitoring) • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (In-plant Surveys) • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and Corrective Actions) • NUREG 0654 Table B-1 Functional Area – In-plant Protective Actions (Radiation Protection) 	Damage Control – Health Physics	OSC	<ul style="list-style-type: none"> • Implements mitigation strategies and procedures • Performs plant radiological evaluations • Post radiological conditions • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Dose Assessment) • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Onsite Radiological Monitoring) • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (In-plant Surveys) • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and Corrective Actions) • NUREG 0654 Table B-1 Functional Area – In-plant Protective Actions (Radiation Protection) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Damage Control – Mechanical	OSC	<ul style="list-style-type: none"> • Implements mitigation strategies and procedures • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and 	Damage Control – Mechanical	OSC	<ul style="list-style-type: none"> • Implements mitigation strategies and procedures • NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		Corrective Actions)			Corrective Actions)	
Damage Control – Electrical	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and Corrective Actions) 	Damage Control – Electrical	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and Corrective Actions) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Damage Control – I&C	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and Corrective Actions) 	Damage Control – I&C	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Plant System Engineering, Repair, and Corrective Actions (Repair and Corrective Actions) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Damage Control – Chemistry	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Chemistry) 	Damage Control – Chemistry	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Chemistry) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Damage Control – Operations	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures 	Damage Control – Operations	OSC	<ul style="list-style-type: none"> Implements mitigation strategies and procedures 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Security Supervisor	OSC	<ul style="list-style-type: none"> Physical security of the plant Access control of the plant protected area and vital areas 	Security Manager	TSC	<ul style="list-style-type: none"> Physical security of the plant Access control of the plant protected area and vital areas 	Overall control of the Security Force was transferred to the Security Manager in the TSC. See the Security Manager position for more details.
Plant Radiological Monitoring Director	OSC	<ul style="list-style-type: none"> Manage OSC radiological response and monitoring NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (HP Supervisory) 	Health Physics Specialist	OSC	<ul style="list-style-type: none"> Manage OSC radiological response and monitoring NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (HP Supervisory) 	The title was changed, but duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures. This position is a shift position or may

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
						be filled by qualified personnel from the augmented ERO.
Emergency Control Officer	EOF	<ul style="list-style-type: none"> Overall command and control Company Spokesperson Approve press releases Update and inform offsite agencies Manage requests for assistance from offsite organizations/vendors NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) 	Emergency Control Officer	EOF	<ul style="list-style-type: none"> Overall command and control Company Spokesperson Approve press releases Update and inform offsite agencies Manage requests for assistance from offsite organizations/vendors NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Offsite Emergency Coordinator	EOF	<ul style="list-style-type: none"> Direct and coordinate activation and response of the EOF PAR assessment, determination, and notification Preparing state and county notification forms Communicate with offsite agencies on emergency updates NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 	Offsite Emergency Manager	EOF	<ul style="list-style-type: none"> Direct and coordinate activation and response of the EOF PAR assessment, determination, and notification Preparing state and county notification forms Communicate with offsite agencies on emergency updates NUREG 0654 Table B-1 Functional Area – Emergency Direction and Control (Command and Control) NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 	The title was changed, but duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Technical Support Coordinator	EOF	<ul style="list-style-type: none"> Provides technical information and engineering support regarding the emergency to the EOF staff NUREG 0654 Table B-1 	Plant Engineering Advisor	EOF	<ul style="list-style-type: none"> Provides technical support and communications for the EOF and technical support for press release development and State and County Liaisons 	The Title has changed and responsibilities changed to Plant Engineering Advisor, who will no longer manage Engineering or support personnel in the EOF. The

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		Functional Area – Notification and Communication (Plant Status)			<ul style="list-style-type: none"> • NUREG 0654 Table B-1 Functional Area – Notification and Communications (Plant Status) 	Advisor will provide engineering assistance to the EOF decision makers and offsite agencies. These responsibilities will be relocated to the TSC.
Offsite Radiological Monitoring Coordinator	EOF	<ul style="list-style-type: none"> • Directs radiological assessment for offsite environs • Directs radiological dose projections • Recommends PARs • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Dose Assessment) 	Offsite Radiological Monitoring Coordinator	EOF	<ul style="list-style-type: none"> • Directs radiological assessment for offsite environs • Directs radiological dose projections • Recommends PARs • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Dose Assessment) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Dose Assessor	EOF	<ul style="list-style-type: none"> • Develops radiological dose assessments • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Dose Assessment) 	Dose Assessor	EOF	<ul style="list-style-type: none"> • Develops radiological dose assessments • NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Dose Assessment) 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
None	n/a	n/a	Communications Coordinator	EOF	<ul style="list-style-type: none"> • Creates ENFs • Ensures notifications of the emergency are made to offsite agencies by S/C Communicators • Provides updates for offsite responses to the ECO and OEC 	New position to coordinate all offsite emergency notifications.
State/County Communicators	EOF	<ul style="list-style-type: none"> • Make and receive phone calls to and from offsite emergency agencies • Support activation of the ANS • Monitor offsite agency actions 	State/County Communicators	EOF	<ul style="list-style-type: none"> • Make and receive phone calls to and from offsite emergency agencies • Support activation of the ANS • Monitor offsite agency actions 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		<ul style="list-style-type: none"> NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 			<ul style="list-style-type: none"> NUREG 0654 Table B-1 Functional Area – Notification and Communications (Emergency Communications) 	
Security Coordinator	EOF	<ul style="list-style-type: none"> Maintaining EOF security Interact with local law enforcement officials Badging and screening activities 	Plant Security Advisor	EOF	<ul style="list-style-type: none"> Maintaining EOF security Interact with local law enforcement officials Badging and screening activities 	The title was changed, but duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
None	n/a	n/a	HPN Communicator	EOF	<ul style="list-style-type: none"> Provide updates and respond to inquiries from the NRC NUREG 0654 Table B-1 Functional Area – Notification and Communications (Plant Status) 	Added this position to formalize the support of the NRC telephone line.
Field Teams	EOF	<ul style="list-style-type: none"> Survey and sample radiological conditions within the EPZ NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Radiological Monitoring) 	Field Teams	EOF	<ul style="list-style-type: none"> Survey and sample radiological conditions within the EPZ NUREG 0654 Table B-1 Functional Area – Radiological Assessment and Support of Operational Accident Assessment (Offsite Radiological Monitoring) 	The positions of Field Teams have always been identified in the Emergency Plan staffing tables but has not had a formal description of responsibilities. This change formalizes these as part of the overall emergency response and staffing.
General Services Coordinator	EOF	<ul style="list-style-type: none"> Procurement and receipt of items Support services such as typing and reproduction services, supplies, personnel accommodations, temporary offsite facilities, communications, and meals 	None	N/A	N/A	Removed from the Emergency Plan, but the function is being maintained in the implementing procedures.
Company Spokesperson (ECO)	JIC	<ul style="list-style-type: none"> Manages the development, review, and approval of media related messages Directs the public information emergency 	Company Spokesperson	JIC	<ul style="list-style-type: none"> Manages the development, review, and approval of media related messages Directs the public information emergency 	The title was changed to allow designated manager within SCANA or SCE&G to act in behalf of the company.

Rev 63 ERO Position Titles ¹	Rev 63 Facility	Rev 63 Responsibilities	Submittal ERO Position Titles ¹	Submittal Facility	Submittal Responsibilities	Comments
		response personnel			response personnel	
JIC Coordinator	JIC	<ul style="list-style-type: none"> Manages the operability of the JIC 	JIC Coordinator	JIC	<ul style="list-style-type: none"> Manages the operability of the JIC 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Media Coordinator	JIC	<ul style="list-style-type: none"> Interfaces and monitors the media while the JIC is operational 	Media Coordinator	JIC	<ul style="list-style-type: none"> Interfaces and monitors the media while the JIC is operational 	Duties and responsibilities do not change. The wording of these duties may differ from previous revisions, but are maintained in the plan and implementing procedures.
Lead Technical Briefer	JIC	<ul style="list-style-type: none"> Assists in the technical development of media messages 	None	N/A	N/A	This responsibility is being reassigned to the Technical Support Advisor in the EOF.

Required Staffing Summary Tables (VCS Unit 1 ONLY)

SER Revision 5			
Position	On-shift	30 Min	60 Min
Shift Supervisor (SRO)	1		
Shift Foreman (SRO)	1		
Control Room Operators	2		
Auxiliary Operators	2		
Communicator	1	1	2
General Manager Nuclear Operations			1
Health Physics & Environmental Coordinator		1	
HP Specialist	1, 1(**)	3	4
HP Specialist - offsite surveys		2(*)	2
Chemistry		1(*)	1
Shift Technical Advisor	1		
Core Thermal Engineer		1	
Electrical Engineer			1
Mechanical Engineer			1
Mechanical Maintenance	1		1
Electrical Maintenance	1**		2
I&C Technician	1	1(*)	1

* - For each unaffected nuclear unit in operation, maintain at least one shift foreman, one control room operator and one auxiliary operator except that units sharing a control room may share a shift foreman if all functions are covered

** - Performed by shift personnel indicated under In-plant surveys

Current - Rev 63					Proposed		
Position	On-shift	30 Min	60 Min of Alert, SAE, or GE (TSC & OSC)	60 Min of SAE or GE (EOF)	Position	On-shift	75 Min of Alert, SAE, or GE (TSC, OSC, & EOF)
Shift Supervisor/Interim Emergency Director	1				Shift Supervisor/Interim Emergency Director	1	
Control Room Supervisor	1				Control Room Supervisor	1	
Reactor Operators	2				Reactor Operators	2	
Auxiliary Operators	5				Auxiliary Operators	5	
Emergency Director			1		Emergency Director		1
Offsite Emergency Coordinator				1	Offsite Emergency Manager		1
State/County Communicator (CR, TSC, EOF)	1	1		1	State/County Communicator (CR, EOF)	1	1
ENS Communicator (CR/TSC)			1		ENS Communicator (CR, TSC)		1
HP Specialist	1	5	5		HP Specialist	1	10
Offsite Radiological Mon. Coord.				1	Offsite Radiological Mon. Coord.		1
Dose Assessor/HP Specialist	1			1	Dose Assessor/HP Specialist	1	1
Field Teams (Driver & HP)		1(h)		1	Field Teams (Driver & HP)		2
Chemistry	1		1		Chemistry	1	1
Plant Radiological Monitoring Dir.			1		HP Specialist		1
Radiological Assessment Supervisor			1		Radiological Assessment Supervisor		1
Shift Engineer	1				Shift Engineer	1	
Operations Supervisor			1		Operations Supervisor		1
Technical Support Supervisor			1		Technical Support Supervisor		1
Core Thermal Engineer		1(e)	1		Core Thermal Engineer	(Shift Eng.)	1
Electrical Engineer			1		Electrical Engineer		1
Mechanical Engineer			1		Mechanical Engineer		1
Mechanical Maint.	2		1		Mechanical Maint.	2	1
Electrical Maint.	1	1	1		Electrical Maint.	2	1
I&C Maint.	1	1(h)	1		I&C Maint.	2	1
OSC Supervisor			1		OSC Supervisor		1
N/A	N/A	N/A	N/A	N/A	Technical Support Communicator		1
N/A	N/A	N/A	N/A	N/A	Emergency Support Operator		1
N/A	N/A	N/A	N/A	N/A	Maintenance Supervisor		1
N/A	N/A	N/A	N/A	N/A	Chemistry Supervisor		1

Current - Rev 63					Proposed		
Position	On-shift	30 Min	60 Min of Alert, SAE, or GE (TSC & OSC)	60 Min of SAE or GE (EOF)	Position	On-shift	75 Min of Alert, SAE, or GE (TSC, OSC, & EOF)
Damage Control - Op	(Aux Ops)				Damage Control - Op	(Aux Ops)	
Security Supervisor			1 (OSC)		Security Manager		1 (TSC)
Emergency Control Officer				1	Emergency Control Officer		1
Technical Support Coordinator				1	Plant Engineering Advisor		1
N/A	N/A	N/A	N/A	N/A	Plant Operations Advisor		1
N/A	N/A	N/A	N/A	N/A	Communications Coordinator		1
Security Coordinator				1	Plant Security Advisor		1
Security Force	Per Security Plan				Security Force	Per Security Plan	
N/A	N/A	N/A	N/A	N/A	HPN Communicator		1
General Services Coord.				1	N/A	N/A	N/A
Company Spokesperson				1 (*when activated)	Company Spokesperson		1*
JIC Coordinator				1*	JIC Coordinator		1*
Media Coordinator				1*	Media Coordinator		1*
Lead Technical Briefer				1*	N/A	N/A	N/A

e- May be provided by shift personnel assigned other functions

h- Actual response time is 40 mins

Enclosure C, Activation Time Change Justification/Evaluation

Justification: NUREG-0654 Part II Section A states that "Each principal organization shall be capable of continuous (24-hr) operations for a protracted period..."; Section B states that "each licensee shall identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function." and "...The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency...". It further defines that short period as 30 and 60 minutes.

VCS Unit 1 has conducted an On-shift Staffing Analysis to demonstrate and confirm all emergency functions will and can be assigned and maintained by on-shift personnel, until augmented by the ERO. The Staffing Analysis evaluated personnel and response for the first 90 minutes of an emergency, with exception of 30 (40) minute responding positions. VCS has adequately staffed its on-shift personnel to support the Control Room personnel upon declaration of an Alert or higher classification. This staffing will fulfill the NUREG-0654 Criterion II.B.5 for most 30-minute responders and provides additional support to the on-shift ERO. Additional support is provided to the on-shift ERO within a 75 minute response time with on-call ERO personnel. The time frames for rapid augmentation of a nuclear power plant staff in the event of an emergency are not regulatory requirements but rather commitments to times set by VCS. VCS will expend its best efforts to meet the augmentation criteria times regarding staffing Emergency Response Facilities with sufficiently skilled individuals capable of handling an emergency. Due to diversity of normal residential patterns for the stations' staff, possible adverse weather conditions, and road congestion, these time frames might be exceeded. All functions of the EOF, TSC, and OSC will be maintained as described with enhancements and continues to meet the requirement of NUREG-0654, 10 CFR 50.47(b), and 10 CFR 50 Appendix E. Due to advances in technologies such as computers, direct telephone links, plant data display systems, etc. and the augmentation of the emergency facilities at an Alert or higher classification, these enhancements will allow timelier responses to emergencies and the ability to protect public health and safety.

The change in activation times and at what classification the facilities will be activated support a timely response of personnel. This will allow the EOF to activate in a timelier manner to remove critical functions from the Control Room and to establish the overall emergency response leadership and support team along with activation of the TSC and OSC. The change in activation time will allow the TSC to activate with its enhanced staffing and in its new location to remove critical functions from the Control Room and to establish the overall emergency response leadership and support team along with activation of the EOF and OSC.

In addition to the proposed response time changes from 60 to 75 minutes, VCS is proposing a change to the 30 minute response time for several ERO Health Physics Specialists and Field Monitoring Team positions to a 75 minute response time. As referenced in Part 2 Section A.4, *Continuous Coverage*, VCS will rely on shift personnel from the unaffected Unit(s) to be available to support the coverage required for these positions, until such time the augmented ERO can respond to take these duties. Part 2, Section H.5, *Activation*, states the ERO augmentation process identified individuals who are capable of fulfilling the specific response function that are listed in Table B-1a. This table was developed based on functions that are listed in Table B-1 of NUREG-0654/FEMA-REP-1. VCS will use unaffected unit on-shift personnel to augment the affected unit on-shift personnel upon declaration of an Alert or higher classification. The staffing augmentation will fulfill the NUREG-0654/FEMA-REP-1, Criterion II.B.5 for 30-minute responders and provides additional support to the on-shift ERO to permit a 75-minute response for on-call ERO personnel. Although the response time will vary due to factors such as weather and traffic conditions, a time of 75 minutes for activation staffing, following the notification of an Alert or higher emergency classification, has been established for the ERO personnel responding to the station emergency facilities and the EOF ERO personnel.

VCS Units 1, 2, and 3 are physically located on the same property site. Each plant has designated minimum staffing, including Operations, Health Physics, Chemistry, Mechanical Maintenance, Electrical Maintenance, and I&C Maintenance personnel. The personnel from these disciplines on the unaffected unit(s) will be used to augment the affected unit(s) staffing to perform actions they are trained and

qualified to perform, such as radiological accident assessment, repair and corrective actions, search and rescue, chemistry/radiochemistry, etc. This staffing augmentation will fulfill the NUREG-0654 Criterion II.B.5 for 30-minute responders and provides additional support to the on-shift ERO to permit a 75-minute response for on-call ERO personnel. The time frames for rapid augmentation of nuclear power plant staff in the event of an emergency are not rigid regulatory requirements but rather administrative times set by VCSNS. It is VCS's intent to expend its best efforts to meet the augmentation criteria regarding staffing Emergency Response Facilities with sufficiently skilled individuals capable of handling an emergency. While Unit 3 is under construction, Units 1 and 2 will maintain the capability to augment affected unit shift personnel.

As VCS and the area around it continue to grow, increases in residential and transient populations at or immediately adjacent to the site and within its EPZ have resulted in travel times increasing. Any increase in travel times without the corresponding relaxation in facility activation time increases the perceived pressure to achieve timeliness, with a potential for reduction in driving safety for individuals responding to an emergency.

The change in response times also aligns the VCS Unit 1 emergency plan with the Units 2 & 3 COL emergency plan.

Evaluation: The augmentation time of the ERO reduces the effectiveness of the emergency plan and require prior approval by the NRC. The changes continue to meet the requirements of 10 CFR 50.47 (b) and 10 CFR 50 Appendix E, see the Technical Evaluation Section 4.1 of the LAR ATTACHMENT I.

Enclosure D, Technical Support Center Relocation Justification/Evaluation

Justification: Function: Changes to the Emergency Response Organization are being proposed to align functions with facilities. The Technical Support Center (TSC) will be aligned to be the overall responsible facility for onsite evaluations and mitigation strategy development and implementation. Changes to the staffing of the TSC includes: position title changes, position reporting alignment, and position and facility responsibility changes. The ERO positions title changes and responsibility changes are detailed in Enclosure B, E-plan ERO Position Responsibility Change & Comparison, of this evaluation.

The proposed TSC organization will continue to report to the Emergency Director. The function of the TSC will remain intact with exception of its state and county emergency communications staff. This function will be removed from the TSC and transferred directly from the Control Room to the EOF. Personnel affected by this change will be reassigned other positions within the ERO. This removes the offsite interface function and allows the TSC to focus on onsite responses. The TSC will also be reorganized to include engineering functions supporting evaluation and mitigation of the emergency at VCS. A portion of the current EOF engineering staff used to support the TSC staff will be relocated into the TSC creating one engineering organization focused on onsite evaluations and mitigation. This organization will report to one Technical Support Supervisor.

The new TSC facility is designed to meet the intent and requirements of NUREG-0696 "Functional Criteria for Emergency Response Facilities" and NUREG-0737 "Clarification of TMI [Three Mile Island] Action Plan Requirements". This location departs from the guidance in NUREG-0696 in three areas:

1) that the TSC be located near the Control Room, 2) that the walking time from the TSC to the Control Room not exceed 2 minutes, and 3) that there be no major security barriers between the TSC and the Control Room. However, with vastly improved electronic communication capabilities and technologies, face to face interactions between TSC and Control Room personnel are no longer necessary to meet the intent of NUREG-0696 guidance. VCS drills are currently conducted in a manner that does not afford the face to face interactions, due to the Simulator being in the training building, outside the Protected Area. Therefore, relocation of the TSC to the new NOB will not prevent VCS from meeting the intent of the guidance in NUREG-0696.

When activated, the TSC functions include:

- Support for the affected Control Room's emergency response efforts
- Continued evaluation of event classification
- Assessment of the plant status and potential offsite impact
- Coordination of emergency response actions within the Protected Area (PA)
- Communication with the NRC via ENS
- Activation of the Emergency Response Data System (ERDS) or ensuring that it is activated

Location: VC Summer (VCS) has constructed a new Nuclear Operations Building (NOB) and within its basement is a proposed new Technical Support Center (TSC). The NOB and proposed TSC will be located outside of and southwest of the Unit 1 Protected Area and north of the Units 2 & 3 Protected Area. This location is approximately 1900 ft. from the Unit 1 Control Room located within the Protected Area. The separation of the TSC from the Control Room will be approximately 9 to 13 minutes (under normal walking conditions and with normal plant populations) and includes processing time through Owner Controlled Area and Protected Area Security Control Points.

The VCS Emergency Plan describes extensive communications capabilities between the TSC and the respective unit control rooms, OSCs, EOF, and offsite EROs. These communications capabilities provide a variety of methods to ensure reliable communications and compensate for the TSC being located outside of the Protected Area. NUREG-0800 includes a statement that advanced communication capabilities may be used to satisfy the 2-minute travel time. In addition, having a common TSC that

supports multiple reactor units and is located a moderate distance (i.e., more than 2 minutes) from the Control Room presents distinct advantages. These include the increased efficiency of a centralized point of support for the entire site, the elimination of confusion regarding which TSC on a multiple-unit site would be staffed in an emergency, not having to staff multiple TSCs if an incident involved more than one unit, and consideration of security-related events.

During a radiological emergency requiring an emergency declaration, Security procedures and actions will not inhibit access through the Owner Controlled or Protected Area hardware and access systems. Thus during travel, these systems have a negligible impact on access to the Control Room or other portions of the plant. In the event of a hostile action, plant procedures provide guidance for the Emergency Response Organization (ERO) to activate utilizing alternate facilities, outside of potential hostile action areas, and provide procedure guidance for moving personnel under protective measures.

Management interaction and technical information exchange will be done using plant computer and communications (telephone, radio, etc.) systems that provide means to directly contact the Control Room and significantly minimizes the need to physically relocate a member of the TSC into the Control Room. The capabilities to review and evaluate technical data, such as plant parameter display information, procedural information, or plant drawings, are provided in the TSC from real-time systems which receive their inputs from the same sources as the Control Room, but communicate them on a different network. Relocation of the TSC will not change this configuration from its current set-up. The use of technology to access and evaluate these parameters significantly reduces the need for face-to-face interactions, as expected in NUREG-0696.

In the event that TSC personnel are to travel to the Control Room during a radiological release or if a release is imminent, the TSC has storage capabilities for maintaining protective clothing and survey instruments that will be needed to ensure dose received during travel is ALARA. The location of the TSC also affords the opportunity to use multiple routes to reach the Control Room and will be selected to minimize exposure to a potential plume or release path.

Staffing and Training: The TSC will be designed to support an emergency for VCS Unit 1 and in the future Units 2 and 3 or any combination thereof. Fully staffed with required personnel, the TSC will host thirty-two ERO positions, including three NRC Residents. The new facility will strengthen the ERO by creating a centralized onsite command and control organization and a single evaluation and mitigation decision structure for the entire site. This organization will have access to and can evaluate emergency conditions for Unit 1, Unit 2, or Unit 3 using plant computer systems to provide operational parameters and meteorological data. The centralized organization structure can maintain communications with the Control Room(s), the Operational Support Center(s), and the Emergency Operations Facility. This change will also strengthen the TSC command and control function by allowing the TSC Emergency Response Organization (ERO) a larger, better designed working area.

The Nuclear Operations Building upper floors house Engineering, Site Management, and other plant organizations and personnel assigned to the ERO to augment Shift Staffing in an emergency. This is expected to facilitate the activation of the TSC, thus improving the timeliness of taking critical tasks from the Control Room staff and having the staff in place to initiate evaluations and mitigation development. This location also provides for improved off-hours staffing capabilities since responders will not have to process through Owner Controlled or Protected Area Security access locations to reach the TSC. The relocation of the TSC will make activation timelier and improve the capability for transfer of critical tasks from the Control Room. The relocation of the TSC allows activation of and access to the TSC during a security event more practical and timely by not relocating personnel into an area where the hostile action may be directed. The TSC being located in the basement provides structural security and access to the facility is controlled by security measures.

Overall the staffing of the TSC will change from its current roles and responsibilities. The staffing of the TSC will be changed to include most ERO engineering functions and to remove offsite communication responsibilities. The engineering staff currently reporting to the EOF will be relocated to provide direct

support to the Reactor, Mechanical, and Electrical disciplines. The offsite communications will be transferred directly from the control room to the EOF and no longer be a responsibility of the TSC.

ERO Training will be maintained as it is currently required by the emergency plan and implementing procedures. Currently the training provided during participation in emergency drills is conducted with the TSC in the Unit 1 Control Building (adjacent to the actual Control Room) and the Control Room Simulator located in the Nuclear Learning Center. Personnel training specific to their task will be modified to incorporate changes based on the relocation of the TSC and the new work station arrangements and changed responsibilities.

Size: The TSC work space will increase from the current Unit 1 TSC space of approximately 2,500 sq ft to approximately 14,300 total sq ft, supporting all three units. The command area and adjacent work areas total approximately 7,000 sq ft of working space. This provides more than adequate spacing, versus the 75 sq ft/person required in NUREG-0696. The TSC will be designed around a central command center with partitioned work spaces on its perimeter for designated support groups. Each work space has full viewing of the command area through glass store front partition walls. The facility (basement) also includes restrooms with shower facilities, a break room (refrigeration, ice and beverage, and serving areas), storage areas, and communications/network, A/V, copier/printer, electrical, and mechanical rooms supporting only the TSC area. A designated boundary has been established to help ensure the TSC portions of the basement are protected within the HVAC/Recirculation-Filtration envelop.

The new facility will provide more and larger individual work spaces and designated areas for work disciplines and conferences as compared to the existing TSC. The command area will increase from nine work stations to twenty-two work stations. The engineering area will expand from two shared work spaces to eleven work stations. The facility will also include two separate work areas that will support three work stations, each. The TSC will also include a designated NRC support area which expands from one work space to five and a conference area, both directly adjacent to the command area and separated by a glass partition wall. The TSC will include a back-up Operational Support Center (OSC), if needed, in an adjacent work area with twelve work stations and a large command style table in the center. This area is separated from the command area by glass partition walls. If not needed for an OSC; it can be utilized by the TSC staff in the response to an emergency.

With larger work areas, more technology (computers and telephones) will be available to the TSC personnel to perform their duties. Telephone and computer availability will be increased to allow more capability of information management and evaluation. The new TSC will allow the personnel to access plant data, drawings, procedures, and other computer applications more timely and effectively from each work station. Technology in the new TSC will also include multiple overhead projection systems, large screen displays, teleconferencing, real time system monitoring through plant computer networks, and radio, Public Branch Exchange, and satellite phone communications.

Structure: The TSC will be located in the basement of the Nuclear Operations Building, below two upper structural floors which are designed and constructed to the 2006 International Building Code. Access to the TSC will be controlled through two direct points of ingress/egress, on the north and south ends of the basement (central and south portions of the NOB, respectively). These points do not open directly to the exterior of the building, but are accessed through stairways or elevators from the upper floors. Control of personnel entering will be done using access card readers connected to site security access control computers. The NOB is located within the Exclusion Area of the site which is patrolled and controlled by onsite security forces.

The basement of the NOB, where the TSC will be housed, is constructed of 10-12 inch thick concrete retaining walls and is submerged 16' below finished exterior grade. The floor structure of the NOB above forms a cap above the space. This cap is constructed of a composite beam and concrete slab construction. The TSC as well as the NOB structure above are fully sprinklered and constructed with non-combustible construction. The superstructure of the facility is designed for IBC site class D, design category C, Business occupancy category II. The basement ceiling systems, mechanical ductwork, plumbing piping, sprinkler piping, and electrical systems are seismically braced throughout the TSC.

Habitability: The TSC is designed to meet the protected envelope functional requirements for habitability and ventilation similar to the Control Room as identified in NUREG-0696 and Section II.B.2 of NUREG-0737. The HVAC system is designed with High Efficiency Particulate Air filters and charcoal filters with a mixed air capability from both inside the facility and exterior. The system when placed in emergency mode, via a designated button in the TSC command area, closes specified motorized dampers, disables EF-1 (rest rooms exhaust fan), and energizes FFU-1 (filtered HVAC). Once this takes place the TSC pressurizes to a minimum of 0.125 inwc. An alarm panel is located within the command area of the TSC that will alert personnel of a change in pressurization which causes the positive pressure to fall below 0.125 in.

The HVAC design includes the following:

The mechanical ventilation for the TSC area is currently designed to provide 4000 cfm of outside air prior to isolation and during isolation to achieve a 0.125" positive pressure. A total of 4000 cfm will be filtered with charcoal and HEPA filtration during isolation. 3200 cfm of the 4000 cfm will be outside air and the remaining 800 cfm of the 4000 cfm filtered air will be recirculated from the TSC area.

During the normal mode of operation, the system will provide conditioned airflow to the terminal boxes serving the spaces. As the space temperatures are satisfied, the dampers on the boxes will start to close therefore causing the supply fan on AHU-0-1 to slow down. The speed of the supply fan (on AHU-0-1) will vary depending on the building load. The return air damper shall modulate to maintain a positive pressure differential between the TSC boundary area and the outdoors. A pressure monitor is located in the TSC to provide positive pressure verification.

The TSC area will enter into emergency mode upon activation from a push button located in the TSC due to a radiological release or imminent release. When the system is in emergency mode, the dampers in the 26 x 16 outside air duct will close and the damper in the 18 x 18 outside air duct and 14" return will open. These two ducts (18 x 18 and 14" diameter) feed into the back of FFU-1. FFU-1 will energize and provide 4000 cfm of filtered fresh air into the back of AHU-0-1. The sequence of AHU-0-1 will be the same as if the unit were in normal mode of operation. The return damper in the TSC will modulate to maintain a positive pressure differential between the TSC boundary area and the outdoors. FFU-1 has MERV 8 pre-filters, MERV 15 charcoal filters, and MERV 16 final filters.

1. TSC ventilation air inlet and recirculation flow rates - The system design provides 3200 cfm of outside air make-up (unfiltered) to the TSC prior to isolation, after isolation 3200 cfm (filtered). An additional 800 cfm of air is recirculated through the charcoal cleanup unit.
2. HEPA filter and charcoal absorber fission product removal efficiencies - The system provides 99% removal efficiency for particulates and 90% decontamination efficiency for radioiodine.
3. TSC unfiltered air in-leakage rate - The in-leakage assumed for the TSC dose calculation is 500 cfm of unfiltered air after isolation.
4. Atmospheric dispersion factors (X/Q values) at TSC air intake - The X/Q values at the TSC air intake are as follows, with the release assumed at ground level from the location of the plant vent. These values which bound the containment shell ground level release are calculated using ARCON96 based on two years of meteorological data:

0-2 hr	2.33E-05 sec/m3
2 - 8 hr	1.84E-05 sec/m3
8 - 24 hr	7.65E-06 sec/m3
24 - 96 hr	6.00E-06 sec/m3
96 -720 hr	4.58E-06 sec/m3
5. TSC occupancy factors - The standard Control Room occupancy factors from Section 4.2.6 of Regulatory Guide 1.183, July 2000, are assumed for the TSC:

0-24 hr	1.0 (100%)
24 - 96 hr	0.6 (60%)

96 - 720 hr 0.4 (40%)

6. TSC free air volume - The TSC design is approximately 72' by 130', with an additional 14' by 40' area provided as a potential eating area. The floor area does not include those vestibule areas that function as air locks between stairways and the TSC, but do include areas that contain the ventilation system fans and filter plenums. The floor to ceiling height is 14.5'. These dimensions provide a volume of 143,840 ft³ for the dose evaluation of the facility. The TSC free air volume will be no greater than 143,840 ft³.
7. Occupant breathing rate - The breathing rate of 3.5E-4 m³/sec for the TSC occupant is assumed for the duration of the accident. This rate is consistent with that for the control room operator in Section 4.2.6 of Regulatory Guide 1.183, July 2000.
8. Description of the ventilation design - The ventilation design for the TSC is modeled after Figure 1 of Regulatory Guide 1.52, Revision 3, June 2001, with minor deviations. Neither the moisture separators nor the heater are expected to be required in the charcoal unit. The ventilation equipment will be located within the TSC ventilation envelop, within a mechanical room.

During normal operation the system functions as a normal ventilation system providing temperature control, filtration, and some amount of outside air make-up. During emergency recirculation conditions a charcoal absorber unit is placed in service. This unit is intended to provide filtration of part of the air being recirculated in the TSC as well as the outside air make-up for the TSC. During the emergency recirculation mode of operation the system maintains a 1/8" wc positive pressure in the TSC relative to outside, by admitting 3000 cfm of outside air. This flow of 3000 cfm provides enough ventilation (filtered fresh air) for at least 100 people. The charcoal absorber unit filters an additional 800 cfm of air that is recirculated from the TSC. There is also an unfiltered recirculation rate of 15,000 cfm, but this has no bearing on the radiological analysis.

The HVAC system is not designed as Seismic Category I and is not provided with redundant fans, filters, or power supplies, as allowed by the NUREG-0696 requirements for the TSC. Each TSC entrance is provided with a weather sealed doorway between stairways and the TSC.

Exposure to direct radiation from a radiological release is negligible due to the TSC being located in the basement and beneath the two upper floors of the NOB. Based on current Unit 1 TSC dose calculations and taking the conservative approach that the new TSC will be further away from the plant and in the basement of the Nuclear Operations Building, the expected dose rates and TEDE accumulated dose is expected to be less than 5 Rem.

Radiological monitoring will be provided using a portable Beta Continuous Air Monitor (CAM). The monitor will be mounted on a portable cart and rolled into the hallway immediately adjacent to the TSC Command Area and within the HVAC envelop. The monitor will meet the follow specifications:

Operating System	Microprocessor-based central readout device, mated to a detection head with real time gamma background subtraction using two detectors
Detector[s]	2 in. diameter sealed proportional Window: 2 to 3mg/cm ² mica
Efficiency	Radial Sampling Head: 8.5% 60Co, 17% 90Sr/90Y (nominal) Inline Sampling Head: 6.4% 85Kr, 4.4% 133Xe (nominal) Noble Gas Sampling Head: 5.75% 60Co, 12% 90Sr/90Y (nominal)
Airflow Rate	Display Unit: 8.5 to 113L/min., 0.5 to 6.8 cfh (0.3 to 4.0 cfm) Pump: 56L/min. (2.0 cfm) nominal at STP with clean filter
Display	Two rows x 20 characters high visibility vacuum fluorescent, percentage of Alarm 40-element LED bar graph
Status Indicators	Front panel lights display READY and MALFUNCTION conditions, red alarm strobe light visual warning, and sonalert audible warning

Communications: The communication racks give the facility an independence from the remainder of the building, but still maintain the capability to reroute, these functions through other servers or racks within the company to help ensure their availability. Additionally, the TSC will have radio and fiber optic capabilities that can communicate with the Control Room, OSC, EOF, and offsite emergency agencies, if needed.

Network Transport (feeds to the building): Two Network Transport feeds come to the TSC from Access Authorization Portal currently, which is also dual, redundantly fed from the corporate network. The system will be upgraded in the future to provide for two 10gig feeds, one from Fiber Hut (FH) 2 and the other from FH5. FH2 and FH5 will have separate and diverse path 10gig feeds one to 1401 Main St (Columbia, SC) and the other to 24x7 data center (West Columbia, SC).

Dual Independent Distribution switches (Transport connections and uplinks from Access switches): The 2 transport feeds are connected to two distribution switches (DistSNOBA and DistSNOBB). Network access switches (PC, printers, building security systems, AV systems, building management systems, IP phones, and IP radios connected to access switches) in the building have two uplinks to the distribution switches. One uplink to the DistSNOBA and the other DistSNOBB. These are also linked together for additional redundancy.

Each distribution switch has dual power supplies. One power supply can run the switch. Both power supplies are powered up and running at half capacity and are configured to take over should one of them fail or lose power. For each switch one power supply is connected to emergency power source and the 2nd power supply is connected the building UPS system.

Dual Access Switches: PC, printers, building security systems, AV systems, building management systems, IP Phones, and IP radios connected to access switches. Due to the number of connection forecasted for the TSC, there are two access switches in the MTR. Every access switch in the building has two uplinks that are directly fed to the distribution switches. In the MTR, there is a pair of access switches (SW1SNOBB and SW2SNOBB). Note: Devices (PC, printers. Etc.) have single connection to one or the other switch.

Each access switch has two supervisor modules that hold the switches configuration and a single 10gig uplink to a NOB distribution switch. One is active and the 2nd one is in standby mode. Should the active one fail or have a problem, the second supervisor module takes over the management and operation of the switch.

Each access switch has dual power supplies. One power supply can run the switch. Both power supplies are powered up and running at half capacity and are configured to take over should one of them fail or lose power. For each switch one power supply is connected to emergency power source and the 2nd power supply is connected the building UPS system.

Note: Devices (PC, printers. Etc.) have single connection to one or the other switch. However as long as the switch is powered up and running, one uplink to the distribution switch is lost there is still a path through the other distribution switch for continued connectivity.

Instrumentation, Data System Equipment, and Power Supplies: A description of data systems is described in the above section for Communications.

The HVAC system is controlled by the Building Management system which provides system diagnosis and alarms to site facilities maintenance personnel.

The facility has normal and emergency 480 volt power distribution equipment on the ground floor elevation which feed an automatic transfer switch (ATS) that supplies power to the building emergency power distribution panels. The main emergency power distribution panel feeds a 480 volt panel in the basement (TSC) electrical room that feeds additional panels that supply power for lighting, HVAC equipment, the uninterruptible power system (UPS) system, and other 480 volt loads. Step down

transformers are located in the basement to supply panels that feed receptacles and other 120 volt and 208 volt loads.

In the event of a loss of normal power the ATS will transfer to the emergency diesel generator. The generator feeding the emergency power system is a 550 KW diesel engine generator with adequate capacity to supply emergency power loads in the TSC as well as the other emergency loads in the building. Lighting and HVAC systems in the TSC will be fed from the emergency power. 120 volt receptacles are fed from emergency power panels and receptacles for critical equipment and computers are fed from the UPS system. The TSC emergency generator powers TSC loads and limited loads within the remaining Nuclear Operations Building (NOB) to allow access safely into the TSC. These loads include, but are not limited to, emergency lighting, elevator power, and security systems.

Technical Data and Data System: A description of data systems is described in the above section for Communications.

TSC Resource Comparison Table

<u>Resource</u>	<u>Current Facility</u>	<u>Proposed Facility</u>
ERO Positions Assigned	TSC - 13 VCS, 6 NRC	TSC - 32 VCS, 12 NRC with Back-up OSC - ~15 VCS
Square Footage (total)	~2,500	~14,300
Rest Rooms	Facilities shared with Control Room for men and women	Full men's and women's facilities with showers
Break/Serving Area	Kitchenette shared with Control Room	Break Area with tables and serving area, ice, water, refrigeration, etc. (cafeteria on 1 st Floor NOB)
Work Stations (total)	13	44
Telephones (PBX)	13	44
Telephones (Satellite)	1	1
Telephone (Dedicated Lines)	1	1
Radios	Hand-helds only	10 desk top for dedicated positions and hand-helds
Computers/Data Connections	13	32 with 9 in Back-up OSC
Projectors (A/V System)	2	5 with additional 15 A/V display capabilities in adjacent work areas
Back-up OSC	None	~880 sq ft with 9 work stations and command table
NRC Area	8 x 8 cubicle	390 sq ft with 4 work stations and conference table

Evaluation: Relocation of the Technical Support Center does result in a reduction in effectiveness of the Emergency Plan and requires prior NRC approval.

**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) Unit 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12**

ATTACHMENT IV

Licensee's Staffing Analysis Conducted in October of 2012

NUCLEAR OPERATIONS
COPY NO. _____



V. C. Summer Unit #1 (VCS)

ERO On-Shift Staffing Analysis

Revision 0

EP-100 APPENDIX 7

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1. INTRODUCTION

The specific requirement for establishing a shift emergency organization to respond to emergency events appears in 10 CFR 50.47(b)(2) which states, in part, the following:

On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times...

As part of the overall Emergency Preparedness rulemaking the NRC amended 10 CFR Part 50, Appendix E, Section IV.A, "Organization," to address concerns regarding the assignment of tasks or responsibilities to on-shift emergency response organization (ERO) personnel that would potentially overburden them and prevent the timely performance of their emergency plan functions. Licensees must have enough on-shift staff to perform specified tasks in various functional areas of emergency response. All shifts must have the capability to perform these emergency functions 24 hours a day, 7 days a week, to minimize the impact of radiological emergencies and to provide for the protection of public health and safety.

Previous NRC regulations stated that on-shift staffing levels must be adequate but gave no clear definition of "adequate." This provided some leeway in how licensees assigned emergency plan implementation duties to on-shift personnel. The supporting NRC guidance used for the approval of emergency plans attempted to define the measure of adequacy, but stakeholders found the guidance to be unclear. The NRC believes the final rule better ensures sufficient on-shift staff in the post-September 11, 2001, threat environment by limiting the assignment of responsibilities which on-shift ERO members would likely perform concurrently with their emergency plan functions

In November 2011 the NRC formally published rule changes related to emergency preparedness in 10CFR50.47 and Appendix E. 10CFR50 Appendix E.IV states:

- A. *Organization – The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's ERO and the means for notification of such individuals in the event of an emergency.*

The new rule added the following under Section A to read:

- 9. *By **December 24, 2012**, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.*

The NRC staff also provided a revision to NSIR/DPR-ISG-01, Interim Staff Guidance (ISG), "Emergency Planning for Nuclear Power Plants", in November 2011. The ISG Section IV.C provides much greater detail on acceptable methods for licensees to implement the requirements of the new rule. The ISG specifically endorsed NEI 10-05 "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities".

The NEI methodology for developing the new Emergency Plan on-shift staffing licensing basis is composed of the following:

- Define the on-shift ERO staffing and response time requirements.
- Define the site specific event scenarios described in the ISG.
- Perform an On-shift Staffing Analysis (OSA) for each event scenario.
- Perform a Time Motion Study (TMS) to analyze the results of the OSA, if deemed necessary.

The ISG requires that the results of the assessment be incorporated into the licensee's Emergency Plan and be considered a part of the licensee licensing bases.

2. ON-SHIFT STAFFING COMPLEMENT

2.1. Shift Staffing Licensing Basis Comparison

The current minimum shift staffing level specified in the current Emergency Plan meets and exceeds the minimum shift staffing level approved by NRC SER.

SER E-Plan Shift Staffing ^a	Current E-Plan Shift Staffing ^a	Minimum Shift Staffing ^a
Shift Supervisor (1)	Shift Supervisor (1)	Shift Supervisor (1)
Shift Forman (1)	CR Supervisor (1)	CR Supervisor (1)
CR Operators (2)	CR Operators (2)	CR Operators (2)
Auxiliary Operators (2)	Auxiliary Operators (2)	Auxiliary Operators (2) ^d
Shift Technical Advisor (1)	Shift Engineer (1)	Shift Engineer (1)
Communications (1)	Communicator (1)	Communicator (1)
Health Physics Specialist (1)	Health Physics Specialist (1)	Health Physics Specialist (1)
Health Physics Specialist (1) ^b	Health Physics Specialist (2) ^b	Health Physics Specialist (1) ^e
Chemistry Specialist (0)	Chemistry Specialist (1)	Chemistry Specialist (1)
Mechanical Maintenance (1)	Mechanical Maintenance (1)	Mechanical Maintenance (1)
Electrical Maintenance (1) ^b	Electrical Maintenance (1) ^b	Electrical Maintenance (1) ^b
I&C Technician (1)	I&C Technician (1)	I&C Technician (1)
Fire Brigade per Tech. Spec. ^b	Fire Brigade (Per Fire Prot. Program) ^b	Fire Brigade (5) ^{b, c}
Rescue Operations and First Aid (2) ^b	Rescue Operations and First Aid (2) ^b	Rescue Operations and First Aid (2) ^b
Security – Site Access Control and Accountability (per Security Plan)	Site Access Control and Accountability (per Security Plan)	Site Access Control and Accountability (per Security Plan)

Total = 11

Total = 12

Total = 13^f

- a. Shift staffing levels are specified in the following documents:
- SER E-Plan Shift Staffing SCE&G VC Summer Nuclear Station, Nuclear Operations, Radiation Emergency Plan, Rev. 4 April 1981 Table 5-1 Staffing Requirements for Emergency Conditions
 - Current E-Plan Shift Staffing SCE&G VC Summer Nuclear Station, Nuclear Operations, Radiation Emergency Plan, EP-100, Revision 60 Staffing Requirements for Emergency Conditions
 - Minimum Shift Staffing FPP-026, Fire Response, Rev. 2 Enclosure 6.7 FPER Fire Brigade Minimum Shift Compliment
SAP-200, Conduct of Operations, Rev. 8 Enclosure A Normal Shift Complement
OAP-100.6 Control Room Conduct and Control of Shift Activities, Rev. 3, Attachment VIIA FEP Manning Sheet
SAP-0127, Emergency Preparedness, Rev. 3 Enclosure 6.2 ERO Responsibility Assignment Matrix
- b. These positions may be covered by on-shift personnel assigned other functions. Staff positions with "b" designation are not included in the staffing total.
- c. The Fire Brigade is comprised of (3) on-shift Auxiliary Operators, one of which serves as Fire Brigade Leader and 2 on-shift Maintenance Services personnel.
- d. Normal shift complement for Auxiliary Operators is 5 per SAP-200 Enclosure A and OAP 100.6 Attachment VIIA, however, Emergency Plan Table 5-1 and Technical Specifications only require 2.
- e. Per SAP-0127 Enclosure 6.2, a minimum of 2 HP Specialists are on shift, one of which supports both in-plant surveys and in-plant protective actions
- f. OAP-100.6 Control Room Conduct and Control of Shift Activities, Section 12.1 refers to an "11 man minimum shift, including the STS"

2.2. On-Shift Staffing Complement Used in the Analysis

1. Only personnel required to be on-shift are credited in the staffing analysis. The on-shift personnel complement is limited to the minimum required number and composition as described in the VCS1 emergency plan, Table 5-1, and as augmented per SAP-0127 Enclosure 6.2.
2. The on-shift staffing utilized for the analysis, based on the current emergency plan and SAP-0127, was specifically defined with the following considerations:
 - The Shift Supervisor initially assumes the position of Interim Emergency Director (IED) until relieved by the Emergency Director in the TSC.
 - The IED:
 - announces the emergency condition and site evacuation (if applicable) to all plant personnel over the plant paging system
 - determines appropriate off-site protective action recommendations
 - directs the Shift Communicator to complete the initial notifications in accordance with EPP-002
 - notifies Security of call-in
 - assigns a person (Maintenance) to record names and badge numbers of all essential shift workers
 - requests offsite emergency services (Fire, Medical, Law Enforcement, etc.), if required
 - ensures the Emergency Log Book or Control Room AutoLog is established and maintained
 - ensures TSC, Operations Support Center (OSC), and EOF are being activated
 - determines if a site or Protected Area evacuation is required
 - ensures updated follow-up notifications are made in accordance with EPP-002 hourly, and when conditions change
 - ensures plant page announcements are made periodically to update plant personnel on emergency conditions
 - Shift essential personnel report to the Control Room.
 - The Shift Communicator performs ERO activation and off-site notifications in accordance with EPP-002.
 - The STA function is performed by the Shift Engineer.
 - On-shift dose assessment is performed by an on-shift HP Specialist in the Count Room, if required.
 - Fire brigade minimum number of 5, which consists of a team leader and four fire brigade members.

**VCS1 On-Shift Staffing Analysis
EP-100 APPENDIX 7**

Functional Area	Major Tasks	Emergency Positions	Analysis Shift Staffing
1. Plant Operations and Assessment of Operational Aspects	Control Room Staff	Shift Supervisor	1
		CR Supervisor	1
		Reactor Operator (NRO, BOP)	2
		Auxiliary Operator (CB, TB, IB, ABU, ABL)	5 ^a
2. Emergency Direction and Control	Command and Control	Shift Supervisor (IED)	b
3. Notification & Communication	State/County/NRC	Shift Communicator (STS)	1
4. Radiological Assessment	Dose Assessment	HP Specialist (Count Room)	1
	Offsite/Onsite/In-plant Surveys	HP Specialist (Shift Lead)	1
	Chemistry	Chemistry Specialist	1
5. Plant System Engineering, Repair, and Corrective Actions	Accident Analysis & Technical Support	Shift Engineer (STA)	1
	Repair and Corrective Actions	Mech. Maintenance (FPER) Elec. Maintenance (FPER) I&C Tech	2 ^c 1 ^d 1
6. In-Plant PAs	Radiation Protection	HP Specialist	b
7. Fire Suppression	--	Fire Brigade	e
8. 1 st Aid and Rescue Ops	--	Medical Emergency Response Team (MERT)	b
9. Site Access Control and Accountability	Security & Accountability	Plant Protection	f
TOTAL:			18

- (a) Normal shift complement for Auxiliary Operators is 5 per SAP-200 Enclosure A and OAP 100.6 Attachment VIIA, however, Emergency Plan Table 5-1 and Technical Specifications only require 2.
- (b) May be filled by someone filling another position having functional qualifications.
- (c) Normal shift complement for Mechanical Maintenance is 2 per OAP 100.6 Attachment VIIA, however, Emergency Plan Table 5-1 only requires 1.
- (d) Normal shift complement for Electrical Maintenance is 1 per OAP 100.6 Attachment VIIA, however, Emergency Plan Table 5-1 allows this function to be performed by other positions on shift.
- (e) Fire Brigade per FPP-026, Fire Response, Rev. 2 Enclosure 6.7 FPER Fire Brigade Minimum Shift Compliment; composed of five on-shift individuals, some of which may be assigned other duties.
- (f) Per Security Plan.

3. ANALYZED EVENTS

3.1. List of Potential Events to be Analyzed

VCS Unit 1 UFSAR updated through 11/28/11 Section 15.4 identifies the following as Condition IV - Limiting Faults:

1. Major rupture of pipes containing reactor coolant up to and including double ended rupture of the largest pipe in the Reactor Coolant System (RCS), i.e., loss-of-coolant accident (LOCA) – 15.4.1
2. Major secondary system pipe ruptures – 15.4.2
3. Steam generator tube rupture – 15.4.3
4. Single reactor coolant pump locked rotor – 15.4.4
5. Fuel handling accident – 15.4.5
6. Rupture of a control rod drive mechanism housing (rod cluster control assembly ejection) – 15.4.6

Note: At least one of the DBA scenarios must result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs.

Additionally, the following events must be analyzed to comply with the Interim Staff Guidance (ISG) for the new on-shift staffing rule in 10 CFR 50 Appendix E.

- Design Basis Threat (DBT)
- Aircraft probable threat – 50.54(hh)(1) response actions
- Control room fire leading to evacuation and remote shutdown
- Station blackout
- Appendix R fire response
- SAMG

3.2. Disposition of Events

VCS1 Emergency Plan Section 4 and EPP-001, Activation and Implementation of Emergency Plan, Rev. 30, were used to determine the UFSAR Section 15 Condition IV events that would result in an event declaration.

- 3.2.1. Major rupture of pipes containing reactor coolant up to and including double ended rupture of the largest pipe in the Reactor Coolant System (RCS), i.e., loss-of-coolant accident (LOCA) – 15.4.1

For the purpose of ECCS analyses, Westinghouse defines a large break loss-of-coolant accident (LOCA) as a rupture 1.0 ft² or larger of the reactor coolant system piping including the double ended rupture of the largest pipe in the reactor coolant system or of any line connected to that system.

Should a major break occur, rapid depressurization of the Reactor Coolant System (RCS) to a pressure nearly equal to the containment pressure occurs in approximately 40 seconds, with a nearly complete loss of system inventory. Rapid voiding in the core shuts down reactor power. A safety injection system signal is actuated when the low pressurizer pressure setpoint is reached. These countermeasures will limit the consequences of the accident in two ways:

- Borated water injection complements void formation in causing rapid reduction of power to a residual level corresponding to fission product decay heat. An average RCS / sump mixed boron concentration is calculated to ensure that the post-LOCA core remains subcritical. However, no credit is taken for the insertion of control rods to shut down the reactor in the large break analysis.
- Injection of borated water provides heat transfer from the core and prevents excessive cladding temperatures.

Before the break occurs, the reactor is assumed to be in a full power equilibrium condition, i.e., the heat generated in the core is being removed through the steam generator secondary system. At the beginning of the blowdown phase, the entire RCS contains sub-cooled liquid which transfers heat from the core by forced convection with some fully developed nucleate boiling. During blowdown, heat from fission product decay, hot internals and the vessel, continues to be transferred to the reactor coolant. After the break develops, the time to departure from nucleate boiling is calculated.

Thereafter, the core heat transfer is unstable, with both nucleate boiling and film boiling occurring. As the core becomes voided, both transition boiling and forced convection are considered as the dominant core heat transfer mechanisms. Heat transfer due to radiation is also considered.

The heat transfer between the RCS and the secondary system may be in either direction, depending on the relative temperatures. In the case of the large break LOCA, the primary pressure rapidly decreases below the secondary system pressure and the steam generators are an additional heat source. In this analysis using the WCOBRA/TRAC methodology, the steam generator secondary is conservatively assumed to be isolated (main feedwater and steam line) at the initiation of the event to maximize the secondary side heat load.

This event results in an ECL of an Alert under FA1.1 (Loss or potential loss of either the fuel clad RCS) due to:

1. RCS Loss (RCS leak rate > available makeup capacity as indicated by a loss of RCS subcooling)

Therefore, **this event is analyzed in this appendix.**

3.2.2. Major secondary system pipe ruptures – 15.4.2: Two events are evaluated – rupture of a main steam line and rupture of a main feedwater line.

- Major Rupture of a Main Steam Line: This event is evaluated to occur in hot shutdown and assumes one RCCA is stuck in the fully withdrawn position. The resulting cooldown does return the reactor to critical for a brief period of time but is quickly shutdown again by the operation of SI. RCS Integrity remains Green, and no fuel failure results. This event does not reach any ECL. Therefore, **it is not analyzed in this appendix.**
- Rupture of a Main Feedwater Line: This event is evaluated to occur at 102% reactor power. RCS integrity is not challenged and no fuel damage occurs. This event does not reach any ECL. Therefore, **it is not analyzed in this appendix.**

3.2.3. Steam generator tube rupture – 15.4.3: Assuming normal operation of the various plant control systems, the following sequence of events is initiated by a tube rupture resulting from the complete severance of a single steam generator tube:

- Pressurizer low pressure and low level alarms are actuated and charging pump flow increases in an attempt to maintain pressurizer level. On the secondary side there is a steam flow/feedwater flow mismatch before trip as feedwater flow to the affected steam generator is reduced due to the additional break flow which is now being supplied to that unit.
- Continued loss of reactor coolant inventory leads to a reactor trip signal generated by low pressurizer pressure. Resultant plant cooldown following reactor trip leads to a rapid change of pressurizer level, and the safety injection signal, initiated by low pressurizer pressure, follows soon after the reactor trip. The safety injection signal automatically terminates normal feedwater supply and initiates emergency feedwater addition.
- The steam generator blowdown liquid radiation monitor and the condenser air removal system radiation monitor will alarm, indicating a sharp increase in radioactivity in the secondary system and will automatically divert the steam generator blowdown flow to the Nuclear Blowdown Processing System.
- The reactor trip automatically trips the turbine and if offsite power is available the steam dump valves open permitting steam dump to the condenser. In the event of a coincident loss of offsite power, the condenser steam dump valves would automatically close to protect the condenser. The steam generator pressure would rapidly increase resulting in steam discharge to the atmosphere through the main steam safety and/or power operated relief valves.
- Following reactor trip, the continued action of emergency feedwater supply and borated high head injection flow (supplied from the refueling water storage tank) provide a heat sink which absorbs some of the decay heat. Thus, steam bypass to the condenser, or in the case of loss of offsite power, steam relief to atmosphere, is attenuated during the 30 minutes in which the recovery procedure leading to isolation is being carried out.

- High head injection flow results in increasing pressurizer water level. The time after trip at which the operator can clearly see returning level in the pressurizer is dependent upon the amount of operating auxiliary equipment.

Based on these conditions, an Alert ECL would result from FA1.1 based on an RCS Loss (Ruptured SG results in an ECCS (SI) actuation).

A realistic and a conservative radiological analysis is performed for this event. The realistic analysis does not result in offsite doses great enough to reach a higher ECL. The conservative analysis results in a Thyroid dose of 40 Rem and a whole body TEDE dose of approximately 15 Rem. This would result in an ECL of General Emergency based on RG1.2 (Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the site boundary). **This result will be utilized to have this event reach a General Emergency ECL and is included in the analysis.**

- 3.2.4. Single reactor coolant pump locked rotor – 15.4.4: Based on the Realistic Analysis performed, this event results in no fuel failure and no challenge to the RCPB, and does not reach any ECL. Therefore, **it is not analyzed in this appendix.**
- 3.2.5. Fuel Handling Accident – 15.4.5: A fuel handling accident (FHA) during refueling could release a fraction of the fission product inventory in the plant to the environment. Two (2) accident scenarios are considered: (1) a refueling accident occurring inside containment and (2) a refueling accident occurring outside containment.

The postulated fuel handling accident inside containment is the dropping of a spent fuel assembly onto the core during refueling which results in damage to the fuel assemblies.

It is postulated that a spent fuel assembly is dropped onto the core during refueling resulting in breaching of the fuel rod cladding. As a result of the damage, a portion of the volatile fission gases are released to the water pool covering the core. Subsequently, a fraction of the water soluble gases are absorbed in the pool with the remainder being transported through the water and into the Reactor Building atmosphere. The escaped gases are assumed to be released instantaneously to the environment via the Reactor Building Purge System and dispersed into the atmosphere. However, since there will not be a time during refueling activities when only the minimum on-shift ERO is present for this event, the fuel handling accident inside the Containment **is not included in the on-shift staffing analysis.**

The fuel handling accident outside containment is postulated as the dropping of a spent fuel assembly into the Spent Fuel Pool which results in damage to the fuel assemblies and the release of the volatile gaseous fission products.

Realistic and conservative analyses were performed for both of these events. The whole body TEDE dose at the EAB resulting from the fuel handling accident in the Containment or FHB is approximately 0.25 Rem and 4.75 Rem Thyroid.

The fuel handling accident results in a Site Area Emergency classification under RS1.2 (Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the site boundary). A fuel handling accident in the Fuel Handling Building spent fuel pool **is included in the analysis.**

- 3.2.6. Rupture of a control rod drive mechanism housing (rod cluster control assembly ejection) – 15.4.6: This accident is defined as the mechanical failure of a control rod mechanism pressure housing resulting in the ejection of a rod cluster control assembly (RCCA) and drive shaft. The consequence of this mechanical failure is a rapid positive reactivity insertion together with an adverse core power distribution, possibly leading to localized fuel rod damage.

The realistic analysis for this event does not result in any RCL due to radiological release and resulting offsite dose (the resulting whole body TEDE at the EAB is 1.1×10^{-7} Rem). The loss of coolant that results is bounded by the large break LOCA results. Therefore, this event is **not included in the analysis**.

- 3.2.7. Design Basis Threat (DBT): This event results in a Site Area Emergency ECL based on HS4.1 (A hostile action is occurring or has occurred within the Protected Area as reported by the security Team Leader) Therefore, **this event is analyzed in this appendix**.
- 3.2.8. Aircraft Probable Threat – 50.54(hh)(1) Response Actions: This event results in an Alert ECL based HA4.1 (A validated notification from NRC of an airliner attack threat within 30 minutes of the site). Therefore, **this event is analyzed in this appendix**.
- 3.2.9. Control Room Fire Leading to Evacuation and Remote Shutdown: This event results in an Alert ECL based on HA5.1 (AOP-600.1, Control Room Evacuation, or FEP-4.0, Control Room Evacuation Due To Fire, requires Control Room evacuation). Therefore, **this event is analyzed in this appendix**.
- 3.2.10. Station Blackout: This event results in a Site Area Emergency ECL based on SS1.1 (Loss of **all** offsite and **all** onsite AC power to 7.2 KV ESF buses 1DA and 1DB for ≥ 15 min.). Therefore, **this event is analyzed in this appendix**.
- 3.2.11. Appendix R Fire Response: The on-shift staff responds to a fire alarm or the report of a fire at VC Summer by entering procedure FEP-1.0 FIRE EMERGENCY PROCEDURE SELECTION. In addition to monitoring the plant and coordinating communication, the operating shift staffs the Fire Brigade.

If the fire is in the control room, FEP-4.0, Control Room Evacuation Due To Fire is utilized and the plant must be shut down and controlled from outside the control room. The Control Room fire requiring evacuation and plant shutdown from remote locations is clearly the most serious Appendix R fire with regard to operator actions as prescribed in these procedures. Since the Control Room fire is addressed in Section 1.2.9, an additional Appendix R fire is **not included in the analysis**.

3.2.12. **SAMG:** Before the TSC is staffed and functional, VC Summer SAMGs require the Control Room to enter SACRG-1, Severe Accident Control Room Guideline Initial Response, pending arrival of the TSC. SACRG-1 entry conditions are any of the following:

- 1) EOP-6.0, LOSS OF ALL ESF AC POWER, when core exit TCs are greater than 1200°F and actions to cool the core are not successful.
- 2) EOP-13.0, RESPONSE TO ABNORMAL NUCLEAR POWER GENERATION, when core exit TCs are greater than 1200°F and actions to cool the core are not successful.
- 3) EOP-14.0, RESPONSE TO INADEQUATE CORE COOLING, when core exit TCs are greater than 1200°F and actions to cool the core are not successful.
- 4) EOP-2.6, RHR SUMP BLOCKAGE, when core exit TCs are greater than 1200°F and actions to cool the core are not successful

None of these conditions are reached in any of the accidents that are required to be evaluated, so SAMG is **not included in this analysis.**

3.3. NEI 10-05 Appendix A Table, Analyzed Events and Accidents

Analysis #	Summary Description of Event or Accident	Plant Mode	Reference Document(s)	ECL	Analysis Required?
1	Major rupture of pipes containing reactor coolant up to and including double ended rupture of the largest pipe in the Reactor Coolant System (RCS), i.e., loss-of-coolant accident (LOCA)	1	UFSAR 15.4.1	Alert	Yes
2	Major secondary system pipe ruptures	1	UFSAR 15.4.2	None	No
3	Steam generator tube rupture	1	UFSAR 15.4.3	GE	Yes
4	Single reactor coolant pump locked rotor	1	UFSAR 15.4.4	None	No
5	Fuel handling accident outside containment	1	UFSAR 15.4.5	SAE	Yes
6	Rupture of a control rod drive mechanism housing (rod cluster control assembly ejection)	1	UFSAR 15.4.6	Alert	No ¹
7	Design Basis Threat (DBT)	1	EPP-027	SAE	Yes
8	Aircraft Probable Threat – 50.54(hh)(1) Response Actions	1	EPP-027	Alert	Yes
9	Control Room Fire Leading to Evacuation and Remote Shutdown	1	FEP-4.0	Alert	Yes
10	Station Blackout	1	EOP 6.0	SAE	Yes
11	Appendix R Fire Response	1	FEP-1.0	Alert	No ²
12	SAMG	1	SACRG-1	GE	No ³

Notes:

1. The resulting loss of coolant that results is bounded by Analysis #1.
2. The control room fire and evacuation is the limiting Appendix R fire response scenario with regard to complex actions by the on-shift ERO.
3. The entry conditions for SACRG-1 do not occur for any of the FSAR limiting fault events or other scenarios performed within this analysis.

3.4. Scope/Sequence of Events

3.4.11. General Assumptions and Limitations

1. On-shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned actions. The following are the typical locations of the on-shift personnel:
 - Shift Supervisor (1)..... Control Room
 - CR Supervisor (1)..... Control Room
 - Control Room Operator (NRO) Control Room
 - Control Room Operator (BOP)..... Control Room
 - Auxiliary Operator (CBAO)..... Control Building
 - Auxiliary Operator (TBAO)..... Turbine Building
 - Auxiliary Operator (IBAO) Intermediate Building
 - Auxiliary Operator (ABUAO) Auxiliary Building
 - Auxiliary Operator (ABLAO)..... Auxiliary Building
 - Shift Communicator (STS)..... In Plant
 - Shift Engineer (STA)..... Control Room
 - HP Shift Lead In Plant
 - HP Count Room HP Count Room
 - Chemistry Specialist In Plant
 - Mechanical Maintenance 1 In Plant
 - Mechanical Maintenance 2 In Plant
 - I&C Maintenance In Plant
 - Electrical Maintenance..... In Plant
 - Fire Brigade (5).....(See Auxiliary Operators & Mech. Maint.)
 - Security Force Supervisor.....Per Security Plan

2. 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 (RP) Technician.

3. It is assumed that 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.

4. It is assumed that personnel assigned to the major response area of Firefighting meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to fight a fire. Staff performance within this area is regularly analyzed through other station programs (e.g., fire drills) and will not be evaluated as part of this assessment, unless a role/function/task from another major response area is assigned as a collateral duty. While it is VCS1 practice is to assign the CBAO, TBAO, ABLAO, and two Mechanical Maintenance personnel to the Fire Brigade, the other AOs could be assigned in place of these brigade members as event-specific response activities require.
5. Individuals holding the position of Health Physics Specialist or Chemistry Specialist are qualified to perform the range of tasks expected of their position.
6. 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). The ERO augmentation time is based on the time of event declaration until the time of turnover of the function/responsibility. Specifically, any time needed by the augmenting ERO to acquire materials or prepare for turnover is accounted for.

Section 6.1 of the VCS1 Emergency Plan requires notification of the station Emergency Response Organization (ERO) following event declaration. The emergency plan does not specify a time requirement for relief of the emergency response functions from the on-shift staff; however, the emergency procedures direct relief to occur in the steps following facility activation. Relief of the on-shift ERO is assumed to occur no sooner than 90 minutes from the time of the classifiable event.

For purposes of this analysis, 90 minutes is used as the time period for the conduct of on-shift ERO response actions.

3.4.12. Event Specific Information

1. Major rupture of pipes containing reactor coolant up to and including double ended rupture of the largest pipe in the Reactor Coolant System (RCS), i.e., loss-of-coolant accident (LOCA) – 15.4.1

Initial Conditions: The unit is operating normally at 100% power in an equilibrium condition.

Abnormal Conditions: None

Scenario Events: Double-ended severance of an RCS cold leg pipe. One ECCS train, including one HHSI pump and one LHSI pump, starts and delivers flow through the injection lines. The accumulator and safety injection flows from the broken loop were assumed to spill to containment. Both emergency diesel generators (EDGs) are assumed to start. Continued operation of the ECCS pumps supplies water during long-term cooling. Core temperatures have been reduced to long-term steady state levels associated with dissipation of residual heat generation. After the water level of the refueling water storage tank (RWST) reaches a minimum allowable value, coolant for long-term cooling of the core is obtained by switching from the injection mode to the sump recirculation mode of ECCS operation.

Spilled borated water is drawn from the engineered safety features (ESF) containment sumps by the LHSI pumps (also called the Residual Heat Removal pumps, or RHR pumps) and returned to the RCS cold legs.

It is assumed that the entire inventory of fission product activity contained in the primary coolant was released to containment. No off-site release resulting in significant offsite dose above the Alert threshold (FSAR Table 15.4-16).

Notes: FSAR Section 15.4.1 Realistic Analysis

2. Steam generator tube rupture – 15.4.3 (as modified to result in a General Emergency)

Initial Conditions: The unit is operating normally at 100% power in an equilibrium condition.

Abnormal Conditions: Coolant activity (gap failure) is sufficient to result in an offsite dose that exceeds the EPA PAGs beyond the site boundary.

Scenario Events: Complete severance of a single steam generator tube with concurrent loss of off-site AC power (LOOP).
The accident is assumed to take place at power (100%) with the reactor coolant contaminated with fission products corresponding to a level necessary to support the offsite radiological conditions, thus a non-realistic damage source term input is necessary. The accident leads to a significant increase in fission products in the secondary system due to leakage of radioactive coolant from the reactor coolant system. A coincident loss of offsite power, results in the discharge of activity to the atmosphere via the steam generator safety which subsequently sticks open.
The operator is expected to determine that a steam generator tube rupture has occurred, and to identify and attempt to isolate the faulty steam generator in order to terminate radioactive release to the atmosphere from the faulty unit.
Recovery procedures are not successful on a time scale which ensures that break flow to the secondary system is terminated before water level in the affected steam generator rises into the main steam pipe. RCS depressurization results in a reactor trip and pressure decrease in the pressurizer. Safety injection occurs when the applicable SI setpoint is reached.

Notes: This DBA scenario is to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs.

3. Fuel Handling Accident Outside Containment – 15.4.5

Initial Conditions: The unit is operating normally at 100% power in an equilibrium condition. Plant at minimum staffing with the exception of ONE additional SRO supervising the crew in the Spent Fuel Pool area.

Abnormal Conditions: None

Scenario Events: A spent fuel assembly is dropped into the Spent Fuel Pool which results in damage to the fuel assemblies and the release of the volatile gaseous fission products. Following the dropped fuel assembly gaseous fission products are released to the spent fuel pool and subsequently to the Fuel Handling Building. These gases are released to the environment via the fuel handling building charcoal exhaust system.

Notes: Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the site boundary

4. Design Basis Threat (DBT)

Initial Conditions: The unit is operating normally at 100% power in an equilibrium condition.

Abnormal Conditions: None

Scenario Events: VCS1 Security Team Leader notifies the Shift Supervisor that a HOSTILE FORCE is engaged in an attack at the Protected Area fence. Security Force Officers inside the PA fence are under fire.

Notes: No abnormal radiological conditions exist during this event.

5. Aircraft Probable Threat – 50.54(hh)(1) Response Actions

Initial Conditions: The unit is operating normally at 100% power in an equilibrium condition.

Abnormal Conditions: None

Scenario Events: A valid notification from the NRC Headquarters Operations Officer (HOO) is received detailing an aircraft identified as a potential threat to VCS1. ETA at VCS is 28 minutes.

Notes: No abnormal radiological conditions exist during this event.

6. Control Room Fire Leading to Evacuation and Remote Shutdown

Initial Conditions: The unit is operating normally at 100% power in an equilibrium condition.

Abnormal Conditions: No major evolutions planned or in progress.

Scenario Events: A fire ignites inside the Unit 1 Control Room.

Smoke and gases necessitate the evacuation of the Control Room

Notes: No abnormal radiological conditions exist during this event.

7. Station Blackout

The event consists of a loss of offsite power and a failure of all emergency AC power sources resulting in a Station Blackout (Loss of all AC power).

Initial Conditions: The unit is operating normally at 100% power in an equilibrium condition.

Abnormal Conditions: No major evolutions planned or in progress.

Scenario Events: Loss of all offsite power occurs.

Reactor trips, both diesels fail to start, all AC buses are de-energized. No emergency diesel generators will synchronize to any bus.

Notes: No abnormal radiological conditions exist during this event.

4. ON-SHIFT STAFFING ANALYSIS

Refer to Attachment 2, NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables, for additional documentation of the on-shift staffing task analysis results.

4.1 Non-Validated Task Analysis Results

NEI 10-05 Table 5 – Emergency Plan Implementation task analysis controlling methods are correlated with the EP Drill Program in Attachment 1.

The task analysis identified no tasks performed by the on-shift ERO that have not been previously validated for performance capabilities.

4.2 Potential Task Overlap Analysis Results (by position)

Table 4-1 summarizes the results of the potential overlaps and un-validated tasks identified in the analysis.

The task analysis identified one position that may experience task overlap (refer to Table 4-1 for a listing of potential task overlaps):

1) The HP Count Room specialist experiences potential task overlap of *Offsite radiological assessment* in the following:

- Analysis Event #3 – Steam Generator Tube Rupture
- Analysis Event #5 – Fuel Handling Accident Outside Containment

The results of the task analysis indicate that the following events require time motion study evaluation:

- 1) Analysis Event #3 – Steam Generator Tube Rupture
- 2) Analysis Event #5 – Fuel Handling Accident Outside Containment

Per NEI 10-05 Table 3.1, the results of the task analysis indicate that five of the seven events do not require time motion study evaluation:

Table 4-1: Task Analysis Summary

Line	On-shift Position	Role in Table # / Line#
Analysis Event #3 – Steam Generator Tube Rupture		
13.	HP Count Room	4/5 Offsite radiological assessment
Analysis Event #5 – Fuel Handling Accident Outside Containment		
13.	HP Count Room	4/5 Offsite radiological assessment

Refer to Attachment 2, NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables for additional documentation of the on-shift staffing analysis table top results.

4.3 **Potential Task Overlap Requiring Time Motion Study**

For combinations of tasks that resulted in the same potential overlap in multiple events, demonstration and evaluation of those task combinations may be conducted in one or more time motion studies, provided procedure, environment and task timing are similar.

Table 4-2 provides a comparison of potential overlapping tasks by position for each of the analyzed events.

Analysis Event #1 – LOCA

Based on the results of the task analysis, no tasks were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study.

Analysis Event #3 – Steam Generator Tube Rupture

Based on the results of the task analysis, the following were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study:

The HP Count Room specialist performs the EP task of *Offsite radiological assessment*. ERO shift positions that perform table 4 tasks and this EP task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

Analysis Event #5 – Fuel Handling Accident Outside Containment

Based on the results of the task analysis, the following were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study:

The HP Count Room specialist performs the EP task of *Offsite radiological assessment*. ERO shift positions that perform table 4 tasks and this EP task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

Analysis Event #7 – Design Basis Threat (DBT)

Based on the results of the task analysis, no tasks were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study.

Analysis Event #8 – Aircraft Probable Threat

Based on the results of the task analysis, no tasks were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study.

Analysis Event #9 – Control Room Fire Leading to Evacuation

Based on the results of the task analysis, no tasks were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study.

Analysis Event #10 – Station Blackout (SBO)

Based on the results of the task analysis, no tasks were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study.

Table 4-2: Task Overlap Summary

	Analysis Event #1	Analysis Event #3	Analysis Event #5	Analysis Event #7	Analysis Event #8	Analysis Event #9	Analysis Event #10
HP Count Room	N/A	4/5	4/5	N/A	N/A	N/A	N/A

5. **ON-SHIFT STAFFING TIME MOTION STUDY**

5.1 **Analysis Summary**

The time motion studies identified no overlap that would preclude or unacceptably delay assigned responsibilities for the HP-Count Room on-shift position.

The potential for overlap identified in the staffing analysis in Section 4; the performance of off-site radiological assessment (dose assessment) by the HP-Count Room relative to other assigned tasks (counting either SG or SFP samples), was the sole task requiring analysis in the time motion study per NEI 10-05. The determination that this overlap would not preclude or unacceptably delay assigned HP-Count Room responsibilities is based on the following:

1. The tasks of counting SG samples (analysis #3 SGTR) or SFP samples (analysis #5 FHA) are not time critical. That is, neither sample results are required to perform a time critical EOP, AOP, or Emergency Plan actions nor do they affect EOP, AOP, or Emergency Plan decision making within the analysis time period of 90 minutes.
2. Procedure EPP-005 Attachment XXII "Guidance For Performing Dose Projections By Shift Personnel" states that "*If the Count Room Specialist is performing other essential work, the IED must determine the priority for the Count Room Specialist*". This provides the Shift Manager (Interim Emergency Director) the procedural latitude to prioritize the HP-Count Room activities and preclude any potential overlap.

Refer to Attachment 3, NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables, for additional documentation details of the on-shift staffing time motion study evaluation results.

5.2 **Recommendations**

None

6. REFERENCES

6.1 Regulatory and Guidance References

6.1.1 10 CFR 50.47(b)(2)

6.1.2 10 CFR 50 Appendix E Section IV.A.9

6.1.3 NSIR/DPR-ISG-01, Interim Staff Guidance – Emergency Planning for Nuclear Power Plants

6.1.4 NEI 10-05, Assessment of On-Shift Emergency Response Organization Staffing and Capabilities, Rev 0

6.2 Event Analysis References

Procedure No.	Rev.	Title	Analysis						
			#1 LOCA	#3 SGTR	#5 FHA	#7 DBT	#8 APT	#9 CREF	#10 SBO
AOP-123.3	3	Potential Fuel Assembly Damage While Handling Fuel			x				
AOP-304.3	3	Loss of Balance of Plant Buses	x						
CP-111	7	Boron Determination	x	x					
CP-902	14	Chemistry Sampling Point List			x				
CP-903	20	Operation of Nuclear Sampling System	x	x					
EOP-1.0	26	Reactor Trip/Safety Injection Actuation	x	x					
EOP-1.1	17	Reactor Trip Recovery				x	x		
EOP-2.0	15	Loss of Reactor or Secondary Coolant	x						
EOP-2.2	16	Transfer to Cold Leg Recirculation	x	x					
EOP-3.0	11	Faulted SG Isolation		x					
EOP-4.0	20	Steam Generator Tube Rupture		x					
EOP-4.2	16	SGTR with Loss of Reactor Coolant: Subcooled Recovery Desired		x					
EOP-6.0	25	Loss of All ESF AC Power							x
EPP-001	30	Activation and Implementation of Emergency Plan	x	x	x	x	x	x	x
EPP-001.2	8	Alert					x	x	
EPP-001.3	8	Site Area Emergency		x	x	x			x
EPP-001.4	8	General Emergency		x					
EPP-002	35	Communication & Notification	x	x	x	x	x		x
EPP-005	20	Offsite Dose Calculation		x	x				
EPP-013	13	Fire Emergency						x	

Procedure No.	Rev.	Title	Analysis						
			#1 LOCA	#3 SGTR	#5 FHA	#7 DBT	#8 APT	#9 CREF	#10 SBO
EPP-021	22	Activation of the Early warning System		x	x		x		x
EPP-027	4	Hostile Action				x	x		
FEP-4.0	4	Control Room Evacuation Due to Fire						x	
GOP-4C	1	Rapid Power Reduction					x		
HPP-245	1	Radiological Controls for Failed Fuel		x					
HPP-302	10	Radiation and Contamination Survey Techniques	x						
HPP-403	11	Radiological Controls for Nuclear Work Activities	x						
HPP-808	13	Sample Analysis	x	x					
SOP-118	17	Component Cooling Water	x						
SOP-220	17	Station and Backup Instrument Air Systems	x	x					x
SOP-505	10	Control Building Ventilation System	x		x		x		
SPP-114	16H	Security Force Responsibilities During Emergencies	x	x	x				x

Attachment 1: NEI 10-05 Table 5 Controlling Method Correlation

Line	Function/Task	OPs Training Program and EP Drill Program Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	OPs Training Program EP Drill Program EPP-105 (CR-2)
2.	Approve Offsite Protective Action Recommendations	OPs Training Program EP Drill Program EPP-105 (CR-6) & EPP-106
3.	Approve content of State/local notifications	OPs Training Program EP Drill Program EPP-105 (CR-3) & EPP-106
4.	Approve extension to allowable dose limits	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	OPs Training Program EP Drill Program EPP-105 (CR-6)
6.	ERO notification	OPs Training Program EP Drill Program EPP-105 (CR-4)
7.	Abbreviated NRC notification for DBT event	OPs Training Program EP Drill Program EPP-105 (CR-3)
8.	Complete State/local notification form	OPs Training Program EP Drill Program EPP-105 (CR-3) & EPP-106
9.	Perform State/local notifications	OPs Training Program EP Drill Program EPP-105 (CR-3)
10.	Complete NRC event notification form	OPs Training Program EP Drill Program EPP-105 (CR-3) & EPP-106
11.	Activate ERDS	OPs Training Program EP Drill Program EPT-08, EPP-105 Att. 13
12.	Offsite radiological assessment	HP Training Program EP Drill Program C-517-016-01-10 in Q-HP-MIDAS (required for EPT-42)
13.	Perform NRC notifications	I&C Training Program EP Drill Program EPP-105 (CR-3) & EPP-106
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A
15.	Personnel accountability	OPs Training Program EP Drill Program TPE-17

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #1 – LOCA
TABLE 1 – On-Shift Positions

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table#/Line#	Unanalyzed Task?	TMS Required?
1.	Shift Supervisor	Table 2-1		2/1 5/1 5/3 5/5 5/8 5/10	No	No
2.	CR Supervisor	Table 2-1		2/2	No	No
3.	Shift Engineer (STA)	Table 2-1		2/3	No	No
4.	Control Room Operator (NRO)	Table 2-1		2/4	No	No
5.	Control Room Operator (BOP)	Table 2-1		2/5	No	No
6.	Auxiliary Operator (CBAO)	Table 2-1		2/6	No	No
7.	Auxiliary Operator (TBAO)	Table 2-1		2/7	No	No
8.	Auxiliary Operator (IBAO)	Table 2-1		2/8	No	No
9.	Auxiliary Operator (ABUAO)	Table 2-1		2/9	No	No
10.	Auxiliary Operator (ABLAO)	Table 2-1		2/10	No	No
11.	Shift Communicator (STS)	Table 2-1		5/6 5/9 5/11	No	No
12.	HP Shift Lead	Table 2-1	90	4/1 4/4	No	No
13.	HP Count Room	Table 2-1	90	4/7	No	No
14.	Chemistry Specialist	Table 2-1	90	4/7	No	No
15.	Mechanical Maintenance 1	Table 2-1		N/A	N/A	N/A
16.	Mechanical Maintenance 2	Table 2-1		N/A	N/A	N/A
17.	I&C Maintenance	Table 2-1		5/13	No	No
18.	Electrical Maintenance	Table 2-1		N/A	N/A	N/A
19.	Security Force Supervisor	Table 2-1		N/A	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #1 – LOCA

TABLE 2 – Plant Operations & Safe Shutdown

Minimum Operations Crew (One Unit – One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Supervisor	Plant and crew oversight	OPs Training Program
2.	Unit Supervisor	CR Supervisor	Direct EOP/SOP actions	OPs Training Program
3.	Shift Technical Advisor	Shift Engineer (STA)	STA tasks	OPs Training Program
4.	Reactor Operator #1	Control Room Operator (NRO)	Perform EOP/SOP actions	OPs Training Program
5.	Reactor Operator #2	Control Room Operator (BOP)	Perform EOP/SOP actions	OPs Training Program
6.	Auxiliary Operator #1	Auxiliary Operator (CBAO)	Perform in-plant actions	OPs Training Program
7.	Auxiliary Operator #2	Auxiliary Operator (TBAO)	Perform in-plant actions	OPs Training Program
8.	Other	Auxiliary Operator (IBAO)	Perform in-plant actions	OPs Training Program
9.	Other	Auxiliary Operator (ABUAO)	Perform in-plant actions	OPs Training Program
10.	Other	Auxiliary Operator (ABLAO)	Perform in-plant actions	OPs Training Program

Other (non-Operations) Personnel

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
15.	Mechanic	Mechanical Maintenance 1	N/A	N/A
16.	Mechanic	Mechanical Maintenance 2	N/A	N/A
17.	I&C Technician	I&C Maintenance	N/A	N/A
18.	Electrician	Electrical Maintenance	N/A	N/A

Analysis Event #1 – LOCA

TABLE 3 – Firefighting

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader (AO)	N/A	N/A
2.	Fire Brigade Member #1 (AO)	N/A	N/A
3.	Fire Brigade Member #2 (AO)	N/A	N/A
4.	Fire Brigade Member #3 (Mechanical Maintenance 1)	N/A	N/A
5.	Fire Brigade Member #4 (Mechanical Maintenance 1)	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #1 – LOCA
 TABLE 4 – Radiation Protection and Chemistry

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)								
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
1.	In-Plant Radiological Survey On-Shift Position: HP Shift Lead							X	X	X
2.	On-Site Radiological Survey On-Shift Position:									
3.	Personnel Monitoring On-Shift Position:									
4.	Job Coverage On-Shift Position: HP Shift Lead			X	X					
5.	Offsite Radiological Assessment On-Shift Position:									
6.	Center Set-Up On-Shift Position:									
7.	Sampling Activities On-Shift Position: Chemistry Specialist HP Count Room			X	X	X	X	X	X	X
8.	Chemistry function/task #2 – Describe: On-Shift Position:									

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #1 – LOCA

TABLE 5 – Emergency Plan Implementation

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Supervisor	OPs Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Supervisor	EP Drill Program
4.	Approve extension to allowable dose limits	N/A	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Supervisor	EP Drill Program
6.	ERO notification	Communicator (STS)	EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	N/A
8.	Complete State/local notification form	Shift Supervisor	OPs Training Program EP Drill Program
9.	Perform State/local notifications	Communicator (STS)	OPs Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Supervisor	EP Drill Program
11.	Activate ERDS	Communicator (STS)	EP Drill Program
12.	Offsite radiological assessment	N/A	N/A
13.	Perform NRC notifications	I&C Maintenance	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	N/A

Note: Lines #3, #8 and #9 include initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #3 – Steam Generator Tube Rupture

TABLE 1 – On-Shift Positions

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table#/Line#	Unanalyzed Task?	TMS Required?
1.	Shift Supervisor	Table 2-1		2/1 5/1 5/2 5/3 5/5 5/8 5/10	No	No
2.	CR Supervisor	Table 2-1		2/2	No	No
3.	Shift Engineer (STA)	Table 2-1		2/3	No	No
4.	Control Room Operator (NRO)	Table 2-1		2/4	No	No
5.	Control Room Operator (BOP)	Table 2-1		2/5	No	No
6.	Auxiliary Operator (CBAO)	Table 2-1		2/6	No	No
7.	Auxiliary Operator (TBAO)	Table 2-1		2/7	No	No
8.	Auxiliary Operator (IBAO)	Table 2-1		2/8	No	No
9.	Auxiliary Operator (ABUAO)	Table 2-1		N/A	N/A	N/A
10.	Auxiliary Operator (ABLAO)	Table 2-1		2/10	No	No
11.	Shift Communicator (STS)	Table 2-1		5/6 5/9 5/11	No	No
12.	HP Shift Lead	Table 2-1	90	4/1 4/4	No	No
13.	HP Count Room	Table 2-1	90	4/5 4/7	No	Yes
14.	Chemistry Specialist	Table 2-1	90	4/7	No	No
15.	Mechanical Maintenance 1	Table 2-1		N/A	N/A	N/A
16.	Mechanical Maintenance 2	Table 2-1		N/A	N/A	N/A
17.	I&C Maintenance	Table 2-1		5/13	No	No
18.	Electrical Maintenance	Table 2-1		5/15	No	No
19.	Security Force Supervisor	Table 2-1		5/15	No	No

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #3 – Steam Generator Tube Rupture
TABLE 2 – Plant Operations & Safe Shutdown**

Minimum Operations Crew (One Unit – One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Supervisor	Plant and crew oversight	OPs Training Program
2.	Unit Supervisor	CR Supervisor	Direct EOP/SOP actions	OPs Training Program
3.	Shift Technical Advisor	Shift Engineer (STA)	STA tasks	OPs Training Program
4.	Reactor Operator #1	Control Room Operator (NRO)	Perform EOP/SOP actions	OPs Training Program
5.	Reactor Operator #2	Control Room Operator (BOP)	Perform EOP/SOP actions	OPs Training Program
6.	Auxiliary Operator #1	Auxiliary Operator (CBAO)	Perform in-plant actions	OPs Training Program
7.	Auxiliary Operator #2	Auxiliary Operator (TBAO)	Perform in-plant actions	OPs Training Program
8.	Other	Auxiliary Operator (IBAO)	Perform in-plant actions	OPs Training Program
9.	Other	Auxiliary Operator (ABUAO)	N/A	N/A
10.	Other	Auxiliary Operator (ABLAO)	Perform in-plant actions	OPs Training Program

Other (non-Operations) Personnel

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
15.	Mechanic	Mechanical Maintenance 1	N/A	N/A
16.	Mechanic	Mechanical Maintenance 2	N/A	N/A
17.	I&C Technician	I&C Maintenance	N/A	N/A
18.	Electrician	Electrical Maintenance	N/A	N/A

**Analysis Event #3 – Steam Generator Tube Rupture
TABLE 3 – Firefighting**

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader (AO)	N/A	N/A
2.	Fire Brigade Member #1 (AO)	N/A	N/A
3.	Fire Brigade Member #2 (AO)	N/A	N/A
4.	Fire Brigade Member #3 (Mechanical Maintenance 1)	N/A	N/A
5.	Fire Brigade Member #4 (Mechanical Maintenance 1)	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #3 – Steam Generator Tube Rupture
 TABLE 4 – Radiation Protection and Chemistry

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)								
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
1.	In-Plant Radiological Survey On-Shift Position: HP Shift Lead	X	X	X	X	X	X	X	X	X
2.	On-Site Radiological Survey On-Shift Position:									
3.	Personnel Monitoring On-Shift Position:									
4.	Job Coverage On-Shift Position: HP Shift Lead			X						
5.	Offsite Radiological Assessment On-Shift Position: HP Count Room				X					
6.	Center Set-Up On-Shift Position:									
7.	Sampling Activities On-Shift Position: Chemistry Specialist HP Count Room			X	X	X		X		
8.	Chemistry function/task #2 – Describe: On-Shift Position:									

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #3 – Steam Generator Tube Rupture
TABLE 5 – Emergency Plan Implementation**

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Supervisor	OPs Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	Shift Supervisor	EP Drill Program
3.	Approve content of State/local notifications	Shift Supervisor	EP Drill Program
4.	Approve extension to allowable dose limits	N/A	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Supervisor	EP Drill Program
6.	ERO notification	Communicator (STS)	EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	N/A
8.	Complete State/local notification form	Shift Supervisor	OPs Training Program EP Drill Program
9.	Perform State/local notifications	Communicator (STS)	OPs Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Supervisor	EP Drill Program
11.	Activate ERDS	Communicator (STS)	EP Drill Program
12.	Offsite radiological assessment	N/A	N/A
13.	Perform NRC notifications	I&C Maintenance	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	Security Electrical Maintenance	EP Drill Program

Note: Lines #3, #8 and #9 include initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #5 – Fuel Handling Accident Outside Containment
TABLE 1 – On-Shift Positions

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table#/Line#	Unanalyzed Task?	TMS Required?
1.	Shift Supervisor	Table 2-1		2/1 5/1 5/3 5/5 5/8 5/10	No	No
2.	CR Supervisor	Table 2-1		2/2	No	No
3.	Shift Engineer (STA)	Table 2-1		2/3	No	No
4.	Control Room Operator (NRO)	Table 2-1		2/4	No	No
5.	Control Room Operator (BOP)	Table 2-1		2/5	No	No
6.	Auxiliary Operator (CBAO)	Table 2-1		2/6	No	No
7.	Auxiliary Operator (TBAO)	Table 2-1		N/A	No	No
8.	Auxiliary Operator (IBAO)	Table 2-1		N/A	No	No
9.	Auxiliary Operator (ABUAO)	Table 2-1		N/A	N/A	N/A
10.	Auxiliary Operator (ABLAO)	Table 2-1		N/A	No	No
11.	Shift Communicator (STS)	Table 2-1		5/6 5/9 5/11	No	No
12.	HP Shift Lead	Table 2-1	90	4/1	No	No
13.	HP Count Room	Table 2-1	90	4/5 4/7	No	Yes
14.	Chemistry Specialist	Table 2-1	90	4/7	No	No
15.	Mechanical Maintenance 1	Table 2-1		N/A	N/A	N/A
16.	Mechanical Maintenance 2	Table 2-1		N/A	N/A	N/A
17.	I&C Maintenance	Table 2-1		5/13	No	No
18.	Electrical Maintenance	Table 2-1		5/15	No	No
19.	Security Force Supervisor	Table 2-1		5/15	No	No

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #5 – Fuel Handling Accident Outside Containment
TABLE 2 – Plant Operations & Safe Shutdown**

Minimum Operations Crew (One Unit – One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Supervisor	Plant and crew oversight	OPs Training Program
2.	Unit Supervisor	CR Supervisor	Direct AOP actions	OPs Training Program
3.	Shift Technical Advisor	Shift Engineer (STA)	STA tasks	OPs Training Program
4.	Reactor Operator #1	Control Room Operator (NRO)	Perform GOP actions	OPs Training Program
5.	Reactor Operator #2	Control Room Operator (BOP)	Perform GOP actions	OPs Training Program
6.	Auxiliary Operator #1	Auxiliary Operator (CBAO)	Perform in-plant actions	OPs Training Program
7.	Auxiliary Operator #2	Auxiliary Operator (TBAO)	N/A	N/A
8.	Other	Auxiliary Operator (IBAO)	N/A	N/A
9.	Other	Auxiliary Operator (ABUAO)	N/A	N/A
10.	Other	Auxiliary Operator (ABLAO)	N/A	N/A

Other (non-Operations) Personnel

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
15.	Mechanic	Mechanical Maintenance 1	N/A	N/A
16.	Mechanic	Mechanical Maintenance 2	N/A	N/A
17.	I&C Technician	I&C Maintenance	N/A	N/A
18.	Electrician	Electrical Maintenance	N/A	N/A

**Analysis Event #5 – Fuel Handling Accident Outside Containment
TABLE 3 – Firefighting**

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader (AO)	N/A	N/A
2.	Fire Brigade Member #1 (AO)	N/A	N/A
3.	Fire Brigade Member #2 (AO)	N/A	N/A
4.	Fire Brigade Member #3 (Mechanical Maintenance 1)	N/A	N/A
5.	Fire Brigade Member #4 (Mechanical Maintenance 1)	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #5 – Fuel Handling Accident Outside Containment
 TABLE 4 – Radiation Protection and Chemistry

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)								
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
1.	In-Plant Radiological Survey On-Shift Position: HP Shift Lead	X	X							
2.	On-Site Radiological Survey On-Shift Position:									
3.	Personnel Monitoring On-Shift Position:									
4.	Job Coverage On-Shift Position:									
5.	Offsite Radiological Assessment On-Shift Position: HP Count Room		X	X						
6.	Center Set-Up On-Shift Position:									
7.	Sampling Activities On-Shift Position: Chemistry Specialist HP Count Room	X	X	X	X	X	X			
8.	Chemistry function/task #2 – Describe: On-Shift Position:									

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #5 – Fuel Handling Accident Outside Containment
TABLE 5 – Emergency Plan Implementation**

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Supervisor	OPs Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Supervisor	EP Drill Program
4.	Approve extension to allowable dose limits	N/A	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Supervisor	EP Drill Program
6.	ERO notification	Communicator (STS)	EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	N/A
8.	Complete State/local notification form	Shift Supervisor	OPs Training Program EP Drill Program
9.	Perform State/local notifications	Communicator (STS)	OPs Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Supervisor	EP Drill Program
11.	Activate ERDS	Communicator (STS)	EP Drill Program
12.	Offsite radiological assessment	N/A	N/A
13.	Perform NRC notifications	I&C Maintenance	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	Security Electrical Maintenance	N/A

Note: Lines #3, #8 and #9 include initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #7 – Design Basis Threat (DBT)
 TABLE 1 – On-Shift Positions

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table#/Line#	Unanalyzed Task?	TMS Required?
1.	Shift Supervisor	Table 2-1		2/1 5/1 5/3 5/5 5/7 5/8 5/10	No	No
2.	CR Supervisor	Table 2-1		2/2	No	No
3.	Shift Engineer (STA)	Table 2-1		2/3	No	No
4.	Control Room Operator (NRO)	Table 2-1		2/4	No	No
5.	Control Room Operator (BOP)	Table 2-1		2/5	No	No
6.	Auxiliary Operator (CBAO)	Table 2-1		2/6	No	No
7.	Auxiliary Operator (TBAO)	Table 2-1		2/7	No	No
8.	Auxiliary Operator (IBAO)	Table 2-1		2/8	No	No
9.	Auxiliary Operator (ABUAO)	Table 2-1		N/A	No	No
10.	Auxiliary Operator (ABLAO)	Table 2-1		N/A	No	No
11.	Shift Communicator (STS)	Table 2-1		5/6 5/9 5/11	No	No
12.	HP Shift Lead	Table 2-1	90	N/A	No	No
13.	HP Count Room	Table 2-1	90	N/A	No	No
14.	Chemistry Specialist	Table 2-1	90	N/A	No	No
15.	Mechanical Maintenance 1	Table 2-1		N/A	No	No
16.	Mechanical Maintenance 2	Table 2-1		N/A	No	No
17.	I&C Maintenance	Table 2-1		5/13	No	No
18.	Electrical Maintenance	Table 2-1		N/A	No	No
19.	Security Force Supervisor	Table 2-1		N/A	No	No

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #7 – Design Basis Threat (DBT)

TABLE 2 – Plant Operations & Safe Shutdown

Minimum Operations Crew (One Unit – One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Supervisor	Plant and crew oversight	OPs Training Program
2.	Unit Supervisor	CR Supervisor	Direct EOP and EPP-027 actions	OPs Training Program EP Drill Program
3.	Shift Technical Advisor	Shift Engineer (STA)	STA tasks	OPs Training Program
4.	Reactor Operator #1	Control Room Operator (NRO)	Perform CR EOP and EPP-027 actions	OPs Training Program EP Drill Program
5.	Reactor Operator #2	Control Room Operator (BOP)	Perform CR EOP and EPP-027 actions	OPs Training Program EP Drill Program
6.	Auxiliary Operator #1	Auxiliary Operator (CBAO)	Perform In-plant EOP actions	OPs Training Program
7.	Auxiliary Operator #2	Auxiliary Operator (TBAO)	Perform EPP-027 actions	EP Drill Program
8.	Other	Auxiliary Operator (IBAO)	Perform In-plant EOP actions	OPs Training Program
9.	Other	Auxiliary Operator (ABUAO)	N/A	N/A
10.	Other	Auxiliary Operator (ABLAO)	N/A	N/A

Other (non-Operations) Personnel

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
15.	Mechanic	Mechanical Maintenance 1	N/A	N/A
16.	Mechanic	Mechanical Maintenance 2	N/A	N/A
17.	I&C Technician	I&C Maintenance	N/A	N/A
18.	Electrician	Electrical Maintenance	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #7 – Design Basis Threat (DBT)
TABLE 3 – Firefighting

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader (AO)	N/A	N/A
2.	Fire Brigade Member #1 (AO)	N/A	N/A
3.	Fire Brigade Member #2 (AO)	N/A	N/A
4.	Fire Brigade Member #3 (Mechanical Maintenance 1)	N/A	N/A
5.	Fire Brigade Member #4 (Mechanical Maintenance 1)	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #7 – Design Basis Threat (DBT)
 TABLE 4 – Radiation Protection and Chemistry**

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)								
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
1.	In-Plant Radiological Survey On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.	On-Site Radiological Survey On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.	Personnel Monitoring On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4.	Job Coverage On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5.	Offsite Radiological Assessment On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.	Center Set-Up On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7.	Chemistry function/task #1 – Describe: On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8.	Chemistry function/task #2 – Describe: On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #7 – Design Basis Threat (DBT)

TABLE 5 – Emergency Plan Implementation

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Supervisor	OPs Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Supervisor	EP Drill Program
4.	Approve extension to allowable dose limits	N/A	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Supervisor	EP Drill Program
6.	ERO notification	Communicator (STS)	EP Drill Program
7.	Abbreviated NRC notification for DBT event	Shift Supervisor	EP Drill program
8.	Complete State/local notification form	Shift Supervisor	OPs Training Program EP Drill Program
9.	Perform State/local notifications	Communicator (STS)	OPs Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Supervisor	EP Drill Program
11.	Activate ERDS	Communicator	EP Drill Program
12.	Offsite radiological assessment	N/A	N/A
13.	Perform NRC notifications	I&C Maintenance	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	N/A

Note: Lines #3, #8 and #9 include initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #8 – Aircraft Probable Threat
TABLE 1 – On-Shift Positions**

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table#/Line#	Unanalyzed Task?	TMS Required?
1.	Shift Supervisor	Table 2-1		2/1 5/1 5/3 5/5 5/8 5/10	No	No
2.	CR Supervisor	Table 2-1		2/2	No	No
3.	Shift Engineer (STA)	Table 2-1		2/3	No	No
4.	Control Room Operator (NRO)	Table 2-1		2/4	No	No
5.	Control Room Operator (BOP)	Table 2-1		2/5	No	No
6.	Auxiliary Operator (CBAO)	Table 2-1		2/6	No	No
7.	Auxiliary Operator (TBAO)	Table 2-1		2/7	No	No
8.	Auxiliary Operator (IBAO)	Table 2-1		2/8	No	No
9.	Auxiliary Operator (ABUAO)	Table 2-1		2/9	No	No
10.	Auxiliary Operator (ABLAO)	Table 2-1		2/10	No	No
11.	Shift Communicator (STS)	Table 2-1		5/6 5/9 5/11	No	No
12.	HP Shift Lead	Table 2-1	90	N/A	N/A	N/A
13.	HP Count Room	Table 2-1	90	N/A	N/A	N/A
14.	Chemistry Specialist	Table 2-1	90	N/A	N/A	N/A
15.	Mechanical Maintenance 1	Table 2-1		2/12	No	No
16.	Mechanical Maintenance 2	Table 2-1		2/13	No	No
17.	I&C Maintenance	Table 2-1		5/13	No	No
18.	Electrical Maintenance	Table 2-1		N/A	N/A	N/A
19.	Security Force Supervisor	Table 2-1		N/A	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #8 – Aircraft Probable Threat
TABLE 2 – Plant Operations & Safe Shutdown**

Minimum Operations Crew (One Unit – One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Supervisor	Plant and crew oversight	OPs Training Program
2.	Unit Supervisor	CR Supervisor	Direct GOP/EPP actions	OPs Training Program
3.	Shift Technical Advisor	Shift Engineer (STA)	STA tasks	OPs Training Program
4.	Reactor Operator #1	Control Room Operator (NRO)	Perform GOP actions	OPs Training Program
5.	Reactor Operator #2	Control Room Operator (BOP)	Perform GOP actions	OPs Training Program
6.	Auxiliary Operator #1	Auxiliary Operator (CBAO)	Perform EPP-27 actions	OPs Training Program
7.	Auxiliary Operator #2	Auxiliary Operator (TBAO)	Perform EPP-27 actions	OPs Training Program
8.	Other	Auxiliary Operator (IBAO)	Perform EPP-27 actions	OPs Training Program
9.	Other	Auxiliary Operator (ABUAO)	EPP-27 ENC B actions	OPs Training Program
10.	Other	Auxiliary Operator (ABLAO)	Perform EPP-27 actions	OPs Training Program

Other (non-Operations) Personnel

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
15.	Mechanic	Mechanical Maintenance 1	N/A	N/A
16.	Mechanic	Mechanical Maintenance 2	N/A	N/A
17.	I&C Technician	I&C Maintenance	N/A*	N/A
18.	Electrician	Electrical Maintenance	N/A	N/A

* Reports to Control Room to support EP function of NRC Communicator

**Analysis Event #8 – Aircraft Probable Threat
TABLE 3 – Firefighting**

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader (AO)	N/A	N/A
2.	Fire Brigade Member #1 (AO)	N/A	N/A
3.	Fire Brigade Member #2 (AO)	N/A	N/A
4.	Fire Brigade Member #3 (Mechanical Maintenance 1)	N/A	N/A
5.	Fire Brigade Member #4 (Mechanical Maintenance 1)	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #8 – Aircraft Probable Threat
TABLE 4 – Radiation Protection and Chemistry**

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)								
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
1.	In-Plant Radiological Survey On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.	On-Site Radiological Survey On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.	Personnel Monitoring On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4.	Job Coverage On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5.	Offsite Radiological Assessment On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.	Center Set-Up On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7.	Chemistry function/task #1 – Describe: On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8.	Chemistry function/task #2 – Describe: On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #8 – Aircraft Probable Threat
TABLE 5 – Emergency Plan Implementation

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Supervisor	OPs Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	N/A
3.	Approve content of State/local notifications	Shift Supervisor	EP Drill Program
4.	Approve extension to allowable dose limits	N/A	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Supervisor	EP Drill Program
6.	ERO notification	Communicator (STS)	EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	N/A
8.	Complete State/local notification form	Shift Supervisor	OPs Training Program EP Drill Program
9.	Perform State/local notifications	Communicator (STS)	OPs Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Supervisor	EP Drill Program
11.	Activate ERDS	Communicator (STS)	EP Drill Program
12.	Offsite radiological assessment	N/A	N/A
13.	Perform NRC notifications	I&C Maintenance	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	N/A

Note: Lines #3, #8 and #9 include initial and follow-up State/local notifications.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #9 – Control Room Fire Leading to Evacuation
 TABLE 1 – On-Shift Positions

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table#/Line#	Unanalyzed Task?	TMS Required?
1.	Shift Supervisor	Table 2-1		2/1 5/1 5/3 5/5 5/8 5/10	No	No
2.	CR Supervisor	Table 2-1		2/2	No	No
3.	Shift Engineer (STA)	Table 2-1		2/3	No	No
4.	Control Room Operator (NRO)	Table 2-1		2/4	No	No
5.	Control Room Operator (BOP)	Table 2-1		2/5	No	No
6.	Auxiliary Operator (CBAO)	Table 2-1		3/1	No	No
7.	Auxiliary Operator (TBAO)	Table 2-1		3/2	No	No
8.	Auxiliary Operator (IBAO)	Table 2-1		2/8	No	No
9.	Auxiliary Operator (ABUAO)	Table 2-1		2/9	No	No
10.	Auxiliary Operator (ABLAO)	Table 2-1		3/3	No	No
11.	Shift Communicator (STS)	Table 2-1		2/11	No	No
12.	HP Shift Lead	Table 2-1	90	N/A	N/A	N/A
13.	HP Count Room	Table 2-1	90	N/A	N/A	N/A
14.	Chemistry Specialist	Table 2-1	90	N/A	N/A	N/A
15.	Mechanical Maintenance 1	Table 2-1		3/4	No	No
16.	Mechanical Maintenance 2	Table 2-1		3/5	No	No
17.	I&C Maintenance	Table 2-1		5/6 5/9 5/13	No	No
18.	Electrical Maintenance	Table 2-1		2/18	No	No
19.	Security Force Supervisor	Table 2-1		N/A	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #9 – Control Room Fire Leading to Evacuation
TABLE 2 – Plant Operations & Safe Shutdown**

Minimum Operations Crew (One Unit – One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Supervisor	Plant and crew oversight	OPs Training Program
2.	Unit Supervisor	CR Supervisor	Perform FEP-4.0 actions	OPs Training Program
3.	Shift Technical Advisor	Shift Engineer (STA)	STA tasks	OPs Training Program
4.	Reactor Operator #1	Control Room Operator (NRO)	Perform FEP-4.0 actions	OPs Training Program
5.	Reactor Operator #2	Control Room Operator (BOP)	Perform FEP-4.0 actions	OPs Training Program
6.	Auxiliary Operator #1	Auxiliary Operator (CBAO)	N/A	N/A
7.	Auxiliary Operator #2	Auxiliary Operator (TBAO)	N/A	N/A
8.	Other	Auxiliary Operator (IBAO)	Perform FEP-4.0 actions	OPs Training Program
9.	Other	Auxiliary Operator (ABUAO)	Perform FEP-4.0 actions	OPs Training Program
10.	Other	Auxiliary Operator (ABLAO)	N/A	N/A

Other (non-Operations) Personnel

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
11.	Other	Shift Communicator (STS)	Perform FEP-4.0 actions	Fire Protection Program
15.	Mechanic	Mechanical Maintenance 1	N/A	N/A
16.	Mechanic	Mechanical Maintenance 2	N/A	N/A
17.	I&C Technician	I&C Maintenance	N/A	N/A
18.	Electrician	Electrical Maintenance	Perform FEP-4.0 actions	Fire Protection Program

**Analysis Event #9 – Control Room Fire Leading to Evacuation
TABLE 3 – Firefighting**

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader (CBAO)	Firefighting Activities	Fire Protection Program
2.	Fire Brigade Member #1 (TBAO)	Firefighting Activities	Fire Protection Program
3.	Fire Brigade Member #2 (ABLAO)	Firefighting Activities	Fire Protection Program
4.	Fire Brigade Member #3 (Mechanical Maintenance 1)	Firefighting Activities	Fire Protection Program
5.	Fire Brigade Member #4 (Mechanical Maintenance 1)	Firefighting Activities	Fire Protection Program

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #9 – Control Room Fire Leading to Evacuation
TABLE 4 – Radiation Protection and Chemistry**

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)								
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
1.	In-Plant Radiological Survey On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.	On-Site Radiological Survey On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.	Personnel Monitoring On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4.	Job Coverage On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5.	Offsite Radiological Assessment On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6.	Center Set-Up On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7.	Chemistry function/task #1 – Describe: On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8.	Chemistry function/task #2 – Describe: On-Shift Position:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #9 – Control Room Fire Leading to Evacuation
TABLE 5 – Emergency Plan Implementation

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Supervisor	OPs Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Supervisor	EP Drill Program
4.	Approve extension to allowable dose limits	N/A	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Supervisor	EP Drill Program
6.	ERO notification	I&C Maintenance	EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	N/A
8.	Complete State/local notification form	Shift Supervisor	OPs Training Program EP Drill Program
9.	Perform State/local notifications	I&C Maintenance	OPs Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Supervisor	EP Drill Program
11.	Activate ERDS	None	None
12.	Offsite radiological assessment	N/A	EP Drill Program
13.	Perform NRC notifications	I&C Maintenance	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	N/A

Note: Lines #3, #8 and #9 include initial and follow-up State/local notifications.
Line #11: capability to activate ERDS when Control Room is not habitable does not exist at this time.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #10 – Station Blackout (SBO)
TABLE 1 – On-Shift Positions

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table#/Line#	Unanalyzed Task?	TMS Required?
1.	Shift Supervisor	Table 2-1		2/1 5/1 5/3 5/5 5/8 5/10	No	No
2.	CR Supervisor	Table 2-1		2/2	No	No
3.	Shift Engineer (STA)	Table 2-1		2/3	No	No
4.	Control Room Operator (NRO)	Table 2-1		2/4	No	No
5.	Control Room Operator (BOP)	Table 2-1		2/5	No	No
6.	Auxiliary Operator (CBAO)	Table 2-1		N/A	N/A	N/A
7.	Auxiliary Operator (TBAO)	Table 2-1		2/7	No	No
8.	Auxiliary Operator (IBAO)	Table 2-1		N/A	N/A	N/A
9.	Auxiliary Operator (ABUAO)	Table 2-1		2/9	N/A	N/A
10.	Auxiliary Operator (ABLAO)	Table 2-1		N/A	N/A	N/A
11.	Shift Communicator (STS)	Table 2-1		5/6 5/9 5/11	No	No
12.	HP Shift Lead	Table 2-1	90	4/1	No	No
13.	HP Count Room	Table 2-1	90	N/A	N/A	N/A
14.	Chemistry Specialist	Table 2-1	90	N/A	N/A	N/A
15.	Mechanical Maintenance 1	Table 2-1		N/A	N/A	N/A
16.	Mechanical Maintenance 2	Table 2-1		N/A	N/A	N/A
17.	I&C Maintenance	Table 2-1		5/13 5/15	No	No
18.	Electrical Maintenance	Table 2-1		N/A	N/A	N/A
19.	Security Force Supervisor	Table 2-1		5/15	No	No

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #10 – Station Blackout (SBO)
TABLE 2 – Plant Operations & Safe Shutdown**

Minimum Operations Crew (On Units – One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Supervisor	Plant and crew oversight	OPs Training Program
2.	Unit Supervisor	CR Supervisor	Directs EOP actions	OPs Training Program
3.	Shift Technical Advisor	Shift Engineer (STA)	STA tasks	OPs Training Program
4.	Reactor Operator #1	Control Room Operator (NRO)	Performs EOP actions	OPs Training Program
5.	Reactor Operator #2	Control Room Operator (BOP)	Performs EOP actions	OPs Training Program
6.	Auxiliary Operator #1	Auxiliary Operator (CBAO)	N/A	N/A
7.	Auxiliary Operator #2	Auxiliary Operator (TBAO)	Performs in-plant actions	OPs Training Program
8.	Other	Auxiliary Operator (IBAO)	N/A	N/A
9.	Other	Auxiliary Operator (ABUAO)	Performs in-plant actions	Ops Training Program
10.	Other	Auxiliary Operator (ABLAO)	N/A	N/A

Other (non-Operations) Personnel

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
15.	Mechanic	Mechanical Maintenance 1	N/A	N/A
16.	Mechanic	Mechanical Maintenance 2	N/A	N/A
17.	I&C Technician	I&C Maintenance	N/A	N/A
18.	Electrician	Electrical Maintenance	N/A	N/A

**Analysis Event #10 – Station Blackout (SBO)
TABLE 3 – Firefighting**

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader (AO)	N/A	N/A
2.	Fire Brigade Member #1 (AO)	N/A	N/A
3.	Fire Brigade Member #2 (AO)	N/A	N/A
4.	Fire Brigade Member #3 (Mechanical Maintenance 1)	N/A	N/A
5.	Fire Brigade Member #4 (Mechanical Maintenance 1)	N/A	N/A

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

**Analysis Event #10 – Station Blackout (SBO)
 TABLE 4 – Radiation Protection and Chemistry**

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)								
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
1.	In-Plant Radiological Survey On-Shift Position: HP Shift Lead			X						
2.	On-Site Radiological Survey On-Shift Position:									
3.	Personnel Monitoring On-Shift Position:									
4.	Job Coverage On-Shift Position:									
5.	Offsite Radiological Assessment On-Shift Position:									
6.	Center Set-Up On-Shift Position:									
7.	Chemistry function/task #1 – Describe: On-Shift Position:									
8.	Chemistry function/task #2 – Describe: On-Shift Position:									

Note: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks will be analyzed as part of the time motion study.

Attachment 2: NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

Analysis Event #10 – Station Blackout (SBO)
TABLE 5 – Emergency Plan Implementation

Line	Function/Task	On-Shift Position	Task Analysis Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Supervisor	OPs Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Supervisor	EP Drill Program
4.	Approve extension to allowable dose limits	N/A	N/A
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Supervisor	EP Drill Program
6.	ERO notification	Communicator (STS)	EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	N/A
8.	Complete State/local notification form	Shift Supervisor	OPs Training Program EP Drill Program
9.	Perform State/local notifications	Communicator (STS)	OPs Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Supervisor	EP Drill Program
11.	Activate ERDS	Communicator (STS)	EP Drill Program
12.	Offsite radiological assessment	N/A	N/A
13.	Perform NRC notifications	I&C Maintenance	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	Security I&C Maintenance	N/A

Note: Lines #3, #8 and #9 include initial and follow-up State/local notifications.

Attachment 3: NEI 10-05 Appendix D&E On-Shift Staffing Analysis Results Tables

Analysis Event #2 – Steam Generator tube Rupture (SGTR)

Position: HP Count Room

Line #: 1-13

Appendix D: Function / Responsibility (Task) Analysis

Function	Responsibility (Task)	Action Step	Duration
1. Radiological Assessment	1.1 Perform Dose Assessment (4/5)	EPP-005 Step 4.2 & Attachment XXII Step B	12

Appendix E: Work Activities Analysis

Time	Plant/equipment/environmental events and conditions applicable to the functions and tasks	Task / Action Step description (start & stop)
0955	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Receive call to perform dose assessment (0955 - 0956)
0956	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Read procedure (0956 - 0958)
1003	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Adjust printer (1003 - 1003.5)
1004	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Start MIDAS Program (1004 – 1005)
1005	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Entered data (1005 – 1005.5)
1024	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Call IED with results (1006 – 1007)

Attachment 3: NEI 10-05 Appendix D&E On-Shift Staffing Analysis Results Tables

Analysis Event #3 – Fuel Handling Accident (FHA)

Position: HP Count Room

Line #: 1-13

Appendix D: Function / Responsibility (Task) Analysis

Function	Responsibility (Task)	Action Step	Duration
1. Radiological Assessment	1.1 Perform Dose Assessment (4/5)	EPP-005 Step 4.2 & Attachment XXII Step B	12

Appendix E: Work Activities Analysis

Time	Plant/equipment/environmental events and conditions applicable to the functions and tasks	Task / Action Step description (start & stop)
1035	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Receive call to perform dose assessment (1035 - 1036)
1037	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Read procedure (1037 - 1038)
1038	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Adjust printer (1038 - 1038.5)
1038	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Start MIDAS Program (1038 – 1038.5)
1038.5	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Entered data (1038.5 – 1046)
1046	Actions completed in the HP Count Room. Refer to section 3.4.8.2 for event and conditions description.	Call IED with results (1046 – 1047)

**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) Unit 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12**

ATTACHMENT V

Proposed Radiation Emergency Plan (EP-100 Revision 63) (Mark-Up)

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
NUCLEAR OPERATIONS

NUCLEAR OPERATIONS
COPY NO. _____

RADIATION EMERGENCY PLAN

EP-100
REVISION **xx**

This text box is administrative and must be removed prior to effectiveness. Revision to this procedure is being done in preparation to support submittal to the NRC. This procedure must be validated and additional revisions beyond what is referenced here, Revision 63 of the Unit 1 plan, and performed under 50.54(q) or made after September 13, 2013 need to be evaluated for incorporation into this procedure before implementation.

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Part 1: Introduction

Section A: Purpose

As required in the conditions set forth by the Nuclear Regulatory Commission (NRC) for the operating licenses for the Virgil C. Summer Nuclear Station (VCSNS) Units 1, 2, and 3 the management of South Carolina Electric & Gas Company (SCE&G) recognizes its responsibility and authority to operate and maintain the nuclear power station in such a manner as to provide for the safety of the general public. This document describes the VCSNS Radiation Emergency Preparedness Program. The philosophy that guides the development and maintenance of this program is the protection of the health and safety of the general public in the communities around the nuclear power station and the personnel who work at VCSNS.

This Radiation Emergency Plan (Emergency Plan) establishes the concepts, evaluation and assessment criteria, and protective actions that are necessary in order to limit and mitigate the consequences of potential or actual radiological emergencies. It has been prepared to establish the procedures and practices for management control over unplanned or emergency events that may occur at VCSNS. It also provides the necessary prearrangements, directions, and organization so that all nuclear emergencies can be effectively and efficiently resolved.

The VCSNS Emergency Preparedness Program consists of the Emergency Plan, Unit Annexes, Emergency Plan Implementing Procedures (EIPs), and associated program administrative documents. The VCSNS Emergency Plan outlines the basis for response actions that would be implemented in an emergency. This document is not intended to be used as a procedure.

The Unit Annexes are parts of the Emergency Plan and are subject to the same review and audit requirements as the Emergency Plan. In the areas where the Unit Annexes deviate from the general requirements of the Emergency Plan, the Unit Annex shall serve as the controlling document.

The information that is in the Plan need not be restated in the Unit Annexes. The Annexes shall address any differences between co-located units operated by SCE&G.

Annex Format and Specific Content: As a minimum, the Unit Annexes shall address the areas described as follows:

Section 1: Introduction

The unit description is provided along with the inclusion of maps, drawings, and/or diagrams. It describes the specifics of each unit and its location. A summary statement describes the Annex's interface with the Emergency Plan.

Section 2: Organizational Control of Emergencies

Unit-specific on-shift staffing is outlined in the Unit Annexes to the Emergency Plan. The on-call Emergency Response Organization (ERO) positions are outlined in Section B of the Emergency Plan.

Section 3: Classification of Emergencies

Emergency Action Levels (EALs) are developed for all emergency classes for the purpose of event classification. The EALs are incorporated into the implementing procedures for Activation and Implementation of Emergency Plan for each technology.

Section 4: Emergency Facilities and Equipment

A description of unit-specific facilities and equipment available for use during an emergency response or to support the remainder of the site is included in each Unit Annex.

Section 5: Emergency Measures

A description of unit-specific personnel protective actions, assembly areas, and evacuation routes are discussed.

Detailed EIPs are maintained separately and are used to guide those responsible for implementing emergency response actions.

Section B: Background

Facility Description

The VCSNS site is on the east side of the Broad River in western Fairfield County. The Unit 1 power block area (generating facilities and switchyard) is on the south shore of the Monticello Reservoir. Units 2 and 3 are approximately 1 mile south-southwest of Unit 1. An exclusion area, defined as the area within approximately 1 mile of Unit 1 combined with the area 3,390 feet from the center of Units 2 and 3 (the Exclusion Area Boundary), is posted and access to land portions of this area is controlled. The Exclusion Area Boundary encompasses approximately 2,560 acres. It includes the southern portion of the Monticello Reservoir and parts of the Fairfield Pumped Storage Facility.

The largest industrial center nearest to the site is Columbia, which is approximately 26 miles southeast of the site. The nearest community is Jenkinsville, approximately three miles southeast of the site. The closest primary public road is SC 215 which lies approximately 6,800 feet east of the Unit 1 reactor building centerline and is outside the exclusion area. Highway access to the station is via SC 215 from Columbia or by Interstate 26 to US 176, and then to SC 213 and SC 215.

Figure 1-1 shows the general location of VCSNS.

Figure 1-2 shows the Exclusion Area Boundary (EAB) for Units 1, 2, and 3.

Within the EAB, ownership is divided between SCE&G and Santee Cooper. Pursuant to the VCSNS owner's agreement authorizing the development, construction, licensing, and operation of generating units, SCE&G, for itself and as agent for the co-owner, retains complete authority to regulate any and all access and activity within the entire exclusion area.

Emergency Planning Zones

The Exposure Pathway Emergency Planning Zone (EPZ) for the VCSNS is an area surrounding the VCSNS site with Unit 1 at the center and having a radius of about ten (10) miles (exact boundaries are determined in concurrence with state and county authorities). Figure 1-3 shows the EPZ and PAZ. Principal exposure sources from the plume exposure pathway are (a) external exposure to gamma and beta radiation from the plume and from deposition materials and (b) exposure of the internal organs to gamma and beta radiation from inhaled radioactive gases and/or radioactive particles. The time of potential exposure can range from hours to days.

The Ingestion Pathway Emergency Planning Zone (IPZ) is an area surrounding the station with Unit 1 as the center and having a radius of about fifty (50) miles. The primary exposure source from the ingestion exposure pathway is the ingestion of contaminated fresh vegetables and milk. The time of potential exposure can range from hours to months. Figure 1-4 shows the Ingestion Pathway EPZ.

In the context of this Emergency Plan, including the Unit Annexes and Emergency Plan Procedures (EPP), SCE&G manages the operations of the VCSNS.

The primary hazard consideration at the nuclear power station is the potential unplanned release of radioactive material resulting from an accident. The probability of such a release is considered very low due to the design of the units and strict operational guidelines enforced by the NRC. Notwithstanding, federal regulations require that a solid Emergency Preparedness Program exist for each commercial nuclear power station. A detailed description of the station is provided in each units' Final Safety Analysis Report (FSAR).

To minimize the number of ad hoc decisions made during an emergency and to ensure that necessary equipment, supplies, and essential services are available to meet the needs of an emergency, SCE&G has developed this Emergency Plan. This Emergency Plan is applicable to VCSNS and considers the consequences of radiological emergencies, as required by 10 CFR 50.47 and 10 CFR 50 Appendix E.

In addition, this plan addresses guidance and adheres to the intent of the criteria established and provided within NUREG-0654/FEMA-REP-1 Rev. 1 (NUREG-0654), which is a joint NRC and Federal Emergency Management Agency (FEMA) document. Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," endorses the criteria and recommendations in NUREG-0654, as methods acceptable to the NRC staff for complying with the standards in 10 CFR 50.47.

The Emergency Plan also considers the consequences of nonradiological emergencies.

Section C: Scope

This document describes actions to be taken in the event of a radiological accident at the VCSNS that may impact the health and safety of the general public or station employees. It also serves to limit the damage to facilities and property, and provides for the restoration of such facilities in the event of an emergency. If such an accident were to occur, the ERO would be put in place and maintained until such time when the plant is returned to a stable condition and the threat to the general public or station personnel no longer exists. This plan describes the functions and operation of the ERO, including assignments of authority and responsibility. It does not, nor is it intended to, provide guidance for actual plant equipment manipulations. These instructions are contained in site-specific normal and Emergency Operating Procedures (EOP) as required by Technical Specifications and other regulatory guidance. The Emergency Plan provides for: identification and evaluation of emergency situations, protective measures, communications, coordination and notification of governmental authorities, document review and control, emergency preparedness assessment, and training of all emergency response personnel. A method for recovering from a declared emergency is also described in this plan.

Section D: Planning Basis

The Emergency Plan, in conjunction with the Unit Annexes and the emergency plan procedures and administrative procedures, documents the methods by which the VCSNS Emergency Preparedness Program meets the planning standards set forth in 10 CFR 50.47(b) and the requirements of 10 CFR 50 Appendix E. Development of the Emergency Plan was based on NUREG-0654.

Acceptable alternate methods, which deviate from NUREG-0654, are allowed under Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors." However, any and all deviations will be documented in the Unit Annexes and evaluated as continuing to meet the Planning Standards of 10 CFR 50.47(b) and 10 CFR 50 Appendix E under the 10 CFR 50.54(q) process. This evaluation process is employed to ensure the continued effectiveness of the Emergency Plan and respective Unit Annexes.

Other applicable regulations, publications, and guidance were used (see Appendix 1, "References") along with site-specific documents to ensure consistency in the planning effort.

Section E: Contiguous-Jurisdiction Emergency Planning

The Emergency Plan recognizes the state of South Carolina, in cooperation with the EPZ counties (Fairfield, Lexington, Newberry, & Richland), as the overall authority responsible for Protective Action Directives (PADs) in order to protect the health and safety of the general public.

Section F: Integrated Guidance and Criteria

This plan was developed in conjunction with federal, state, and county emergency response plans to ensure a consistent and integrated response to a classified event.

Section G: Funding and Technical Assistance

SCE&G is dedicated to providing the level of support necessary, as dictated by federal regulation, to ensure appropriate integration of the state, county, and VCSNS radiological emergency preparedness programs.

Section H: Emergency Response Organization

SCE&G acknowledges its primary responsibility for planning and implementing emergency measures within the EAB and for overall plant accident assessment. These emergency measures include corrective actions, protective measures, and aid for personnel onsite. To accomplish these responsibilities, SCE&G has established an augmented ERO that will be mobilized to provide the initial response to an event classified as an Alert, Site Area Emergency, or General Emergency. The ERO may be partially or fully activated during an Unusual Event, if the Interim Emergency Director (IED) determines their assistance is needed to mitigate the event. In addition, advance arrangements have been made with offsite organizations for special emergency assistance such as ambulance, medical, hospital, fire, and police services.

In the longer time frame, a framework for a Recovery Organization is set forth in this plan. It is recognized that the normal station organization will be used for much of the recovery effort, with additional resources identified at the time of the event.

Section I: Federal Response

Provisions are made within the Emergency Plan for the integration of appropriate elements of federal assistance activities. Arrangements have been made to accommodate a federal response organization presence in the VCSNS emergency response facilities as well as support communications between VCSNS and federal emergency facilities.

Section J: Form and Content of Plan

In accordance with regulatory guidance provided in NUREG-0800, the Emergency Plan is referenced in Chapter 13 of the VCSNS FSAR. The Emergency Plan is administratively maintained as a separate document.

Appendix 3, List of Emergency Plan Procedures, provides a subject matter cross-reference between the NUREG-0654 evaluation criteria and the EIPs and applicable administrative documents. Appendix 6 is a specific requirements cross-reference between the Emergency Plan and 10CFR50 Appendix E, 10CFR50.47, NUREG-0654.

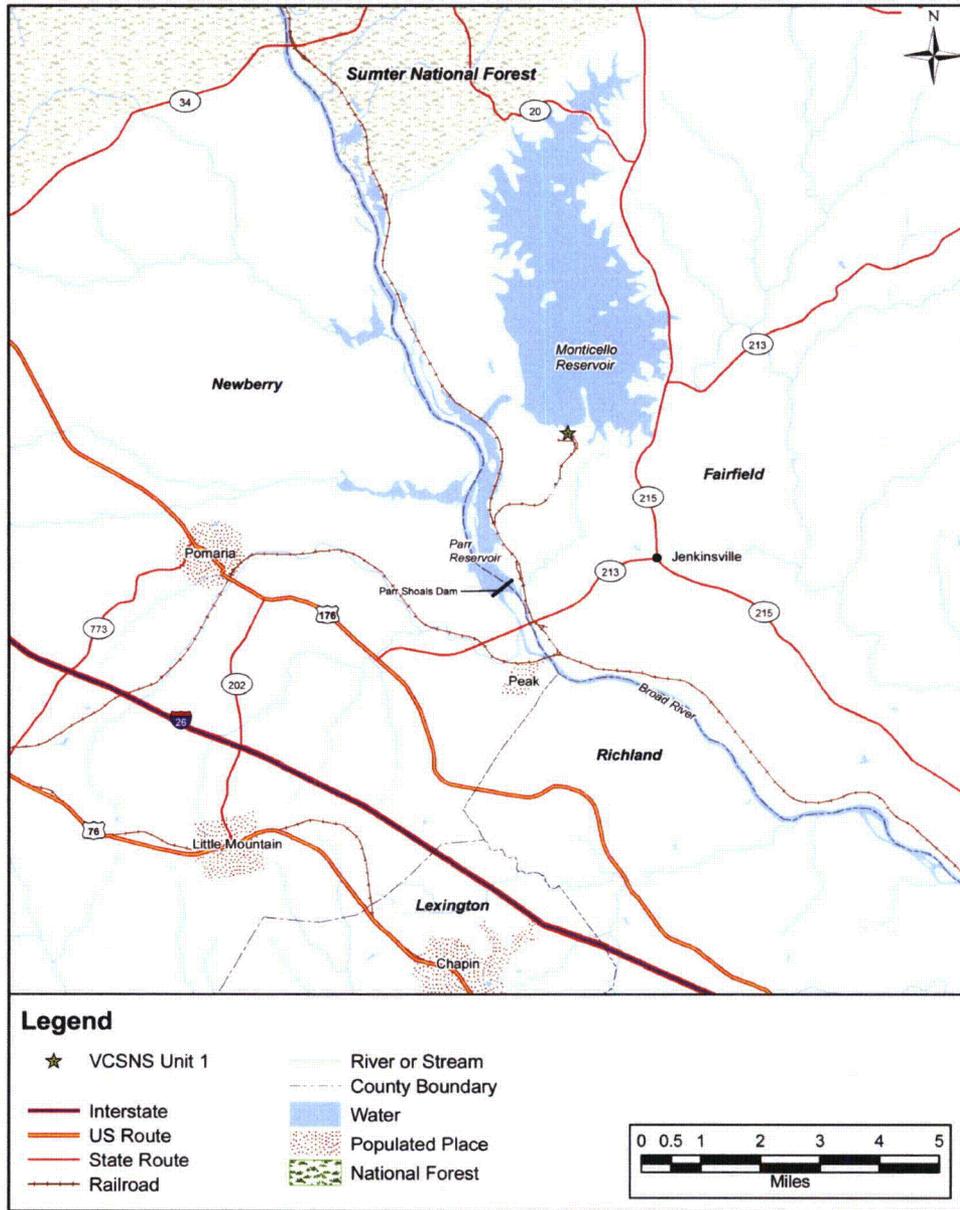


Figure 1-1: General Location of the Site and Surrounding Area

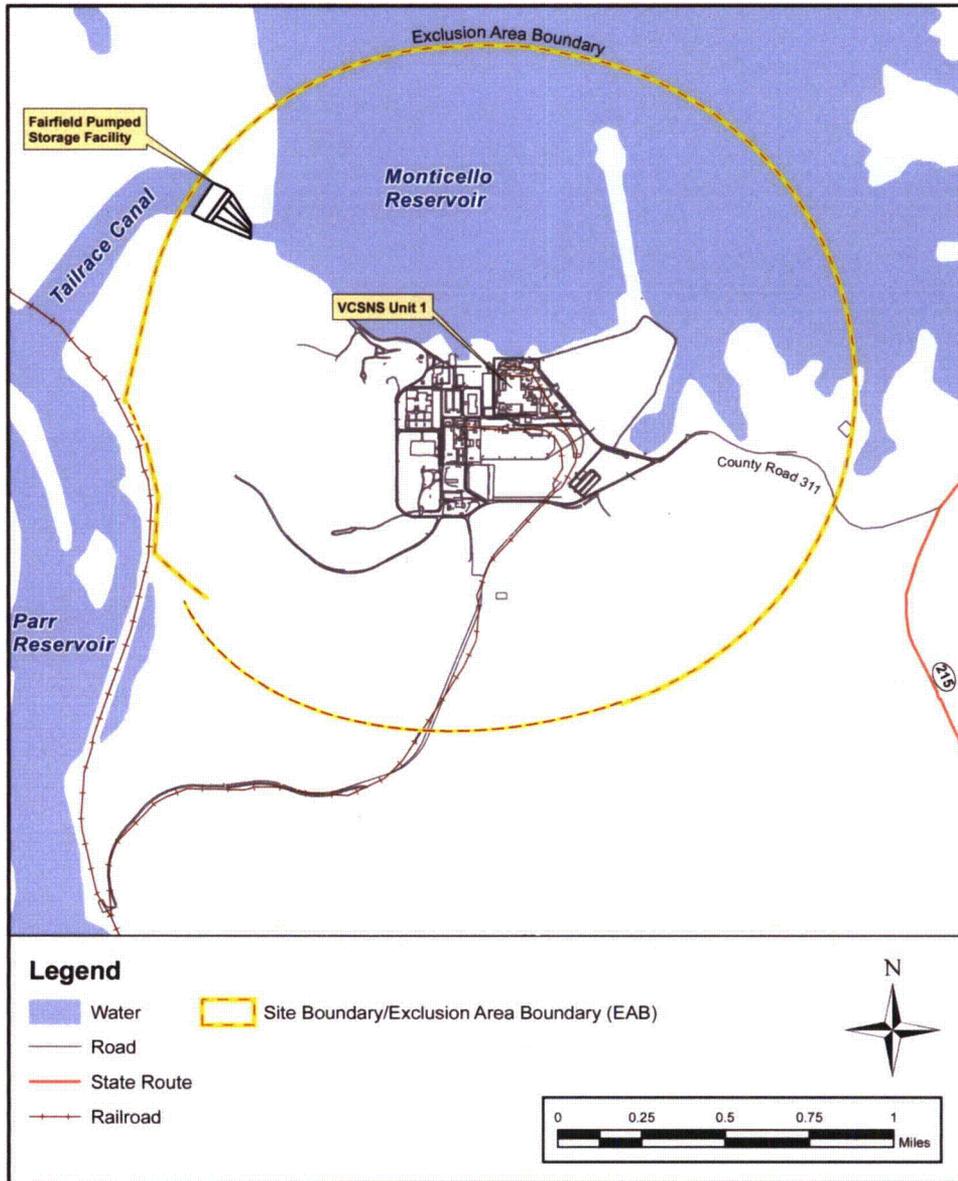


Figure 1-2: V. C. Summer Site Layout

Part 1: Introduction
V. C. Summer Nuclear Station

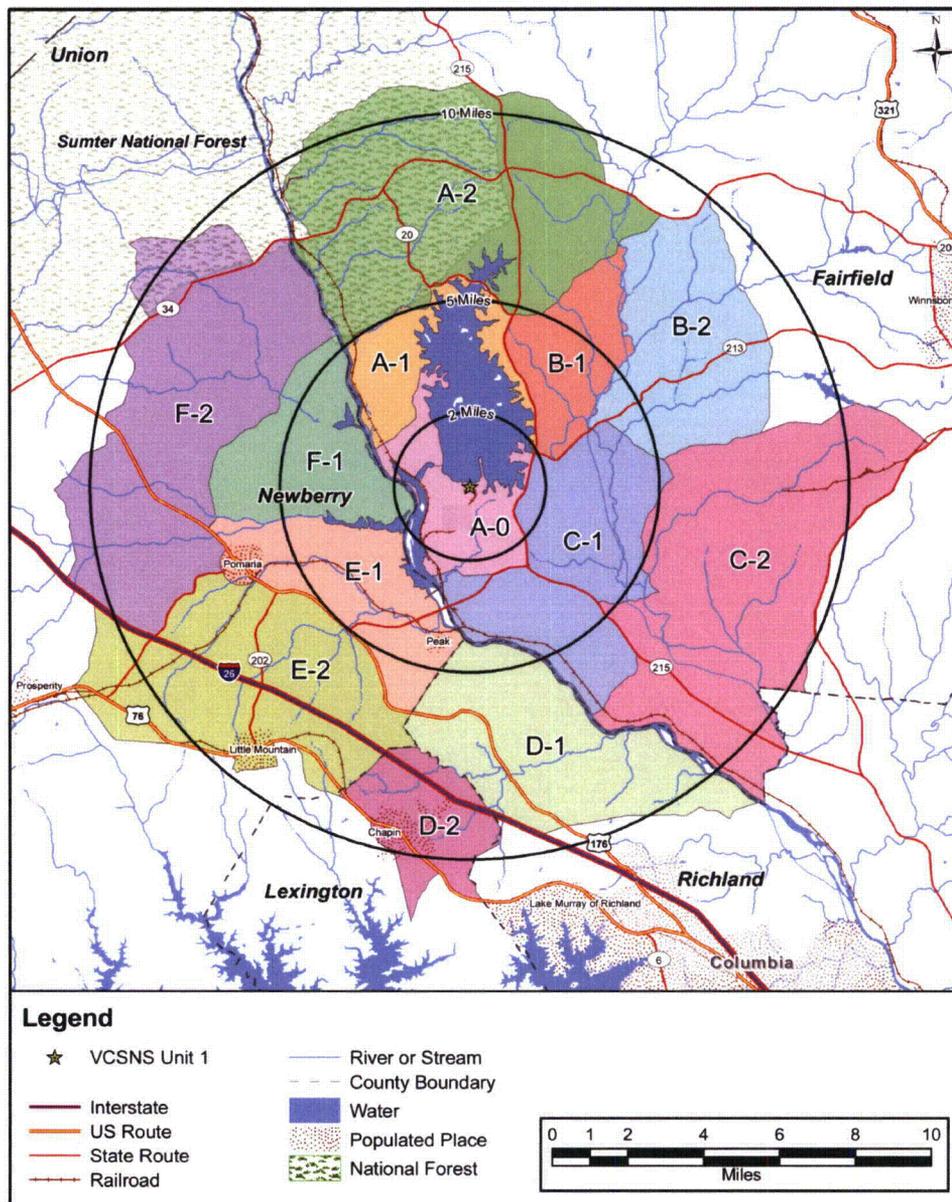


Figure 1-3: 10-Mile Emergency Planning Zone (Exposure Pathway)

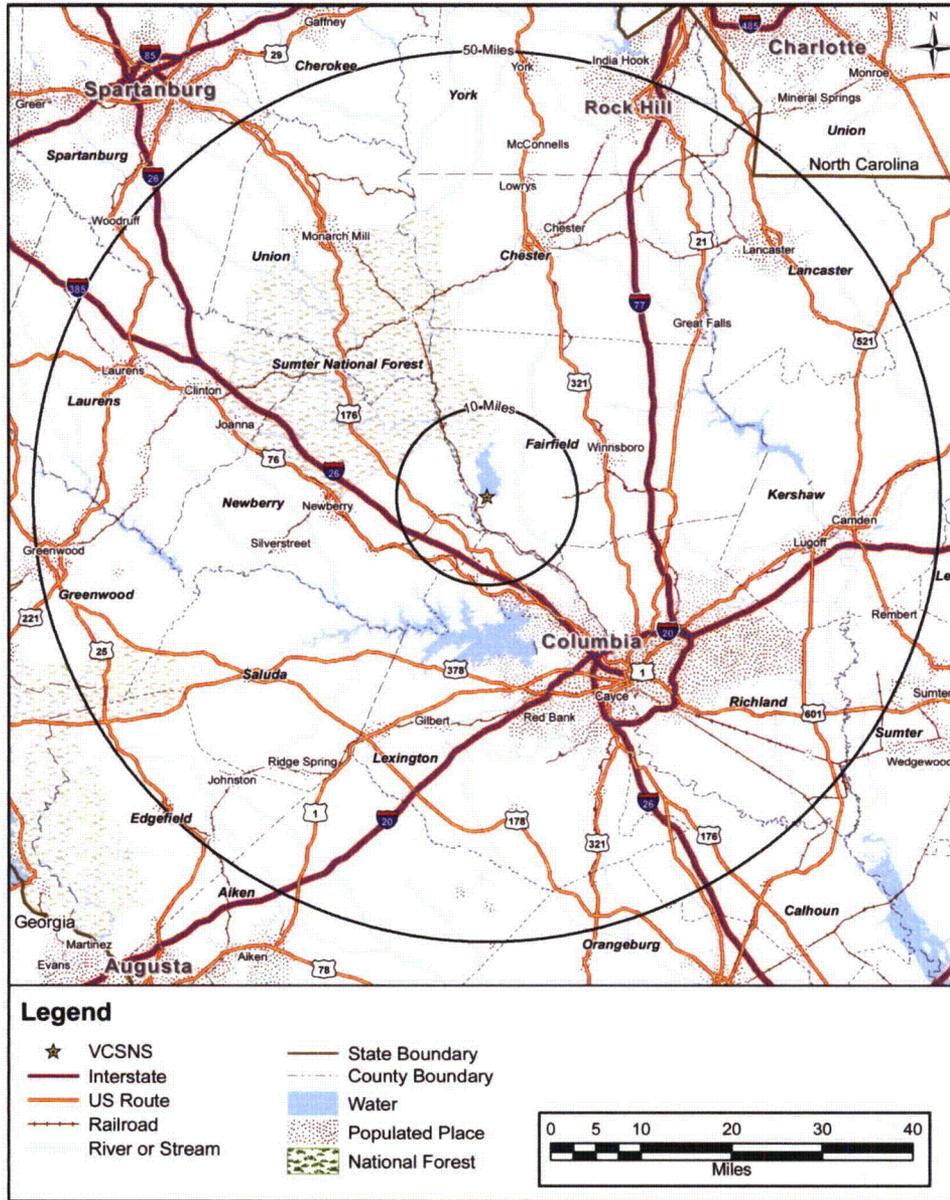


Figure 1-4: 50-Mile Emergency Planning Zone (Ingestion Pathway)

Part 2: Planning Standards and Criteria**Section A: Assignment of Responsibility**

This section describes the primary responsibilities and organizational control of SCE&G, federal, state, county, and other EROs within the plume exposure pathway and the ingestion pathway zones. Various supporting organizations are also described as well as staffing for initial and continuous response.

1. Concept of Operations

The relationships and the concept of operations for the organizations and agencies that are a part of the overall ERO are as follows:

aA. Identified below are federal, state, and county organizations (and other local governmental agencies) that are involved in a response to an emergency at VCSNS (Figure A-1).

- 1) **Federal Agencies:** The National Response Framework (NRF) outlines federal statutory and regulatory responsibilities during incidents requiring a coordinated federal response. The primary federal response for supporting an emergency at VCSNS includes:
 - a) **Nuclear Regulatory Commission (NRC):** The NRC Regional Office has the responsibility for the auditing of nuclear power stations. It is responsible for ensuring that such activities are conducted in accordance with the terms and conditions of such NRC licenses and that as a result of such operations, there is no undue risk to the health and safety of the public.

The NRC Office of Nuclear Reactor Regulation, established by the Energy Reorganization Act of 1974, as amended, performs licensing functions associated with the construction and operation of nuclear reactors and with the receipt, possession, ownership, and use of special nuclear and byproduct materials used at reactor facilities.

With regard to emergency preparedness, the NRC shall:

- Assess licensee emergency plans for adequacy
- Review the FEMA findings and determinations on the adequacy and capability of implementation of state and local plans
- Make decisions with regard to the overall state of emergency preparedness and issuance of operating licenses

The NRC shall respond to incidents at licensed facilities or vehicular accidents involving licensed materials, in transit. Within the sphere of the NRF, the NRC shall act as a Coordinating Agency. In this role the NRC:

- Performs an independent assessment of the incident and potential offsite consequences and, as appropriate, provides recommendations concerning any protective measures
- Performs oversight of the licensee, to include monitoring, evaluation of protective action recommendations (PARs), advice, assistance, and, as appropriate, direction
- Dispatches, when appropriate, an NRC site team of technical experts to the licensee's facility

Under certain situations involving the protection of public health/safety or national security, the NRC may take possession of special nuclear materials and/or operate certain facilities regulated by the NRC. FEMA shall act as the lead federal agency for offsite, nontechnical concerns.

During an incident, the Chairman of the Commission is the senior NRC authority for all aspects of a response. The Chairman shall transfer control of emergency response activities to the Director of Site Operations when deemed appropriate by the Chairman.

All NRC Regions as well as Headquarters are prepared to respond to potential emergencies. All Regions and Headquarters have developed plans and procedures for responding to radiological incidents involving NRC licensees. Headquarters has developed the NRC Incident Response Plans and Implementing Procedures. Each NRC Region has developed Regional Supplements that detail how the Region will fulfill all of the responsibilities assigned in the NRC Incident Response Plan. All NRC organizations are responsible for maintaining an effective state of preparedness through periodic training, drills, and exercises.

Each Region and Headquarters has established and maintains an Incident Response Center designed to centralize and coordinate the emergency response function. Adequate communications are established to link the licensee, Headquarters, and the Region. The NRC has established lines of communications with local government, state government, other federal agencies, Congress and the White House. Public information will be disseminated in a timely manner and periodically.

Each Region is prepared to send a team of qualified specialists to the scene expeditiously. All of the necessary supplies and equipment needed for emergency response will be provided and maintained by the NRC.

The NRC Incident Response Plan objectives are to provide for protection of the public health and safety, property, and the environment, from the effects of radiological incidents that may occur at licensed facilities or which involve licensed materials, including radionuclides in transit.

The objectives of the agency plan set forth the organizational and management concepts and responsibilities needed to ensure that NRC has an effective emergency response program.

The NRC Incident Response Plan is intended to ensure NRC preparedness:

- To receive and evaluate notification information of incidents, accidents, and unusual events and determine the extent of NRC response necessary to meet NRC responsibilities for mitigating the consequences of these events
 - To determine the cause of incidents, accidents, and unusual events in order to ensure that appropriate corrective actions are taken by the licensee to minimize the consequences of these events
 - To provide onsite expertise in a timely manner, to evaluate the nature and extent of the incident, ascertain plant status (for reactors and fuel facilities), monitor licensee activities, determine compliance, make recommendations, and, if necessary, issue orders relative to the event
 - To inform the public and others of plant status and technical details concerning the incident
 - To recommend adequate protective actions to the responsible local and/or state agencies
 - To provide technical assistance
 - To ensure the plant is returned to a safe condition
 - To return the NRC Headquarters and Regional office to normal operations
- b) Federal Emergency Management Agency (FEMA): Per the National Response Framework (NRF), FEMA, a division of the Department of Homeland Security (DHS) is responsible for the overall coordination of a multiagency federal response to a significant radiological incident. The primary role of FEMA is to support the state by coordinating the delivery of federal nontechnical assistance. FEMA coordinates state requests for federal assistance, identifying which federal agency can best address specific needs. If deemed necessary by FEMA, it will establish a Homeland Security Operations Center (HSOC) from which it will manage its assistance activities.
- c) U.S. Department of Energy (DOE): The DOE has extensive radiological monitoring equipment and personnel resources that it can assemble and dispatch to the scene of a radiological incident. The DOE local operations office at Savannah River Site can assist VCSNS following a radiological incident as outlined in the Federal Radiological Monitoring and Assessment Plan (FRMAP). If VCSNS or the affected states deem that assistance from DOE is necessary or desirable, they will request that assistance using the proper channels. VCSNS will contact the U.S. NRC Headquarters and the affected state(s) will make contact through DHS.

- d) Environmental Protection Agency (EPA): Assists with field radiological monitoring/sampling and non-plant related recovery and reentry guidance.
- e) Federal Bureau of Investigation (FBI): Support from the FBI is available through its statutory responsibility based in Public Law and the US Code, and through a memorandum of understanding for cooperation with the NRC. Notification to the FBI will be through provisions of the VCSNS Security Plan, or by the NRC.
- f) National Weather Service (NWS): Provides meteorological information during emergency situations, if required. Data available will include existing and forecasted wind directions, wind speed, and ambient air temperature.

2) State Agencies

- a) The State of South Carolina: The state of South Carolina has the statutory responsibility and authority for protecting the health and safety of the public in South Carolina. The state has developed a "South Carolina Operational Radiological Emergency Response Plan." This plan was developed in accordance with NUREG 0654. The Plan has received 44 CFR 350 unconditional approvals from DHS for all nuclear generating station(s) within the state boundaries. Basic descriptions for the South Carolina state agencies responsible for actions in the event of a nuclear power station are as follows:

- Governor of South Carolina: The governor of the state has overall command authority for both the radiological and nonradiological aspects of a nuclear incident. The governor shall make the final recommendation for protective actions and shall serve as the state's primary spokesperson.
- South Carolina Emergency Management Division (SCEMD): Coordinates the operational response and recovery functions of all state agencies. The SCEMD proposes PARs to the governor. It also coordinates the implementation of the governor's Protective Action Directives (PAD).

The SCEMD response action to a nuclear incident will fall into one of the following functional areas:

- Command for all (state-related) radiological aspects of a nuclear incident.
- Field radiological functions (state-related) of confirmatory accident assessments during a nuclear emergency. This may include a Mobile Command Center, a Mobile Nuclear Laboratory, and monitoring and sampling teams.

The SCEMD has the responsibility to inform and coordinate technical information with the North Carolina Emergency Management Agencies with respect to an emergency that impacts the 50-mile ingestion pathway zone.

The SCEMD has both the command authority for radiological aspects of a nuclear incident and the responsibility for performing various radiological functions. These functions include milk, water and food control, radiation exposure control for state emergency workers, and confirmatory accident assessment.

- Department of Health and Environmental Control (DHEC): DHEC maintains a radiological hazard assessment capability and provides radiological technical support, coordination and guidance for the state and local governments; conducts and/or coordinates offsite radiological surveillance and monitoring in coordination with the VCSNS offsite environmental monitoring group; and makes recommendations to SCEMD for protective actions as well as recovery and reentry guidelines.
 - South Carolina Law Enforcement Division (SLED): SLED provides support during security related events at the station.
 - The South Carolina Department of Natural Resources (SCDNR): The SCDNR patrols and ensures the safety of waterways in South Carolina. The SCDNR is promptly notified of any oil or hazardous substance discharges into rivers or lakes or radioactive contamination of rivers or lakes under its jurisdiction at levels requiring assistance to effect protective actions. The SCDNR is contacted by the appropriate state agencies in the event of an incident at an applicable nuclear power plant. The United States Coast Guard (USCG) is responsible for officially closing the waterways to all boating traffic.
- b) The State of North Carolina: A portion of the 50-mile ingestion pathway EPZ for VCSNS lies within the state of North Carolina. The state of North Carolina has developed a Radiological Emergency Response Plan to respond to commercial nuclear power stations within the state of North Carolina and for those nuclear stations outside of the state that are within 50 miles of North Carolina.
- 3) County Government Agencies
VCSNS and the surrounding counties of Fairfield, Newberry, Lexington, and Richland that comprise the plume exposure pathway EPZ have developed integrated emergency response programs that call upon the resources of their county. The county organizations are responsible for implementing and coordinating the county response to an emergency.

Each of the county Emergency Operations Centers (EOCs) serve as the primary coordinating center for local government response within the county's jurisdiction and for coordination between counties.

4) Private Agencies

There are various private agencies that VCSNS has acquired Letters of Agreement regarding support during an emergency. These agencies have agreed to provide firefighting, medical, resource, and lodging support as needed during an emergency. These Letters of Agreement are listed in Appendix 2 and are reviewed and updated as necessary.

- bB. During an emergency condition classified as an Alert, Site Area Emergency, or General Emergency, the station's augmented ERO is notified and responds to augment the normal plant organization under the direction of the IED.

The augmented ERO consists of three major response suborganizations with inter-relationships as illustrated in Figure A-2:

1) The Onsite ERO, directed by the Emergency Director (ED), provides for:

- Control and operation of the plant
- Mitigation of the emergency condition
- Protection of station personnel inside the Protected Area
- Emergency support for Operations, Engineering, Maintenance, firefighting, Security, and first aid

The onsite ERO is made up primarily of personnel from the station's day-to-day management team, Operations, Health Physics, Chemistry, Engineering, Maintenance, Security, and other site support personnel.

2) The Offsite ERO, directed by the ~~Offsite Emergency Coordinator~~ **Offsite Emergency Manager (OEC OEM)**, provides for:

- Offsite radiological accident assessment
- Protection of station personnel outside the Protected Area
- Emergency support for acquisition of material and support personnel
- The primary interface between VCSNS and outside organizations responsible for the protection of the public

The Offsite ERO is made up primarily of personnel from the station's high level management team, Security, Health Physics, and Training with support from other stations departments as necessary.

3) The Emergency Public Information Organization (EPIO), directed by the Emergency Control Officer/Company Spokesperson, coordinates with Public Information Officers (PIO) from other organizations to provide information to the public through the news media.

- cC. The Emergency Control Officer (ECO) is a senior VCSNS employee with overall responsibility for coordinating emergency response actions of the station, and the EPIO with the affected state(s) and county agencies.
- dD. Procedures for training and maintenance of the emergency organization are in place to ensure 24-hour-per-day staffing for emergency response, including established communication links.

2. State and County Functions and Responsibilities

The state and counties have emergency response plans that specify the responsibilities and functions for the major agencies, departments, and key individuals of their organizations. This information is located in their respective plans.

3. Agreements in Planning Effort

Written agreements establishing the concept of operations developed between VCSNS and other support organizations having an emergency response role have been developed. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. Agreement letters are not necessary with federal agencies that are legally required to respond based on federal law. However, agreements are necessary if the agency was expected to provide assistance not required by law. Letters of Agreement shall be obtained with private contractors and others who provide services in support of the station during a declared emergency. A list of Letters of Agreement is provided in Appendix 2 of this Plan, the actual letters are maintained on file at the station. Letters of Agreement, as a minimum, state that the cooperating organization will provide their normal services in support of an emergency at the VCSNS site. A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

4. Continuous Coverage

VCSNS maintains 24-hour emergency response capability. The normal on-shift complement provides the initial response to an emergency. This group is trained to handle emergency situations (e.g., initiate implementation of the Emergency Plan, make initial accident assessment, emergency classification, notifications, communications, and PARs until the augmented ERO arrives. **Personnel from the unaffected unit(s) are available and respond when notified. Minimum staffing will be maintained in the unaffected units in accordance with guidance in NUREG-0654 Table B-1.** The ERO is composed of a broad spectrum of personnel with specialties in Operations, Maintenance, Engineering, Radiochemistry, Health Physics, Fire Protection, Security, ~~communications~~ **Public Affairs**, and Emergency Preparedness who are available and trained to augment on-shift personnel in an emergency. Procedures for training and maintenance of the emergency organization are in place to provide the capability of continuous (24-hour) operations.

The ED, located in the Technical Support Center (TSC), has the authority and responsibility for assuring continuity of resources (technical, administrative, and material) in the event of the activation of the ERO.

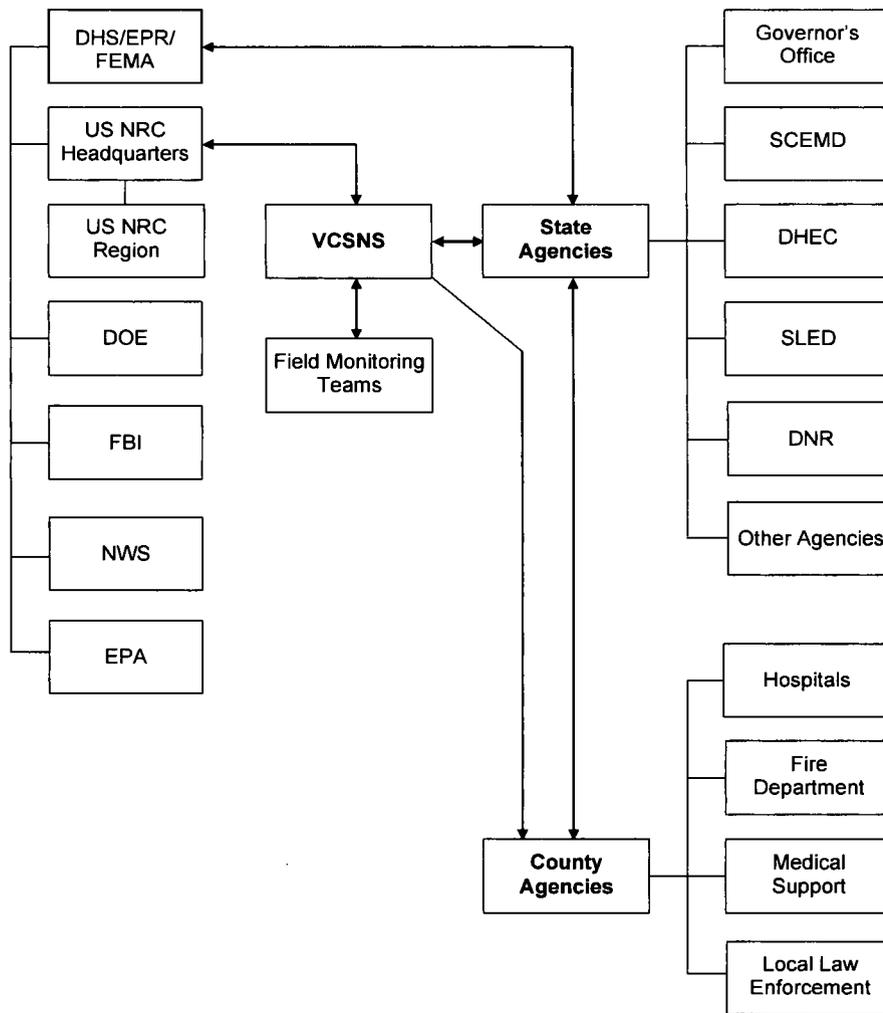


Figure A-1: Agency Response Organization Interrelationships

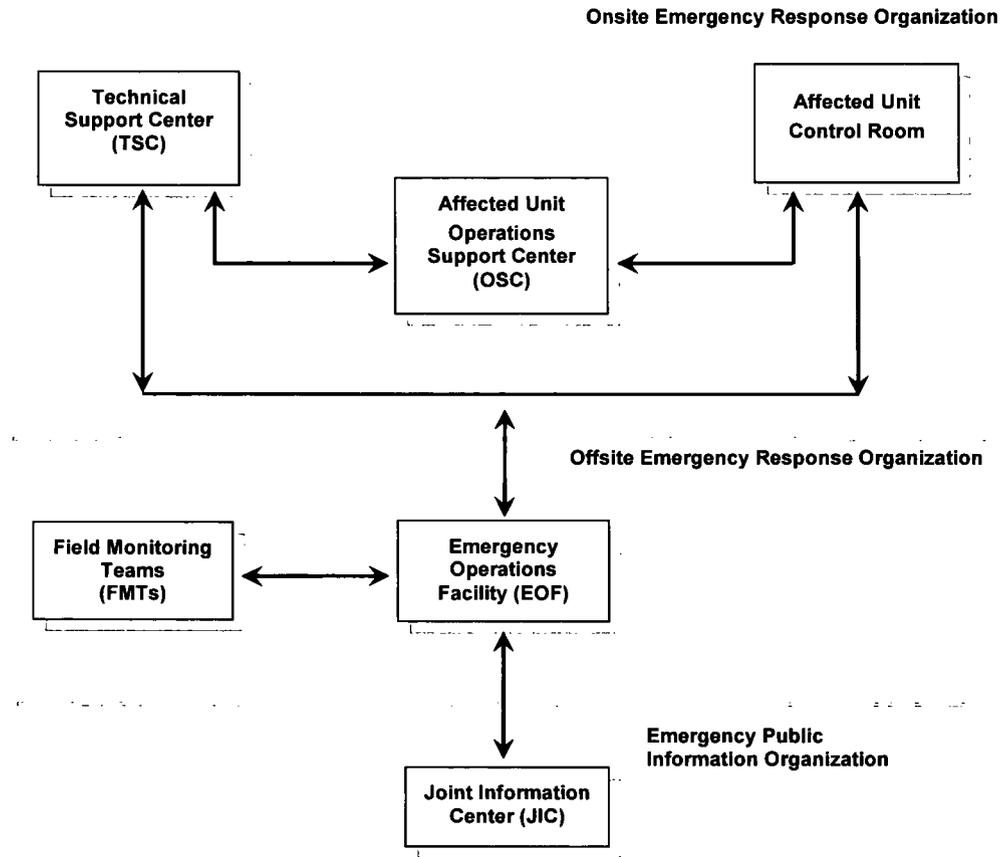


Figure A-2: VCSNS Augmented Emergency Response Organization Interrelationships

Section B: Emergency Response Organization

This section describes the ERO, its key positions, and associated responsibilities. It outlines the staffing requirements that provide initial emergency response actions and provisions for timely augmentation of on-shift personnel when required.

The below-listed ERO positions form the basis of VCSNS emergency response. If needed, any company personnel and resources can and will be used to ensure the safety of offsite populations, station personnel, and protection of station equipment needed to maintain nuclear safety.

1. On-Shift Emergency Response Organization Assignments

The normal plant personnel complement is established with the Vice President, Nuclear Operations having overall authority for station operations. The Vice President, Nuclear Operations directs the unit organization in the management of the various departments while the Shift Supervisor retains the responsibility for actual operation of plant systems. Emergency Preparedness must consider the capabilities of the normal plant organization and the ERO. The initial phases of an emergency situation at VCSNS will most likely involve a relatively small number of individuals. These individuals must be capable of (1) determining that an emergency exists, (2) providing initial classification and assessment, (3) promptly notifying offsite authorities and individuals in the emergency organization, and (4) making PARs as needed. The subsequent phases of the emergency situation may require an increasing augmentation of the emergency organization.

The station has personnel on-shift at all times that can provide an initial response to an Emergency Event. The Unit Annexes' Table 2-1 outlines the unit on-shift emergency organization and its relation to the normal staff complement. Members of the on-shift organization are trained on their responsibilities and duties in the event of an emergency and are capable of performing all response actions in an Unusual Event and the initial actions of higher classifications. The ~~onsite-full~~ ERO will be activated at an Alert, ~~and the entire ERO will be activated at a Site Area Emergency, or General Emergency.~~

On-Shift Personnel: Shift personnel have the capability at all times to perform detection, mitigation, classification, and notification functions required in the early phases of an emergency. Shift augmentation and further ERO involvement will be determined by the extent and magnitude of the event. When a transition to Severe Accident Management Guidelines (SAMGs) is initiated, the ~~on-shift crew~~ **Control Room Staff** assumes the duties and responsibilities of the SAMG implementers. A set of guidelines, Beyond Design Basis Mitigation Guidelines (BDMG), in support of events that are beyond VCSNS design basis has been developed and maintained to provide guidance on evaluations and actions taken to mitigate an event of this nature.

Shift Supervisor: Has the responsibility and the authority to declare an emergency and becomes the Interim Emergency Director (IED). In that role, the IED will initiate the appropriate immediate action in accordance with written procedures, mitigate the consequences of the emergency, activate the ~~onsite-full~~ ERO at an Alert ~~and the entire ERO at a Site Area Emergency or General Emergency~~ **or higher classification**, and notify offsite support and government agencies, as appropriate. In the Shift Supervisor's absence or incapacitation, the line of succession is defined by unit's Operations and Emergency Plan Procedures.

Shift Engineer/Shift Technical Advisor (STA): A qualified individual assumes an overview role as the technical advisor with the specific responsibility of monitoring the maintenance of core cooling and containment integrity. An individual assigned the duty as the Shift Engineer/STA shall be available to the unit Control Room at all times.

Control Room Operators: One qualified Control Room Supervisor and at least two qualified Reactor Operators are assigned to each shift during normal operations. They are responsible for operating plant equipment from the Control Room.

Auxiliary Operators: ~~At least five~~ Auxiliary (non-licensed) operators are assigned to each shift. They are responsible for operating plant equipment throughout the plant.

Radiation Protection: The station Health Physics personnel are responsible for the handling and monitoring of radioactive materials. Included in this organization are Health Physics Supervisors, Staff, and Specialists.

Chemistry: The station Chemistry personnel are responsible for sampling of system effluents, and the chemical and radio-analytical analysis of those samples. Included in this organization are Chemistry Supervisors, Staff, and Specialists.

Security: The station Security personnel are responsible for the physical security of the site. Included in this organization are Security management, staff, and Security Officers.

A Fire Brigade for the Protected Area has been established by designating trained individuals as brigade members. The Fire Brigade Leader will be designated as per the FSAR and FPER.

A Medical Emergency Response Team (MERT) for each Protected Area has been established by designating trained individuals from the above listed groups as team members.

An individual (or group of individuals) on each shift is trained and made available to act as the State/County Communicator for the Protected Area. This individual can notify station personnel, state agencies, county agencies, and the NRC. The State/County Communicator will maintain communications as necessary until relieved by a qualified member from the augmented ERO.

2. Authority over the Emergency Response Organization

The IED, ED, Offsite Emergency Manager (OEM), and Emergency Control Officer (ECO) are the designated VCSNS individuals who have overall authority and responsibility, management ability, and technical knowledge for coordinating all emergency response activities at the VCSNS. ~~The IED is the Shift Supervisor from the lead unit. In the event that there are multiple units entering in an emergency condition simultaneously, either the Unit 1 or Unit 2 Shift Supervisor, depending on the affected Protected Area, will be the IED. In the event the site as a whole is in an emergency due to natural phenomena, a security event, or an event affecting both Protected Areas, the Unit 1 Shift Supervisor will be designated as the IED. If the event only affects a single Unit, then that Unit's Shift Supervisor is the IED. The IED is the Shift Supervisor.~~ The ED, OEM, and ECO are members of site management.

Control Room: IED (Shift Supervisor), initially in command and control until relieved by the Emergency Director (ED) in the TSC. ~~Once relieved by the ED, the Shift Supervisor will maintain reactor and systems control.~~

TSC: ED, when the TSC has attained minimum staffing levels, assumes the responsibilities for classification ~~and declaration, and notification~~ of emergencies, evaluations of operational events, and mitigation development. These duties may only be turned over to another qualified ED, ~~with exception of the notification, which may be turned over to the OEC in the EOF.~~

EOF: ECO, when the EOF has attained minimum staffing levels, assumes overall command and control of VCSNS emergency response and approval of press releases, ~~unless a designated Company Spokesperson is assigned.~~ These duties may only be turned over to another qualified ECO/~~Company Spokesperson.~~

OEM, when the EOF has attained minimum staffing levels, assumes command and control of the EOF, notification of local, state, and federal agencies, and development and notification of Protective Action Recommendations. These duties may only be turned over to another qualified OEM.

3. Criteria for Assuming Command and Control (Succession)

Emergency personnel assume responsibility for their positions upon receiving notification to activate. The responsibility for initial assessment of, and response to, an emergency rests with the Shift Supervisor. The Shift Supervisor is the IED and has the ED's responsibilities and authority until relieved by a qualified ED. The ED will relieve the Shift Supervisor of the responsibility for continued assessment of the severity of the emergency and functions as part of the ERO as appropriate in accordance with the guidance provided in the Emergency Plan, the Unit Annexes, and the emergency plan procedures. Final succession is achieved when the ED, OEM, and ECO assume overall command and control, and directs VCSNS's emergency response activities.

The Control Room is to be relieved of command and control as soon as possible after the declaration of an Alert or higher classification. The overall command and control of the emergency is transferred directly to the ECO, as soon as possible. Command and control does not transfer to the TSC and EOF until the following criteria have been met:

- Adequate staff levels are present in support of the non-delegable responsibilities
- The status of the plant is well understood by the relieving individual
- The staff has been fully briefed as to the status of the event and the current proposed plan of action
- A formal turnover between the IED relinquishing command and control and the ED, OEM, and ECO assuming command and control has been made

Although the ERO fulfills all regulatory requirements for emergency response, it may be altered at the discretion of the ECO. This type of alteration will be based on identified needs within the ERO, event dependent criteria, and identified needs of the company as a whole.

4. Non-Delegable Duties

Non-delegable duties include the following functions:

- Event classification
- Development of PARs for the general public
- Notification of offsite authorities (approval of state, county, and NRC notifications)
- Approving company press releases pertaining to the emergency

The Shift Supervisor is responsible for the initial classification of an event and assumes the position as IED. In this capacity, the Shift Supervisor has responsibility for performing the non-delegable responsibilities until relieved.

The ED (in the TSC) will relieve the IED of the command and control and event classification, notification, and Protective Action Recommendation duties. The OEM (in the EOF) will relieve the IED of emergency notifications and PAR development; and the ECO (in the EOF) will relieve the ED of overall command and control.

5. Emergency Response Organization Position Responsibilities

Each Annexes' Table 2-1 and Part 2 Section B-1 and Table B-1a outline ERO positions required to meet minimum staffing and augmentation of the on-shift complement upon activation of the Emergency Response Organization (ERO), and the major tasks assigned to each position. The augmentation staffing levels are used as a planning basis to cover a wide range of possible events. For extended events (one that is expected to continue for more than 24 hours), actual staffing will be established by the ED, OEM, and ECO based on the event and personnel availability. However, reduced staffing will only occur after discussion concerning the impact on plant operations and emergency response with the ED, OEM, and ECO.

As shown on Figure B-1a, the overall ERO is made up of three suborganizations:

- The first is called the Onsite ERO. It is responsible for onsite emergency response activities. These activities include protecting plant personnel, mitigating the results of the event, classifications, and keeping the Offsite ERO informed of onsite events and actions being taken.
- The second is called the Offsite ERO, which is responsible for offsite emergency response activities. These activities include providing information to and interface with offsite authorities, monitoring offsite results of the event, protecting plant personnel outside the Protected Area, supporting the onsite organization, notifications, Protective Action Recommendations (PAR), and coordinating public information.
- The third is called the Emergency Public Information Organization and is responsible for providing accurate information to the public about the event through the news media.

Specific responsibilities for each sub-organization and related positions are as follows:

- a. Onsite ERO (Figure B-1b): The Onsite ERO is activated during an emergency classified as an Alert or higher. It can also be activated by the IED at his discretion during an Unusual Event. It functions under the direction of the ED, who is responsible for organizing and coordinating the emergency efforts at and within the Protected Area of the affected unit(s).

The Onsite ERO consists of station personnel who are involved with emergency response efforts necessary to control the plant during an incident. This organization operates out of the Control Room, the Technical Support Center (TSC), and the affected Unit's Operational Support Center (OSC). Collectively, members of the Onsite ERO provide for the following activities during an emergency:

- Plant systems operations and monitoring
- Radiological survey and monitoring (including Environmental Monitoring)
- Firefighting
- Rescue operations and first aid
- Decontamination
- Security of plant and access control

- Repair and damage control
- Personnel protection including assembly, accountability, and evacuation
- Communications

When plant conditions warrant entry into the SAMGs, the ED assumes the role of decision-maker. The Technical Support Supervisor or another qualified individual(s) assume the role of evaluator and assistant evaluator, and the Control Room staff assumes the role of implementers. Control Room personnel will perform mitigating actions for severe accidents per SAMGs before TSC activation. A set of guidelines, Beyond Design Basis Mitigation Guidelines (BDMG), in support of events that are beyond VCSNS design basis has been developed and maintained to provide guidance on evaluations and actions taken to mitigate an event of this nature.

Those personnel identified to augment the on-shift personnel within ~~about 60~~75 minutes of the declaration of an Alert or higher classification are part of the on-call ERO. These personnel are immediately available during normal working hours and are contacted by a call out system during nonworking hours.

For security-related events that would prevent the emergency responders from reaching the site, the augmented TSC, OSC, and Control Room responders would be directed to respond to the EOF or another designated offsite location. TSC/OSC/Control Room staffs will provide any possible assistance from this offsite staging area until such time as site access is restored.

Due to the configuration of the site and the presence of two separate and different technologies, there are selected positions in the ERO that have expertise in a specific technology and will be used as position leads during an emergency affecting that technology.

All Onsite ERO personnel shall have the authority to perform assigned duties in a manner consistent with the objectives of this plan. In addition to maintaining adequate documentation of the event, position responsibilities include:

- 1) Shift Supervisor (Interim Emergency Director) CR
A Shift Supervisor is on duty 24 hours a day and is the IED in a declared emergency until relieved of this function. While serving in this capacity, the Shift Supervisor is responsible for:
 - Activating the ERO (as deemed appropriate or as procedurally required)
 - Initiating the NRC Emergency Response Data System (ERDS)
 - Performing those duties outlined for the ED, OEM, and ECO

The on-duty Shift Supervisor directs the activities of the operating crew and is responsible for the safe operation of the plant in compliance with the unit NRC operating license and the unit operating procedures. The Shift Supervisor, after relinquishing command and control, functionally reports to the ED in the TSC.

The Shift Supervisor's responsibilities, when not in command and control, are described below:

- The authority and responsibility to shutdown the reactor when determined that the safety of the reactor is in jeopardy or when operating parameters exceed any of the reactor protection circuit setpoints and automatic shutdown does not occur
- To ensure a review has been completed to determine the circumstance, cause, and limits under which operations can safely proceed before the reactor is returned to power following a trip or an unscheduled or unexplained power reduction
- The responsibility to be present at the plant and to provide direction for returning the reactor to power following a trip or an unscheduled or unexplained power reduction
- The responsibility to adhere to the unit Technical Specifications and to review routine operating data to assure safe operation
- The responsibility to identify applicable EALs and emergency classifications
- The responsibility to adhere to unit operating procedures and the requirements for their use. During an emergency, authorize operations personnel to depart from approved procedures where necessary to prevent injury to personnel, including the public, or damage to the facility consistent with the requirements of 10 CFR 50.54(x) and (y).
- Initiate immediate corrective actions to limit or contain the emergency invoking the provisions of 10 CFR 50.54(x) if appropriate, and specifically when addressing SAMGs or BDMGs
- Approve emergency special procedures, and implement as required under the provisions of 10 CFR 50.54(x)
- Supervise the activities of the Control Room crew and the Communicators
- Initiate onsite protective actions, including authorization of exposure limits for emergency workers in excess of normal station limits

2) Emergency Support Operator CR

~~The Operator reports to the Shift Supervisor. Major functions include assisting in the determination of the extent of station emergencies and recommending corrective actions. There is one Operator assigned to each Control Room. Each of these individuals report to their respective Control Rooms and communicates with their respective Operations Supervisor(s) in the TSC. The Operator reports to the Shift Supervisor. Major functions include assisting in the determination of the extent~~

of station emergencies and recommending corrective actions. There is one Operator assigned to each Control Room. Each of these individuals report to their respective Control Rooms and communicates with the Operations Supervisor in the TSC for their respective Protected Area/Technology.

- 3) Emergency Director (ED) TSC
~~The ED supervises and directs the Onsite ERO. The ED's responsibilities include organizing and coordinating the onsite emergency efforts. Additionally, the ED has the requisite authority, plant operating experience, and qualifications to implement in-plant recovery operations. The ED is responsible for relieving the IED of classifying emergencies and onsite command and control. EDs are assigned from each Protected Area/Technology (Unit 1 and Units 2 & 3). The ED from affected Unit(s) assumes the position of lead ED for the ERO.~~
 The ED supervises and directs the Onsite ERO. The ED's responsibilities include organizing and coordinating the onsite emergency efforts. Additionally, the ED has the requisite authority, plant operating experience, and qualifications to implement in-plant recovery operations. The ED is responsible for relieving the IED of classifying emergencies.
- 4) Technical Support Supervisor TSC
~~The Technical Support Supervisor reports to the ED and directs a staff of engineers in performing technical assessments of station emergencies and assists in recovery planning. Supervisors are assigned from each Protected Area/Technology (Unit 1 and Units 2 & 3). The Supervisor from affected Unit(s) assumes the position of lead Supervisor for the ERO.~~
 The Technical Support Supervisor reports to the ED and directs a staff of engineers in performing technical assessments of station emergencies and assists in recovery planning.
- 5) Technical Support Communicator TSC
~~The Technical Support Communicator reports to the Technical Support Supervisor. The Communicator is responsible for transmitting/receiving technical information or engineering decisions and support requests to and from the EOF, TSC, OSC, and Control Room(s).~~
 The Technical Support Communicator is responsible for transmitting/receiving technical information or engineering decisions and support requests to and from the EOF, TSC, OSC, and Control Room(s).
- 6) Operations Supervisor TSC
~~The Operations Supervisor reports to the ED. Major functions include determining the extent of station emergencies and recommending corrective actions. Supervisors are assigned from each Protected Area/Technology (Unit 1 and Units 2 & 3). The Supervisor from affected Unit(s) assumes the position of lead Supervisor for the ERO.~~
 The Operations Supervisor reports to the ED. Major functions include determining the extent of station emergencies and recommending corrective actions. There are two Supervisors, one from each established Protected Area/Technology (Unit 1 and Units 2 & 3). Both of these individuals report to the TSC. The affected unit Supervisor assumes the position of lead Supervisor for the ERO.
- 7) Radiological Assessment Supervisor TSC
 The Radiological Assessment Supervisor reports to the ED and supervises the

activities of the onsite radiological assessments. The supervisor directs the staff in determining the extent and nature of radiological hazardous and conditions onsite.

- 8) Emergency Notification System (ENS) Communicator TSC/CR
~~The Emergency Notification System Communicators report to the ED. The Communicator provides updates and responds to inquiries from the NRC for plant status, emergency classifications, and mitigation assessments, strategies, and actions. The Emergency Notification System Communicators report to the Emergency Director. All communicators provide updates and respond to inquiries from the NRC for plant status, emergency classifications, and mitigation assessments and actions.~~

- 409) Technical Support Staff TSC
Core Thermal (Reactor), Electrical, Mechanical, and I&C (Units 2 & 3 only) Engineers make up the Technical Support Staff. These Engineers evaluate damage assessment reports and support the development of mitigation recommendations, strategies, and procedures to recover the plant and return it to a safe and operational state. Each discipline will provide personnel to support each Protected Area/Technology. ~~Core Thermal, Electrical, Mechanical Engineers make up the Technical Support Staff. These Engineers evaluate damage assessment reports and support the development of mitigation recommendations, strategies, and procedures to recover the plant and return it to an operational state.~~
- 8) State/County Communicator TSC
~~The State/County Communicator reports to the ED and ensures that initial notifications are communicated to the offsite officials within 15 minutes after the change in classification or a change in PARs and that follow up notifications are made within about 60 minutes of the previous notification. This position will exchange information with appropriate state and county agencies regarding emergency notification forms (green sheets) or other questions that may arise. Upon activation of the EOF, communications will be transferred to the EOF.~~
- 10) Security Manager TSC
The Security Manager reports to the ED and supervises the activities and defensive strategy of the Security Force, the site access control, and the Protected Area and Vital Area access controls. The Manager also provides updates and information to the Security Advisor in the EOF.
- 11) Chemistry Supervisor TSC
The Supervisor reports to the ED and supervises the activities of the chemistry sampling and analyses. The supervisor directs the staff in determining the extent and nature of radiological and chemistry problems onsite.
- 12) Maintenance Supervisor TSC
The Supervisor reports to the ED and supervises the activities of the Maintenance organization and assist with mitigation evaluations and repairs. The supervisor directs the staff in determining the extent and nature of mechanical, electrical, and I&C problems. Supervisors are assigned from each Protected Area/Technology (Unit 1 and Units 2 & 3). The Supervisor from affected Unit(s) assumes the position of lead Supervisor for the ERO.
- 13) Operational Support Center Supervisors OSC
The OSC Supervisors reports to the ED and supervises the activities of OSC personnel while implementing the mitigation strategies and procedures. Each OSC (Units 1, 2, & 3) will have separate Supervisors. ~~The OSC Supervisor reports to the ED and supervises the activities of OSC personnel while implementing the mitigation strategies and procedures.~~
- 154) Operational Support Center Damage Control Teams OSC
Specialists and Operators make-up the OSC Damage Control Teams. These teams perform emergency mitigation tasks throughout the station. Individuals from Health Physics, Mechanical, Electrical, and I&C Maintenance, Chemistry, and Operations are always available as part of the OSC Damage Control Teams. Individuals from

other plant organizations may also be called to assist in emergency mitigation efforts. Each OSC will have separate teams. Specialists and Operators make up the OSC Damage Control Teams. These teams perform emergency mitigation tasks throughout the station. Individuals from Health Physics, Mechanical, Electrical, and I&C Maintenance, Chemistry, and Operations are always available as part of the OSC Damage Control Teams. Individuals from other plant organizations may also be called to assist in emergency mitigation efforts.

- 17) ~~Security Supervisor~~ OSC
The Security Supervisor will support the emergency by providing escort or access as requested to areas secured by the Security Force and not normally accessed. The Supervisor is responsible for the physical security of the plant, access control to the plant Protected Area and access control to plant vital areas. In the event of a security related event, the Supervisor will report to the TSC.

- b. Offsite ERO (Figure B-1c): The Offsite ERO is activated during an emergency classified as a ~~Site Area Emergency~~ **Alert** or higher. **It can also be activated by the IED at his discretion during an Unusual Event.** It functions under the direction of the Offsite Emergency ~~Coordinator~~ **Manager**, and is responsible for offsite emergency response activities. These activities include providing information to and interface with offsite authorities; monitoring offsite results of the event; protecting plant personnel outside the Protected Area who are sheltered or evacuated, supporting the onsite organization, and coordinating the flow of information to the EPIO.

1) Emergency Control Officer (ECO) EOF

When the ECO has command and control, the ongoing responsibilities include:

- Assumes overall command and control of emergency response activities
- Ensure that federal, state, and county authorities and industry support agencies remain cognizant of the status of the emergency situation. If requested, dispatch informed individuals to offsite governmental EOCs
- Serve as the Company Spokesperson for press conferences
- Approve the technical content of VCSNS press releases before they are released to the media (non-delegable duty)
- Coordinate all VCSNS activities involved with the emergency response
- Ensure offsite agency updates are periodically communicated as required/requested
- Request assistance from non-VCSNS emergency response organizations, as necessary
- Provide status, assessment information, and recommended protective actions to offsite emergency response agencies
- Request state or federal assistance

2) Offsite Emergency Manager (OEM) EOF

The OEM reports to the ECO. The OEM has the authority, management ability, and technical knowledge to assist the ECO in the management of VCSNS's offsite ERO by directing and coordinating the activation and response efforts of the EOF staff, determining PARs (non-delegable duty) when necessary, and ~~preparing~~ **approving** state and county notification forms (non-delegable duty) with the assistance of the Offsite Radiological ~~Assessment Manager~~ **Radiological Monitoring Coordinator** and the Communications Coordinator.

3) ~~Technical Support Coordinator~~ **Plant Engineering Advisor** EOF

The ~~Technical Support Coordinator~~ **Plant Engineering Advisor** reports to the OEM. The ~~Coordinator~~ **Advisor** supports the OEM and ECO with technical information ~~and engineering support~~ regarding the affected unit.

- 4) Offsite Radiological Monitoring Coordinator (ORMC) EOF
The ORMC reports to the OEM and directs the activities of the EOF radiological assessment staff. These duties include specific responsibilities: recommending changes in the event classification and PARs based on effluent releases or dose projections, assisting the OEM in the evaluation of the significance of an emergency with respect to the public, and advising the OEM on the need for emergency exposures or for issuance of Potassium Iodide (KI) to the Field Teams.
- 5) Dose Assessor EOF
The Dose Assessor reports to the Offsite Radiological Monitoring Coordinator and operates the dose assessment program, interprets radiological data from the field monitoring teams, and provides PARs based on dose projections to the Offsite Radiological Assessment Manager/Radiological Monitoring Coordinator.
- 6) Communications Coordinator EOF
The Communications Coordinator reports to the OEM and creates the Emergency Notification Form (ENF). The Coordinator ensures initial notifications are communicated to the offsite officials within 15 minutes after the declaration of an emergency classification or change in Protective Action Recommendation (PAR) and follow-up notifications are made within 60 minutes of the previous notification. The position will coordinate the exchange of information with appropriate state and county agencies regarding the emergency, siren activation, offsite Protective Action Decisions (PAD), or other questions that may arise. This position is the lead for the State/County Communicator in the EOF.
- 7) State/County Communicator EOF
The State/County Communicator reports to the ~~OEM~~ Communications Coordinator and ensures that initial notifications are communicated to the offsite officials within 15 minutes after the change in classification or a change in PARs and that follow-up notifications are made within about 60 minutes of the previous notification. This position will exchange information with appropriate state and county agencies regarding emergency notification forms (~~green sheets~~) or other questions that may arise.
- 8) Security Coordinator/Plant Security Advisor EOF
The ~~Coordinator~~ Advisor reports to the OEM and will be responsible for maintaining EOF security, coordinating EOF security with site security, and interfacing with local law enforcement, as needed.
- 9) Health Physics Network (HPN) Communicator EOF
The Health Physics Network Communicators report to the Offsite Radiological Monitoring Coordinator in the EOF. The EOF communicator provides updates and responds to inquiries from the NRC on offsite environmental data, release status, dose projections, and changes to PARS for the general public.
- 10) Field Teams EOF
The Field Teams report to the ORMC and are responsible for conducting radiological monitoring surveys and sampling for areas outside of the Owner Controlled Area, within the EPZ.

11) Plant Operations Advisor EOF
 The Plant Operations Advisor reports to the OEM. The Advisor supports the OEM and ECO with operational and technical information regarding the affected unit.

8) General Services Coordinator EOF
 The Coordinator reports to the OEC and will be responsible for maintaining and coordinating document services, transportation, personnel accommodations, temporary offsite facilities and communications, meals, and procurement and delivery of items requested by the ERO.

- c. Emergency Public Information Organization (EPIO) (Figure B-1d): The EPIO is part of the overall ERO that is activated during an emergency. It functions under the ECO (Company Spokesperson) and gets support from the OEC.

The EPIO consists of corporate, and station personnel who are involved with emergency response efforts necessary to coordinate VCSNS public notices with offsite agency public information updates. This organization operates out of the Joint Information Center (JIC). Collectively, members of the EPIO provide for the following activities during an emergency:

- Development and issuance of news releases
- Coordination and conduct of media briefings
- Rumor control
- Media monitoring and correction of misinformation

All EPIO personnel shall have the authority to perform assigned duties in a manner consistent with the objectives of this plan. In addition to maintaining adequate documentation of the event, position responsibilities include:

1) Company Spokesperson (Emergency Control Officer) JIC/EOF
 The Company Spokesperson reports is responsible for directing the VCSNS EPIO, coordinating with the other responders, and providing news information to the media.

2) Joint Information Center Coordinator JIC
 The JIC Coordinator reports to the Company Spokesperson and is responsible for ensuring the operability of the JIC and supervision of monitoring activities in the JIC.

3) Lead Technical Briefer JIC
 The Lead Technical Briefer reports to the Company Spokesperson and assists in obtaining technical and plant status information for use in news releases and media briefings.

4) Media Coordinator JIC
 The Media Monitoring Coordinator reports to the JIC Coordinator and ensures that the media is being monitored and that VCSNS personnel review the information detailed or contained in media releases.

6. Emergency Response Organization Block Diagram

Each Annex Table 2-1 and Part 2 Section B-1 and Table B-1a, list the basis for the ERO and the supporting positions assigned to interface with federal, state, and county authorities. Section B.5 discusses specific responsibilities and the interrelationships for these positions.

7. Industry/Private Support Organizations

VCSNS retains contractors to provide supporting services. A contract/purchase order with a private contractor is acceptable in lieu of an agreement letter for the specified duration of the contract. Institute of Nuclear Power Organization (INPO), Electric Power Research Institute (EPRI), and Nuclear Energy Institute (NEI) maintain a coordination agreement on emergency information with their member utilities.

Among services currently provided are the following:

a. Institute of Nuclear Power Operations (INPO): Experience has shown that a utility may need resources beyond in-house capabilities for the recovery from a nuclear plant emergency. One of the roles of INPO is to assist affected utilities by quickly applying the resources of the nuclear industry to meet the needs of an emergency. INPO has an emergency response plan that enables it to provide the following emergency support functions:

- Assistance to the affected utility in locating sources of emergency personnel, equipment, and operational analysis
- INPO provides the "Nuclear Network," or its replacement, electronic communications system to its members, participants, NEI, and EPRI to coordinate the flow of media and technical information about the emergency
- VCSNS may obtain utility industry information and assistance from any party to this agreement through the coordination of INPO

To support these functions, INPO maintains the following emergency support capabilities:

- A dedicated emergency call number
- Designated INPO representative(s) who can be quickly dispatched to the VCSNS ERO to coordinate INPO support activities and information flow
- The 24-hour-per-day operation of an Emergency Response Center at INPO headquarters

INPO will be notified (via the designated emergency call number) for all situations involving an Alert, Site Area Emergency, or General Emergency declaration. INPO has coordinated the preparation of a Voluntary Assistance Agreement for Transportation Accidents. SCE&G has signed this agreement which establishes the rights and responsibilities of electric utilities in requesting or providing assistance for response to a transportation accident involving nuclear materials.

b. American Nuclear Insurers (ANI): In early 1982, ANI issued Bulletin #5B (1981) "Accident Notification Procedures for Liability Insured" which provides revised criteria for the notification of the pools in the event of a nuclear emergency at one of the liability insured nuclear power reactor sites. This revision brings the ANI/MAELU (Mutual Atomic Energy Liability Underwriters) notification criteria into alignment with the standard emergency classification system adopted by the nuclear industry. This document also identifies a suitable channel for follow-up communication by ANI after initial notification.

c. DOE Radiation Emergency Assistance Center/Training Site (REAC/TS): DOE REAC/TS provides services of medical and health physics support. REAC/TS advises on the health physics aspects of situations requiring medical assistance.

d. Manufacturer Design and Engineering Support: Under established contracts, the unit(s) design engineering company provides design engineering expertise, specialized equipment, and other services identified as needed and deemed appropriate to assist in an emergency situation.

8. Supplemental Emergency Assistance to the ERO

Agreements are maintained with outside support agencies who do not take part in the organizational control of the emergency. They provide assistance when called on during an emergency or during the recovery phase. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. These support agencies (named in Appendix 2) provide services of:

- a. Law enforcement
- b. Fire protection
- c. Ambulance services
- d. Medical and hospital support

Support groups providing transportation and treatment of injured station personnel are described in Section L of this Plan.

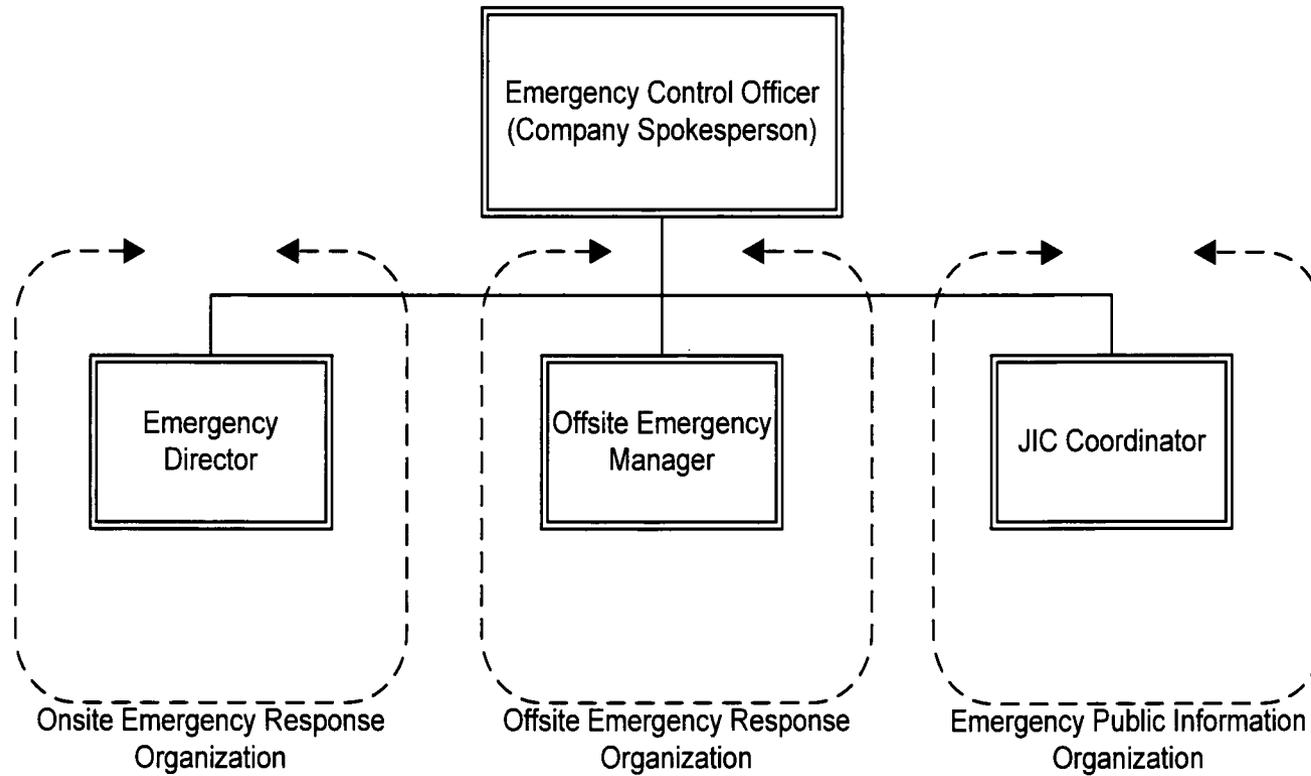


Figure B-1a: Overall ERO Command Structure

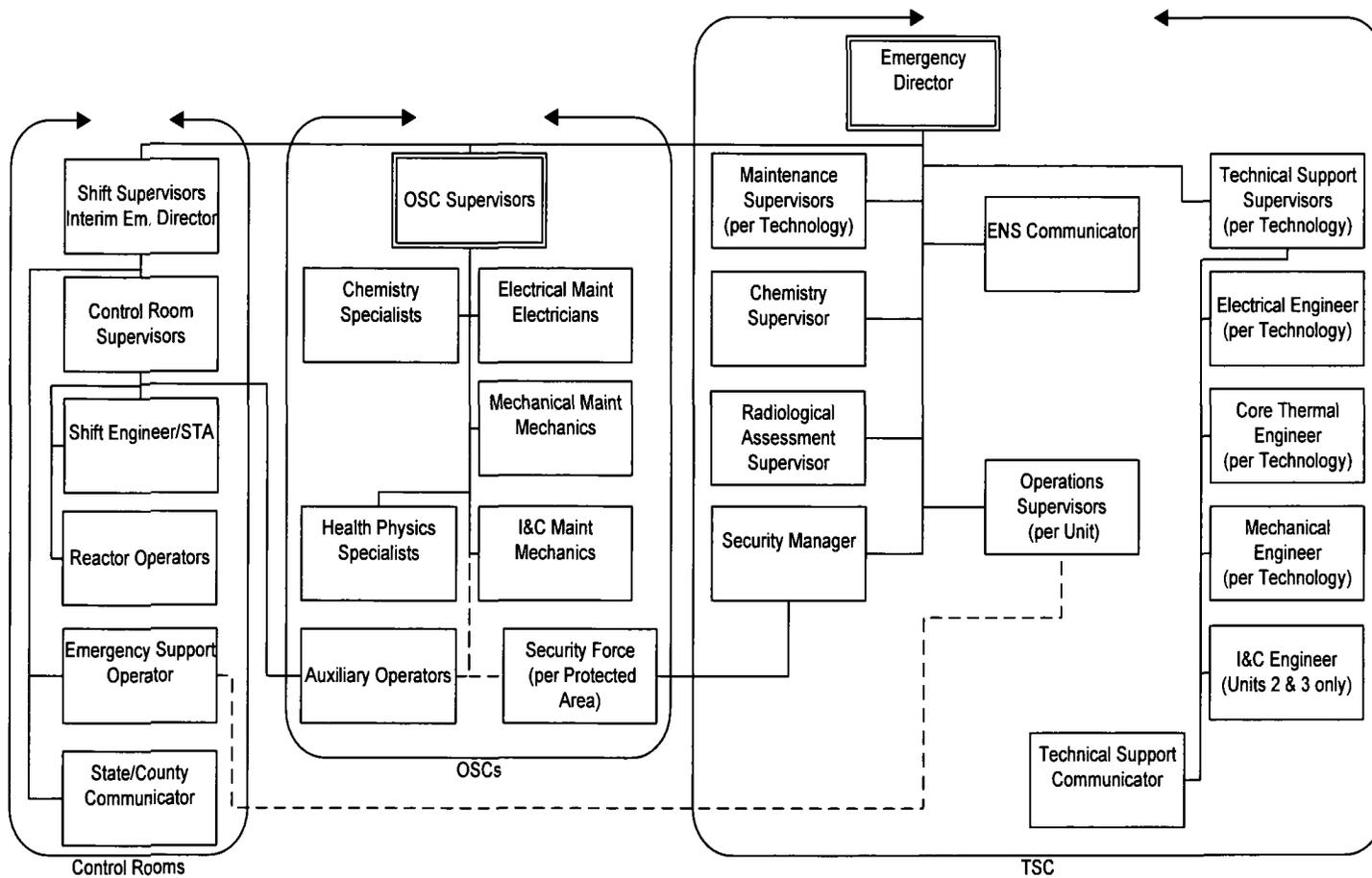


Figure B-1b: Onsite Emergency Response Organization

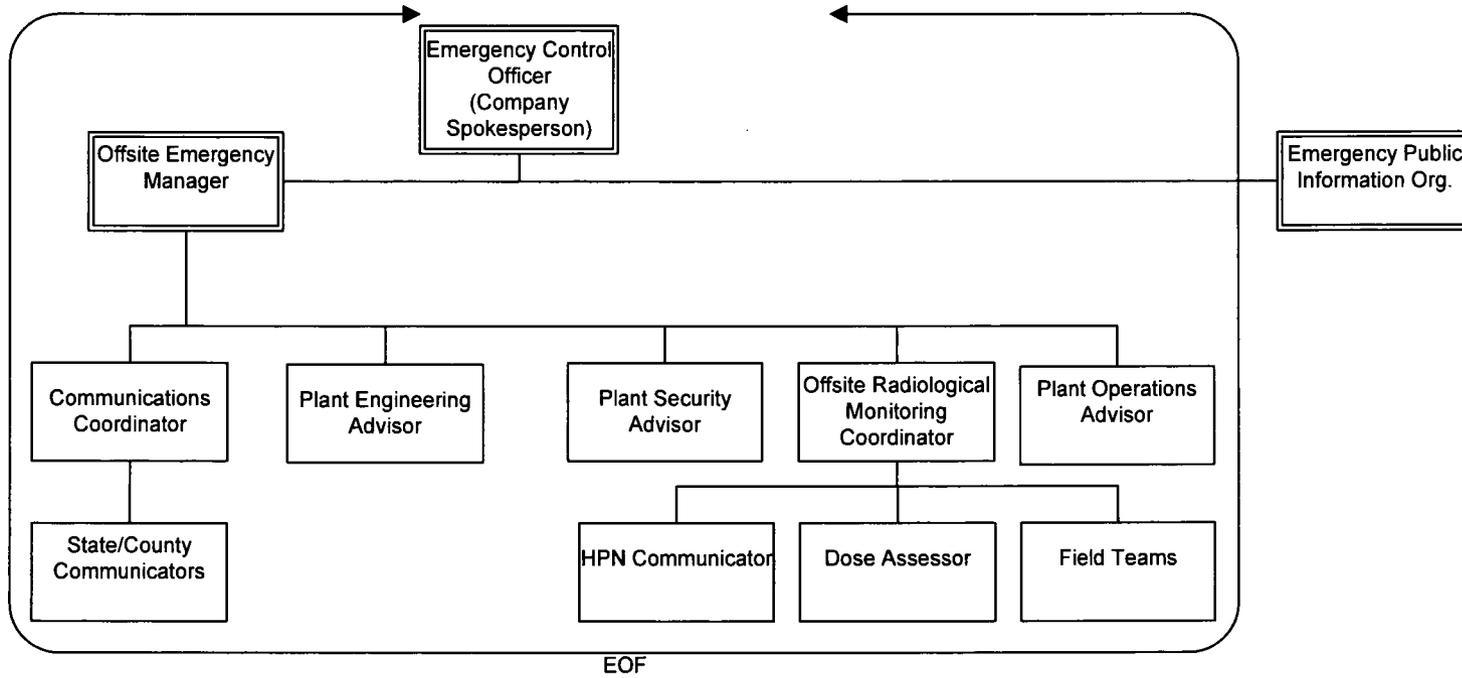


Figure B-1c: Offsite Emergency Response Organization

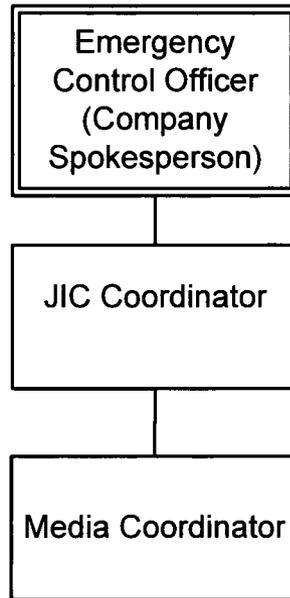


Figure B-1d: Emergency Public Information Organization

Table B-1a: Staffing Requirements for the VCSNS ERO

Functional Area	Major Tasks	Emergency Positions (Facility)	Staffing - Shift/ERO (75 Minute Response Time*)		
			Unit Shift Staffing	30 Minute ERO Facility Activation Staffing**	~60 Minute ERO Facility Essential Staffing**
1. Plant Operations and Assessment of Operational Aspects	Control Room Staff	Shift Supervisor/Interim ED (CR)	4(h)		
		Control Room Supervisor (CR)	(h)		
		Reactor Operator (CR)	(h)		
		Auxiliary Operator (CR/OSC)	(h)		
		Emergency Support Operator (CR)	-----1	-----	1(i)
			2		
			5		
2. Emergency Direction and Control	Command and Control	Interim Emergency Director (CR)	(h)		
		Emergency Director (TSC)	(a)	1(a)	
		Emergency Control Officer (EOF)	-----	1(a)	1(a)
		Offsite Emergency Coordinator/Manager (EOF)	-----	1(a)	1(a)

3. Notification & Communication	Emergency Communications	Interim Emergency Director (CR)	(h)		
		State/County Communicator (CR)	(h)	4	
		State/County Communicator (TSC)	(a)	-----	2
		Offsite Emergency Coordinator/Manager (EOF)	1(g)		1(g)
		State/County Communicator (EOF)	-----	1(ga)	1(g)
		Communications Coordinator (EOF)	-----	1(g)	
			-----	1	
	Plant Status	ENS Communicator (TSC)	-----	-----	1
		Technical Support Communicator (TSC)	-----	-----	1
		HPN Communicator (EOF)	-----	-----	1
		Technical Support Coordinator Plant Engineering Advisor (EOF)	-----	-----	1
Plant Operations Advisor (EOF)		-----	-----	1	

Functional Area	Major Tasks	Emergency Positions (Facility)	Staffing - Shift/ERO (75 Minute Response Time*)			
			Unit Shift Staffing	30 Minute ERO Facility Activation Staffing**	~60 Minute ERO Facility Essential Staffing**	
4. Radiological Assessment and Support of Operational Accident Assessment	Offsite Dose Assessment	Health Physics Specialist (OSC)	-----	1		
		Offsite Rad Monitoring Coordinator (EOF)	-----		1	
		Dose Assessor/Health Physics (EOF)	(h)	-----	1	
	Offsite Radiological Monitoring	Field Monitoring Teams (EOF)				
		Health Physics Specialist (or qualified personnel) Drivers		1(h) 1(h)	1 1	
	Onsite Radiological Monitoring	Field Monitoring Teams Damage Control (OSC)				
		Health Physics Specialist (or qualified personnel) Radiological Assessment Supervisor (TSC)		1	1 1	
	In-plant Surveys	Health Physics Specialist (OSC)		1-----	1	
	Chemistry	Chemistry Specialist (OSC)		(h) 1(e)		1
		Chemistry Supervisor (TSC)			-----	1
HP Supervisory	Health Physics Specialist (OSC)		(h)	-----	14	
HP Supervisory	Plant Radiological Monitoring Director (OSC)		-----1	-----		

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Functional Area	Major Tasks	Emergency Positions (Facility)	Staffing - Shift/ERO (75 Minute Response Time*)		
			Unit Shift Staffing	30 Minute ERO Facility Activation Staffing**	~60 Minute ERO Facility Essential Staffing**
5. Plant System Engineering, Repair, and Corrective Actions	Technical Support	Shift Engineer (CR)	(h)		
		Operations Supervisor (CR/TSC)	1		1(i)
		Technical Support Supervisor (TSC)	-----	1(i)	
		Core Thermal Engineer (TSC)	-----	1(i)(e)	
		Mechanical Engineer (TSC)	-----	-----	1(i)
		Electrical Engineer (TSC)	-----	-----	1(i)
	Repair and Corrective Actions	I&C Engineer (TSC)	-----	-----	1(i)
		Mechanical Maintenance Mechanic (OSC)		-----	1
		Electrical Maintenance Electrician (OSC)		1	1
		I&C Maintenance Mechanic (OSC)	(h)	1(h)	1
		Health Physics Specialist (Rad Waste) (OSC)	(h)	-----	1
		OSC Supervisor (OSC)	(h)	1	
	Maintenance Supervisor (TSC)	2	-----	1(i)	
		1			
		4			

		1-----			

6. In-Plant Protective Actions	Radiation Protection	Health Physics Specialists (OSC)	(h) (e)	-----2	2(b)
7. Fire Fighting	---	Fire Brigade	(h) (f) (e)	(f)	
8. Rescue Operations and First Aid	---	Medical Emergency Response Team	(h) (f) (b)(e)	(f)	
9. Site Access Control and Personnel Accountability	Security & Accountability	Security Team Personnel Force	(h)		
		Security Manager (TSC)	-----	-----	1
		Plant Security Advisor (EOF)	-----	-----	1
			(d)	-----	

Functional Area	Major Tasks	Emergency Positions (Facility)	Staffing - Shift/ERO (75 Minute Response Time*)		
			Unit Shift Staffing	30 Minute ERO Facility Activation Staffing**	~60 Minute ERO Facility Essential Staffing**
10. Public Information	Media Interface, Information Development, Media and Rumor Control Monitoring, and Facility Operations and Control	Company Spokesperson (JIC)	-----	-----	1
		JIC Coordinator (JIC)	-----	-----	1

(a) The Shift Supervisor shall function as the IED until relieved by the Emergency Director and Offsite Emergency ~~Coordinator~~ **Manager**

(b) **May be provided by personnel assigned other functions**

~~(b) Personnel numbers depend on the type and extent of the emergency~~

~~(c) Fire Brigade per FSAR/Technical Specifications, as applicable~~

~~(d) Per Security Plan~~

~~(e) May be provided by shift personnel assigned other functions~~

(f) Supported by Offsite Response Organizations (ORO)

(g) Telephone Communicator Only

~~(h) Actual response time is 40 minutes(h)~~ **Shift personnel are listed in each Unit's Annex Table 2-1**

(i) **Per Unit/Technology (with exception of I&C Eng, Units 2 & 3 only)**

*** Response time is based on optimum travel conditions**

**** ~ 60 minute staffing: TSC/OSC from the declaration of an Alert or higher; EOF from the declaration of a Site Area Emergency or higher. Facility Activation Staffing also includes Shift Staffing Personnel assigned to the respective facilities. These personnel must be available, but are not required to be in the facility to activate.**

Section C: Emergency Response Support and Resources

This section describes the provisions for requesting and effectively using support resources and for accommodating offsite officials at the VCSNS emergency response facilities.

1. Federal Response Support and Resources

Assistance is available from federal agencies through the NRF. The lead federal agency who provides direct assistance to VCSNS during an emergency is the NRC. Other federal agencies, such as the DHS and the DOE provide assistance to the state through implementation of the NRF.

- a. Sections A and B of this plan identify the specific individuals by title who are authorized to request federal assistance.
- b. Federal agencies that may provide assistance in direct support of VCSNS in the event of an accident are identified in Section A of this plan. If needed, federal resources are made available to VCSNS in an expeditious and timely manner.
- c. Each emergency response facility has the equipment and communications capability necessary for a continuous high level of response, interaction, and communication among key personnel during emergency conditions. The emergency facilities are able to accommodate federal representatives with working areas provided for their use. Based on the NRC Response Coordination Manual 1996 (RCM-96) or NUREG-0728, accommodations for the initial site response team assume the following approximate numbers for each facility:

Facility	Accommodations
EOF	12
TSC	6
CR	1
JIC	2

- d. Communication pathways provided in each of these facilities include access to dedicated landline telephones, wireless telephones, and FTS telephones as provided by the NRC and include the Reactor Safety Counterpart Link (RSCL), Management Counterpart Link (MCL), the Protective Measures Counterpart Link (PMCL), and the Local Area Network (LAN). These FTS lines are available in the appropriate VCSNS emergency response facilities and are for use by the NRC Response Team upon their arrival. The VCSNS ERO does not normally utilize these communication links.

2. Liaisons

- a. The NRC and FEMA and the state and counties may dispatch representatives to the EOF where accommodations have been provided.
- b. At the Site Area Emergency level and above, VCSNS personnel may be assigned as liaisons to the state of South Carolina, Lexington County, Richland County, Newberry County, and Fairfield County EOCs, after they are activated. These representatives act as technical liaisons to interpret emergency action levels, explain accident conditions, and provide technical information regarding actions by the station's ERO.

3. Radiological Laboratories

Support of the radiation monitoring and analysis effort is provided by an onsite laboratory. The onsite laboratory is the central point for receipt and analysis of all onsite samples and includes equipment for chemical analyses and for the analysis of radioactivity.

~~An~~ Additional laboratory facilities ~~are~~ is available at the DHEC, other nuclear facilities, or private labs. DHEC also has a mobile laboratory for analyzing environmental samples. The response time for efficient activation of the mobile laboratory is approximately 2 to 3 hours.

4. Other Assistance

Through INPO, other companies' operating nuclear facilities are available to provide certain types of assistance and support, including technicians, engineering, design, consultation, whole body counting, and dosimetry evaluation and equipment. Additional facilities, organizations, and individuals, as listed in the Emergency Planning Telephone Directory, are available and may be used in support of emergency response. In addition, ANI provides insurance to cover VCSNS legal liability up to the limits imposed by the Price-Anderson Act, for bodily injury and/or property damage caused by the nuclear energy hazard resulting from an incident at the plant. Written agreements that describe the level of assistance and resources provided to VCSNS by external sources listed in Appendix 2 as applicable.

Section D: Emergency Classification System

This section describes the classification and emergency action level scheme used to determine the minimum response to an abnormal event at the station. This scheme is based on plant systems, effluent parameters, and operating procedures for each unit. The initial response of federal, state, and county agencies depends on information provided by the ERO. The station's Emergency Preparedness Staff works closely with the state of South Carolina and county agencies to ensure consistency in classification schemes and procedural interfaces.

1. Emergency Classification System

The Emergency Plan provides for classification of emergencies into four (4) categories or conditions, covering the postulated spectrum of emergency situations. They are:

- Unusual Event
- Alert
- Site Area Emergency
- General Emergency

Each classification is characterized by EALs or event Initiating Conditions (IC) and addresses emergencies of increasing severity.

- a. Unusual Event: Events are in progress or have occurred that indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

This is the least severe of the four levels. The purpose of this classification is to bring response personnel and offsite agencies to a state of readiness in the event the situation degrades and to provide systematic handling of information and decision making. The ~~Unit 4~~lead Unit's Shift Supervisor will classify an Unusual Event and become the IED.

Required actions at this classification include:

- Notifications to station and company management
- Notification, within 15 minutes, of the state and counties
- At the discretion of the IED, or the station management, full or selective staffing of any one or more of the emergency response facilities may be initiated
- Notification of the NRC as soon as possible but within 60 minutes of classification
- Assessment of the situation and response as necessary, which may include escalating to a higher classification when and if conditions warrant

- When the event is terminated, close-out is performed over communication links to offsite authorities (i.e., NRC, state, county), participating in the response by providing a summary of the event
 - Provide a formal written summary transmitted to the state and counties within 24 hours-
- b. Alert: Events are in progress or have occurred that involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline (PAG) exposure levels.

The purpose of this classification is to ensure that emergency response personnel are readily available and to provide offsite authorities with current status information. An Alert will be classified as the initiating event or as escalation from an Unusual Event. In either case, the classification will most likely be made by the **lead Unit's** Shift Supervisor (IED) before the transfer of command and control.

Required actions at this classification include:

- Notifications to station management
- Notification, within 15 minutes, of the state and counties
- Activation of the ~~Onsite ERO~~TSC, OSC(s), EOF, and JIC
- Transfer of command and control
- Notification of the NRC as soon as possible but within 60 minutes of classification
- Notification of INPO and ANI
- Assessment of the situation and response as necessary, which may include escalating to a higher classification if and when conditions warrant
- Onsite and offsite field teams are sent to staging areas or dispatched to monitor for releases of radiation to the environment
- Keeping offsite authorities informed of plant status by providing periodic updates to include meteorological and radiological data
- When the event is terminated, close-out is performed over communication links to offsite authorities participating in the response by providing a verbal summary of the event (i.e., NRC, state, county), followed by formal written summary transmitted to the state and counties within 8 hours

- c. Site Area Emergency: Events are in progress or have occurred that involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTIONS that result in intentional damage or malicious acts 1) toward site personnel or equipment that could lead to the likely failure of, or 2) that prevent effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

This classification will most likely be made by the ED following activation of the TSC with notifications being developed in the EOF.

Required actions at this classification, in addition to those listed under the Alert level, include:

- ~~Activation of the Offsite ERO and Emergency Public Information Organization~~
- If not previously performed, assembly/accountability shall be performed and site evacuation of nonessential personnel shall be initiated
- Dispatch of plant technical liaisons to the county and state EOCs when they are activated to provide a plant-knowledgeable individual to explain plant communications regarding the emergency and support the interaction with the offsite authorities during the emergency
- ~~Keeping offsite authorities informed of plant status by providing periodic updates to include meteorological data and projected or actual doses for any releases that have occurred~~
- ~~When the event is terminated, close out is performed over communication links to offsite authorities participating in the response by providing a verbal summary of the event (i.e., NRC, state, county), followed by formal written summary transmitted to the state and counties within 8 hours~~

- d. General Emergency: Events are in progress or have occurred that involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.

The purpose of this classification, in addition to those of the Site Area Emergency level, is to initiate predetermined protective actions for the public and provide continuous assessment of information from monitoring groups. The classification will most likely be made by the ED following activation of the TSC with notifications and PARs being developed in the EOF, following activation.

Required actions at this classification, in addition to those listed under the Alert and Site Area Emergency, include:

- A PAR will be determined and issued
- Assessment of the situation and response as necessary
- ~~When the event is terminated, close-out is performed over communication links to offsite authorities participating in the response by providing a verbal summary of the event (i.e., NRC, state, county), followed by formal written summary transmitted to the state and counties within 8 hours~~

- e. Classification Downgrading: VCSNS's policy is that emergency classifications shall not be downgraded to a lower classification. Once declared, the event shall remain in effect until no classification is warranted, ~~a higher classification is required,~~ or until such time as conditions warrant entry into the Recovery Phase.

- f. Guidance for Termination of an Emergency: The purpose of terminating an emergency is to provide an orderly turnover of plant control from the EROs to the normal VCSNS plant organization. Termination of the emergency is authorized by the ECO in command and control. If the emergency is classified as an Alert or higher, the IED must await the activation of the emergency response facilities and turn over command and control to the ECO before initiating the Recovery/Termination Checklist. The considerations provided in the Recovery/Termination Checklist in the emergency plan procedures must be performed before exiting the emergency event. Consultation with governmental agencies and other parties should be conducted before termination of an event classified as Site Area Emergency or General Emergency. Notifications shall be transmitted to appropriate agencies to terminate an event. When a classified event is terminated a Recovery Phase will be entered.
- g. Recovery Phase: That period when the emergency phase is over and activities are being taken to return the situation to a normal state (acceptable condition). The plant is under control and no potential for further degradation to the plant or the environment is believed to exist.

Entry into the Recovery Phase will be authorized by the ECO after consultation with the ED and OEM at an Alert or higher classification and the offsite authorities if a Site Area Emergency or General Emergency was declared. The IED may enter the Recovery/Termination Phase after the Unusual Event when conditions warrant.

Required actions at this phase include:

- The state and the NRC shall be consulted prior to entry into recovery from a Site Area Emergency or a General Emergency.
- Notifications will be made to station management, state, counties, and NRC.
- A Recovery organization will be established to manage repairs to return the unit to an acceptable condition, and support environmental monitoring activities as requested in coordination with federal and state efforts.
- INPO and ANI are notified of Recovery classification.

- h. VCSNS Security Plan: VCSNS has a Security Plan that complies with the requirements of 10 CFR 73. The interface between the Radiological Emergency Plan and the Security Plan is one of parallel operation. The plans are compatible. The Radiation Emergency Plan response measures, once initiated, are executed in parallel with measures taken in accordance with the Security Plan. During a classified event, the individual in overall command and control has responsibility for implementing both plans.

Threats made to VCSNS facilities are evaluated in accordance with established threat assessment procedures and the Security Plan. The Security Plan, Appendix C, Safeguards Contingency Plan, identifies situations that could be ICs for EAL classifications. Contingency events include bomb threats, attack threats, civil disturbances, Protected Area intrusions, loss of guard/post contact, vital area intrusions, bomb devices discovered, loss of guard force, hostages, extortion, fire/explosions, internal disturbances, security communications failure, and obvious attempts of tampering. The Safeguards Contingency Plan provides guidance for decisions and actions to be taken for each security contingency event. As guidance, the Safeguards Contingency Plan allows for differing responses depending upon the assessment of the actual situation within each contingency event classification.

The assessment of any security contingency event and the decision to initiate, or not to implement the Radiation Emergency Plan, will be the responsibility of the Shift Supervisor or ECO. All identified security contingency events have the potential of being assessed as ICs for a radiological emergency declaration.

2. Emergency Action Level Technical Basis

Emergency Plan Implementing Procedures include an EAL Technical Basis Document which includes Unit-Specific EALs consistent with the emergency classification descriptions from NEI 99-01 and NEI 07-01. The EALs are consistent with NEI guidance documentation in accordance with Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors." Where possible, these EALs will be related to plant instrumentation readings. ~~EPP-001, Activation and Implementation of Emergency Plan, includes Unit-Specific EALs consistent with the general class descriptions and provided in NEI guidance documentation in accordance with Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors." Where possible, these EALs will be related to plant instrumentation readings.~~

Emergency classifications are characterized by EALs. The Threshold Values are referenced whenever an Initiating Condition is reached. An Initiating Condition is one of a predetermined subset of unit conditions, where either the potential exists for a radiological emergency, or such an emergency has occurred. Defined in this manner, an Initiating Condition is an emergency condition, which sets it apart from the broad class of conditions that may or may not have the potential to escalate into a radiological emergency. ICs are arranged in one of the Recognition Categories.

EALs are for unplanned events. A planned evolution involves preplanning to address the limitations imposed by the condition, the performance of required surveillance testing, and the implementation of specific controls before knowingly entering the condition. Planned evolutions to test, manipulate, repair, perform maintenance or modifications to systems and equipment that result in an EAL Threshold Value being met or exceeded are not subject to classification and activation requirements as long as the evolution proceeds as planned. However, these conditions may be subject to the reporting requirements of 10 CFR 50.72.

An emergency is classified after assessing abnormal plant conditions and comparing them to EAL Threshold Values for the appropriate ICs. Classifications are based on the evaluation of VCSNS. EAL matrix tables organized by recognition categories are used to facilitate the comparison. The EAL matrix for Unit 1 is used when the unit is in the Technical Specification defined modes of Power Operations as: Power Operations, Startup, Hot Standby, Hot Shutdown, Cold Shutdown, Refueling, or the Defueled mode. ~~The EAL matrix for Units 2 & 3 is used when either unit is in the Technical Specification defined modes of Power Operations as: Power Operations, Startup, Hot Standby, Safe Shutdown, Cold Shutdown, Refueling, or Defueled.~~

All recognition categories should be reviewed for applicability prior to classification. The EALs are coded with a letter and number designator. All ICs, which describe the severity of a common condition (series), are located above the EALs.

3. Offsite Classification Systems

VCSNS works with the state and counties to ensure consistency between classification schemes. The content of the EALs is reviewed with the state and county authorities on an annual basis. The state and counties are informed regarding any EAL changes that significantly impact the ICs or ~~T~~technical ~~B~~basis.

4. Offsite Emergency Procedures

VCSNS works with the state and county authorities to ensure that procedures are in place that provide for emergency actions to be taken which are consistent with the protective actions recommended by the station, accounting for local offsite conditions that exist at the time of the emergency.

Section E: Notification Methods and Procedures

This section describes the notification of state and county response organizations, federal agencies, and VCSNS emergency response personnel. It outlines the content of initial and follow-up messages to response organizations within the plume exposure pathway EPZ.

1. Bases for Emergency Response Organization Notification

VCSNS, in cooperation with state and county authorities, has established mutually agreeable methods and procedures for notification of offsite response organizations consistent with the emergency classification and action level scheme. Notifications to offsite agencies include a means of verification or authentication such as the use of dedicated communications networks, verification code words, or providing call-back verification phone numbers.

Notification for Transportation Accidents: A Transportation Accident is defined in 49 CFR 171.15 and 49 CFR 171.16. If a Transportation Accident involving material in the custody of a VCSNS facility occurs, the appropriate internal and offsite agencies will be notified in accordance with VCSNS procedures.

2. Notification and Mobilization of Emergency Response Personnel

Emergency implementing procedures are established for notification and mobilization of emergency response personnel as follows:

- a. Onsite: When an emergency is declared, reclassified, or terminated, an announcement is made (over the plant public address system or by other means) that includes the emergency classification declared and response actions to be taken by site personnel.

At the Unusual Event classification, select ERO augmentation personnel may be notified and requested to remain available to respond. At an Alert classification or higher, ERO augmentation personnel are notified for activation of the TSC, ~~and OSC, and at a Site Area Emergency or higher augmentation personnel are notified for activation of the~~ **and** EOF and JIC using an ERO notification system and/or manual call-outs via commercial telephone as backup.

b. Offsite: Notifications are promptly made to offsite EROs as follows:

1) State/County Agencies: A notification shall be made within 15 minutes of:

- The initial emergency classification
- Classification escalation
- The issuance of, or change to a PAR for the general public
- Changes in radiological release status, occurring outside of an event classification or PAR notification, based on an agreement with the state/county authorities

The emergency warning points are simultaneously notified using a dedicated notification system. Commercial telephone lines and/or radios are available as backup notification methods.

A notification will also be initiated to cognizant state/county government agencies as soon as possible but within one hour of the termination of an event classification, or entry into Recovery Phase.

2) NRC: An event will be reported to the NRC Operations Center immediately after notification of the appropriate state and county agencies but not later than one hour after the time of initial classification, escalation, termination, or entry into the Recovery Phase. The NRC is notified by a dedicated telephone system called the Emergency Notification System (ENS). If the ENS is inoperative, the required notifications are made via commercial telephone service, other dedicated telephone service, or any other method that shall ensure that a report is made as soon as practical. The Emergency Notification Form (ENF) may be used as a guide to provide initial information to the NRC. If continuous communication is requested and established, a log is used in lieu of the ENF.

Specific requirements for the notifications to the NRC for classified emergency events are detailed in 10 CFR 50.72 with guidance provided in the station's notification procedures.

The computerized data link to the NRC, referred to as the ERDS, will be initiated within one hour of the declaration of an Alert classification or higher.

Mobilization of federal, state, and county response organizations is performed in accordance with their applicable emergency plan and procedures. At a minimum, mobilization of federal response organizations and activation of state and county EOCs is expected to occur at the declaration of a Site Area Emergency. The state and county authorities are responsible for the process of notification of the general public.

c. Support Organizations: When an emergency is initially classified, escalated, or terminated, notifications are promptly made to the following support organizations:

- Medical, rescue, and firefighting support services are notified for assistance as the situation dictates
- INPO is notified at an Alert or higher classification with requests for assistance as necessary
- ANI is notified at an Alert or higher classification with requests for assistance as necessary
- Vendor and contractor support services are notified for assistance as the situation dictates

3. Initial Notification Messages

VCSNS, in conjunction with state and county authorities, has established the contents of the initial notification message form, the ENF, transmitted during a classified emergency. The contents of the form include, as a minimum:

- Designation ("Drill" or "Actual Event")
- Identity of site and unit
- Event classification
- EAL number (as agreed upon with state authorities)
- Nontechnical event description (as agreed upon with state authorities)
- Date and time of declaration (or entry into Recovery Phase or Termination)
- Whether a release is taking or has taken place (Note: "Release" means a radiological release attributable to the emergency event.)
- Wind direction and speed
- Whether offsite protective measures may be necessary
- Potentially affected **EPZ zones** ~~subareas~~ when a General Emergency is declared

Notification approval, transmittal date and time, and offsite agencies contacted are recorded either on the notification form or in an event logbook.

4. Follow-Up Messages

For all emergency classifications, update messages to state and county authorities will be provided on a prearranged frequency. The facility in **control of notifications** ~~command and control~~ is responsible for ensuring that the updates are completed. State and county updates contain the prearranged information plus any additional information requested at the time of the notification.

Follow-up notifications are provided to the NRC Operations Center as soon as possible, but not later than one hour after significant new information is available involving:

- a. The results of evaluations or assessments of plant conditions
- b. The effectiveness of response or protective measures taken
- c. Information related to plant behavior that is not understood

If requested by the NRC, an open, continuous communications channel will be maintained with the NRC Operations Center over the ENS and/or HPN circuits.

5. State and County Information Dissemination

The state and county emergency response plans describe procedures for state and county officials to make a public notification decision promptly on being informed by the plant of an emergency. The system for disseminating information to the public includes notification by pre-scripted messages through appropriate broadcast media such as the Emergency Alert System (EAS).

6. Notification of the Public

The capability for the prompt notification of the general public within the 10-mile plume exposure pathway EPZ around the VCSNS is covered under this plan.

This notification capability consists of two principal elements: (1) the Alert and Notification Systems (ANS) and (2) the EAS radio or television stations.

- The ANS consists of fixed sirens. Activation of the ANS sirens when directed by the civil authorities will alert the public to turn on their radios or television to a local EAS station for detailed information on the emergency situation.
- The EAS is a network of local radio and television stations prepared to transmit or relay emergency information and instructions from the civil authorities to the general public. **This notification is directed and controlled by civil authorities, not VCSNS.**

Activation of the ANS will be initiated by VCSNS personnel upon direction by state or local authorities as specified in existing agreements concerning activation of the system. The siren system is designed in such a fashion that it can be operationally segregated by county boundary within the 10-mile emergency zone radius. The ANS signal will be a three-minute steady signal. Upon determination of the need for public notification, the ANS can be activated within 15 minutes. **Upon failure of part or all of the system, the State of SC will direct notification methods in accordance with their plan.**

The locations of the sirens were determined by a comprehensive engineering study that addressed population density, geographical features, siren output, and mounting heights of sirens, to ensure coverage of the EPZ.

To ensure the ANS is maintained in an operational readiness posture, the local agencies have agreed to a testing frequency for the system (by sounding the sirens) periodically that meets or exceeds FEMA guidance. Reports of inoperable equipment are provided to EP-designated maintenance personnel. The goal of the testing and maintenance program is to identify inoperable equipment in a timely manner and to restore equipment to a functional status commensurate with FEMA operability requirements as referenced in FEMA-REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants" Section E.6.2.1. In addition to this routine test and repair program, preventive maintenance of the ANS will be performed on an annual basis.

7. Messages to the Public

The state has developed EAS messages for the public consistent with the classification scheme. These draft messages are included as part of the South Carolina Operational Radiological Emergency Response Plan and contain instructions with regard to specific protective actions to be taken by occupants and visitors of affected areas. Messages may include instructions such as: take shelter and go indoors, close windows and doors, turn off ventilation systems; directions given for evacuation; directions to stay tuned to specific stations for further information, ad hoc respiratory protection, (e.g., handkerchief over mouth, etc.). VCSNS will provide support for the content of these messages when requested. The state and/or the counties control the distribution of radio-protective drugs to the general public.

Section F: Emergency Communications

This section describes the provisions used for prompt communications among principal EROs, communications with the ERO, and communications with the general public.

1. Communications/Notifications

SCE&G has extensive and reliable communication systems installed at VCSNS. Examples of the communications network include systems such as normal and dedicated telephone lines on landlines, fiber-optic voice channels, cell phones, satellite phones, mobile radio units, portable radios, and computer peripherals. This network provides:

- Voice communication through normal telephone, dedicated line, and automatic ring-down between selected facilities, conference call capability, speaker phones, and operator assistance, where required. In addition, there are satellite phone and cell phone capabilities to maintain communication links to the emergency response facilities and offsite authorities.
- Communications between emergency vehicles and appropriate fixed locations, as well as with state mobile units and fixed locations
- Facsimile, computer network, and modem transmission

Figure F-1 depicts the initial notification paths and the organizational titles from the VCSNS Emergency Response Facilities (ERFs) to federal, state, and county EROs, and industry support agencies. The primary and alternate methods of communication, and the NRC communications network, are illustrated on Figures F-2 and F-3.

- a. VCSNS maintains the capability to make initial notifications to the designated offsite agencies on a 24-hour-per-day basis. The offsite notification system, referred to as the Electric Switch System Exchange (ESSX), provides communications to state and county warning points and EOCs from the Control Room, TSC, and the EOF. Backup methods include facsimile, commercial telephone lines, radios, and internet. State and county warning points are continuously staffed.
- b-d. VCSNS has established several communication systems that ensure reliable and timely exchange of information necessary to provide effective command and control over any emergency response (1) between the station and state and county agencies within the EPZs, (2) with federal EROs, (3) between the station, the EOF, and the state and county EOCs, and (4) between ERFs and Field Monitoring Teams. A general description of the systems is as follows:
 - 1) Private Branch Exchange (PBX) Telephone System: The PBX telephone system provides communication capability between telephones located within the VCSNS facilities through direct dialing. The PBX is used to connect the Control Room, TSC, OSC, and the EOF. The PBX telephone system also provides for outside communications through interconnections with the corporate fiber optic telephone communications system and commercial telephone systems.

- 2) ESSX: The ESSX is a dedicated commercial communications system that has been installed for the purpose of notifying state and county authorities of declared emergencies at VCSNS. This system links together the VCSNS Control Room, EOF, TSC, and state and county authorities as appropriate.
- 3) Local Commercial Telephone System: This system provides standard commercial telephone service through the public infrastructure, consisting of central offices and the wire line carrier. The commercial telephone system includes connections to PBX, emergency telephone system, dedicated lines to emergency facilities, and lines to the JIC. The commercial vendor provides primary and secondary power for their lines at their central office.
- 4) ERDS: As prescribed by 10 CFR 50 Appendix E.VI, ERDS will supply the NRC with selected plant data points on a near real time basis. ERDS is activated by the ERO as soon as possible but not later than one hour after declaration of an Alert, Site Area Emergency, or General Emergency. The selected data points are transmitted via modem or a Virtual Private Network (VPN) to the NRC at approximately 1-minute intervals. The ERO has backup methods available to provide required information to the NRC in the event that ERDS is inoperable during the declared emergency.
- 5) Field Monitoring Team Communications: A separate radio communications channel has been installed to allow coordinated environmental monitoring and assessment during an emergency. This system consists of the necessary hardware to allow radio communication between the Control Room, EOF, and mobile units in VCSNS vehicles. Commercial cell phones, satellite phones, or other means are available as backup to the primary field team communications system.
- 6) Satellite Telephones: Satellite telephones are provided to the Control Room, the TSC, and the EOF providing a backup communication link in the event that the landlines are rendered inoperative. These units are equipped with outside antennae to permit the use of the communications device inside the facilities.
- 7) 800 MHz Radio: This radio system is an 800 MHz SCANA Corporation system that is divided into trunks which are used by corporation subsidiaries. The trunk system at VCSNS is comprised of channels for Maintenance, Operations, Health Physics, Field Monitoring Teams, etc to allow a means of communications between facility personnel and field personnel for routine work and emergency conditions. The system utilizes both base stations and remote units in conjunction with associated cabling, repeaters, and antennas to provide optimum coverage for two-way continuous transmission.
- 8) SCE&G Fiber Optic System: The fiber optic system connects South Carolina Electric and Gas Company's main office in Cayce, South Carolina with the Summer Complex which includes V.C. Summer Nuclear Station, Fairfield Pump Storage Unit, Parr Steam and Hydro Unit and the New Nuclear Deployment Building. Summer Station is the hub for this system. The system contains 72 fiber optic channels.

- ~~9) Main & Fuel Handling Page System (Gaitronics): This system of networked phone stations and speakers strategically located throughout the station. Each phone station contains a telephone type receiver-transmitter handset, and channel selector switches. The system is equipped with an alarm encoder for alerting personnel through a series of designated tones. The Fuel Handling Page System is Line 5 on the Main Page System is only available in areas with fuel handling capabilities.~~
- 9) In addition, station communication links exist to ensure appropriate information transfer capabilities during an emergency. The station may also use its video conferencing systems, computer network connections, wireless telephones, or station radios to augment its emergency communications.
- ~~10) Redundant Paging System: This independent system of networked phone stations and speakers strategically located in areas of the station involved in the process of Engineered Safety Features shutdown. The system contains its own phone stations, power supplies, line balance equipment, and cable system. The system is distinguished by its red color.~~
- ~~11) Maintenance Jack System: The Maintenance Communication system consists of a network of strategically located jack stations. Each jack station has four separately wired receptacles mounted on it, providing four independent communications channels. Several headsets, each consisting of a padded earphone type receiver and a boom mounted noise-canceling microphone are provided for hands free operation of the system. Each headset is equipped with a belt clip amplifier and 30 feet of cable.~~
- ~~12) In addition, station communication links exist to ensure appropriate information transfer capabilities during an emergency. The station may also use its video conferencing systems, computer network connections, wireless telephones, or station radios to augment its emergency communications.~~
- e. ERO Notification System: VCSNS uses an automated ERO Notification System that employs an automatic telephone system to rapidly notify members of the ERO. Procedures specify the course of action to be taken if the ERO Notification System fails.
- f. NRC Communications (ENS and HPN): Communications with the NRC Operations Center will be performed via the NRC ENS and the HPN circuits or commercial and satellite telephone lines. Information is normally communicated to the NRC in accordance with NL-122, Regulatory Notification and Reporting, before establishing an open ENS and/or HPN line.

Installation and use of these NRC telephones is under the direction of the NRC (see Figure F-3).

Emergency Notification System: Dedicated telephone equipment is in place between the Control Room and the NRC, with an extension of that line in the TSC. A separate line is available in the EOF with the capability of being patched with the station through the NRC. This line is used for NRC event notifications and status updates. Backup power is provided for these lines.

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HPN: There also exists a separate dedicated telephone between the NRC, the TSC, and the EOF for conveying health physics information to the NRC as requested or as an open communication line. Backup power is provided for these lines.

2. Medical Communications

Communications are established with the primary medical hospitals and transportation services via commercial telephone that is accessed by VCSNS personnel.

3. Communications Testing

Communications equipment is checked in accordance with Section N.2. Communication drills between VCSNS and state and county government facilities are conducted in accordance with Section N.2.a.

ANS siren testing is performed as follows:

- Silent Test At least biweekly
- Growl (or Equipment) Test Quarterly and following preventive maintenance
- Full Volume Test Annually

4. Plant Alarms

In conjunction with the ~~Main Plant Page System~~ plant paging systems, the site has audible (~~pulse, wale, warble, steady, etc.~~) alarms used to alert site personnel to an unsafe or emergency conditions. The alarms include a Reactor Building/Containment Vessel Evacuation Alarm, Radiation Emergency/Site Evacuation Alarm, and Fire Alarm. Activation of these alarms is done from the Control Rooms.

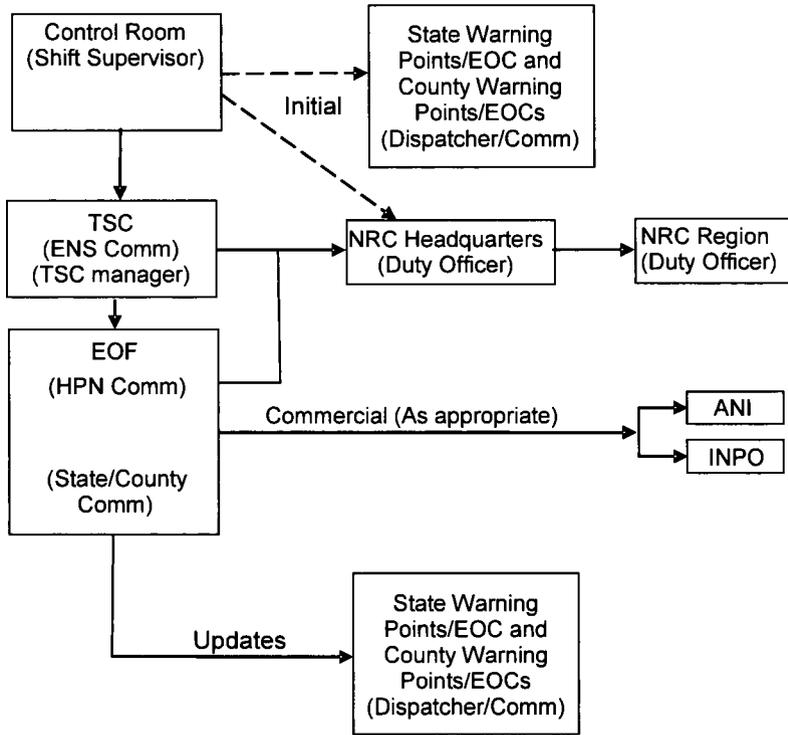
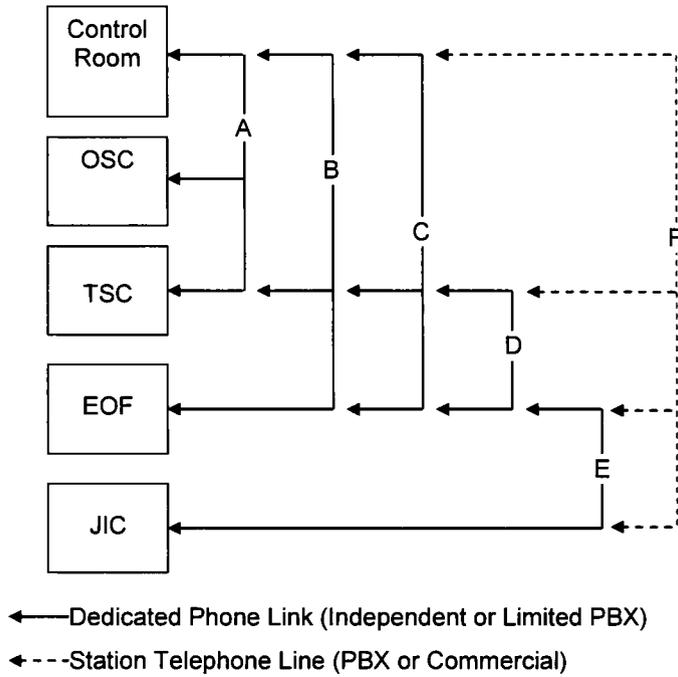


Figure F-1: Notification Scheme (After Full Augmentation)



- A = Dedicated phone link to dispatch OSC teams between the OSC, TSC, and Control Room.
- B = Dedicated phone link for use by the ECO or OEM, ED, and Shift Supervisor between the Control Room, the TSC, and the EOF.
- C = Dedicated phone link for transmission of technical data between the TSC, Control Room, and the EOF.
- D = Dedicated phone link to discuss mitigating activities and priorities between the TSC and EOF.
- E = Dedicated phone link to discuss changes in station or affected plant conditions and EPIO needs between the EOF and the JIC.
- F = Station telephone line that is a communication link between activated facilities.

Figure F-2: ERF Communications Matrix

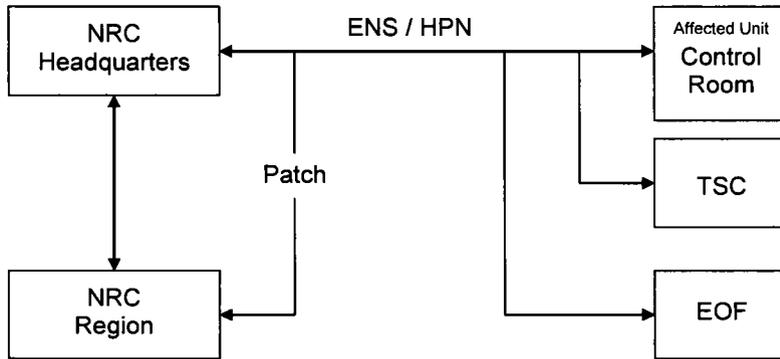


Figure F-3: NRC Communications for Nuclear Response

Section G: Public Education and Information

This section describes the VCSNS public education and information program. It outlines the methods for distributing public information materials on an annual basis and describes how the public is informed in the event of an emergency.

1. Public Information Publication

The state of South Carolina has overall responsibility for maintaining a continuing disaster preparedness public education program. The EPIO publication for the VCSNS is updated annually, in coordination with state and county agencies, to address how the general public is notified and what their actions should be in an emergency. SCE&G distributes the publication annually to all residents within the 10-mile plume exposure EPZ and to appropriate locations where a transient population may obtain a copy. The public information publication includes the following information:

- a. Educational information on radiation
- b. Information regarding who to contact for additional information
- c. A description of possible protective measures for the public (take shelter, evacuate, and/or ingest a radioprotective drug)
- d. A map of major evacuation routes
- e. A list of reception centers to coordinate sheltering of evacuees and instructions on how to obtain additional information, especially for the disabled or their caretakers and those without transportation

2. Public Education Materials

Public information publications instruct the public to go indoors and turn on their radios or televisions when they hear the ANS sirens operating. These publications also identify the local radio and television stations to which the public should tune in for information related to the emergency. Information is also provided to the transient population by means of signs at local business establishments and at the entrances to recreational areas around the VCSNS with instructions to be followed in the event of an emergency at VCSNS. A list of radio and television stations that will transmit emergency information is provided on the signs. Telephone numbers where additional information can be obtained are also provided.

3. Media Accommodations

- a. The SCANA Public Affairs Group is notified when an Unusual Event or higher emergency condition exists. They will handle public and media inquiries in the early stages of the event (until the JIC is activated) by distributing background information, news releases, and providing information to SCANA management.

- 1) The EPIO Organization: The EPIO is part of the ERO. It may be activated at any time at the discretion of VCSNS management. However, when there is a procedural requirement to activate the EOF, the EPIO shall also be activated.

The primary purpose of the EPIO is to disseminate information from VCSNS's ERO about the emergency events to the public, via the news media. However, the authority for issuance of news releases for the classification of an Unusual Event or before to ERO activation will always reside with the SCANA Public Affairs Group. Upon activation, the EPIO has the responsibility and authority for issuance of news releases to the public after the information gains the approval of the ECO/Company Spokesperson.

The EPIO is comprised of senior managers from SCANA who will function as spokespersons, and other individuals including personnel from VCSNS and the SCANA Governmental Affairs and Human Resources areas. SCANA's spokespersons disseminate information to the news media/public concerning the emergency events out of the JIC.

- 2) The Joint Information Center: The JIC is the facility in which media personnel gather to receive information related to the emergency event. The JIC is the location where approved news releases will be provided to the media for dissemination to the public. News releases are coordinated between the EOF and JIC personnel and state and/or federal representatives in the JIC. Public information personnel operate **designated portions of the EOF** or from ~~EOF and the~~ JIC, which is under the direction of the ECO/Company Spokesperson and functions as the single point of contact to interface with federal, state, and local authorities who are responsible for disseminating information to the public.

VCSNS has a designated JIC co-located with the EOF. The JIC is equipped with appropriate seating, lighting, and visual aids to allow for public announcements and briefings to be given to the news media. Additionally, the JIC is equipped with commercial telephone lines for making outgoing calls. The EPIO functions from the JIC and EOF in preparing and releasing VCSNS information regarding the emergency event. The JIC is activated at the discretion of the Emergency Control Officer in the EOF. Functions of the JIC include:

- Serving as the primary location for accumulating accurate and current information regarding the emergency conditions and writing news releases
- Providing work space and phones for public information personnel from the state, counties, NRC, FEMA, and industry-related organizations
- Providing responses to media inquiries through Media Monitoring Staff telephones that the media can call for information about an emergency

- b. The news media is not permitted into the EOF during an emergency

4. Coordination of Public Information

- a. The JIC is staffed by SCANA, VCSNS, and federal, state, and county government public information representatives who will be the source of public information during an emergency at the station. The ECO (Company Spokesperson) is the primary spokesperson for SCANA. The ECO (Company Spokesperson) has direct access to all necessary information (see Section B.5). All information will be coordinated before conducting news briefings.
- b. Rumors or misinformation are identified during an emergency by the Media Monitors and Rumor Control Monitors. They respond to telephone calls from the public and the media, and monitor media reports.

5. Media Orientation

Emergency Preparedness, in conjunction with SCANA Public Affairs Group, offers programs (at least annually) to acquaint news media with the Emergency Plan, information concerning radiation, and points of contact for release of public information in an emergency.

Section H: Emergency Facilities and Equipment

Onsite and offsite facilities are available for emergency assessment, communications, first aid and medical care, and damage control. Of particular importance are the ERFs: the Control Room, TSC, OSCs, and EOF, and JIC.

This section describes the emergency facilities and equipment used by the ERO and outlines the requirements that aid in timely and accurate response actions. It also describes the surveillance programs used to monitor and ensure that these facilities and equipment are maintained in a high degree of constant readiness.

1. Control Rooms, Technical Support Center, and Operational Support Centers

VCSNS has established a TSC that is activated upon declaration of an Alert or higher classification. VCSNS has also established ~~an~~ three OSCs, one in each of the Units. The OSC in the affected Unit will be activated. Until they become operational, required functions of these facilities are performed by shift personnel and directed from the affected/lead Unit's Control Room. These facilities may be activated at the discretion of the IED at an Unusual Event classification.

- a. **Control Room:** There is a Control Room for each of the Units on the site. The VCSNS reactor and major plant systems are operated from ~~the Control Room~~ these locations. Each Control Room is equipped with instrumentation to supply detailed information on the reactor and its major systems. Each Control Room is continuously staffed with qualified licensed operators. The Control Room is the first onsite facility to become involved with the response to emergency events. The lead Control Room will be the designated location for the IED. The lead Control Room will be designated as follows: if the event is a site wide event or only affects the Unit 1 Protected Area, then the Unit 1 Control Room is the lead, if the event affects the Units 2 & 3 Protected Area only, then the Unit 2 Control Room is the lead. If the event only affects a single Unit, then that Unit's Control Room is the lead. Control Room personnel must evaluate and effect control over the emergency and initiate activities necessary for coping with the emergency until such time that augmented emergency response facilities can be activated. These activities shall include:

- Reactor and plant control
- Initial direction of all plant related operations
- Accident recognition, classification, mitigation, and initial corrective actions
- Alerting of onsite personnel
- Activation of the ERO notification system
- Activation of the ERFs
- Notification of offsite agencies
- Activation of ERDS

- Continuous evaluation of the magnitude and potential consequences of an incident
- Initial dose projections
- Recommendations for immediate protective actions for the public

As other ERFs become activated, they will provide support to the Control Room. Overall command and control of the emergency will transfer to the EOF when it is properly staffed and ready to take over these responsibilities. Throughout all emergencies, the Control Room maintains its emergency activation status until its normal operational status may be resumed or its recovery activities are initiated.

- b. Technical Support Center: VCSNS has established a TSC for use during emergency situations by station management, technical, and engineering support personnel. This facility is located outside the Protected Area southwest of Unit 1 and northeast of Units 2 & 3. This location provides the ability to respond and activate the facility in a timely fashion, independent of which Unit is affected. It also will permit the use of the TSC in a security event that may curtail the entry of ERO personnel into the affected Protected Area(s). The TSC directly meets most of the requirements of NUREG 0696, "Functional Criteria for Emergency Response Facilities". It does not lend itself to face to face communications with the Control Room. The TSC is provided with communications links that can transmit and receive direct voice and data communications from any of the affected Control Rooms. These communications have alternate pathways that can also be used as needed. Security personnel are positioned in the TSC to enhance the movement of personnel between the TSC and the Control Room, as necessary. The TSC is activated for all emergencies classified as Alert or higher. Activation of this facility for other events is optional. When activated, the TSC functions include:

- Support for the Control Room's emergency response efforts
- Continued evaluation of event and classification of emergencies
- Assessment of the plant status and potential offsite impact
- Coordination of emergency response actions within the Protected Areas
- Communication with the NRC via ENS
- Activation of the ERDS or ensuring that it is activated

The TSC is the onsite location used to support the Control Rooms for assessment of plant statuses and potential offsite impact, and for implementation of emergency actions. The TSC provides technical data and information to the EOF.

Figure B-1b illustrates the staffing and organization of the TSC.

The TSC provides reliable voice communications to the Control Rooms, OSCs, EOF, and NRC. In addition, it provides facsimile transmissions capability and electronic transfer capabilities (see Section F).

The TSC is sized to accommodate a minimum of ~~20~~-forty (40) personnel and their supporting equipment. This includes provisions for NRC representatives. The TSC is also sized and configured to accommodate a Back-up Operational Support Center (OSC).

The Back-up OSC includes a designated command area and work areas for OSC personnel. Personnel will have access to plant data and network computer systems, as well as communications systems, such as telephone and radio systems.

Personnel in the TSC shall be protected from radiological hazards, including direct radiation and airborne contaminants under accident conditions with similar radiological habitability as Control Room personnel. To ensure adequate radiological protection, periodic radiation surveys of the TSC are conducted or portable radiation monitors may be used. These systems indicate radiation dose rates and airborne radioactivity inside the TSC while in use. In addition, KI is available for use as required. In the event that the TSC becomes uninhabitable, implementing procedures will provide guidance on the transfer of duties and relocation of the staff until such time that the TSC staff is able to fulfill their duties as assigned.

The TSC has access to a complete set of as-built drawings and other records, including general arrangement diagrams, piping and instrument diagrams (P&IDs), and the electrical schematics. The TSC has the capability to record and display vital plant data, in real time, to be used by knowledgeable individuals responsible for engineering and management support of reactor operations, and for implementation of emergency procedures.

The Back-up TSC is the area immediately adjacent to the lead Unit's Control Room and a Remote TSC is included in the Emergency Operations Facility Building.

The Remote TSC is designed to allow evaluators and decision makers access to plant data and network computer systems to support event evaluations, development of mitigation strategies, and determination of emergency classifications. The facility also has access to communications systems, such as telephone (land based and satellite) systems and radio systems with direct links to the onsite personnel. Using these systems, communications may be established with Security, the Units' Control Rooms, the EOF, and OSC(s). The building provides work space for engineering personnel with access to plant drawings, system information, and plant procedures. A limited number of hard copies of procedures are provided for reference or as back-up to network systems.

- c. Operational Support Centers: The OSCs are the locations ~~to~~ where the ~~u~~Unit's support personnel report during an emergency and from which they will be dispatched for assignments or duties in support of emergency operations. The affected Unit's OSC shall be activated whenever the TSC is activated, but need not remain activated at the Alert level if its use is judged unnecessary by the ED. At the Site Area Emergency and General Emergency levels, the unit's OSC or an alternate OSC shall be activated at all times. Activation for other events is optional. VCSNS disciplines reporting to the OSCs include, but are not limited to:

- Operating personnel not assigned to the Control Room

- Health Physics personnel
- Chemistry personnel
- Maintenance personnel (Mechanical, Electrical, and I&C)

Figure B-1b illustrates the staffing and organization for the OSC

~~The~~ Each OSC is equipped with communication links to the Control Rooms and the TSC (see Section F). A limited inventory of supplies will be kept in the OSCs or accessible to the OSCs. This inventory will include respirators, protective clothing, flashlights, and portable survey instruments.

Refer to the Unit Annexes for additional information regarding the OSCs.

A Back-up (~~Remote~~) OSC is included in the configuration and sizing of the **Technical Support Center** and a **Remote OSC is included in the** Joint Information Center Building, which also houses the EOF. The Back-up OSC includes a designated command area, work areas for OSC groups, and staging areas (break room/kitchen) for OSC Damage Control personnel.

The Remote OSC is designed to allow evaluators and decision makers access to plant data and network computer systems to support event evaluations and development of mitigation strategies and mission while planning for return to the site. The facility also has access to communications systems, such as telephone (land based and satellite) systems and radio systems with direct links to the onsite personnel. Using these systems, communications may be established with the Units' Control Rooms, the EOF, and TSC. The building provides work space for staging damage control teams and has access to plant drawings, system information, and plant procedures. A limited number of hard copies of procedures are provided for reference or as back-up to network systems.

2. Emergency Operations Facility

The EOF is the location where the ECO will direct a staff in evaluating and coordinating the overall company activities involved with an emergency. Activation of the EOF is mandatory upon declaration of a ~~Site Area Emergency~~ Alert or higher classification. The EOF is located in Richland County near the intersection of Bickley Road and SC Hwy 176 and is outside the 10 Mile Emergency Planning Zone and greater than 10 miles from the Technical Support Center (TSC). The EOF provides for:

- Management of overall emergency response
- Performance of the non-delegable emergency notification and PAR development and notification functions when in command and control
- Notification of appropriate corporate and station management
- Coordination of offsite radiological and environmental assessments
- Determination of recommended public protective actions
- Management of recovery operations from an Alert or higher classification
- Coordination of emergency response activities with federal, state, and county agencies

The EOF was designed with the following considerations:

- The EOF is provided with access limiting devices when not in use and assigned security personnel during activation to ensure that only authorized personnel are permitted to enter the facility.
- The location provides optimum functional and availability characteristics for carrying out overall strategic direction of VCSNS emergency and support operations, determination of public protective actions to be recommended to offsite officials, and coordination with federal, state, and county agencies.
- It is of sufficient size to accommodate about 50 people including NRC representatives.
- It meets the criteria of NUREG-0696, "Functional Criteria for Emergency Response Facilities" regarding location, structure, habitability, size, communications, instrumentation, data system equipment, power supplies, technical data, records availability, and management. The EOF power is backed with an emergency diesel generator and has an uninterruptable power source to maintain loads during the transfer between power sources.
- It is equipped with reliable voice communications capabilities to the TSC, the Control Rooms, the NRC, and the state and county EOCs. In addition, the EOF has facsimile, computer transmission, and electronic transfer capabilities.
- Equipment is provided to gather, store, and display data needed in the EOF to analyze and exchange information on plant conditions with the station. The EOF technical data system receives, stores, processes, and displays information sufficient to perform assessments of the actual and potential onsite and offsite environmental consequences of an emergency condition.
- The EOF has ready access (either through hard copies or electronic media) to plant records, procedures, and emergency plans needed for effective overall management of VCSNS emergency response resources.
- It is designed to support a rRemote TSC (RTSC) and rRemote OSC (ROSC) in the event of an emergency which limits access to the site.

3. Joint Information Center

The JIC is the location where the Company Spokesperson will direct a staff in providing and coordinating the release of information during an emergency. The JIC is co-located with the EOF outside the 10-mile EPZ. The JIC provides facilities and equipment for VCSNS, federal, state, and county agencies to interface with each other and to provide a location where information regarding the event is released to the media and general public.

4. Emergency Operations Centers

EOCs operated by the state and county communities have been established to perform direction and control of emergency response functions, as outlined in their respective plans.

The respective state EOC is capable of continuous (24-hour) operations for a protracted period. These centers contain sufficient communications (radio, telephone, and facsimile) equipment, maps, emergency plans, and status boards to provide the necessary interfaces with other federal, state, county, and station emergency facilities.

The county EOCs serve as command and control headquarters for local emergency response activities as well as a center for the coordination of communications to field units and to the state EOC. These EOCs have the equipment necessary, (such as facsimile machines, telecommunications equipment, radios, photocopiers, wall maps, etc.) to carry out their emergency responsibilities.

5. Activation

NOTE: NUREG-0654 Criterion II.B.5 states that the "licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency." It further references that short period as 30 and 60 minutes. VCSNS will adequately staff its on-shift personnel to support the Control Room personnel upon declaration of an Alert or higher classification. This staffing will fulfill the NUREG-0654 Criterion II.B.5 for 30-minute responders and provides additional support to the Onshift ERO within a 75 minute response for on-call ERO personnel. The time frames for rapid augmentation of a nuclear power plant staff in the event of an emergency are not regulatory requirements but rather administrative times set by VCSNS. It is VCSNS's intent to expend its best efforts to meet the augmentation criteria times regarding staffing Emergency Response Facilities with sufficiently skilled individuals capable of handling an emergency. Due to diversity of normal residential patterns for the stations' staff, possible adverse weather conditions, and road congestion, these time frames might be exceeded.

VCSNS has put into place plans and procedures to ensure timely activation of its ERFs. The Shift Supervisor (as IED) will initiate a call-out in accordance with the emergency planning procedures. The ERO augmentation process identifies individuals who are capable of fulfilling the specific response functions that are listed in Table B-1a. This table was developed based on the functions listed in NUREG-0654, Table B-1.

Although the response time will vary due to factors such as weather and traffic conditions, a time of 75 minutes for minimum staffing, has been established for the ERO personnel responding to the station emergency facilities, following the declaration of an Alert or higher emergency classification. Additionally, plans have been developed to ensure timely functional activation and staffing of the JIC when the classification of Alert or higher classification is declared.

It is the intention of the organization to be capable of activating the applicable ERFs within 15 minutes of achieving minimum staffing. The facility can be declared activated when the following conditions are met:

~~**NOTE:** NUREG 0654 Criterion II.B.5 states that the "licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency." It further defines that short period as 30 and 60 minutes. VCSNS will adequately staff its on-shift personnel to support the Control Room personnel upon declaration of an Alert or higher classification. This staffing will fulfill the NUREG 0654 Criterion II.B.5 for 30 minute responders and provides additional support to the Onshift ERO to permit a 60 minute response for on-call ERO personnel. The time frames for rapid augmentation of a nuclear power plant staff in the event of an emergency are not rigid inviolate requirements but rather goals. It is VCSNS's intent to expend its best efforts to meet the augmentation criteria goals regarding staffing Emergency Response Facilities with sufficiently skilled individuals capable of handling an emergency. Both the NRC and VCSNS realize that due to diversity of normal residential patterns for the stations' staff, possible adverse weather conditions and road congestion, these time frames might be exceeded.~~

~~VCSNS has put into place plans and procedures to ensure timely activation of its ERFs. The Shift Supervisor (as IED) will initiate a call-out in accordance with the emergency planning procedures. The ERO augmentation process identifies individuals who are capable of~~

~~fulfilling the specific response functions that are listed in Table B-1a. This table was developed based on the functions listed in NUREG-0654, Table B-1.~~

~~Although the response time will vary due to factors such as weather and traffic conditions, a goal of about 60 minutes for minimum staffing, has been established for the ERO personnel responding to the station onsite emergency facilities, following the declaration of an Alert or higher emergency classification, and to the EOF following the notification of a Site Area Emergency or higher emergency classification. Additionally, plans have been developed to ensure timely functional activation and staffing of the JIC when the classification of Site Area Emergency is declared.~~

~~It is the goal of the organization to be capable of activating the applicable ERF within 15 minutes of achieving minimum staffing. The facility can be declared activated when the following conditions are met:~~

- ~~a. Minimum staffing has been achieved~~
- ~~b. Personnel have been briefed on the situation~~
- ~~c. The facility is functionally capable of performing the appropriate activity~~

~~The senior manager in charge may elect to activate their facility without meeting minimum staffing if it has been determined that sufficient personnel are available to fully respond to the specific event (this would not constitute a successful minimum staff response).~~

~~Although the minimum staffing criteria applies to the JIC, the~~ **The 6075-** minute response time and 15-minute activation times are not applicable **to the JIC.** Public Information personnel must first coordinate the decision to activate the JIC with the appropriate offsite authorities responding to the facility.

6. Monitoring Equipment Onsite

The station is equipped with instrumentation for seismic monitoring, radiation monitoring, fire protection, and meteorological monitoring. Instrumentation for the detection or analysis of emergency conditions is maintained in accordance with station Technical Specifications, if applicable or commitments made to the NRC. The actual instrumentation will not be described in detail in this plan. Additional details, if required, of the equipment will appear in ~~the Unit 1~~ each Unit's Annex. This equipment includes, but is not limited to, the following:

a. Geophysical Monitors

- 1) Meteorological Instrumentation: There are two permanent meteorological monitoring stations located near the station for display and recording of wind speed, wind direction, and ambient and differential temperature for use in making offsite dose projections. Meteorological information is presented in the Control Room, TSC, and EOF by means of the plant computer system. This information is remotely interrogated using a computer or other data access terminal.

With regard to VCSNS's meteorological monitoring program, since the meteorological facilities are not composed of structures, systems, and components that prevent or mitigate the consequences of postulated accidents and are not "safety-related," those aspects of quality assurance germane to providing good meteorological information for a nuclear power station were adopted into the Quality Assurance Program Description (QAPD).

The National Weather Service (NWS), or regional weather forecast providers, may be contacted during severe weather periods. These providers analyze national and local weather in order to provide localized weather forecasts for the VCSNS area, as appropriate.

- 2) Seismic Monitoring: The ~~VCSNS~~ seismic monitoring system measures and records the acceleration (earthquake ground motion) of the structure. Earthquakes produce low frequency accelerations which, when detected by the remote sensing devices, are permanently recorded as information which defines the response spectrum. The system remains in a standby condition until an earthquake causes the remote unit(s) to activate the recording circuits and tape transports. It also provides signals for immediate remote indication that specific preset response accelerations have been exceeded.
- 3) Hydrological Monitors: The design basis flood, probable maximum precipitation, and other improbable, conceivable extremes in hydrologic natural phenomena are well below any design limits for the units as detailed in their FSARs. Hence, there are no specific, dedicated hydrological monitors.

b. Radiological Monitors and Sampling

- 1) The RMS: In-plant radiological measurements provide information that may help determine the nature, extent, and source of emergency conditions. The RMS is available to give early warning of a possible emergency and provides for a continuing evaluation of the situation in the Control Room. Radiation monitoring instruments are located at selected areas within the facility to detect, measure, and record radiation levels. In the event the radiation level should increase above a preset level, an alarm is initiated in the Control Room. Certain radiation monitoring instruments also alarm locally in selected areas of the facility. The RMS is divided into 3 subsystems:
 - a) Area Radiation Monitors are used for the direct measurement of in-plant exposure rates. The area radiation monitor readings allow in-plant exposure rate determinations to be made remotely without requiring local hand-held meter surveys. This information may be used, initially, to aid in the determination of plant area accessibility. In addition to permanent monitors, portable continuous air monitors measure airborne particulate and airborne iodine activities at various locations within the operating areas.
 - b) Process radiation monitors are used for the measurement of radioactive noble gas, iodine, and particulate concentrations in plant effluent and other gaseous and fluid streams.
 - c) The accident, or high range, RMS monitors radiation levels at various locations within the operating area. These are high range instruments used to track radiation levels under accident or post-accident conditions. These instruments include the containment monitors.

The RMS provides the necessary activity or radiation levels required for determining source terms in dose projection procedures. Key RMS data is linked to the plant computer, which allows information to be passed to the TSC and EOF. The isotopic mix, including isotopes such as those in Table 3 of NUREG-0654, is based upon a default accident mix. Refer to the unit-specific FSAR for further detail on the RMS capabilities and design.

- 2) Liquid and Gaseous Sampling Systems: The process sampling system consists of the normal sampling system and additional sampling panels located throughout the plant. Sampling systems are installed or can be modified to permit reactor coolant and containment atmosphere sampling even under severe accident conditions.

The sampling systems use a number of manual sampling techniques to enable reactor coolant and containment sampling operations over a wide range of plant conditions. They are capable of providing information relative to post-accident plant conditions to allow operator actions to be taken to mitigate and control the course of an accident. Refer to the **respective Unit's** FSAR for further detail on sampling capabilities.

- 3) Portable Radiation Monitoring Equipment: Portable radiation survey instruments are available for a wide variety of uses such as area, sample, and personnel surveys

and continued accident assessment. Instruments are stored throughout the plant and in the emergency facilities.

- c. **Process Monitors:** The Control Room and applicable redundant backup locations are equipped with extensive plant process monitors for use in both normal and emergency conditions. These indications include but are not limited to reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or lineup of equipment components. This instrumentation provides the basis for initiation of corrective actions.
- 1) **Plant Monitoring/Information System:** A plant monitoring/information system provides the data acquisition and database capability for performing plant monitoring and functions. The system is designed to scan, convert to engineering units, conduct reasonability and alarm limit checks, apply required transformations, store for recall and analysis, and display the reading of transformed data from plant instrumentation. The system scans flows, pressures, temperatures, fluid levels, radiation levels, equipment, and valve status at required frequencies. Scanned variables are quality tagged. The system provides for short and midterm storage of data for online retrieval and fast recall, and long-term storage to appropriate media.
 - 2) **Safety Parameter Display System (SPDS):** SPDS provides a reliable display of plant parameters from which the safety status of operation may be assessed in the Control Room, TSC, and EOF for the station. The primary function of the SPDS is to help operating personnel in the Control Room make quick assessments of plant safety status. SPDS and/or other display systems in the TSC and EOF promote the exchange of information between these facilities and the Control Room and assists the emergency organization in the decision making process. It also provides data trending information regarding current and past status of the affected Unit(s).
- d. **Fire Detection System:** The fire detection system is designed to quickly detect visible or invisible smoke (or other products of combustion) and/or heat in designated areas of the plant. The fire alarm communication systems and subsystems are located at strategic points throughout the plant to warn personnel of a nuclear incident or other emergency conditions. Existing plant alarm systems are sufficiently audible to alert personnel in the event of a fire or need for assembly. These alarm communication systems consist of warning sirens and lights (in high noise areas) and the PA system. Refer to the **respective Unit's** FSAR for further description of the unit's fire protection system.

7. Monitoring Equipment Offsite

VCSNS has made provisions to acquire data from and have access to the following offsite sources of monitoring and analysis equipment:

- a. **Geophysical Monitors:** In the event that both onsite meteorological towers or monitoring instrumentation becomes inoperative, meteorological data may be obtained directly from the NWS or the internet.

A South Carolina State Network (SCSN) seismometer is located about 3.2 miles east-southeast of the VCSNS Unit 1. This seismometer near Jenkinsville has been operational since November 1973, and is monitored by the University of South Carolina.

The SCSN seismometer provides background information relative to seismic activity in the area, including confirmation of earthquake occurrences and magnitudes.

In addition, a central point of contact is the National Earthquake Information Service in Golden, Colorado to obtain information about a seismic event.

The EOF will coordinate hydrology and seismology expertise in the event onsite information becomes unavailable.

- b. Radiological Environmental Monitors and Sampling: The state of South Carolina DHEC will conduct an extensive offsite environmental monitoring program to provide data on measurable levels of radiation and radioactive materials in the environs.

VCSNS also maintains an offsite environmental monitoring program as well. The program is described fully in the Offsite Dose Calculation Manual and includes:

- Fixed continuous air samplers
- Routine sampling of river water, milk, and fish
- A fixed thermo-luminescent dosimeter (TLD) monitoring network

The TLD program consists of the following elements:

- A near-site ring of dosimeters covering the 16 meteorological sectors
- A 16-sector ring of dosimeters placed in a zone within about 5 miles from the plant
- TLDs placed at each of the normal fixed air sampler locations (typically about 8-15 air samplers)

- c. Laboratory Facilities: External facilities for counting and analyzing samples can be provided by the other nuclear stations in the area. These laboratories can act as backup facilities in the event that the station's counting room(s) and laboratory become unusable or the offsite radiological monitoring and environmental sampling operation exceeds the capacity of the station capabilities during an emergency. It is estimated that these laboratories will be able to respond within several hours from initial notification.

Outside analytical assistance may be requested from state and federal agencies, or through contracted vendors. The state maintains a radiological laboratory that provides independent analysis. The DOE, through the Interagency Radiological Assistance Program has access to any national laboratory with DOE contract (i.e., Savannah River Site, Brookhaven, Oak Ridge, Lawrence Livermore, etc.).

A general description of the laboratory capabilities is provided in Section C.3.

8. Offsite Monitoring Equipment Storage

VCSNS maintains a sufficient supply of emergency equipment (such as portable survey, counting, and air sampling instrumentation and other radiological monitoring equipment and supplies) that may be used for environmental monitoring. These supplies meet the initial requirements of two environmental Field Monitoring Teams. During subsequent phases of

an emergency, additional equipment is available from other utility or state Field Monitoring Teams, INPO mutual aid, and offsite response organizations.

9. Meteorological Monitoring

The station has installed and maintains two meteorological towers equipped with instrumentation for continuous reading of the wind speed, wind direction, air temperature, and vertical temperature difference (ΔT). Additional capabilities are available to obtain representative current meteorological information from other sources, such as the NWS. A full description of the onsite meteorological capabilities is given in Section 4 of the Unit-4 Annexes.

10. OSC Capabilities

~~The~~ Each OSC provides an area for coordinating and planning of OSC activities and the staging of personnel. Additional space is available in adjacent offices and locker rooms to accommodate additional personnel as may be required. Alternate locations are available. The onsite storerooms maintain a supply of parts and equipment for normal plant maintenance. These parts, supplies, and equipment are available for damage control use as necessary.

Sufficient radiation protection equipment (i.e., protective clothing, respiratory protection gear, KI, and other health physics equipment and supplies) is stored and maintained near the OSC (as well as the other ERFs). Damage eControl tTeam equipment is available in the maintenance shops which are near the OSCs. This equipment may include items such as a camera, portable lighting, and additional portable communications equipment. The areas near the OSC are stocked with an assortment of first aid and medical treatment equipment and supplies. **When an emergency condition exists at one Unit, additional supplies can be obtained from other unaffected units and through corporate resources upon request.** The OSC maintains reliable voice communications with the Control Room, TSC, and EOF. For a description of communications equipment, refer to Section F.

11. Facility and Equipment Readiness

Emergency facilities and equipment are inspected and inventoried in accordance with emergency preparedness procedures. These procedures provide information on location and availability of emergency equipment and supplies. An inventory of all emergency equipment and supplies is performed on a quarterly basis and after each use in an actual emergency or drill. During this inventory, radiation monitoring equipment is checked to verify that required calibration period and location are in accordance with the inventory lists. Surveillances include an operational check of instruments and equipment. Equipment, supplies, and parts which have a shelf-life are identified, checked, and replaced as necessary. Sufficient reserves of instruments and equipment are maintained to replace those which are removed from emergency kits or lockers for calibration or repair.

12. Emergency Equipment and Supplies

Below is a list of typical equipment and supplies dedicated for emergency use in the VCSNS ERFs. Refer to Emergency Equipment Checklist Procedure for specific equipment and supplies found in the various locations:

Control Rooms

- Emergency Plan Implementing Procedures
- Drawings of Facility and Plant Site
- Self-Contained Breathing Apparatus
- Portable radios
- Telephone (landlines, ~~cellular~~, and satellite)
- Dose Assessment Computer
- Potassium Iodide (KI) (provided by the OSC)

Operational Support Centers

- Protective clothing, Self Contained Breathing Apparatus, and respirators may be stored in alternate areas of the plant with access from the OSC
- Emergency Plan Implementing Procedures
- Telephones ~~and Portable Radios~~
- Flashlights w/batteries
- Portable Survey Meters
- Dosimetry (TLDs and Self-Reading Dosimeters)
- Portable Air Sampler
- Air Sampler Filter paper
- Silver Zeolite cartridges
- Potassium Iodide (KI)
- 800 MHz Radio

Technical Support Center

- Telephones
- Flashlights w/batteries
- Emergency Plan Implementing Procedures
- Graphs, Overlays, and Maps
- Drawings of Facility and Plant Site
- Potassium Iodide (KI)

Emergency Operations Facility

- Dose Assessment Computer
- Telephones
- Flashlights w/batteries
- Emergency Plan Implementing Procedures
- Graphs, Overlays, and Maps
- Drawings of Facility and Plant Site

Joint Information Center

- Telephones
- Flashlights w/batteries
- Emergency Plan Implementing Procedures
- Graphics, Overlays, and Maps
- Graphics of Facility and Plant Site
- Media Monitoring devices

13. General Use Emergency Equipment

Inventory procedures identify the equipment that comprise the kits used in an emergency situation that are available within each emergency facility.

14. Collection Point for Field Samples

The environmental lab located in a SCE&G facility near site has been designated as the central point for the receipt and analysis of radiological field monitoring samples. Sampling and analysis equipment is available for activity determination of these samples. Sufficient field monitoring equipment is maintained at the station for initial sampling. Instrumentation and equipment used for sample activity determination are routinely calibrated to ensure timely availability.

Section I: Accident Assessment

To effectively coordinate and direct all facets of the response to an emergency situation, diligent accident assessment efforts are required throughout the emergency. All four emergency classifications have similar assessment methods; however, each classification requires a greater magnitude of assessment effort dependent upon the plant symptoms and/or initiating event(s).

1. Plant Parameters and Corresponding Emergency Classification

Plant system and effluent parameter values are used in the determination of accident severity and subsequent emergency classification. Environmental and meteorological events are also determining factors in emergency classification. An emergency condition can be the result of just one parameter or condition change, or the combination of several. The specific symptoms, parameter values or events for each level of emergency classification are detailed in the emergency implementing procedures. Specific plant system and effluent parameters that characterize a classifiable event (EALs) are presented in the Unit Annexes.

In order to adequately assess the emergency condition, each emergency facility has the necessary equipment and instrumentation installed to make available essential plant information on a continuous basis. Evaluation of plant conditions is accomplished through the monitoring of plant parameters both from indication in the Control Room and within the plant. Some of the more important plant parameters to be monitored in the Control Room are assembled into a single display location, which is entitled the SPDS. The SPDS monitors such parameters relative to the plant design such as: reactor coolant system pressure, reactor or pressurizer water level, containment pressure, reactor power, safety system status, containment radiation level and effluent monitor readings. The instrumentation and equipment capabilities available for each emergency facility are described in Section H.

2. Onsite Accident Assessment Capabilities

The resources available to provide initial and continuing information for accident assessment throughout the course of an event include plant parameter display systems, liquid and gaseous sampling system, Area and Process RMSs, and Accident RMSs (which includes the high range containment radiation monitors). Descriptions of these systems are given in Section H.6.b.

3. Source Term Determination

Source term (or core damage) estimations serve several roles within the VCSNS Emergency Preparedness Program. For planning purposes, core damage considerations are used as the bases for several of the EAL ICs and as the threshold for the declaration of a General Emergency (the definition of a General Emergency specifies conditions which involve 'substantial' core degradation or melting as one of the bases for classification).

From an implementation perspective, core damage estimations provide a means of realistically differentiating between the four core states (no damage, clad failure, fuel melt, and vessel melt-through) to:

- Evaluate the status of the fuel barriers and how their status relates to the risks and possible consequences of the accident
- Provide input on core configuration for prioritization of mitigating activities
- Determine the potential quality (type) and/or quantity (%) of source term available for release in support of projected offsite doses and PARs
- Provide information that quantifies the severity of an accident in terms that can be readily understood and visualized
- Support the determination of radiological protective actions that should be considered for long term recovery activities

The assessment methodologies used by VCSNS are intended to provide a rapid best estimate of core damage which, when evaluated together, help to develop an overall picture of the extent of core damage. The methods used to estimate the amount or type of core damage occurring under accident conditions includes the following:

- Containment Radiation Monitors: An indirect method used to determine the amount of core damage. Applicable to loss of coolant accident (LOCA) scenarios. Based on an end-of-life source term and static nuclide ratio assumptions yielding a limited accuracy. Valid any time following an accident.
- Core Temperatures: Methods such as core exit thermocouple, peak core temperatures, and hot leg temperatures provide indirect methods used to indicate the type and/or amount of core damage. Applicable for all types of accidents. Valid any time following an accident.
- Core Uncovery: Methods such as core uncovery time, reactor vessel level, and source range monitor count rate provide indirect methods used to indicate the type of core damage (clad failure or fuel melt). Applicable for all types of accidents. Provides a relatively accurate estimate of the state of the core early in the event. Valid any time following an accident.
- Containment Hydrogen Concentration: An indirect method used to establish the type of core damage. Applicable to LOCA-type accidents where all the Hydrogen generated by the metal-water reaction is released into containment. Valid any time following an accident.

- Sample Analysis — Isotopic Ratio Comparison: A direct method used to establish the type of core damage. Compares expected isotopic ratios with a sample to determine a general core state. Applicable under all types of accidents. Valid any time following an accident.
- Sample Analysis — Presence of Abnormal Isotopes: A direct method used to provide a go/no-go indication of fuel melt by the presence of unusually high concentrations of the less volatile fission products. Applicable under all types of accidents. Valid any time following an accident.
- Sample Analysis — Concentration Evaluation: A direct method that yields the most accurate numerical estimations of the amount of core damage. Applicable for all types of accidents. Requires the sampled system(s) be in a steady state that usually prevents its use until the plant is in a stable condition.

4. Effluent Monitor Data and Dose Projection

Dose assessment or projection represents the calculation of an accumulated dose at some time in the future if current or projected conditions continue. During an accident, the plant parameter display system and personal computers will provide the ERO with the timely information required to make decisions. Radiological and meteorological instrumentation readings are used to project dose rates at predetermined distances from the Station, and to determine the integrated dose received. Dose assessment methods used by the ERO to project offsite doses include:

- a. Monitored Release Points: This method uses the plant's effluent radiation monitors and system flow rates. Effluent release points are used to directly calculate a release rate. The point of the release determines the way the source term is affected and is adjusted by the dose assessment process.
- b. Containment Leakage/Failure: This method uses a variety of containment failures or leak rates in conjunction with available source term estimations to develop a release rate to the environment. A direct vent of containment can be modeled as a failure to isolate.
- c. Release Point Samples: This method uses a sample at the release point and an estimated flow rate to develop a release rate at the point of release.
- d. Field Monitoring Team Data: This method uses a field survey or sample and the atmospheric model to back calculate a release rate and ratio concentrations of radioactive material at various points up and downwind of plume centerline.

The computer applications used to provide dose calculations are evaluated against the EPA-400 plume exposure PAGs applicable for the early phase of an accident. These evaluations place an emphasis on determining the necessity for offsite PARs. Dose assessment actions will be performed in the following sequence:

- First: Onset of a release to one hour post-accident: Shift personnel will rely on a simplified computerized dose model to assist them in developing offsite dose projections using real time data from effluent monitors and site meteorology.
- Second: One hour post-accident to event termination: Estimates of offsite doses based on more sophisticated techniques are provided. Dedicated ERO personnel will analyze the offsite consequences of a release using more complex computerized dose modeling. These additional methods are able to analyze more offsite conditions than the simplified quick method, as well account for more specific source term considerations.

5. Meteorological Information

Local meteorological data is available from the onsite meteorological towers. The data available includes wind speed, wind direction, temperature, and vertical temperature difference (ΔT). This data is used by VCSNS, the state, and NRC to provide near real-time predictions of the atmospheric effluent transport and diffusion. Meteorological data from the tower are available in the Control Room, TSC, and EOF. A full description of the onsite meteorological capabilities is given in Section 4 of the Unit Annexes.

6. Unmonitored Release

Dose projections can be made during a release through use of actual sample data in situations where effluent monitors are either off-scale or inoperative or the release occurs by an unmonitored flow path. In the absence of effluent sample data, a dose projection can be performed simply by specifying the accident category as a default. The selection of a default accident category defines the mix, the total curies, and the release pathway(s). The total number of curies from a default mix for each isotope is used to provide an upper bound for release concentration, and hence, an upper bound for the dose rate and dose to the public.

7. Field Monitoring

In addition to the capabilities and resources described in Section H.7.b and H.8, VCSNS maintains the ability to take offsite air samples and to directly measure gamma dose rates in the event of an airborne or liquid release. The capability to take offsite soil, water, and vegetation samples is also provided by either the Field Teams or South Carolina Department of Health and Environmental Control (SCDHEC) Teams.

The environmental monitoring equipment, as described in Section H, includes portable survey, counting, and air sampling instrumentation and other radiological monitoring equipment and supplies to be used by the Field Monitoring Teams. Samples are taken at predetermined locations as well as those specified both during and after a release. Environmental measurements are used as an aid in the determination and assessment of protective and recovery actions for the general public.

8. Field Teams

Field Teams are dispatched by VCSNS to perform a variety of functions during conditions that may involve significant releases of radioactive materials from the plant. Radiological survey and sample data is used to define affected area boundaries, verify or modify dose projections and PARs, and assess the actual magnitude, extent, and significance of a liquid or gaseous release.

In addition to contamination and dose rate measurements, the change out of environmental TLDs can be performed. Other actions may include soil, water, and vegetation sampling.

The initial environmental surveys involve simple-to-perform measurements to quickly confirm or modify the dose projections based on plant parameters. Subsequent environmental monitoring efforts will be aimed at further defining the offsite consequences including instituting an expanded program to enable prompt assessments of any subsequent releases from the plant.

The expertise necessary to conduct limited offsite environmental survey and sampling exist onsite 24 hours a day. A minimum of two offsite Field Teams are notified and activated at a ~~Site Area Emergency~~ **Alert** or higher classification. Teams are composed of two individuals who are assembled at ~~the New Nuclear Deployment Building~~ **a near site SCANA facility** to use dedicated survey and sampling equipment. Teams are then dispatched in company vehicles into the surrounding area when a release is ongoing or is expected to occur. Radiological survey and sample data is transmitted to the emergency facilities. SCDHEC support can be used to perform collection, shipment, and analysis of environmental sample media.

9. Iodine Monitoring

Field monitoring equipment has the capability to detect and measure airborne radioiodine concentrations as low as 1×10^{-7} $\mu\text{Ci/cc}$ in the field. Interference from the presence of noble gas and background radiation will be minimized by ensuring that monitoring teams move to areas of low background before analyzing the sample cartridge. The collected air sample is measured by hand-held survey meter as an initial check of the projection derived from plant data to determine if significant quantities of elemental iodine have actually been released (the chemical form that would pose a health hazard).

10. Dose Estimates

Specific procedures exist for the correlation of air activity levels to dose rate for key isotopes. These procedures also provide a method to estimate the integrated dose from the projected and actual dose rates and for the comparison of these estimates with the PAGs.

11. State Monitoring Capabilities

The state (SCDHEC) has the ability to dispatch their own field monitoring teams to track the airborne radioactive plume. The state also has the ability and resources to coordinate with federal and VCSNS monitoring teams to compare sample results.

Section J: Protective Response

Protective response consists of emergency actions, taken during or after an emergency situation, which are intended to minimize or eliminate hazards to the health and safety of the public and/or station personnel. A range of protective actions has been developed for emergency workers and the general public in the plume exposure pathway EPZ. Additionally, guidelines have been established to aid in choosing protective actions during an emergency that are consistent with federal guidance. VCSNS is responsible for onsite actions, while the responsibility for offsite actions rests with the state, county, and other offsite response agencies.

1. Notification of Onsite Personnel

For all emergency classifications, all personnel within the Owner Controlled Area (OCA) are notified of the initial classification or escalation of an emergency by recognizable alarms, and/or verbal announcements over the plant public address system. Announcements include the emergency classification and response actions to be taken by personnel onsite (such as ERO, non-ERO, contractor personnel, and visitors). Contractors and visitors will be provided information on how to respond in the event of an emergency. Provisions are made to alert personnel in high noise areas and outbuildings within the Protected Areas, as applicable.

The station has identified locations where people might be expected to be present outside the Protected Areas but within the OCA. Accountability of persons within the OCA but outside the Protected Areas is not required. However, provisions including public address system announcements, sirens, and security patrols are established for notification of personnel within the OCA any time a site evacuation has been initiated, or as otherwise deemed appropriate.

2. Evacuation Locations

If a site evacuation is required, nonessential personnel are directed to either assemble within designated assembly areas or to immediately evacuate the site. Personnel will be directed to either proceed to their homes or to reassemble at designated offsite locations (Offsite Holding Areas). Visitors to the station will assemble with and follow the instructions of their escorts. Nonessential personnel within the Protected Areas will normally exit through the normal access point. Personal transportation (if available) will normally be used and established evacuation routes will be followed. Personnel without transportation will be identified and provided transportation as necessary. Personnel needing transportation are instructed to request assistance from personnel evacuating the site. In the event that personal vehicles cannot be utilized for evacuation, the IED or ED will request offsite assistance to support personnel evacuation.

3. Radiological Monitoring of Evacuees

Personnel evacuating the site will be monitored for contamination by the portal monitors as they exit the Protected Areas, with portable friskers in assembly areas, or sent to offsite monitoring locations on an as needed basis. If there is no release of radioactive materials within the unit, limited monitoring may be used to speed the evacuation process.

4. Protective Actions for Onsite Personnel

Evacuation is the primary protective action anticipated for onsite personnel not having immediate emergency response assignments. The station has identified locations that serve as assembly areas and offsite locations (Offsite Holding Areas) for nonessential personnel when they are not instructed to proceed home. The specific locations of these areas are provided in the Unit Annexes. Implementing procedures describe equipment, supplies, and general operation of these facilities. The ED will designate personnel within the OCA as essential or nonessential. Evacuation of nonessential personnel is usually conducted immediately after accountability if a Site Area Emergency or General Emergency has been declared and conditions permit. Evacuation shall commence in accordance with VCSNS procedures as directed by the IED or ED or his/her designee, unless one of the following conditions exist:

- a. Severe weather conditions threaten safe transport
- b. A significant radiological hazard would be encountered
- c. There is a security threat occurring that would have an adverse impact on the personnel while leaving the site
- d. A condition similar to the above in magnitude, which in the opinion of the OEMC, IED or ED would adversely affect the site personnel

Security forces will be dispatched, when available, to access road(s) to control entry to site facilities. Unauthorized and non-ERO personnel will be denied entry.

The initiation of a site evacuation will be reported to the appropriate state and county agencies.

In the event that evacuation is not the best protective action, the onsite personnel will be directed to take other protective actions including: sheltering for extremely inclement weather or during an ongoing radiological release and take immediate cover for security events when evacuation will place personnel in jeopardy.

5. Accountability

The purpose of accountability is to determine the locations of all personnel inside the Protected Area(s) and to muster emergency personnel at prearranged locations. When accountability of onsite personnel is determined to be necessary by the IED or the ED, all personnel within the Protected Area(s) shall be accounted for and the names of missing individuals (if any) are determined within 30 minutes of the announcement. Should missing personnel be identified, search and rescue operations are initiated.

Accountability is usually performed in conjunction with assembly, and is required to be initiated whenever a Site Area Emergency or higher classification is declared. The movement of personnel for the purposes of accountability may be delayed if their health and safety could be in jeopardy, such as severe weather or for security concerns.

If it is determined that the prearranged assembly area is unfit for personnel, the IED or the ED may designate an alternative assembly area and direct personnel using appropriate communication systems that are available.

Once established, accountability within the Protected Area(s) is maintained throughout the course of the event, unless specifically terminated by the ED.

6. Provisions for Onsite Personnel

VCSNS maintains an inventory of respiratory protection equipment, anti-contamination clothing, and KI that is made available to emergency workers remaining onsite should conditions warrant. During the course of an emergency, protective actions are considered to minimize radiological exposures or contamination problems associated with all onsite personnel. For those who must work within the restricted area of the affected unit, measures that are considered are:

- a. Use of Respirators: On-shift and emergency response personnel use respiratory protection in any environment involving exposure to high level gaseous activity or oxygen deficient atmosphere, or where air quality is in doubt. In the presence of airborne particulates, emergency response personnel may be directed by Health Physics personnel to use full-face filter-type respirators. The criteria for issuance of respiratory protection are described in Radiation Protection procedures.
- b. Use of Protective Clothing: Anti-contamination clothing, located in or near the OSC and station dress out areas is available for use by onsite personnel. The criteria for issuance of protective clothing are described in Radiation Protection procedures.
- c. Use of Potassium Iodide (KI): The use of KI may be recommended when a projected dose of 25 Rem committed dose equivalent (CDE) is exceeded for an emergency worker's thyroid. This is the value specified in EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." The OSC and the TSC maintain a supply of KI. The Radiological Assessment Supervisor has the responsibility for approval of issuing KI to VCSNS onsite emergency workers.

7. Mechanism for Implementing Protective Action Recommendations

Plant conditions, projected dose and dose rates, and/or field monitoring data are evaluated to develop PARs for the purpose of preventing or minimizing exposure to the general public. PARs are provided to the offsite agencies responsible for implementing protective actions for the general public within the 10-mile EPZ. PARs are approved by the ECO.

In an emergency that requires immediate protective actions be taken before activation of the offsite emergency facilities, PARs are provided directly to the state and county 24 hour warning points by the IED.

8. Evacuation Time Estimate

An independent Evacuation Time Estimate Study has been performed to provide estimates of the time required to evacuate resident and transient populations surrounding the VCSNS site for various times of the year under favorable and adverse conditions. Evacuation Time Estimate for evacuation of the plume exposure EPZ is referenced in Appendix 5 and detailed in the referenced Evacuation Time Estimate Study.

9. Capability of Implementing Protective Action Recommendations

The responsibility for implementing protective measures based on PAGs for the offsite population at risk is the responsibility of the state and county governments. Detailed procedures for public protective actions are contained in the state and county radiological emergency response plans as appropriate.

The state agencies are responsible for evaluation of VCSNS PARs and preparing a recommendation to the governor, or his/her appointed agent. The decision made and the order given based on the state agencies' recommendation becomes the Protective Action Directive (PAD) which is implemented by the offsite agencies. The counties within the 10-mile EPZ may make PADs prior to those of the governor when they determine the need to protect the health and safety of the public in their county.

If the plant conditions are stable and offsite radiological conditions are such that the public health and safety are not endangered, then return to evacuated areas may be discussed with the state. State authorities are responsible for actually recommending return and transmitting this recommendation.

10. Implementation of Protective Action Recommendations

The VCSNS, state, and county emergency plans used to implement the protective measures for the plume exposure pathway take numerous factors into consideration. Among these considerations are:

- a. Most of the public evacuees are expected to travel in their own vehicles, leaving the EPZ via designated evacuation routes. The state and county plans contain official maps and information on the locations of reception centers and shelters.
- b. The population distribution around the station for the 10-mile radius is illustrated in Figure J-1. More details of populations can be found in the Evacuation Time Estimate, see Appendix 5 for revision details.
- c. As indicated in Section E, offsite agencies are notified in the event the Emergency Plan is activated. State and county agencies have the capability to notify members of the transient and resident population within the plume exposure pathway EPZ.
- d-l. Items addressed separately in state and county emergency plans.
- m. At a General Emergency classification, VCSNS will provide the state and counties with PARs for the public. For incidents involving actual, potential, or imminent releases of radioactive material to the atmosphere, EPA 400-R-92-001, the NRC Response Technical Manual (RTM-96) and NUREG-0654, Supp. 3 are used as the basis for the general public PARs.

1) Plant-Based PARs

Figure J-2 has been developed to aid VCSNS personnel providing PARs based on the above. Possible plant-based PARs issued at a General Emergency include:

- Shelter of the general public within a two mile radius and five miles downwind (puff release above PAGs) and institute KI policy
- Evacuation of the general public within a two mile radius and five miles downwind and institute KI policy
- Evacuation of the general public within a five mile radius and ten miles downwind and institute KI policy

In addition to the above actions to minimize or prevent potential exposure to radiation, a recommendation for the remainder of the EPZ to monitor the Emergency Alerting Station(s) will be provided to the offsite authorities.

2) **Dose-Based PARs**

Evacuation is recommended if projected doses reach the minimum EPA PAGs (1 Rem TEDE or 5 Rem CDE thyroid).

Shelter is recommended if projected doses reach the minimum EPA PAGs (1 Rem TEDE or 5 Rem CDE Thyroid) **AND** a puff release is in progress.

Many assumptions exist in dose assessment calculations, involving both source term and meteorological factors, which make computer predictions over long distances suspect. However, in the event dose assessment results indicate the need to recommend actions beyond the outer EPZ boundaries, Field Teams are dispatched to downwind areas to verify the calculated exposure rates before issuing ad hoc PARs outside the EPZ.

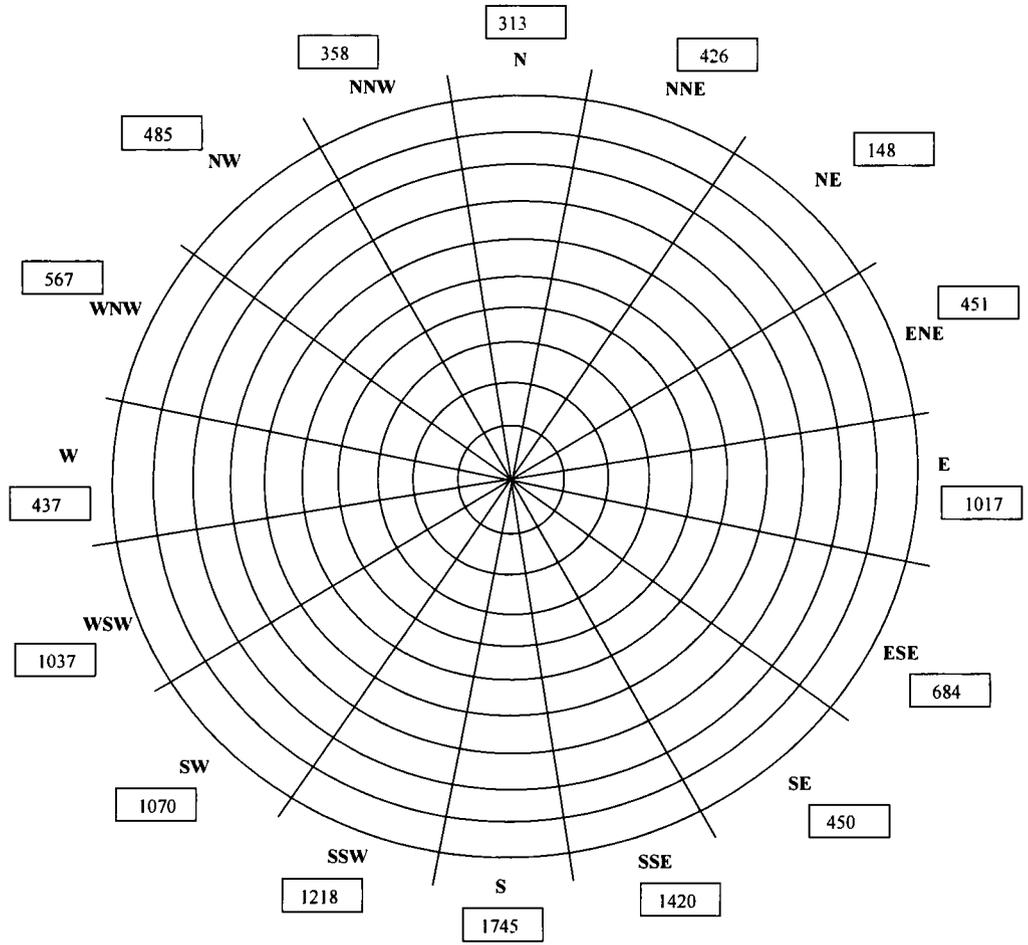
Station personnel normally do not have the necessary information to determine whether off site conditions would require sheltering instead of evacuation. An effort to base PARs on external factors (such as road conditions, traffic/traffic control, weather, or offsite emergency response capabilities) is usually performed by the state.

11. Ingestion Pathway Protective Measures

The responsibility for specifying protective measures to be used for the ingestion pathway rests with the states of South Carolina and North Carolina. These measures include the methods for protecting the public from consumption of contaminated water and foodstuffs.

12. Monitoring of Evacuees

The state and county organizations have the capability to register and monitor evacuees at designated reception centers. This capability includes personnel and equipment capable of monitoring residents and transients evacuating from the plume exposure EPZ and arriving at the reception centers, in accordance with FEMA guidelines.



Ring	Total Population
0-2 mile	246
0-5 mile	1,728
0-10 mile	12,988

Figure J-1: Sector Population Distribution

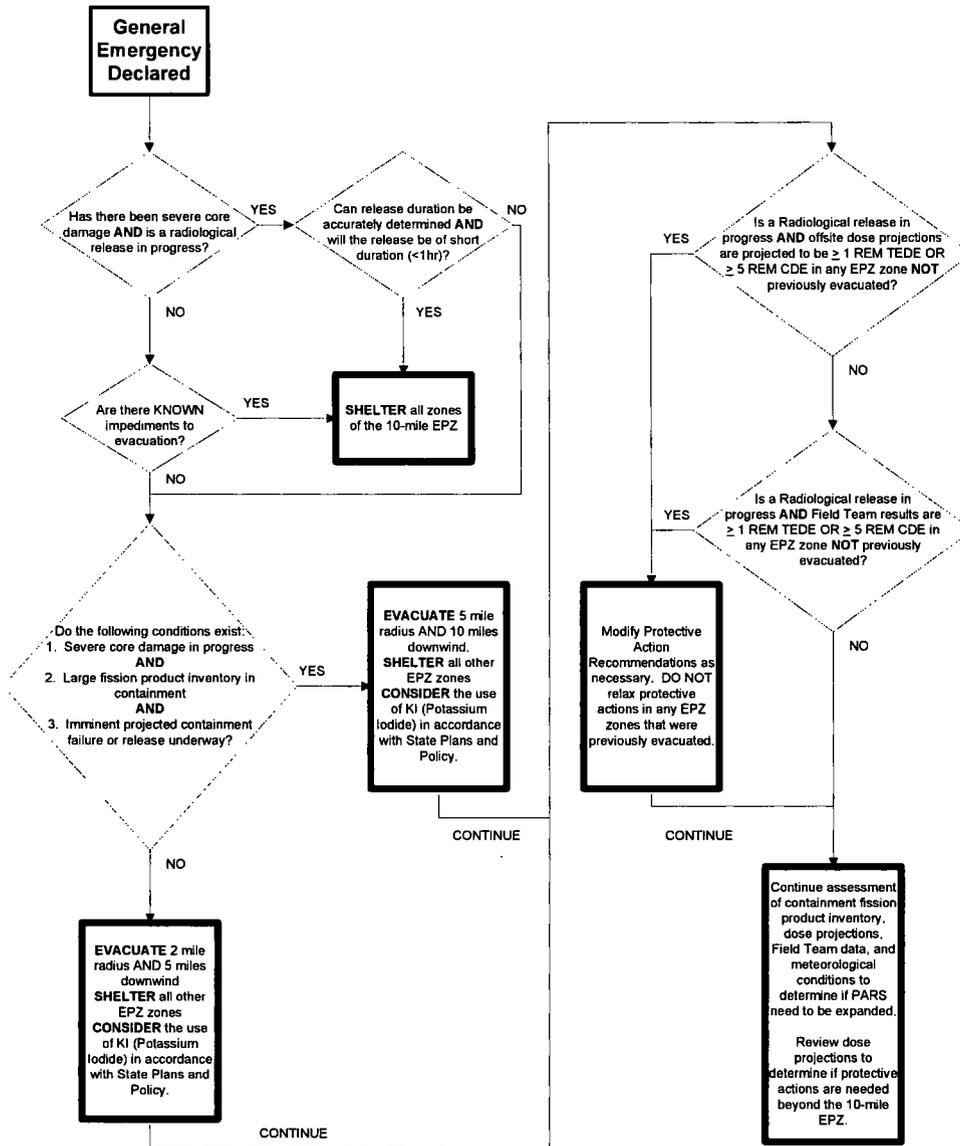


Figure J-2: PAR Flowchart

Section K: Radiological Exposure Control

This section of the plan describes the means for controlling emergency worker radiological exposures during an emergency, as well as the measures that are used by VCSNS to provide necessary assistance to persons injured or exposed to radiation and/or radioactive materials. Exposure guidelines in this section are consistent with EPA Emergency Worker and Lifesaving Activity PAGs described in EPA 400-R-92-001 (EPA-400).

1. Emergency Exposure Guidelines

Being licensed by the NRC, VCSNS maintains personnel exposure control programs in accordance with 10 CFR 20 under normal operating conditions. The ED is assigned the non-delegable responsibility for authorizing personnel exposure levels under emergency conditions in compliance with EPA-400. In emergency situations, workers may receive exposure under a variety of circumstances in order to ensure the safety and protection of others and of valuable property. These exposures will be justified if the maximum risks or costs to others that are avoided by their actions outweigh the risks to which the workers are subjected. The Emergency Worker Dose Limits are as follows:

Dose Limit (Rem TEDE)	Activity	Condition
0-5	All	Personnel should be kept within normal 10 CFR 20 limits during bona fide emergencies, except as authorized for activities as indicated below
5-10	Protecting valuable property	Lower dose not practicable
10-25	Lifesaving or protection of large populations	Lower dose not practicable
> 25	Lifesaving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved

Limit dose to the lens of the eye to 3 times the above values and doses to any other organ (including skin and body extremities) to 10 times the above values.

Whenever possible, the concurrence of the Radiological Assessment Supervisor should be secured before exposing individuals to dose equivalents beyond the EPA-400 lower limit.

2. Emergency Radiation Protection Program

The Radiological Assessment Supervisor is the individual responsible for implementing the radiation protection actions during an emergency. Radiation protection guidelines include the following:

- Volunteers over 45 years of age are considered first for any emergency response action requiring exposure greater than normal limits. Routine dose limits shall not be extended to emergency dose limits for declared pregnant individuals. As in the case of normal occupational exposure, doses received under emergency conditions should be maintained as low as reasonably achievable.

- Persons undertaking any emergency operation in which the dose will exceed 25 Rem TEDE should do so only on a voluntary basis and with full awareness of the risks involved including the numerical levels of dose at which acute effects of radiation will be incurred and numerical estimates of the risk of delayed effects.
- In the context of the emergency limits, exposure of workers that is incurred for the protection of large populations may be considered justified for situations in which the collective dose avoided by the emergency operation is significantly larger than that incurred by the workers involved.
- Exposure accountability is maintained and proper personnel radiological monitoring equipment is provided for all personnel during emergency conditions.
- Access to high radiation areas is only permitted with prior approval of the applicable Radiological Assessment Supervisor. Personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated.
- Periodic habitability surveys of emergency facilities are performed during an emergency. If the facility is determined to be uninhabitable, the facility is evacuated in order to prevent or minimize exposure to radiation and radioactive materials. Alternate assembly areas are established, as necessary, to relocate and monitor evacuated personnel.

3. Personnel Monitoring

- a. Emergency workers will receive TLD badges and personal self-reading dosimeters capable of measuring expected exposures on a real time basis. The capability exists for the emergency processing of TLDs on a 24-hour per day basis, if necessary.
- b. Emergency worker dose records are maintained by Health Physics (as appropriate) in accordance with the emergency and radiological protection procedures. Emergency workers are instructed to read their dosimeters frequently. TLDs may be processed with increased periodicity.

4. Non-V. C. Summer Personnel Exposure Authorization

The responsibility for authorizing non-VCSNS emergency workers (i.e., state and local agency emergency workers) to receive exposures in excess of the EPA-400 General Public PAGs rests with the state and county organizations, except when such emergency workers are onsite. Authorization of exposures in excess of EPA General Public PAGs, in this latter instance, rests with the ED.

5. Contamination and Decontamination

During an emergency, the ED is responsible for preventing or minimizing personnel exposure to radioactive materials deposited on the ground or other surfaces inside the Protected Area(s). Special consideration should be given to setting up contamination control arrangements for personnel entering the OSC after completion of assigned activities. The OEM is responsible for preventing or minimizing personnel exposure to radioactive materials deposited on the ground or other surfaces beyond the Protected Areas to the Owner Controlled Area. The OEM is also responsible for the VCSNS Field Team members that are assigned to track and sample the release plume.

- a. During emergency conditions, normal plant contamination control criteria will be adhered to as much as possible. However, these limits may be modified by the ORMC in accordance with existing radiation protection procedures, should conditions warrant.
- b. Contamination Control Means: Personnel found to be contaminated will normally be attended to at decontamination areas located onsite. The decontamination facility consists of a men's and women's showers, toilet, locker room, and change areas. Temporary decontamination areas can also be set up inside at various locations. Decontamination showers and supplies are provided onsite with additional personnel decontamination equipment and capabilities. Decontamination supplies will include soaps, shampoo, mild detergents, 3% Hydrogen Peroxide solutions, plastic bags, plastic suits, cotton swabs, oral hygiene products, and Saline solutions. Shower and sink drains in the Radiation Controlled Area are routed to the miscellaneous waste processing system where the liquid is processed and monitored prior to discharge. Potentially contaminated emergency vehicles will be surveyed before they are allowed to leave the plant or offsite assembly area. If the survey area is not suitable for monitoring and decontamination due to radiological or other concerns, vehicles will be surveyed at an alternate location.

6. Contamination Control Measures

Controls are established and maintained 24 hours per day to contain the spread of loose surface radioactive contamination.

- a. Contaminated Areas are isolated as restricted areas with appropriate radiological protection and access control. Personnel leaving Contaminated Areas are monitored to ensure that they and their clothing are not contaminated. If contamination above acceptable levels is found, they will be decontaminated in accordance with plant procedures. If normal decontamination procedures do not reduce personnel contamination to acceptable levels, the case will be referred to a competent medical authority. Supplies, instruments, and equipment that are in Contaminated Areas or have been brought into Contaminated Areas will be monitored before removal. If personnel are found to be contaminated, they will be decontaminated using normal plant decontamination techniques and facilities. Contaminated materials will be disposed of as radwaste. Contaminated vehicles will be decontaminated before being released. An ambulance responding and transporting injured contaminated personnel will be monitored and decontaminated before departing the medical facility by VCSNS personnel or sent to the county emergency worker decon facility, during a declared emergency.

- b. Measures will be taken to control onsite access to potentially contaminated potable water and food supplies. Under emergency conditions, when uncontrolled releases of activity have occurred, eating, drinking, and chewing are prohibited in all onsite VCSNS ERFs until such time as habitability surveys indicate that such activities are permissible.
- c. Restricted areas and contaminated items will be returned to normal use when contamination levels have been returned to acceptable levels. Contamination control criteria for returning areas and items to normal use are contained in the plant procedures.

7. Decontamination of Relocated Personnel

Efforts will be made to prevent contaminated vehicles operated by nonessential personnel to depart the VCSNS site. Alternate forms of transportation will be made available to reduce the possibilities of transporting contamination offsite with suspected contaminated vehicles.

Nonessential onsite personnel may be evacuated to an offsite holding area or assembly area, as discussed in Section J. Radiological controls personnel at that location monitor evacuees and determine the need for decontamination. Existing and temporary facilities to limit contamination and exposure will be used and established at the site as necessary during an emergency situation. In the event that decontamination of site evacuees locally is not possible, personnel will be sent to designated locations for monitoring and decontamination. Provisions for extra clothing are made and suitable decontaminates are available for the expected types of contaminations, particularly with regards to skin contaminations.

Section L: Medical and Public Health Support

This section describes the arrangements for medical services for contaminated injured individuals at the station.

1. Offsite Hospital and Medical Service Facilities

Arrangements, by letter of agreement, are maintained by SCE&G with Palmetto Health Richland Hospital for receiving and treating contaminated or exposed persons with injuries requiring immediate medical care. Hospital personnel have been trained and the hospital is equipped to handle contaminated or radiation injured individuals. Specifically, training of medical support personnel at Palmetto Richland Hospital includes basic training on the nature of radiological emergencies, diagnosis and treatment, and follow-up medical care. Station personnel are available to assist medical personnel with decontamination, radiation exposure, and contamination control. Materials that are identified as contaminated are collected by Health Physics personnel and returned to VCSNS for decontamination or disposal.

Because of the specialized nature of the diagnosis and treatment of radiation injuries, VCSNS maintains an agreement with the REAC/TS in Oak Ridge, Tennessee. REAC/TS will provide a backup response capability for patients with serious contamination/ingestion or who have been excessively exposed to radiation. REAC/TS has a radiological emergency response team of physicians, nurses, Health Physicists, and necessary support personnel on 24-hour call to provide consultative or direct medical or radiological assistance. Specifically, the REAC/TS team has expertise and is equipped to conduct: medical and radiological triage; decontamination procedures and therapies for external contamination and internally deposited radionuclides, including chelation therapy; diagnostic and prognostic assessments or radiation-induced injuries; and radiation dose estimates by methods that include cytogenetic analysis, bioassay, and in vivo counting.

Victims of accidents or medical emergencies who are determined as not being contaminated or excessively exposed to radiation may be treated at the closest appropriate medical facility as determined by the responding Emergency Medical Services Crew Chief.

2. Onsite First Aid Capability

The station maintains onsite first aid supplies and equipment necessary for the treatment of contaminated or injured persons. In general, physicians or nurses are not staffed at VCSNS, and as such, medical treatment given to injured persons is of a "first response" nature. The Medical Emergency Response Team (MERT) is comprised of on-shift personnel trained as First Responders. The MERT is dispatched by the Control Room or the OSC when it is activated. At least two of these individuals are available on shift at all times to support immediate response in the Protected Areas. VCSNS also maintains an agreement with a local physician. That physician serves as the VCSNS's company physician and is available to respond to the site to augment medical treatment as required.

Additionally, the Health Physics Specialists at VCSNS are experienced and trained in the control of radioactive contamination and decontamination work for injured or ill personnel. Health Physics Specialists are dispatched to support the MERT if there is a possibility of contamination associated with the injury/illness. The functions of station personnel in handling onsite injured people are:

- a. Afford rescue
- b. Administer first responder aid including such resuscitative measures as are deemed necessary
- c. Request and escort offsite medical assistance to the injured/ill individual in a timely manner when needed
- d. Begin decontamination procedures as appropriate
- e. Arrange for suitable transportation to a hospital when required

Primary attention shall be directed to the actual factors involved in the treatment of injuries or illness, such as: control of bleeding, resuscitation including heart and lung, control of bleeding after resuscitation, protection of wounds from bacterial or radioactive contamination and the immobilization of fractures.

VCSNS personnel provide an initial estimate of the magnitude of surface contamination of the injured and preliminary estimates of total body dose to the injured. Primary rapid and simple decontamination of the surface of the body (when possible and advisable) before transportation to a designated hospital may be carried out. This activity would be as directed or performed by Health Physics personnel. If decontamination is not considered due to the immediacy of medical treatment, efforts will be made to isolate and reduce the spread of the contamination before transportation. When additional professional medical care is needed and contamination is not a factor, injured or ill persons are transported to a local clinic or hospital. Contaminated and injured or ill persons are transported to Palmetto Health Richland Hospital from the VCSNS site.

First aid facilities at VCSNS are designed to provide basic first responder aid to injured or ill personnel before arrival of offsite medical support. First aid facilities are located in **each of the Units** and are described in the Unit Annexes. Medical equipment and supplies are available at these locations.

In the event of a mass casualty incident, medical triage is implemented. MERT members are trained for medical triage using START (Simple Triage and Rapid Treatment) or other similar principals. Each victim is screened and categorized in order to prioritize victim treatment. In the event that station and local response resources are exceeded by the number of casualties, the South Carolina Emergency Operations Plan is implemented to acquire additional resources by the offsite response agencies.

3. Medical Transportation

In situations when transportation of a victim(s) to a hospital is required, arrangements are made by the station for prompt ambulance transport of persons with injuries and/or illness involving radioactivity to Palmetto Richland Hospital. Such service is available on a 24-hour per day basis and is confirmed by letter of agreement with the Fairfield County Emergency Medical Services (FCEMS). The FCEMS is located approximately two miles from VCSNS and is staffed with Emergency Medical Technicians, Paramedics, and additional qualified personnel capable of handling medical emergency situations. VCSNS maintains a communications link with the FCEMS by means of an ESSX telephone, radio and normal telephone lines. VCSNS security personnel will expedite and escort the responding ambulance(s) to the victim's location.

In the event that a helicopter is requested by the response personnel to transport victim(s) to appropriate medical care, a primary helicopter landing zone is available onsite for use. Alternate landing zones are determined by response personnel and marked to assist the landing of the helicopter.

If additional assistance is required for the transportation of accident victims, the Lexington County Emergency Medical Services (LCEMS) will respond. This support would most likely be used in a case where multiple casualty victims would require transportation to offsite medical facilities. LCEMS is located approximately 15 miles from VCSNS and is staffed with Emergency Medical Technicians and Paramedics. Should the need arise, assistance from the LCEMS and other response organizations would be requested by FCEMS or the Incident Commander.

Radiation monitoring services shall be provided by VCSNS Health Physics personnel whenever it becomes necessary to use the ambulance service for the transportation of contaminated persons.

A qualified Health Physics person shall accompany the ambulance to the hospital upon the determination that the injured or ill person is contaminated or if the determination cannot be made that the individual is free of surface contamination. Additional Health Physics personnel may be contacted and dispatched to Palmetto Health Richland Hospital to assist in the monitoring and decontamination of the injured victim(s), the hospital facilities, and the ambulance and response personnel as needed.

Section M: Reentry and Recovery Planning

This section describes the measures to be taken for reentry into the areas of the Station which have been evacuated as a result of an accident. It also outlines the VCSNS Recovery Organization and its concepts of operation.

1. Reentry and Recovery**a. Evaluating Reentry Conditions**

During an emergency, immediate actions are directed toward limiting the consequences of the accident to afford maximum protection to station personnel and the general public. Once corrective measures have been taken and effective control of the plant has been reestablished, a more methodical approach to reentry is taken. This Emergency Plan divides reentry into two separate categories:

- Reentry *during the emergency phase of an accident* is performed to save a life, control a release of radioactive material, prevent further damage to plant equipment or restore plant equipment. If necessary, this category of reentry may be performed using emergency exposure limits. Briefings, rather than written radiation protection procedures, may be used when making these entries.

All reentry activities conducted during the emergency are authorized by the ED and coordinated by the OSC Supervisor and the Radiological Assessment Supervisor.

- Reentry *during the recovery phase of an accident* is performed using normal exposure limits. Either normal procedures or procedures that consider existing as well as potential conditions inside affected areas are developed specifically for each reentry.

Reentry activities during the recovery phase are authorized by the Recovery Director and coordinated by the recovery organization managers in charge of personnel making the reentry.

The following items are considered when planning for any reentry:

- Review of available radiation surveillance data to determine plant areas potentially affected by radiation and/or contamination
- Review of radiation exposure history of personnel required to participate in the accident mitigation or recovery operations
- Determination of the need for additional personnel and the sources of these additional personnel
- Review of adequacy of radiation survey instrumentation and equipment (types, ranges number, calibration, etc.)
- Review of nonradiological hazards and required protective measures (e.g., fire, electrical, atmosphere, Hazmat)

- Preplanning of activities and briefings for the reentry team that include the following:
 - Personnel knowledge requirements
 - Methods and procedures that will be employed during the entry
 - Specific tasks to be performed
 - Anticipated radiation and contamination levels as well as “turn back” limits
 - Radiation survey equipment and types and ranges of dosimetry required
 - Shielding requirements and availability
 - Appropriate communications
 - Personal protective equipment (PPE) requirements
 - Access control procedures
 - Decontamination requirements
 - Debriefing requirements
 - Respiratory protection
- A review of security controls to prevent unauthorized or unintentional entry into hazardous or secured areas.

b. Evaluating Entry into Recovery

The Recovery Phase is that period when major repairs are being performed to return the plant to an acceptable condition and the possibility of the emergency condition degrading no longer exists. Once the plant has been stabilized, contained, and controlled, the Recovery Phase may be entered. It is the responsibility of the ED to declare emergency phase terminated and entry into Recovery after obtaining concurrence from the ED and consulting with offsite authorities if a Site Area Emergency or General Emergency has been declared.

Establishment of Recovery can be conducted from any emergency classification level. However, it is possible that the lower classifications of Unusual Event and Alert will conclude with the overall event being terminated. There may be cases where certain EAL ICs remain exceeded, but the station is under control and no further danger of degradation exists. In such a case, it may be appropriate to enter Recovery. Site Area Emergency and General Emergency classifications will require a Recovery Phase to be established before event termination. VCSNS may consult with/notify the cognizant governmental agencies before declaring Recovery or event termination during an Unusual Event or Alert. When in a Site Area Emergency or a General Emergency, VCSNS will consult and notify the cognizant governmental agencies before declaring Recovery or event termination.

Termination/Recovery considerations are contained in the implementing procedures to provide guidance for evaluating the risk of entering Recovery without alleviating the intent of the Initiating Condition. The purpose of Recovery is to provide the necessary personnel to affect the long-term activities and to return the plant to an acceptable condition.

The following conditions are guidelines for the determination of establishing Recovery (this is not intended to be a complete list and additional criteria may apply, depending on the specifics of the event):

- The risk to the health and safety of the public has been mitigated
- Plant parameters and equipment status have been established and controlled
- In-plant radiation levels are stable or decreasing, and acceptable, given the plant conditions
- The potential for uncontrolled releases of radioactive material to the environment has been eliminated
- Environmental monitoring has been established
- The radioactive plume has dissipated and plume tracking is no longer required (the only environmental assessment activities in progress are those necessary to assess the extent of deposition resulting from passage of the plume)
- VCSNS workers have been protected
- Any security threat has been neutralized, and/or plant Security is under the direction of VCSNS personnel as part of a Unified Command Incident Command System.
- Adequate plant safety systems are operable
- The reactor is in a stable shutdown condition and long-term core cooling is available
- The fuel pool damage has been mitigated, or spent fuel damage has been contained and controlled
- Primary and/or secondary containment integrity has been established
- Plant systems and equipment are restored and/or replaced such that plant conditions are stable and highly unlikely to degrade further
- Conditions that initiated the emergency have been contained, controlled, eliminated, or stabilized such that the emergency classification is no longer applicable
- The operability and integrity of unit or externally supplied radioactive waste systems, decontamination facilities, power supplies, electrical equipment and of plant instrumentation including radiation monitoring equipment

- Any fire, flood, earthquake, high winds, or similar emergency condition or security threat no longer exists
- All required notifications have been made
- Discussions have been held with federal, state, and county agencies and agreement has been reached to terminate the emergency for a Site Area Emergency or a General Emergency
- At an Alert or higher classification, the ERO is in place and emergency facilities are activated
- All contaminated injured personnel have been treated and/or transported to a medical care facility
- Offsite conditions do not unreasonably limit access of outside support to the station and qualified personnel and support services are available

It is not necessary that all conditions listed above be met; however, all items must be considered before entering the recovery phase. For example, it is possible after a severe accident that some conditions remain that exceed an Emergency Action Level, but entry into the Recovery Phase is appropriate.

2. Recovery Organization

Once plant conditions have been stabilized and the Recovery Phase has been initiated, the ECO with assistance from senior management may form a Recovery Organization for long-term operations. These types of alterations should be discussed with the NRC before they are implemented.

- For events of a minor nature, (i.e., for Unusual Event classifications), the normal on shift organization is normally adequate to perform necessary recovery actions.
- For events where damage to the plant has been significant, but no offsite releases have occurred and/or protective actions were not performed, (i.e., for Alert classifications) the station ERO, or portions thereof, should be adequate to perform the recovery tasks before returning to the normal station organization.
- For events involving major damage to systems required to maintain safe shutdown of the plant and/or offsite radioactive releases have occurred, (i.e., for Site Area Emergency or General Emergency classifications) the station recovery organization is put in place.

The specific members of the station recovery organization are selected based on the sequence of events that preceded the recovery activities as well as the requirements of the recovery phase. The basic framework of the station recovery organization is as follows:

- a. The Recovery Director: The ECO is initially designated as the Recovery Director. The Recovery Director is charged with the responsibility for directing the activities of the station recovery organization. These responsibilities include:
 - Ensuring sufficient personnel, equipment, or other resources from SCE&G and other organizations are available to support recovery
 - Directing the development of a recovery plan and procedures
 - Deactivating any of the plant ERO that was retained to aid in recovery, in the appropriate manner. Depending on the type of accident and the onsite and offsite affects of the accident, portions of the ERO may remain in place after initiation of the recovery phase
 - Coordinating the integration of available federal and state assistance into onsite recovery activities
 - Coordinating the integration of SCE&G support with federal, state, and county authorities into required offsite recovery activities
 - Approving information released by the public information organization that pertains to the emergency or the recovery phase of the accident
 - Determining when the recovery phase is terminated
- b. The Recovery Plant Manager: The General Manager, Nuclear Plant Operations or a designated alternate, will become the Recovery Plant Manager. The Recovery Plant Manager reports to the Recovery Director and is responsible for:
 - Coordinating the development and implementation of the recovery plan and procedures
 - Ensuring that adequate engineering activities to restore the plant are properly reviewed and approved
 - Directing all onsite activities in support of the station recovery effort
 - Designating other VCSNS recovery positions required in support of onsite recovery activities

- c. The Recovery Offsite Manager: A senior member of Nuclear Support Services or a designated alternate is the Recovery Offsite Manager. The Recovery Offsite Manager reports to the Recovery Director and is responsible for:
- Providing liaison with offsite agencies and coordinating VCSNS assistance for offsite recovery activities
 - Coordinating VCSNS ingestion exposure pathway EPZ sampling activities and the development of an offsite accident analysis report
 - Developing a radiological release report
 - Designating other VCSNS recovery positions required in support of offsite recovery activities
- d. The Company Spokesperson: A senior SCANA Public Relations Group individual is designated as the Company Spokesperson. The Company Spokesperson reports to the Recovery Director and is responsible for:
- Functioning as the official spokesperson to the press for SCE&G on all matters relating to the accident or recovery
 - Coordinating with all public information groups (federal, state, county, etc.)
 - Coordinating media monitoring and rumor control
 - Determining what public information portions of the ERO will remain activated

The remainder of the recovery organization is established on an initial recovery plan developed at the end of the emergency phase or just after entry into the Recovery Phase. Consideration is given to recovery activity needs and use of the normal station organizations. Individual recovery supervisors may be designated in any or all of the following areas:

- Training
- Health Physics
- Chemistry
- Technical/Engineering Support
- Nuclear Oversight
- Operations
- Security
- Maintenance
- Corporate Support
- Special Offsite Areas (Community Representatives, Environmental Samples, Investigations, etc.)

3. Recovery Phase Notifications

When the decision is made to enter the Recovery Phase, all members of the ERO are informed of the change. All VCSNS personnel are instructed on the Recovery Organization and their responsibilities during the recovery effort. The offsite authorities are notified of the shift to and the basic structure and management of the Recovery Organization.

4. Total Population Exposure

Total population exposure calculations are performed and periodically updated during the Recovery Phase of an accident. A procedure has been developed for estimating the total population exposure resulting from the accident from data collected in cooperation with the state and other federal agencies. Total population exposure is determined through a variety of processes including:

- Examination of prepositioned environment monitoring TLDs
- Bioassay
- Estimates based on release rates and meteorology
- Estimates based on environmental monitoring of food, water, and ambient dose rates

The state will be the lead agency in the collection and analysis of environmental air, soil, foliage, food, and water samples and for the generation of radiation monitoring reports. VCSNS environmental sampling activities will be coordinated with state efforts, as requested, and results shared with the cognizant agencies.

Section N: Drill and Exercise Program

This section describes the Drill and Exercise Program that VCSNS has implemented to:

- Verify the adequacy of the Emergency Preparedness Program
- Develop, maintain, and evaluate the capabilities of the ERO to respond to emergency conditions and safeguard the health and safety of station personnel and the general public
- Identify deficiencies in the Emergency Plan and its associated procedures, or in the training of response personnel, and ensure that they are promptly corrected
- Identify deficiencies in the relationship between the Emergency Plan and the VCSNS Security Plan and ensure that they are promptly corrected
- Ensure the continued adequacy of emergency facilities, supplies, and equipment, including communications networks

1. Exercises

Exercises provide an opportunity to evaluate the ability of participating organizations to implement a coordinated response to postulated emergency conditions. Provisions will be made for qualified personnel from VCSNS, other commercial nuclear facilities, or federal, state, or local governments to observe and critique each exercise as appropriate. Exercises are conducted to ensure that all major elements of the emergency plan and preparedness program are demonstrated at least once in each exercise cycle. Each scenario variation shall be demonstrated at least once during the cycle and shall include, but not limited to, the following:

- An off-hours exercise between 6:00 p.m. and 4:00 a.m.. Weekends and holidays are also considered off-hour periods.
- Hostile action directed at the plant site involving the integration of offsite resources with onsite response; VCS participates on a rotating basis with other fixed nuclear facilities in the state of South Carolina
- An initial classification of, or rapid escalation to, Site Area Emergency or General Emergency
- No radiological release or an unplanned minimal radiological release that requires the site to declare a Site Area Emergency, but does not require declaration of General Emergency
- An ingestion pathway exercise ; VCSNS participates on a rotating basis with the other fixed nuclear facilities in the state of South Carolina.

a. Biennial Exercises

Federally prescribed exercises are conducted at the station in order to test the adequacy of timing and content of implementing procedures and methods; to test emergency equipment and communication networks; and to ensure that emergency personnel are familiar with their duties. Exercises involving offsite agency participation, required under Sections F.2.b., F.2.c., & F.2.d. to 10 CFR 50 Appendix E, are conducted at the station based on FEMA guidance and the respective state and county emergency response plans.

Full participation exercises will include appropriate offsite local and state authorities and VCSNS personnel physically and actively taking part in testing the integrated capability to adequately assess and respond to a declared emergency at the station. Additionally, full participation exercises will include testing the major observable portions of the onsite and offsite emergency plans and mobilization of state, local, and VCSNS personnel and other resources in sufficient numbers to verify the capability to respond to the accident scenario. Some of the offsite response actions may be provided for evaluation in an out-of-sequence manner. These exercises are to be scheduled in an attempt to provide or simulate various weather conditions.

These exercises are usually conducted in conjunction with a full participation exercise as the state chooses.

Where full participation by offsite agencies occurs, the sequence of events simulates an emergency that may result in the release of radioactivity to the offsite environs or the threat of such a release, sufficient in magnitude to warrant a response by offsite authorities. The sequence of events will be submitted to the NRC and FEMA in a timely fashion to ensure that the scenario is judged to provide adequate opportunity for demonstration of the agreed upon objectives and extent of play.

In the event of an inadequate demonstration of the offsite response, VCSNS will participate and support the conduct of activities that are designed to address the deficient or weak demonstrations.

b. Off-Year Exercises

An Off-Year Exercise is conducted at the station during the calendar year when an NRC Evaluated Exercise is not scheduled. An Off-Year Exercise shall involve the station and its facilities in order to demonstrate at least the functions of management and coordination of emergency response, accident assessment, protective action decision-making, or plant system repair and corrective actions. Off-Year Exercises involve no or limited participation by offsite agencies, although a routine offer is made to determine the extent of participation by the offsite authorities. Emphasis is placed on development and conduct of an exercise that is more mechanically and operationally realistic. Players may be able, by implementing appropriate procedures and corrective actions, to determine the outcome of the scenario to a greater extent than when core damage and the release of radioactivity that are prerequisites for demonstration of all objectives which may include security response activities.

2. Drills

In addition to the exercises described above, VCSNS conducts drills for the purpose of testing, developing, and maintaining the proficiency of emergency responders. Drills are scheduled on the Emergency Preparedness annual events plan, which contains provisions for the following drills:

a. Training Drills

Training Drills may be conducted before a Biennial Exercise where FEMA evaluation of state and local performance is expected. Training Drills may be conducted before Off-Year Exercises that only involve VCSNS. The Training Drill is a training and experience tool for the participants to sharpen awareness and practice skills necessary to accomplish specific Emergency Plan duties and responsibilities. It also provides a "dry run" for experience dealing with multiple Controllers, Observers and Evaluators that may be in excess of those provided in training drills.

b. Communication Drills

- Monthly: The primary and alternate methods to notify the state and local government warning points and EOCs within the plume exposure pathway EPZ are demonstrated. Also, the capability to notify the NRC is demonstrated using the ENS.
- Quarterly: The capability to notify the NRC Region and federal EROs as listed in the Emergency Telephone Directory are demonstrated from the EOF. Also, computer and critical communications equipment shall be functionally tested.
- Annually: The emergency communications systems outlined in Section F are fully tested. This includes (1) communications between the plant and the state and local EOCs and Field Teams, (2) communications between the Control Rooms, the TSC, and the EOF (3) communications between the TSC and the OSCs, and (4) communications between the EOF and the JIC.

Each of these drills includes provisions to ensure that all participants in the test are able to understand the content of the messages.

- c. Fire Drills: Fire drills shall be conducted in accordance with the station Technical Specifications, Fire Protection Plan, and/or station procedures.
- d. Medical Emergency Drills: A medical emergency drill, involving a simulated contaminated individual and containing provisions for participation by local support services organizations (i.e., ambulance and support hospital) is conducted annually. The offsite portions of the medical drill may be performed as part of the required biennial exercise.
- e. Radiological Monitoring Drills: Plant environs and radiological monitoring drills (onsite and offsite) are conducted annually. These drills include collection and analysis of all sample media (such as, water, vegetation, soil, and air), and provisions for communications and record keeping. Collection of milk is demonstrated in accordance with the ingestion pathway exercises.

- f. Health Physics Drills: Health Physics drills involving a response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements within the plant are conducted semiannually in the **each** Protected Area.
- g. Augmentation Drills: Augmentation drills serve to demonstrate the capability of the process to augment the on-shift staff with a TSC, OSCs, EOF, and JIC after declaration of an emergency. These drills are conducted using the following methods:
- Semiannually, an unannounced off-hours ERO augmentation drill where no actual travel is required.
 - At least once per exercise cycle, an off-hours unannounced activation of the ERO Notification System with actual response to the emergency facilities is conducted to support the response ~~to the unit~~ of the ERO.
- h. Accountability Drills: Accountability drills are conducted annually for the Protected Area. The drill includes ascertaining the names of all missing individuals within the Protected Area and accounting for all individuals within the Protected Area continuously throughout the event.

3. Conduct of Drills and Exercises

Advance knowledge of the scenario will be kept to a minimum to allow "free-play" decision making and to ensure realistic participation by those involved. Before the drill or exercise, a package will be distributed to the Controllers and Evaluators that will include the scenario, a list of performance objectives, and a description of the expected responses.

Drills will be provided to ensure that each member of the ERO will have an opportunity to participate in a drill in their assigned facility at least once in a two-year period. **Drills will be rotated among the Units and their specific ERFs to provide the needed opportunities for the members of the ERO.**

For each emergency preparedness exercise or drill conducted, a scenario package is developed that includes at least the following:

- a. The basic objective(s) of the drill or exercise and the appropriate evaluation criteria
- b. The date(s), time period, place(s), and participating organizations
- c. The simulated events
- d. A list of anticipated Drill/Exercise Performance (DEP) opportunities including classification, notifications and PARs
- e. A time schedule of real and simulated initiating events
- f. A narrative summary describing the conduct of the scenario to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams, and public information activities.

- g. A list of qualified participants
- h. Instructions for the conduct of the drill/exercise for the controller organization

Prior approval by the appropriate Station Management is obtained for all drills and exercises conducted in support of the Emergency Preparedness Program.

4. Critique and Evaluation

Drill and exercise performance objectives are evaluated against measurable demonstration criteria. As soon as possible following the conclusion of each drill or exercise, a critique is conducted to evaluate the ability of the ERO to implement the Emergency Plan and its implementing procedures.

A formal written critique report is prepared by the Manager, Emergency Planning following a drill or exercise involving the evaluation of designated objectives or following the final simulator session with ERO participation. The report will evaluate the ability of the ERO to respond to a simulated emergency situation or sequence of events. The report will also contain corrective actions and recommendations for improvement.

Biennially, representatives from the NRC observe and evaluate the licensee's ability to conduct an adequate self-critical critique. For full offsite participation exercises, both the NRC and FEMA will observe, evaluate, and critique.

Critique comments identified by participants during a training drill where objectives are not formally being evaluated will be reviewed and dispositioned by the Emergency Preparedness Unit, but are not required to be included in a formal report.

5. Resolution of Drill and Exercise Findings

The critique and evaluation process is used to identify areas of the Emergency Preparedness Program that require improvement. The Manager, Emergency Planning is responsible for evaluation of recommendations and comments to determine which items will be incorporated into the program or require corrective actions, and for the scheduling, tracking, and evaluation of the resolution to the items.

Whenever exercises and/or drills indicate deficiencies in the Emergency Plan or corresponding implementing procedures, such documents will be revised as necessary.

Section O: Emergency Response Training

This section describes the emergency response training that is provided to those who may be called upon in an emergency. It outlines the training provided by VCSNS to both its employees and offsite support personnel requiring site access.

1. Assurance of Training

The Emergency Plan Training Program assures the training, qualification, and requalification of individuals who may be called on for assistance during an emergency. Specific emergency response task training, prepared for each Emergency Plan position, is described in lesson plans and study guides. The lesson plans, study guides, and written tests are contained in the ERO Training Program. Responsibilities for implementing the training program are contained in plant procedures. A description of the content of the training courses is given in the VC Summer Training and Qualification Procedures (TQP).

Offsite training is provided to support organizations that may be called upon to provide assistance in the event of an emergency. The following outlines the training received by these organizations:

- a. Emergency Preparedness shall annually train, or document an annual written offer to train, those non-VCSNS organizations that may provide specialized services during a nuclear plant emergency (e.g., local law enforcement, firefighting, medical services, transport of injured, etc.). The training made available is designed to acquaint the participants with the special problems potentially encountered during a nuclear plant emergency, notification procedures and their expected roles. Those organizations that must enter the site shall also receive site-specific emergency response training and be instructed as to the identity (by position and title) of those persons in the onsite organization who will control their support activities.
- b. Training of offsite EROs is described in their respective radiological emergency plans, with support provided by VCSNS as requested.

2. Functional Training of the ERO

In addition to general and specialized classroom training, members of the ERO receive periodic performance-based emergency response training. Performance-based training is provided using one or more of the following methods:

- Familiarization Sessions: A familiarization session is an informal, organized tabletop discussion of predetermined objectives.
- Walk-throughs: Consists of a facility walk-through to familiarize plant ERO personnel with procedures, communications equipment, and facility layout. Walk-throughs also provide the opportunity to discuss facility activities, responsibilities, and procedures with an instructor.
- Drills: A drill is a supervised instruction period aimed at testing, developing, and maintaining skills in a particular operation. Drills described in Section N of this plan are a part of training. These drills allow each individual to demonstrate the ability to perform their assigned emergency functions. During drills, on-the-spot correction of erroneous performance may be made and a demonstration of the proper performance offered by the Controller.

3. First Aid Response

Selected station personnel are trained in accordance with the VCSNS approved First Aid Program and medical triage. MERTs will likely be augmented with additional personnel such as fire brigade members and other personnel qualified to assist in the rescue.

4. Emergency Response Organization Training Program

ERO personnel who are responsible for implementing this plan receive specialized training. The training program for emergency response personnel is developed based on the requirements of 10 CFR 50, Appendix E and position specific responsibilities as defined in this document.

On-shift emergency response personnel perform emergency response activities as an extension of their normal duties and are trained annually as part of their duty specific training. Additional Emergency Preparedness information is provided as part of the Station Orientation Training (SOT).

New ERO personnel receive an initial overview course that familiarizes them with the Emergency Plan by providing basic information in the following areas as well as specific information as delineated in the sections below:

- Planning Basis
- Emergency Classifications
- ERO and Responsibilities
- Call-out of ERO
- ERFs
- Communications Protocol/EPIO
- Offsite Organizations

Emergency response personnel in the following categories receive knowledge and/or performance based training initially and retraining thereafter on an annual basis:

- a. Directors, Managers, Supervisors, and selected Coordinators within the Station ERO: Personnel identified by the Emergency Planning Telephone Directory as Directors, Managers, Supervisors, and selected Coordinators for the Station ERO receive training appropriate to their position in accordance with the approved ERO training program. These personnel receive specialized training in the areas of:

- Notifications
- Emergency Classifications
- Protective Action Recommendations
- Emergency Action Levels
- Emergency Exposure Control

The ECOs and EDs along with selected managers, coordinators, and IEDs receive training in accordance with the approved ERO training program. Training in accident assessment sufficient to classify an event and to mitigate the consequences of an event is also covered.

- b. Personnel Responsible for Accident Assessment: The skills and knowledge required to perform plant stabilization and mitigation are a normal function of operations-specific positions, as identified in Section B of this Plan. Power changes and planned and unplanned reactor shutdowns are handled on a normal operation basis. Subsequent plant stabilization and restoration is pursued using normal operating procedures. Licensed operators receive routine classroom and simulator training to ensure proficiency in this area.

- 1) Active Senior Licensed Control Room Personnel shall have training conducted in accordance with the approved ERO training program such that proficiency is maintained on the topics listed below. These subjects shall be covered as a minimum on an annual basis.
 - Event Classification
 - Protective Action Recommendations
 - Radioactive Release Rate Determination
 - Notification form completion and use of ESSX
 - Federal, state, and county notification procedures as appropriate
 - Site-specific procedures for activating the onsite and offsite ERO
- 2) Core Damage Assessment Personnel: During an emergency when core/cladding damage is suspected, a specialized group of trained individuals perform core damage assessment. At a minimum, personnel responsible for core damage assessment receive classroom and hands-on training in the following areas:
 - Available instrumentation and equipment
 - Isotopic assessment and interpretation
 - Core damage assessment methodology and/or proceduralized assessment methods

c. Field Teams and Radiological Analysis Personnel

- 1) Field Radiological Monitoring: Field radiological monitoring is performed by trained individuals who provide samples and direct readings for dose assessment calculations and dose projection comparisons.

Personnel identified as members of Field Teams receive training in accordance with the approved training program. Field Team members receive classroom and hands-on training in the following areas:

 - Equipment and equipment checks
 - Communications
 - Plume tracking techniques
- 2) Personnel Monitoring: Personnel monitoring is performed by trained individuals who monitor station personnel and their vehicles for contamination during an emergency. Health Physics personnel receive classroom and hands-on training in the following areas:
 - Personnel monitoring equipment and techniques
 - Decontamination techniques for personnel
 - Decontamination techniques for vehicles

- 3) Dose Assessment: Dose assessment training includes the skills and knowledge necessary for calculation and interpretation of an offsite release and its impact on the environment under varying meteorological conditions. Individuals responsible for performing dose assessment are trained in the following areas:
- Computerized dose assessment
 - Protective Action Recommendations
 - Field Monitoring Team interface
 - PAGs associated with offsite plume exposure doses
 - Basic meteorology

d. Police, Security, and Firefighting Personnel

- 1) Local Police and Firefighting Personnel: The local police and fire departments are invited to receive training as outlined in Part 1.a of this section.
- 2) Security Personnel: Station security personnel are trained in accordance with training defined by the SOT and VCSNS Security Program.
- 3) Fire Brigade Teams: Station fire brigade members are trained in accordance with training defined by the VCSNS Fire Protection Program.

e. Repair and Damage Control Teams: Operations, Maintenance, Chemistry, and Health Physics personnel are trained as part of their normal job-specific duties to respond to both normal and abnormal plant operations.

Operations personnel are trained to: (1) recognize and to mitigate degrading conditions in the plant, (2) mechanically and electrically isolate damaged or malfunctioning equipment, (3) isolate fluid leaks, and (4) minimize transients.

Maintenance personnel are trained to troubleshoot and repair damaged or malfunctioning electrical, mechanical, or instrumentation systems as appropriate to their job classification.

Chemistry personnel are trained to take system samples and perform appropriate laboratory chemical analysis of the samples.

Health Physics personnel are trained to assess the radiological hazards associated with equipment repair and instruct personnel as to the appropriate protective clothing requirements, respiratory protection requirements, stay times, and other protective actions specific to the conditions present.

At least 50% of personnel from the organizations below, who are potential responders to the OSC as Damage Control Team members, are required to be qualified in the use of respiratory protection equipment. This includes in-plant supervision and craft/technical personnel for the following organizations:

- Operations
 - Health Physics
 - Chemistry
 - Maintenance (Mechanical, Electrical, and I&C)
- f. Medical Emergency Response Team and Rescue Personnel: MERT and rescue team members receive training as outlined in Part 3 of this section, First Aid Response.
- g. Local Support Service Personnel: Local support service personnel providing assistance during an emergency are invited to receive training as outlined in Parts 1.a and 1.b of this section.
- h. Medical Support Personnel: Onsite medical personnel receive specialized training in the handling of contaminated victims and hospital interface. Offsite ambulance and hospital personnel are offered annual training in accordance with a program provided by Emergency Preparedness.
- i. EPIO Personnel: Corporate and station personnel responsible for disseminating public information and responding to media and public information requests receive specialized public information training.
- j. Communications Personnel: ERO personnel receive training on communications protocol as a part of the initial Emergency Response Overview Course. Personnel using specialized communications equipment that is not part of their normal daily function receive initial and requalification training on the equipment. Personnel involved in notifications to offsite agencies receive specialized training in the notification process.

5. General, Initial, and Annual Training Program Maintenance

- a. Station departments and Emergency Preparedness share the responsibility for ensuring that the ERO receives all necessary training and retraining. In order to carry this out, responsibilities are assigned as follows:

Station responsibilities for Station ERO personnel:

- Station management shall ensure the attendance of onsite personnel for training, including required Emergency Planning courses.
 - The station shall conduct onsite emergency personnel initial and retraining for station ERO personnel using approved lesson plans.
 - The Station Training Department shall provide those shift personnel included in a continuing training program an annual review of the following items as a minimum:
 - Assembly Areas
 - ERF assignment
 - Potential Hazards (radiological and nonradiological)
 - Anticipated actions including assembly requirements, protective equipment requirements (clothing, masks, SCBA, etc.), the use of KI, emergency exposure limits, and accountability requirements.
- b. Initial and Regualification ERO Training: The proficiency of emergency response personnel (as defined in 10 CFR 50 Appendix E) is ensured by the following means:
- Assigning individuals to emergency duties that are similar to those performed as a part of their regular work assignment or experience
 - Initial training and annual retraining on applicable generic and site-specific portions of the emergency plan and the corresponding implementing procedures. Individuals not demonstrating the required level of knowledge in initial or retraining classes receive additional training on the areas requiring improvement. Annual retraining is conducted on a calendar year basis
 - Training on Emergency Plan changes shall be completed within 120 days of implementation of the change
 - Participation in exercises and/or drills as developed or authorized by the Emergency Preparedness Department and designed to sharpen those skills that they are expected to use in the event of an actual emergency

All personnel assigned position specific responsibilities in the ERO are documented by inclusion in the Emergency Planning Telephone Directory listing of positions and personnel.

c. Station Orientation Training (SOT): All personnel with unescorted station access are provided with initial orientation training on the notification and instruction methods used in the event of an emergency. Additionally, all badged individuals also receive initial orientation on the basic principles of radiological safety including the effects of radiation and the theory and use of radiation detection devices. Appropriate actions for escorted individuals shall be the responsibility of the escort. SOT provides initial and annual requalification training on the basic elements of the Emergency Plan for all personnel working at the plant. Specifically, these elements include:

- Station emergency alarms and their meaning
- Assembly areas
- Site and exclusion area evacuation procedures
- Special precautions and limitations during an emergency
- Purpose of the Emergency Plan

Section P: Responsibility for the Maintenance of the Planning Effort

This section describes the responsibilities for development, review, and distribution of the Emergency Plan and actions that must be performed to maintain the Emergency Preparedness Program. It also outlines the criteria for ensuring that personnel who perform the planning are properly trained.

1. Emergency Preparedness Staff Training

The Emergency Preparedness staff is involved in maintaining an adequate knowledge of state-of-the-art planning techniques and the latest applications of emergency equipment and supplies. At least once each calendar year, each member of the Emergency Preparedness staff is involved in one of the following activities:

- Training courses specific or related to emergency preparedness
- Observation of or participation in drills and/or exercises at other stations
- Participation in industry review and evaluation programs aimed towards emergency preparedness programs/issues
- Participation in regional or national emergency preparedness seminars, committees, workshops, or forums
- Specific training courses in related areas, such as systems, equipment, operations, radiological protection, or problem identification and resolution

2. Authority for the Emergency Preparedness Effort

The Vice President, Nuclear Operations, is responsible for the safe and reliable operation of the VCSNS. The issuance and control of this Plan and the activities associated with emergency preparedness shall be the overall responsibility of the Vice President, Nuclear Operations. This individual is assigned the responsibility for overall implementation of the VCSNS Emergency Plan and Unit Annexes.

3. Responsibility for Development and Maintenance of the Plan

The Manager- Emergency Planning and Supervisors- Emergency Services are responsible for the overall Emergency Preparedness Program associated with the operation of VCSNS and to administer the program to ensure availability of resources in the event of an emergency.

The Manager, Emergency Planning is assisted by the station Emergency Preparedness Unit staff. Specific responsibilities include the following:

Program Administration

- Develop and maintain the Emergency Plan, Appendices, Unit Annexes, implementing procedures and administrative documents
- Develop and maintain 10 CFR 50.54(q) evaluations for changes to Emergency Plan documents
- Coordinate and maintain the Emergency Plan activities schedule
- Develop and maintain working relationships and coordinate meetings with federal, state, and local agencies
- Ensure integration of plans between the station and offsite agencies
- Provide an opportunity to discuss EALs and the availability of SCE&G Quality Systems Group audit results relating to interface with governmental agencies
- Coordinate, negotiate, and maintain agreements and contracts with offsite agencies and support organizations
- Obtain Letters of Agreement with major medical facilities, and medical consultants specifically skilled in the medical aspects of radiation accidents resulting in excessive exposure, contamination, and/or ingestion of radioactive materials
- Coordinate the development and annual distribution of the station's public information publication
- Coordinate and administer the self-assessment program to monitor and evaluate the adequacy of the Emergency Preparedness Program
- Coordinate and support Emergency Plan audits and inspections
- Ensure the documentation and resolution of adverse conditions in the Emergency Preparedness Program discovered through drills, audits, etc. in accordance with the Corrective Action Program
- Coordinate and develop Operational Experience responses as assigned
- Coordinate, document, and review Emergency Preparedness Performance Indicator data and reports
- Provide oversight of NRC Drill and Exercise Performance (DEP) evaluations during License Operator Qualification and Requalification Training
- Coordinate and conduct Emergency Plan Event reviews and reports
- Maintain adequate documentation/files to support Emergency Plan activities

- Develop and manage the Emergency Plan budget
- Maintain the Emergency Planning Telephone Directory

Drills and Exercises

- Coordinate and maintain the Emergency Plan drill and exercise schedule
- Coordinate and conduct exercises and drills
- Coordinate NRC, FEMA, state, and local exercise scheduling and development activities
- Coordinate drill and exercise scenario development activities
- Develop and publish drill and exercise scenario manuals
- Coordinate and perform Controller and Evaluator functions for drills and exercises
- Coordinate the selection and ensure the training of Controllers for onsite drills and exercises
- Coordinate response cells for drills and exercises
- Maintain documentation of drill and exercise objectives demonstration and their results
- Develop and issue drill and exercise reports

Facilities and Equipment

- Provide maintenance and administration of the Alert and Notification System (ANS)
- Provide maintenance of the ERO Emergency Notification System
- Ensure the ERFs are maintained in a constant state of readiness
- Coordinate and review the Emergency Plan equipment inventories
- Coordinate and conduct maintenance and testing of the communications systems
- Maintain the Emergency Plan computer applications

ERO Qualification and Administration

- Develop and maintain ERO lesson plans, examinations, and qualification records
- Ensure through letters, meetings, seminars, or other means available, that all affected personnel in the ERO are informed of changes to the Emergency Plan and procedures
- Maintain Emergency Plan SOT content
- Coordinate, schedule, and conduct ERO qualification and requalification training
- Oversee the maintenance of ERO training records
- Maintain and coordinate publishing of the ERO duty rosters
- Provide adequate oversight and support for the training of offsite response personnel
- Coordinate conduct of Emergency Medical Assistance Program training
- Coordinate annual training for the media

The Vice President, Nuclear Operations is responsible for implementation of the Emergency Plan, with the General Manager, Nuclear Support Services overseeing the process. The General Manager, Nuclear Support Services has the following responsibilities for maintenance of the Emergency Preparedness Program:

- Ensure the adequate staffing and training of station ERO members
- Schedule and conduct drills and exercises to maintain the state of readiness of the Emergency Preparedness Program
- Ensure the operational readiness of station facilities and communication systems for use during an emergency
- Ensure the operational readiness of station emergency equipment and supplies is maintained
- Ensure the Emergency Plan implementing procedures are maintained

4. Emergency Plan and Agreement Revisions

The Emergency Plan, the Appendices and Unit Annexes, and supporting Agreements are reviewed on an annual basis. The annual Emergency Plan review/update includes required changes, as directed by management, and those changes identified during audits, assessments, training, drills, and exercises. The Manager, Emergency Planning is responsible for determining which recommended changes are incorporated into an Emergency Plan or emergency procedure revision. In those years when the review does not warrant a revision, a letter or memorandum to that effect will be issued.

The Emergency Plan and the Appendices and Unit Annexes shall be revised as needed and the most current approved revisions shall remain in effect so long as they are verified as current. Revisions to the Emergency Plan are reviewed by the Plant Safety Review Committee before approval. Changes to the Plan are made without NRC approval only if such changes do not reduce the effectiveness of the Plan in accordance with 10 CFR 50.54(q), and the Plan as changed continues to meet the standards of 10 CFR 50.47(b) and the requirements of 10 CFR 50, Appendix E. Proposed changes that reduce or have a potential to reduce the effectiveness of the approved Plan are not implemented without prior approval by the NRC.

- Proposed revisions to the Emergency Plan, the Appendices, and Unit Annexes shall be completed in accordance with the VCSNS review and approval processes.
- Emergency Plan and the Appendices and Unit Annexes changes shall be categorized as (1) minor/administrative or (2) significant programmatic changes. Minor/administrative changes shall be implemented within 30 days of approval. Significant programmatic changes shall be implemented as soon as practical and within 90 days of final station approval.
- After review and approval, the Emergency Plan and the Appendices and Unit Annexes shall be:
 - a) Reviewed by the Manager, Emergency Planning or designee
 - b) Approved for use by the General Manager, Nuclear Plant Operations, or designee.
- The Implementing Procedures shall be developed and revised concurrent with the Emergency Plan, Appendices, and Unit Annexes, and reviewed every two years.

Annually, each Letter of Agreement is reviewed and certified current in order to ensure the availability of assistance from each supporting organization not already a party to the South Carolina Operational Radiological Emergency Response Plan.

5. Emergency Plan Distribution

Emergency Plans, the Appendices, and Unit Annexes, and the implementing procedures are distributed as necessary on a controlled basis to the ERFs. Electronic copies of documents are also available on the company's computer network. All controlled document holders are issued revision changes upon approval. Selected federal, state, and local agencies, and other appropriate locations requiring them are also issued copies. Procedures are in place that control the revision of the Emergency Plan.

6. Supporting Emergency Response Plans

Other plans that support this Emergency Plan are:

- NUREG-0728, U.S. NRC, "Concept of Operations: NRC Incident Response"
- National Response Framework
- South Carolina Operational Radiological Emergency Response Plan
- Fairfield County Emergency Operations Plan
- Newberry County Emergency Operations Plan
- Richland County Emergency Operations Plan
- Lexington County Emergency Operations Plan
- State of North Carolina Emergency Response Plan for Nuclear Power Facilities
- DOE, Region 3, "Radiological Assistance Plan"
- INPO Emergency Resources Manual
- VCSNS Security Plan — Note: The Plan contains safeguards information that must be withheld from public disclosure under provisions of 10 CFR 73.21.

7. Implementing and Supporting Procedures

Appendix 3 of this Plan contains a listing, by title, of those procedures that implement this Plan during an emergency. Additionally, administrative procedures that outline the steps taken to maintain the VCSNS Emergency Preparedness Program have been developed and are also listed in Appendix 3.

8. Cross-Reference to Planning Criteria

The Plan is formatted in the same manner as NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in support of Nuclear Power Plants." The use of this format lends itself to uncomplicated comparison of the criteria set forth in NUREG-0654. Appendix 6 provides the cross reference for this Plan to the criteria in NUREG-0654.

9. Audit/Assessment of the Emergency Preparedness Program

To meet the requirements of 10 CFR 50.54(t), the Manager, Emergency Planning shall coordinate an independent review of the Emergency Preparedness Program to examine conformance with 10 CFR 50.47, 10 CFR 50.54, and 10 CFR 50, Appendix E. Included in the audit/assessment are the following:

- The Emergency Plan and associated implementing procedures
- The Emergency Preparedness Training Program, including drills and exercises
- The readiness of the Station ERO to perform its function
- The documents and programs used to direct and document the administrative portion of the Emergency Preparedness Program
- The readiness of facilities and equipment to perform as outlined in the plan and procedures
- The interfaces between VCSNS, the state, and county governmental agencies pertaining to the overall Emergency Preparedness Program

The Nuclear Safety Review Committee will ensure that an audit of the VCSNS Emergency Planning Program is performed at least once every 12 months.

Results of this audit are submitted for review to the Vice President, Nuclear Operations. The Manager, Emergency Planning ensures that any findings that deal with offsite interfaces are reviewed with the appropriate agencies. Written notification will be provided to the state and counties regarding the results of the audit on the adequacy of interface with the state and local governments and the availability of the audit records for review at VCSNS.

10. Maintenance of Emergency Telephone Numbers

Names and phone numbers of the ERO, support personnel/agencies, and ERFs in the emergency plan implementing procedures and the Emergency Planning Telephone Directory shall be reviewed and updated at least quarterly.

Annex 1: Unit 1**Section 1: Introduction**

This VCSNS Emergency Plan Annex provides unit specific details for Unit 1.

This includes a unit description (type of reactor, relationship to other units, special emergency equipment), shift staffing, EALs, and any emergency facility locations which differ from those described in the Plan for a full understanding and representation of the Station's emergency response capabilities. This Unit 1 Annex is subject to the same review and audit requirements as the Radiation Emergency Plan.

1.1 Unit 1 Description

The VCSNS is owned jointly by SCE&G and Santee Cooper but is operated by SCE&G. An area map showing geographical location of the facility is provided on Figure 1-1 in Part 1 of the VCSNS Emergency Plan.

Unit 1 uses a pressurized water reactor nuclear steam supply system, designed and furnished by Westinghouse Electric Corporation and a turbine generator, designed and furnished by General Electric Company. The system uses chemical shim and control rods for reactivity control and U-tubed steam generators. ~~A diagram identifying Unit 1 facilities is provided in the Unit 1 Annex Figure A1-1.~~

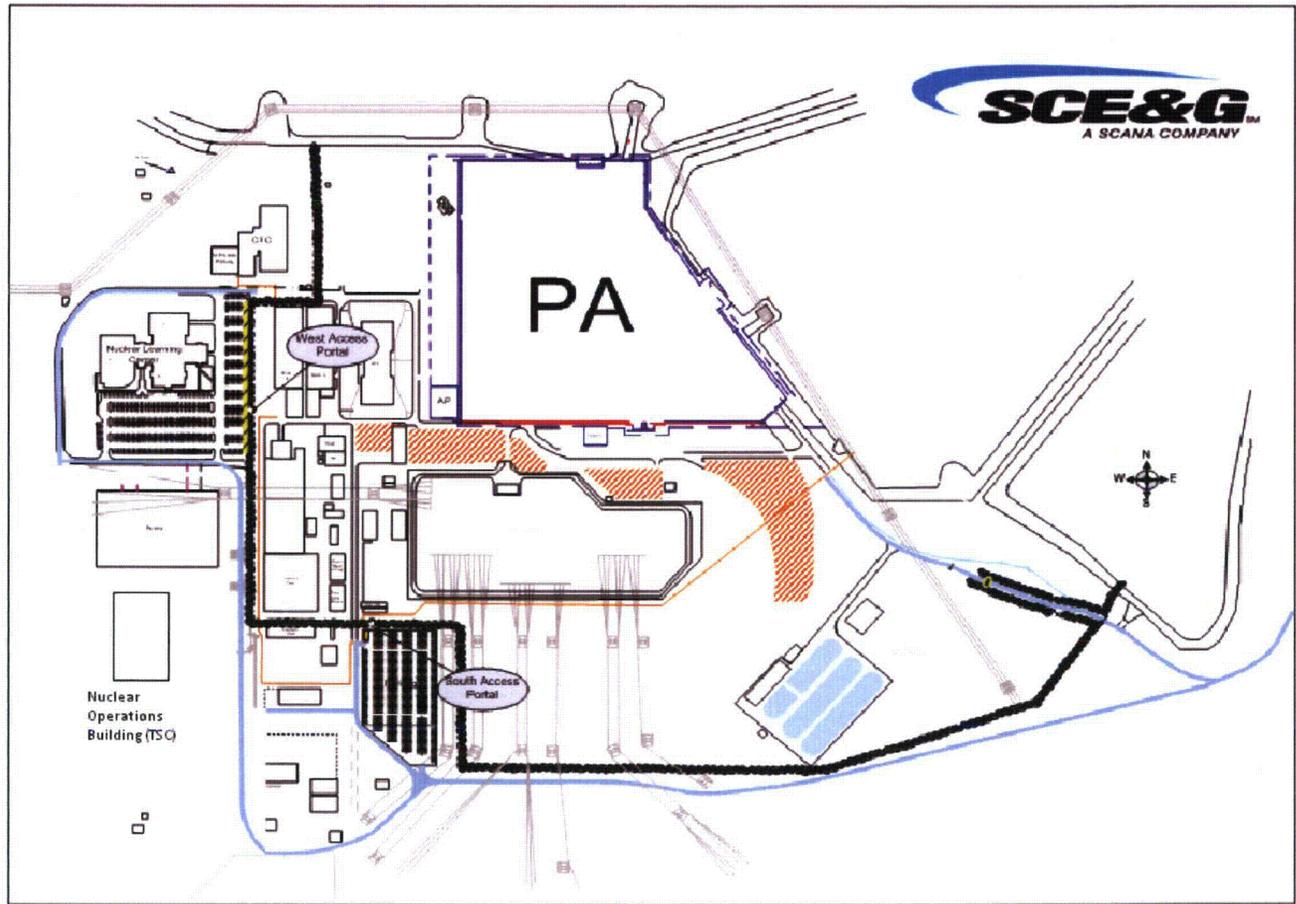


Figure A1-1: Unit 1 Facility Layout (specimen)

Section 2: Organizational Control of Emergencies

Section B of the Plan describes the station's ERO. When the ERO is fully activated, it will be staffed as described in Section B of the Plan. This section and table of the Unit 1 Annex describes the on-shift ERO staffing and their responsibilities to implement the Plan.

2.1 Normal Shift Staffing

The VCSNS operating organization includes the personnel encompassing both the management and operation of the unit. The maintenance and technical support personnel staffing the station organization are normally onsite daily Monday through Friday, holidays excluded. Plant personnel who are on duty on a 24-hour basis are listed in Table 2-1.

The Shift Supervisors, one of whom is on duty at all times, are responsible for the safe and efficient operation of the plant in accordance with the Technical Specifications and operating procedures during their assigned shift. The duty Shift Supervisor maintains control over plant operations as the senior licensed operator unless properly relieved by another member of the station staff who holds a valid SRO License. The Control Room Supervisor maintains control over the conduct of operations and personnel in the Control Room.

Shift Engineers perform accident assessment and evaluate operating conditions. Organizationally, they report to the Manager- Operations. While on duty they diagnose off-normal events and report to the Shift Supervisor. The duties of the Shift Engineer do not include the manipulation of controls or the supervision of operators. When on duty, he will be available to the Shift Supervisor in the Control Room within 10 minutes of being summoned. During emergency conditions, the Shift Engineer will report to the Control Room and perform the duties similar to a Shift Technical Advisor (STA).

During off-hour shifts, the plant is staffed to support continuous operation. The normal operational staff includes (as a minimum) two licensed SROs (the Shift Supervisor and Control Room Supervisor), two licensed reactor operators, and five non-licensed operators. In addition, a Shift Engineer is assigned to each shift. The initial emergency organization during off-hours shifts consists of the operating staff, with the Shift Supervisor serving as the IED. The IED may be relieved in the Control Room by another SRO qualified as an IED. Initial actions in regard to first aid, firefighting, rescue, damage control, radiation monitoring, emergency classification, notifications, and dose assessment are performed by the normal operational staff.

2.2 Shift Emergency Response Positional Responsibilities

The Unit 1 Annex, Table 2-1 outlines shift ERO positions required to meet minimum staffing and the major tasks assigned to each position.

Table 2-1: V. C. Summer On-Shift Staffing and ERO Positions

Functional Area	Major Tasks	Shift Position	Minimum Shift Compliment	ERO Position
1. Plant Operations and Assessment of Operational Aspects	Control Room Staff	Shift Supervisor	1	Interim Emer. Dir. Control Room Supervisor Reactor Operator Auxiliary Operator
		Control Room Supervisor	1	
		Reactor Operator	2	
		Auxiliary Operator	5	
2. Emergency Direction and Control	Command and Control	Shift Supervisor	(a)	Interim Emergency Director
3. Notification & Communication	Emergency Communications	Shift Supervisor	(a)	Interim Emergency Director State/County Communicator (e)
		Communicator	1(e)	
4. Radiological Accident Assessment and Support of Operational Accident Assessment	Dose Assess./Health Physics	Health Physics Specialist	1	Health Physics Specialist
	In-plant Surveys	Health Physics Specialist	1	Health Physics Specialist
	Chemistry	Chemistry Specialist	1	Chemistry Specialist
5. Plant System Engineering, Repair and Corrective Actions	Technical Support	Shift Engineer	1	Shift Engineer
	Repair and Corrective Actions	Mechanical Maint. Mechanic	2	Mechanical Maint. Mechanic Electrical Maint. Electrician I&C Maint. Mechanic
		Electrical Maint. Electrician	42	
I&C Maint. Mechanic	42			
6. In-Plant Protective Actions	Radiation Protection	Health Physics Specialist	(b)	Health Physics Specialist
7. Fire Fighting	—	Fire Brigade	(c)(f)	Fire Brigade
8. First Aid and Rescue Operations	—	Medical Emergency Response Team	(b)(f)	Plant Personnel
9. Site Access Control and Personnel Accountability	Security and Accountability	Security Force	(d)	Security Force

(a) The Shift Supervisor shall function as the IED until relieved by the Emergency Director, Offsite Emergency Manager, and Emergency Control Officer

(b) May be provided by shift personnel assigned other functions

(c) Per station Fire Protection Plan

(d) Per VCSNS Security Plan

(e) Telephone Communicator only

(f) Support provided by offsite response organizations