

Thomas D. Gatlin
Vice President, Nuclear Operations
803.345.4342



April 17, 2014
RC-14-0069

U. S. Nuclear Regulatory Commission
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Washington, DC 20555-0001

Dear Sir/Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION UNIT 1 (VCSNS)
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
REVISION TO LICENSE AMENDMENT REQUEST - LAR 13-02396 REQUEST
FOR NRC APPROVAL OF RADIATION EMERGENCY PLAN CHANGE

References: SCE&G Letter, LAR-13-02396 Request for NRC Approval of Radiation Emergency
Plan Change, dated March 26, 2014 (RC-14-0039)

South Carolina Electric & Gas Company (SCE&G), acting for itself and as an agent for South Carolina Public Service Authority, is submitting a revision to License Amendment Request (LAR) 13-02396, Request for NRC Approval of Radiation Emergency Plan Change, dated March 26, 2014 (RC-14-0039). VCSNS is providing additional information to Attachment I Section 4.1 Activation of the Emergency Response Facilities. Enclosure I provides the additional information to support the proposed change to increase the Emergency Response Organization response time for on-shift personnel. The revised Section 4.1 supersedes the previously submitted Section 4.1 in RC-14-0039.

This letter contains no commitments. If you should have any questions, please contact Bruce L. Thompson at (803) 931-5042.

I certify under penalty of perjury that the information contained herein is true and correct.

4-17-2014

Executed on

Thomas D. Gatlin

BJD/TDG/ts

Enclosure:

- I. Section 4.1 Activation of the Emergency Response Facilities Revision 1

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c: (Without Enclosures unless noted)
K. B. Marsh
S. A. Byrne
J. B. Archie
N. S. Carns
J. H. Hamilton
J.W. Williams
V. M. McCree (With Enclosure)
S. A. Williams (With Enclosure)
W. M. Cherry
NRC Resident Inspector
K. M. Sutton
S.E. Jenkins
NSRC (With Enclosure)
RTS (LAR-13-02396)
File (810.10)
DMS (RC-14-0069)

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

Enclosure I

Section 4.1 Activation of the Emergency Response Facilities Revision 1*

The revised Section 4.1 supersedes the previously submitted Section 4.1 in RC-14-0039

4.1 Activation of the Emergency Response Facilities

V.C Summer Nuclear Station (VCSNS) is proposing a change to its Emergency Response Facilities (ERF) and the activation time requirement. VCSNS intends to apply a within 75 minutes activation with all facilities at declaration of an Alert classification or higher. This proposed increase in activation time has been determined to be a reduction in effectiveness from the current emergency plan requirements as defined by 10 CFR 50.54(q). Under this proposed change it is projected that the Emergency Operations Facility (EOF) will be activated at the same time as the Technical Support Center (TSC). The proposed change also specifically designates the positions required for activation and positions required for essential staffing of emergency facilities. The designation of activation staffing clarifies positions and how their functions may be used to activate an emergency facility to relieve the on-shift staff of critical functions. In addition, the proposed change will also align the VCSNS Unit 1 Radiation Emergency Plan with the Units 2 & 3 Radiation Emergency Plan approved in the FSER (ML110450305, ML110310185, and ML111320113) issued by the NRC. (Reference RC-14-0039, Attachment III VCSNS EP-100 (TSC & ERO) LAR Change Justification/Evaluation, Required Staffing Summary Tables).

In December 2012, VCSNS revised its emergency plan to revision 62. The revision included changes to minimum shift staffing levels, Table B-1a, Staffing Requirements for the VCSNS ERO, to include additional personnel. The revision was evaluated under 10 CFR 50.54(q) and determined not to be a reduction in effectiveness. The revision included adding three additional Auxiliary Operators, one Maintenance Mechanic, and one Maintenance Electrician. This allowed VCSNS to train and qualify additional shift personnel to perform functions such as: plant operations and assessment, notifications and communications, plant repair and corrective actions, and firefighting.

The ERO is and will remain an "all-call, all-come" ERO. 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 Operational Support Center (OSC) and within 60 minutes of the declaration of a Site Area Emergency or higher for the EOF. This is reinforced and emphasized within procedures, management expectations, and training provided to VCSNS ERO personnel. Training and drills will continue to emphasize the requirement to respond promptly when notified to effect timely augmentation of the on-shift response and to assume critical functions as quickly and safely as

possible. (Reference RC-14-0039, Attachment III VCSNS EP-100 (TSC & ERO) LAR Change Justification/Evaluation, Enclosure C, Activation Time Change Justification/Evaluation).

VCSNS performed an on-shift staffing analysis in October of 2012 to ensure the on-shift staff was capable of carrying out assigned emergency plan functions until augmenting responders arrive. The complete staffing analysis was included in the original License Amendment Request (RC-14-0039) as Attachment IV. The analysis was performed to meet the requirements of 10CFR50 Appendix E Part IV.A.9. Additionally, the methodology described in NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities, Rev. 0" was used to perform the analysis. The NEI 10-05 guidance was endorsed by the NRC in NSIR/DPR-ISG-01, "Interim Staff Guidance, Emergency Planning for Nuclear Power Plants," as an acceptable means of performing staffing analyses for compliance with the Enhanced Emergency Preparedness Rulemaking.

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 staff supports 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 minutes response for on-call ERO personnel.

The impacts of extending the ERO response time from 60 minutes to 75 minutes for on shift personnel was assessed during the VCSNS on-shift staffing analysis. VCSNS Emergency Plan Section 4 and EPP-001, Activation and Implementation of Emergency Plan, Revision 30, were used to determine the UFSAR Chapter 15 Condition IV events that would result in an event declaration. Using the UFSAR Chapter 15 Condition IV - Limiting Faults, a series of seven tabletop scenarios with the minimum on-shift staffing was conducted. The tabletop included the following scenarios:

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)
2. Steam Generator Tube Rupture
3. Fuel Handling Accident
4. Design Basis Threat
5. Aircraft Probably Threat
6. Control Room Fire Leading to Evacuation and Remote Shutdown
7. Station Blackout

In addition, these scenarios were used to demonstrate that on-shift staff could conduct all emergency planning functions for a period of 90 minutes following declaration of an emergency classification for those scenarios that are most burdensome to the on-shift staff. (Reference RC-14-0039, Attachment IV Licensee's Staffing Analysis Conducted in October of 2012, Section 3.2).

Of the seven evaluated scenarios, the steam generator tube rupture was the most intensive. VCSNS simulated the accident condition resulting in Steam Generator Tube Leakage and radiological release to the public utilizing only the minimum on-shift staffing. The events escalated to a General Emergency (GE) classification and quickly escalated to a radiological release to the public within approximately 15 minutes. This scenario required significant oversight by shift supervision to ensure the ruptured steam generator was isolated and the reactor coolant system cooled down and depressurized to minimize a radioactive release. The Control Room Supervisor and/or Shift Supervisor perform this oversight function. The Shift Engineer/ Shift Technical Advisor monitors critical safety functions and the operating crew as they progress through the Emergency Operating Procedures.

A rapid progression to a GE places the highest offsite focus and responsibility demand on the on-shift resources. The evaluations concluded that within 60 minutes of the initial event the required actions of notifications, dose projections, initial Protective Action Recommendations (PAR), and immediate Emergency Operating Procedure were completed and the offsite interface was reduced. The remaining tasks were monitoring of plant conditions and mitigation of the event until augmented and assisted by the ERO. The ERO will be fully activated in all facilities (EOF, TSC, and OSC) prior to the next required offsite follow-up notification and prior to the activation of the offsite emergency agencies.

An evaluation of a Control Room fire scenario with a plant shutdown to Hot Standby from outside the Control Room was also conducted. The station has memorandums of understanding with local fire departments to supplement on-shift fire brigade personnel. This evaluation determined that the on-shift staff could cope with the fire, bring the reactor to Hot Standby and meet all emergency planning functions for a period of 90 minutes following declaration of an emergency classification.

During the onset of the scenarios the Shift Supervisor completes the declaration of the emergency and determines the PAR. The Shift Engineer/ Shift Technical Advisor independently peer checks these actions. The Shift Supervisor then develops and approves the notification form. The on-shift Communicator then completes the notification activities and completes the steps to obtain local governmental approval to activate the early warning siren system. The Health Physics on-shift staffing is sufficient to conduct dose assessment and in-plant surveys to support declaration and the PAR. Additional on-shift personnel report to the control room for assignments to support the accident response effort.

The Shift Supervisor continues to manage the overall plant response, oversee control room activities and make preparations to turnover the emergency plan functions to the Emergency Director. The evaluation time was run for 90 minutes with only on-shift resources to ensure the on-shift personnel focused both on the emergency planning functions and the overall plant response to the event.

It is expected that as offsite agencies are notified of the emergency, communication inquiries will occur. These inquiries are not expected to result in a significant burden or distraction to the on-shift crew while the emergency response organization is activating. The Shift Supervisor will provide the Communicator with sufficient information on the plant status and protective action recommendations to respond to these inquiries until the Technical Support Center and the Emergency Operations Facility is activated.

Since the evaluations determined that the significant emergency response actions were completed within about 60 minutes, the addition of the 15 minutes for the augmentation of the on-shift staffing will not be an additional shift burden. The additional 15 minutes allows the on-shift staff to continue monitoring plant conditions and implementing mitigation actions while the ERO activates. The additional 15 minutes also allows the Interim Emergency Director (IED)/Shift Supervisor the opportunity to re-evaluate shift actions and the condition of the plant in order to provide a timely and effective turnover of plant conditions and actions taken. Currently, the IED must complete all emergency response actions and be immediately prepared to turnover plant status, as well as the status of all actions to the augmented ERO, in order to meet the 60 minute Emergency Response Facility activation times. An effective turnover reduces the burden on the IED by reducing the number of follow-up calls made to the ERO to update conditions and actions that may have been missed in a rushed turnover.

The results of these evaluations demonstrated that the on-shift staff had sufficient resources to focus on both the emergency planning functions of declaration, notifications and protective action recommendations and oversight of the operating crew activities to proceed through the emergency operating procedures to place the plant in a safe condition and minimize or eliminate the radioactive release. The on-shift staffing task analysis results is documented in Attachment 2, NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables of Attachment IV in RC-14-0039.

VCSNS intends to comply with the augmentation criteria regarding staffing ERF with sufficiently skilled individuals capable of responding to an emergency. 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 location of the new TSC also enhances response time since it is outside the protected area. These improvements help minimize the impact of the proposed change in augmentation times.

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

The proposed changes made to the emergency plan will continue to meet the requirements of 10 CFR 50.47(b)(1), which states: Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis, and (b)(2), which

states: 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, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

The proposed changes in response time will continue to support the Emergency Plan, continue to ensure the protection of the health and safety of the public and site personnel, and will not present a significant burden to the on-shift personnel. Although the increase in ERO staffing augmentation response time will result in an increased ERF activation time, the emergency response functions identified in the Emergency Plan will continue to be performed by the on-shift staff until relieved by augmented ERO responders and will not result in a reduction of the capability of the ERO to effectively respond to the emergency. The emergency plan requirements are supported by the performance and inclusion of the on-shift staffing analysis. The analysis demonstrates that emergency actions and responsibilities can be supported through the arrival of the ERO and the activation of the Emergency Response Facilities. Therefore, the proposed changes to the VCSNS Emergency Plan will continue to meet 10 CFR 50.54(q)(2), the requirements of 10 CFR 50 Appendix E, and the planning standards of 10 CFR 50.47(b).