



December 19, 2014
RC-14-0191

U.S. Nuclear Regulatory Commission
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Washington, DC 20555

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSE AMENDMENT REQUEST LAR-14-05497
REQUEST FOR NRC APPROVAL OF RADIATION EMERGENCY PLAN
CHANGE

In accordance with the provisions of 10 CFR 50.90 and 10 CFR 50.54(q), South Carolina Electric & Gas Company (SCE&G) requests an amendment to the Virgil C. Summer Nuclear Station (VCSNS) Unit 1 Operating License No. NPF-12. This amendment proposes a change to the VCSNS Unit 1 Radiation Emergency Plan (Plan).

VCSNS proposes the following changes to the Unit 1 Plan: expansion of the Emergency Planning Zone (EPZ) boundary, revisions to the Evacuation Time Estimates (ETE) analysis, and the Alert and Notification System (ANS) design reports to encompass the expanded EPZ boundary. 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. 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).

The Description, Technical Evaluation, Regulatory Evaluation (including Significant Hazards Consideration), and Environmental Considerations for the proposed VCSNS Unit 1 Plan changes are contained in Enclosure 1 of this letter. Enclosure 2 provides markups depicting the requested changes to the Plan. Enclosure 3 provides a retyped version of the requested changes to the Plan. Enclosure 4 is a copy of the Licensee's ETE analysis for the expanded EPZ boundary dated April 2012. Enclosure 5 is a copy of the Licensee's ANS design report for the expanded EPZ boundary dated January 15, 2014. Enclosure 6 provides acceptance letters from FEMA and the associated counties related to the expanded EPZ boundary.

SCE&G requests NRC staff review and approval of the proposed license amendment by December 19, 2015. This license amendment will be implemented by SCE&G within 90 days of approval.

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In accordance with 10 CFR 50.91, SCE&G is notifying the State of South Carolina of this LAR by transmitting a copy of this letter and its enclosures to the designated State Official.

This letter has been approved by the VCSNS Nuclear Safety Review Committee and VCSNS Plant Safety Review Committee.

This letter contains no regulatory commitments.

Should you have any questions, please contact Mr. Bruce L. Thompson at (803) 941-5042.

I declare under penalty of perjury that the foregoing is true and correct.

12/19/2014
Executed on


Thomas D. Gatlin

RLP/TDG/bd

Enclosures: 6

- Enclosure 1: License Amendment Request: Virgil C. Summer Nuclear Station Unit 1 Proposed Radiation Emergency Plan Changes (LAR-14-05497)
- Enclosure 2: Virgil C. Summer Nuclear Station Unit 1 Proposed Changes to Licensing Basis Documents (Markup) (LAR-14-05497)
- Enclosure 3: Virgil C. Summer Nuclear Station Unit 1 Proposed Changes to Licensing Basis Documents (Retype) (LAR-14-05497)
- Enclosure 4: Virgil C. Summer Nuclear Station Unit 1 Development of Evacuation Time Estimates Expanded EPZ Boundary Dated April 2012 (LAR-14-05497) (Enclosed on Disc)
- Enclosure 5: Virgil C. Summer Nuclear Station Unit 1 Alert and Notification System Design Report Dated January 15, 2014 (LAR-14-05497) (Enclosed on Disc)
- Enclosure 6: Virgil C. Summer Nuclear Station Unit 1 FEMA and Associated County Correspondence Related to the Expanded EPZ Boundary (LAR-14-05497)

Document Control Desk
LAR-14-05497
RC-14-0191
Page 3 of 3

c: K. B. Marsh
S. A. Byrne
J. B. Archie
N. S. Carns
J. H. Hamilton
J. W. Williams
W. M. Cherry
V. M. McCree
S. A. Williams
K. M. Sutton
S. E. Jenkins
Paulette Ledbetter
NRC Resident Inspector
NSRC
RTS (LAR-14-05497)
File (810.10)
PRSF (RC-14-0191)

Document Control Desk
Enclosure 1
LAR-14-05497
RC-14-0191
Page 1 of 9

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

Enclosure 1

**Virgil C. Summer Nuclear Station Unit 1
Proposed Radiation Emergency Plan Changes**

1. SUMMARY DESCRIPTION

In accordance with the provisions of 10 CFR 50.90, South Carolina Electric & Gas Company (SCE&G) requests an amendment to the Virgil C. Summer Nuclear Station (VCSNS) Unit 1 Operating License NPF-12. In accordance with 10 CFR 50 Appendix E, Section IV, this amendment proposes VCSNS Unit 1 Radiation Emergency Plan (Plan) changes for review and approval.

VCSNS proposes for Unit 1 the following changes to the Plan: expansion of the Emergency Planning Zone (EPZ) boundary, revisions to the Evacuation Time Estimates (ETE) analysis and the Alert and Notification System (ANS) design reports to encompass the expanded EPZ boundary. 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 as requested in this License Amendment Request (LAR). 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).

2. DETAILED DESCRIPTION

Lexington County Council requested the expansion of the EPZ boundary in Lexington County, SC. The expanded EPZ was prompted by construction of Units 2&3. These new units created a shift in the geographic center of the EPZ, and as a result of this shift, the EPZ is being expanded for Lexington County only. The expanded EPZ includes the original EPZ that centers on Unit 1 as well as the new EPZ that centers on Units 2&3. To address the expanded EPZ boundary, SCE&G is proposing that the following Unit 1 Plan sections be revised: Part 1, Section B, and Part 1, Figure 1-3. In addition, the ETE Analysis Report referenced in Appendix 5 of the Plan, and the ANS Design Report (to be referenced in a new Appendix 8 of the Plan) have been produced to encompass the expansion.

The Plan Part 1 (Introduction), Section B (Background – Facility Description), first paragraph, add a new second sentence as follows: “Units 2 and 3 are approximately 1 mile south-southwest of Unit 1.”

The Plan Part 1 (Introduction), Section B (Background – Emergency Planning Zone), first paragraph, first sentence is being modified to add “including an expanded area in Lexington County south and west of Chapin, SC” at the end of the sentence. Three sentences are also being added after the modified first sentence as follows: “The EPZ is divided into Protective Action Zones (PAZ), whose boundaries are described in the VCS Evacuation Time Estimate. (Exact boundaries are determined in concurrence with state and county authorities.) Figure 1-3 shows the EPZ and PAZ.” In addition, the last two sentences of the paragraph are being deleted to eliminate redundancies with the sentences added above and a new sentence is being added at the end of the paragraph as follows: “In accordance with state and county authorities, the same EPZ is used for VCSNS Units 2 and 3.”

The Plan Part 1, Figure 1-3 (10-Mile Emergency Planning Zone (Exposure Pathway)) is being replaced in its entirety with a new Figure 1-3 which includes the expanded area in Lexington County (PAZ D-2).

A new Appendix 8, Alert And Notification System Design Report, is being added to the Plan and is worded as follows: "The Alert And Notification System Design Report was prepared in cooperation with an outside vendor, who also performed the Acoustical Study for the Alert and Notification System within the EPZ. This document, in its entirety, is filed under separate cover and has been distributed to designated locations."

Enclosure 4, ETE Analysis Report, Revision 5, referenced in Appendix 5 of the Plan, describes the analyses undertaken and the results obtained by a study to develop ETEs for the VCSNS site located in Fairfield County, SC for the expanded EPZ. Population estimates have been adjusted in the report to include the expanded area of PAZ D-2. ETEs are part of the required planning basis and provide VCSNS and state and local governments with site-specific information needed for Protective Action Decisions (PAD). The following NUREGs provided guidance in the development of this ETE Analysis Report:

- Criteria for Development of Evacuation Time Estimate Studies, NUREG/CR-7002, November 2011.
- Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, NUREG-0654/FEMA-REP-1, Rev. 1, November 1980.
- Development of Evacuation Time Estimates for Nuclear Power Plants, NUREG/CR-6863, January 2005.

In Appendix L, Protective Action Zone Boundaries, of the revised ETE report, the PAZ D-2 description has been modified to agree with the description as approved by Federal Emergency Management Agency (FEMA) and Lexington County as follows:

PAZ D-2 County: Lexington

Defined as the area within the following boundaries: Bounded on the north, west, and east by the Lexington County line. Bounded on the south by US-76 (Chapin Road), Sid Bickley Rd, Old Lexington Road including Chapin Elementary School, Old Bush River Rd until it ends, cross the water to Bear Creek Rd, Amicks Ferry Rd, Lester Frick Rd, and St. Peter's Church Rd to the Lexington/Newberry County line.

Enclosure 5, ANS Design Report, Revision 1, referenced in the new Appendix 8 of the Plan, provides details of how VCSNS meets the administrative and physical means to ensure initial alert and notification of the public within the VCSNS plume exposure EPZ as required by 44 CFR Part 350, Planning Standard E, Appendix 3 of NUREG 0654/FEMA-REP-1, and FEMA-REP-10. The revision includes proposed changes to the VCSNS Early Warning Siren System (EWSS) based on expansion of the EPZ which includes the pending installation in early 2015 of two new sirens in PAZ D-2.

The ANS Design Report also includes an acoustical analysis of the plume exposure EPZ for the original EPZ for Unit 1 as well as the expanded EPZ for Units 2&3. The acoustical studies were conducted in accordance with 10 CFR 50.47, NUREG-0654/FEMA-REP-1- Rev.1, and FEMA REP-10.

3. TECHNICAL EVALUATION

The Exposure Pathway EPZ is being expanded at the request of Lexington County in SC. On June 15, 2010 and in support of the VCSNS Units 2&3 combined operating license application (COLA), Lexington County Council passed a resolution that included the following statement, "It is the intention of the County Council that the existing Plume Exposure Emergency Planning Zone shall be maintained to continue to support Unit 1 and also to support Construction, Operation, and Licensing of the proposed V. C. Summer Nuclear Stations Units 2 and 3 within Lexington County, South Carolina." Since that time, Lexington County Council revisited this resolution, and introduced and passed post-COL a new resolution on July 24, 2012 to expand the EPZ (see Enclosure 6, Item 1). The expanded area considered in the resolution is south and west of Chapin, SC in the EPZ PAZ D-2. The boundaries of the expanded EPZ were decided upon by Lexington County using the regulatory guidance from 10 CFR 50.47 and the FEMA REP Program Manual. The corresponding resolutions passed in 2009 by Newberry, Fairfield, and Richland Counties (see Enclosure 6, Items 2, 3 and 4, respectively), which accepted the existing EPZ for Unit 1 in support of the new Units 2&3, remain unaffected by the Lexington County expansion in PAZ D-2.

The expanded EPZ added approximately 1,187 people to the population of the EPZ and added an additional 657 cars that will impact the evacuation time of the zone. The addition of the 1,187 people to PAZ D-2 is an increase in population of greater than 25% over the original ETE. Although 10 CFR 50 Appendix E requires an ETE to be updated if "... all affected Emergency Response Planning Areas or for the entire 10-mile EPZ, to increase by 25%...", VCS re-evaluated its ETE. The re-evaluation of the expanded area and the entire EPZ determined there is an increase of 5 minutes in the evacuation time required in PAZ D-2, under certain weather conditions. The Shadow Population surrounding the expanded EPZ was reduced in population by the same number, due to this population now being within the EPZ. Since Chapin is bordered on its southern land areas by Lake Murray, evacuation can only occur to the north, thus increasing the number of persons and vehicles being evacuated on the existing evacuation routes to the north and then east to reach the Reception Center. Populations of people who would not have been evacuated in the original EPZ will now be doing so and require the Reception Centers to prepare and support them.

This change, although directed by the offsite response organizations, reduces the effectiveness of the Plan and therefore requires prior approval by the NRC. A review of the impact of the reduction in effectiveness yielded that the resulting minor increase in ETEs (i.e., only five minutes under worst case scenarios) was acceptable to the offsite response organizations. FEMA concurrence was provided in their letter to SC Emergency Management Division dated August 6, 2013 (see Enclosure 6, Item 5) which stated, "FEMA Region IV Regional Assistance Committee (RAC) and FEMA Headquarters have reviewed your request for a change to the Lexington County portion of the VC Summer EPZ. This request has been approved by FEMA Headquarters contingent upon completion of the following two actions:

1. In accordance with all applicable U.S. Nuclear Regulatory Commission (NRC) regulations and procedures, that SCE&G receive NRC approval for the V.C. Summer Unit 1 Emergency Plan for the proposed revisions to the EPZ.
2. Once received, the offsite response organizations surrounding the V.C. Summer site submit to FEMA Region IV for review of the appropriate changes to their

plans/procedures, maps of the EPZ, public information material, and impact that the additional population from the EPZ has on the evacuation time estimates. The required information would include changes to the geographical boundary descriptions and the alert and notification system (ANS), including additional sirens or other means for public notification. Any modifications to an ANS must be consistent with FEMA-REP-10.”

In addition, the ANS Design Report (Enclosure 5) was submitted to FEMA for review and approval. In a letter dated July 14, 2014, to SCE&G (see Enclosure 6, Item 6), FEMA approved the report.

In addition, in a letter to SCE&G (Enclosure 6, Item 7), dated November 6, 2014, the South Carolina Emergency Management Division (SCEMD) and the Lexington County Emergency Preparedness Division provided confirmation that all necessary changes to their emergency response plans would be made within 30 days of the NRC’s approval to increase the 10 mile emergency planning zone in sector D-2.

As discussed above, the expansion of the EPZ has been evaluated per the requirements of 10 CFR 50.54(q) and as a result, a reduction in effectiveness of the Plan has been identified. However, this reduction in effectiveness has been evaluated and the resulting determination is that despite the changes, the Plan will continue to meet the regulatory requirements as listed below:

1. Updates to the annual public information calendars will be distributed to the expanded population and will include guidance for public actions within the expanded EPZ in accordance with 10 CFR 50.47(b)(7).
2. The Plan and its implementing procedures will continue to designate protective action recommendations for the public in the existing and expanded emergency planning zone in accordance with 10 CFR 50.47(b)(10).
3. Since the schools (Chapin High School, Chapin Middle School, and Chapin Elementary School) located in the Lexington County portion of PAZ D-2 were already included in that zone prior to the expansion, they have been exercised and evaluated during past graded exercises in accordance with 10 CFR 50.47(b)(14).
4. With the addition of two new sirens to the existing alert and notification sirens in PAZ D-2, the system will be capable of alerting the public in the event of an emergency in accordance with 10 CFR 50 Appendix E Sections IV.D.3 and D.4.
5. The expansion of the EPZ has been evaluated and included in the Evacuation Time Estimate in accordance with 10CFR 50 Appendix E Sections IV.3 and 4. Population increases resulting from the expansion of PAZ D-2 have been offset by the corresponding decrease in the absorbed shadow population, and the creation of a new shadow population has been limited due to the proximity of Lake Murray at the southern border of PAZ D-2.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 50.47(b) requires that the onsite emergency response plan meet the requirements of 16 planning standards. The applicable planning standard related to the expansion of the EPZ is discussed below.

- 10 CFR 50.47(b)(10) requires that evacuation time estimates be developed by licensees and that licensees shall update the evacuation time estimates on a periodic basis. The ETE Analysis Report (see Enclosure 4) was revised to update the evacuation time estimates for the proposed expansion of PAZ D-2 to comply with this requirement.

10 CFR 50, Appendix E provides requirements for emergency planning and emergency preparedness. The sections of 10 CFR 50, Appendix E, applicable to the expansion of the EPZ are discussed below.

- 10 CFR 50 Appendix E, Section II.G requires that a nuclear power plant applicant shall perform a preliminary analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations, noting major impediments to the evacuation or taking of protective actions. Since a sector of the EPZ is being expanded, the ETE Analysis Report (see Enclosure 4) was revised to update the evacuation time estimates (and other attributes) for the proposed expansion of PAZ D-2 to comply with this requirement.
- 10 CFR 50, Appendix E, Section IV.3 requires that nuclear power reactor licensees shall use NRC approved evacuation time estimates (ETEs) and updates to the ETEs in the formulation of protective action recommendations and shall provide the ETEs and ETE updates to State and local governmental authorities for use in developing offsite protective action strategies. The ETE Analysis Report (see Enclosure 4) was revised to update the evacuation time estimates for the proposed expansion of PAZ D-2, and the report was provided to and approved by the appropriate State and local governmental authorities. Approval of this LAR by the NRC will result in the approval of the submitted ETEs and finalize compliance with this requirement.

10 CFR 50.54(q)(4) requires that the changes to a licensee's emergency plan that reduce the effectiveness of the plan as defined in paragraph (q)(1)(iv) of this section may not be implemented without prior approval by the NRC. A licensee desiring to make such a change after February 21, 2012 shall submit an application for an amendment to its license. To comply with this requirement, SCE&G performed a 10 CFR 50.54(q) evaluation and determined that the expansion of PAZ D-2 would result in a reduction in effectiveness of the Plan. Therefore, this LAR was generated for submittal to the NRC for approval prior to the implementation of the expanded EPZ boundary.

NUREG-0654, Section I.D.2 requires that EPZs for each nuclear facility must be defined both for the short term "plume exposure pathway" and for the longer term "ingestion exposure pathways." EPZs are defined as the areas for which planning is needed to assure that prompt and effective actions can be taken to protect the public in the event of an

accident. To comply with this requirement, the ETE Analysis Report (see Enclosure 4) was revised to define the new boundaries of PAZ D-2.

The VCSNS Unit 1 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 FEMA document. The Plan was created to provide guidance to state and local governments and nuclear facility operators in the development of radiological emergency response plans and preparedness in support of nuclear power plants. 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.

4.2 Precedent

No precedent is identified.

4.3 Significant Hazards Consideration Determination

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:

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

Response: No

The proposed changes, which include expansion of the EPZ boundary and revision of the ETE analysis and ANS design reports to encompass the expanded EPZ boundary, 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.

4.3.2 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, which include expansion of the EPZ boundary and revision of the ETE analysis and ANS design

reports to encompass the expanded EPZ boundary, are not initiators of any accidents. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

4.3.3 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, which include expansion of the EPZ boundary and revision of the ETE analysis and ANS design reports to encompass the expanded EPZ boundary, do not impact operation of the plant or its response to transients or accidents. The proposed changes do not alter requirements of the Technical Specifications or the Unit 1 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 proposed 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.

4.4 Conclusion

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 and accordingly, a finding of "no significant hazards consideration" is justified.

5. ENVIRONMENTAL CONSIDERATIONS

This amendment request proposes changes to the VCSNS Unit 1 Radiation Emergency Plan. The proposed changes are associated with the expanded EPZ boundary and include the Plan text and figure modifications, and revisions to the ETE analysis and ANS design reports referenced in the Plan appendices.

The VCSNS Unit 1 Plan provides assurance that the requirements of emergency preparedness regulations 10 CFR 50.47 and 10 CFR 50 Appendix E are met. Since there is no proposed physical change to the plant, there will be no effect on how the plant is designed, constructed, or operated.

Document Control Desk
Enclosure 1
LAR-14-05497
RC-14-0191
Page 9 of 9

Based on the above review of the proposed amendment, it has been determined that operational effects of the proposed amendment do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed amendment is not required.

6. REFERENCES

None

Document Control Desk
Enclosure 2
LAR-14-05497
RC-14-0191
Page 1 of 7

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

Enclosure 2

**Virgil C. Summer Nuclear Station Unit 1
Proposed Changes to
Licensing Basis Documents (Markup)**

[Document Control Desk](#)

[Enclosure 2](#)

[LAR-14-05497](#)

[RC-14-0XXX191](#)

[Page 2 of 7](#)

[Enclosure 2](#)

[LAR-14-0XXX: Virgil C. Summer Nuclear Station Unit 1 Proposed Emergency Plan Changes](#)

Mark-up of Part 1, Section B of the VCSNS Unit 1 Emergency Plan:

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, is posted and access to land portions of this area is controlled. The Exclusion Area Boundary (EAB) encompasses approximately 2,200 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 VCNS.

Figure 1-2 shows the Exclusion Area Boundary for Unit 1.

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 Zone

The plume exposure 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, including an expanded area in Lexington County south and west of Chapin, SC. The EPZ is divided into Protective Action Zones (PAZ), whose boundaries are described in the VCS Evacuation Time Estimate. (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. In accordance with state and county authorities, the same EPZ is used for VCSNS Units 2 and 3. (Exact boundaries are determined in concurrence with state and county authorities.) Figure 1-3 shows the plume exposure EPZ.

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[Enclosure 2](#)

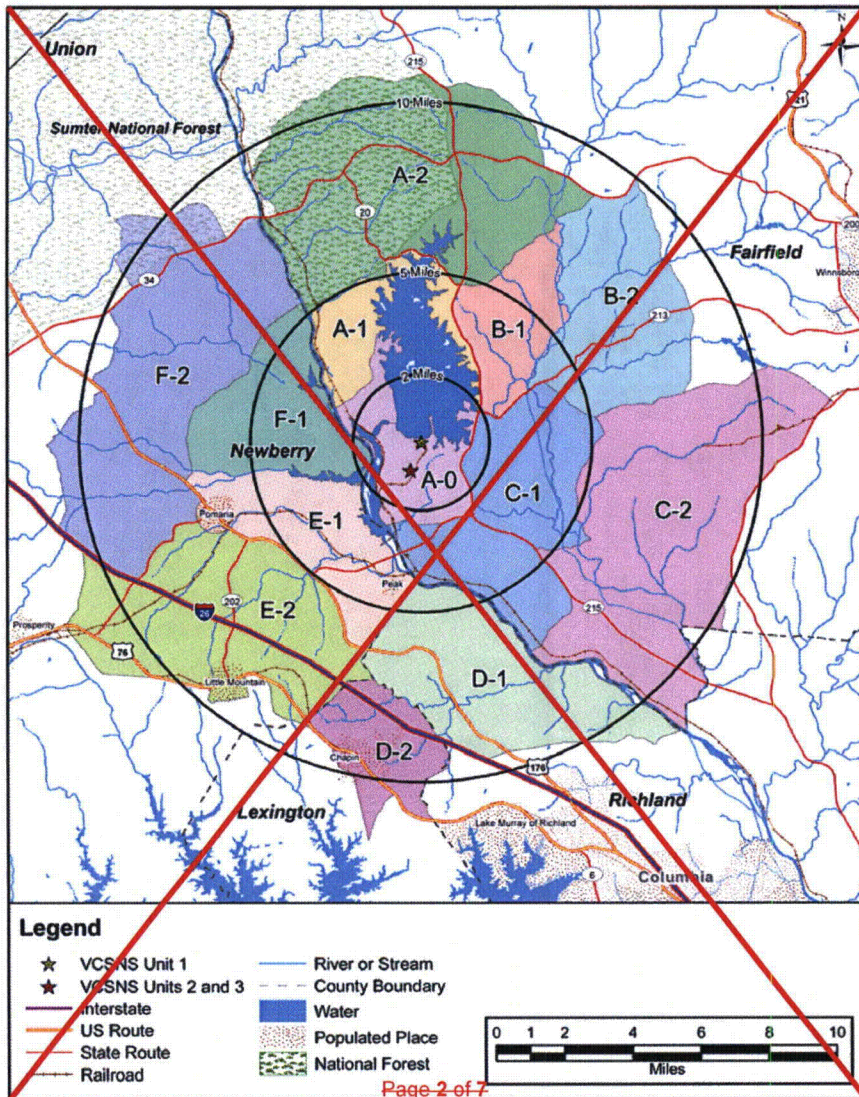
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[RC-14-0XXX191](#)

[Page 3 of 7](#)

[Enclosure 2](#)

[LAR-14-0XXX: Virgil C. Summer Nuclear Station Unit 1 Proposed Emergency Plan Changes](#)



Document Control Desk

Enclosure 2

LAR-14-05497

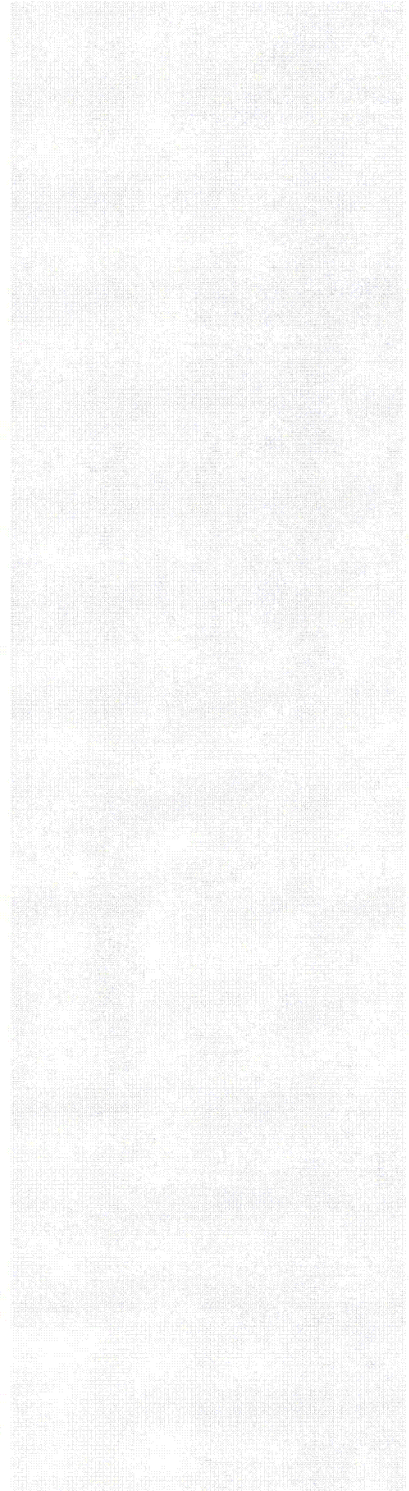
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Page 4 of 7

Enclosure 2

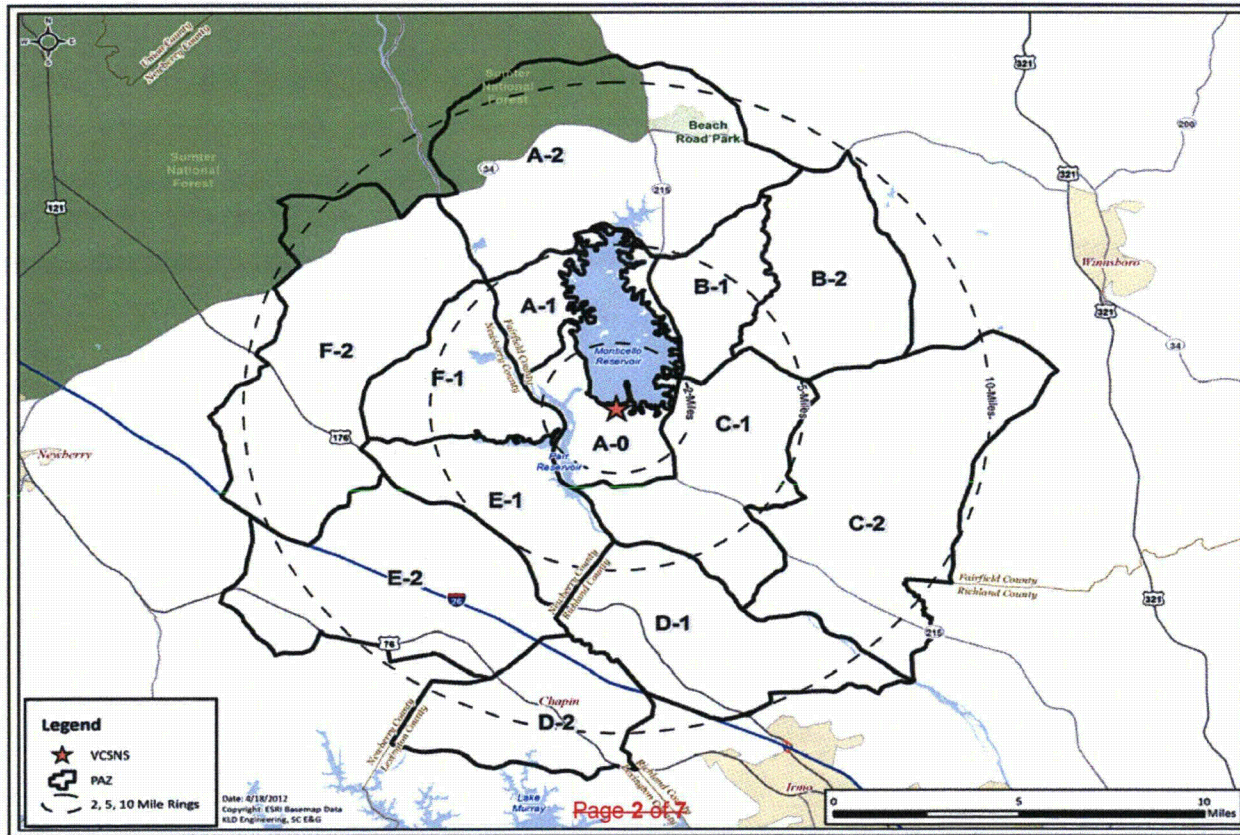
LAR 14.0XXX: Virgil C. Summer Nuclear Station Unit 1 Proposed Emergency Plan Changes

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



Document Control Desk
Enclosure 2
LAR-14-05497
RC-14-0XXX191
Page 5 of 7

Enclosure 2
LAR-14-0XXX: Virgil C. Summer Nuclear Station Unit 1 Proposed Emergency Plan Changes



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[Document Control Desk](#)

[Enclosure 2](#)

[LAR-14-05497](#)

[RC-14-0XXX191](#)

[Page 6 of 7](#)

[Enclosure 2](#)

[LAR-14-0XXX: Virgil C. Summer Nuclear Station Unit 1 Proposed Emergency Plan Changes](#)

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

Document Control Desk

Enclosure 2

LAR-14-05497

RC-14-0XXX191

Page 7 of 7

Enclosure 2

LAR-14-0XXX: Virgil C. Summer Nuclear Station Unit 1 Proposed Emergency Plan Changes

Appendix 8

V. C. Summer Nuclear Station

Appendix 8 – Alert And Notification System Design Report

The Alert And Notification System Design Report was prepared in cooperation with an outside vendor who also performed the Acoustical Study for the Alert and Notification System within the EPZ. This document, in its entirety, is filed under separate cover and has been distributed to designated locations.

Document Control Desk
Enclosure 3
LAR-14-05497
RC-14-0191
Page 1 of 5

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

Enclosure 3

**Virgil C. Summer Nuclear Station Unit 1
Proposed Changes to
Licensing Basis Documents (Retype)**

Document Control Desk
Enclosure 3
LAR-14-05497
RC-14-0191
Page 2 of 5

Mark-up of Part 1, Section B of the VCSNS Unit 1 Emergency Plan:

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, is posted and access to land portions of this area is controlled. The Exclusion Area Boundary (EAB) encompasses approximately 2,200 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.

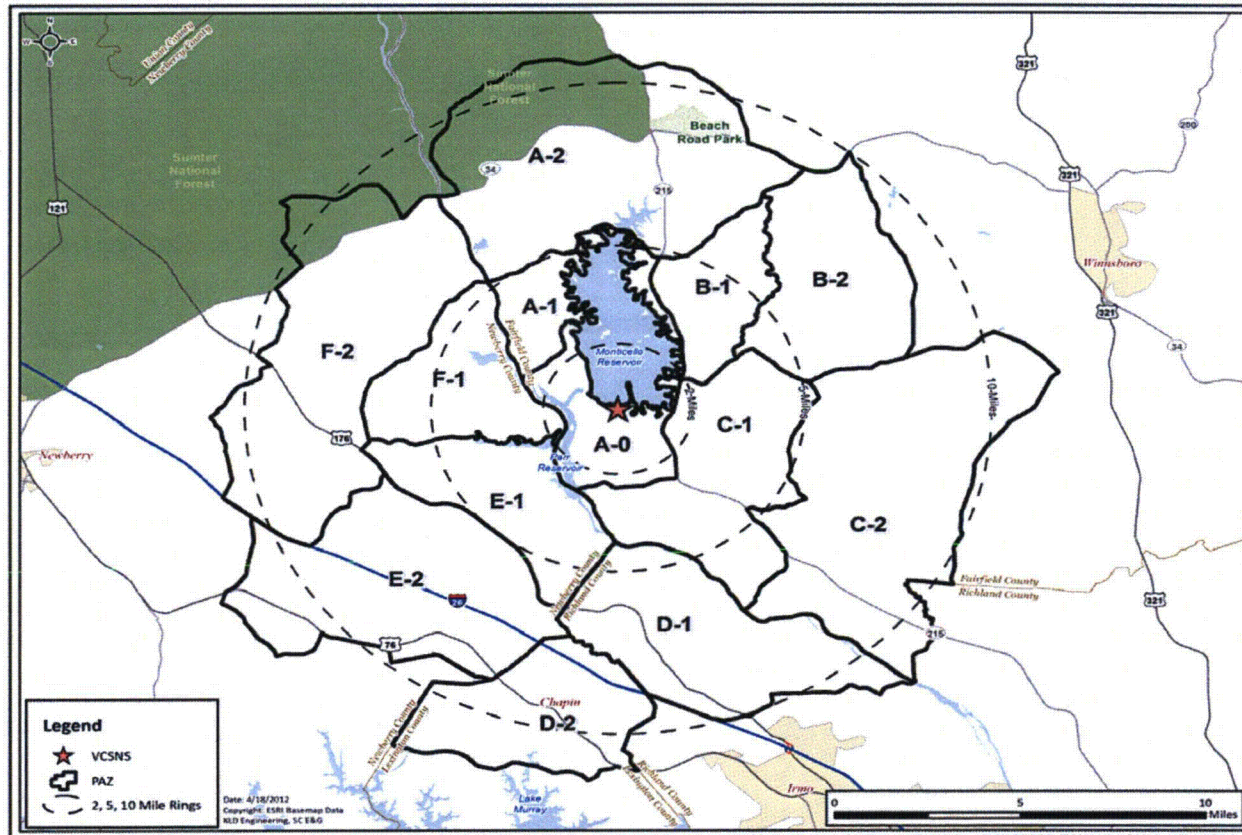
Figure 1-1 shows the general location of VCNS.

Figure 1-2 shows the Exclusion Area Boundary for Unit 1.

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 Zone

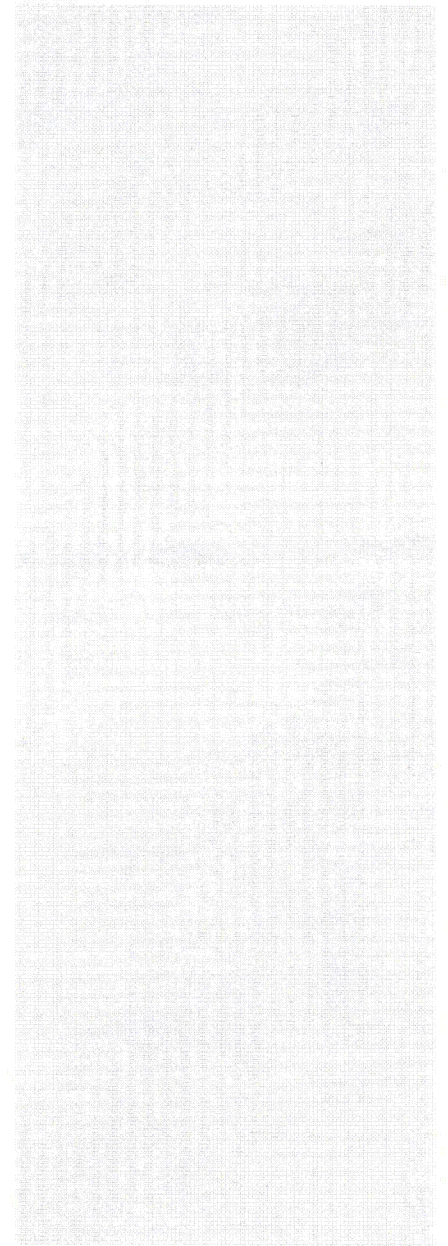
The plume exposure Emergency Planning Zone (EPZ) for the VCSNS is an area surrounding the VCSNS site with Unit 1 at the center and having a radius of about ten (10) miles, including an expanded area in Lexington County south and west of Chapin, SC. The EPZ is divided into Protective Action Zones (PAZ), whose boundaries are described in the VCS Evacuation Time Estimate. (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. In accordance with state and county authorities, the same EPZ is used for VCSNS Units 2 and 3.



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Enclosure 3
LAR-14-05497
RC-14-0191
Page 4 of 5

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



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Enclosure 3
LAR-14-05497
RC-14-0191
Page 5 of 5

Appendix 8

V. C. Summer Nuclear Station

Appendix 8 – Alert And Notification System Design Report

The Alert And Notification System Design Report was prepared in cooperation with an outside vendor, who also performed the Acoustical Study for the Alert and Notification System within the EPZ. This document, in its entirety, is filed under separate cover and has been distributed to designated locations.

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Enclosure 4
LAR-14-05497
RC-14-0191
Page 1 of 434

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

Enclosure 4

**Virgil C. Summer Nuclear Station Unit 1
Development of Evacuation Time Estimates
Expanded EPZ Boundary
Dated April 2012
(Enclosed on Disc)**

Document Control Desk
Enclosure 5
LAR-14-05497
RC-14-0191
Page 1 of 109

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

Enclosure 5

**Virgil C. Summer Nuclear Station Unit 1
Alert and Notification System Design Report
Dated January 15, 2014
(Enclosed on Disc)**

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

Enclosure 6

Virgil C. Summer Nuclear Station Unit 1

**FEMA and Associated County Correspondence
Related to the Expanded EPZ Boundary**

- Item 1 - Lexington County Resolution Dated July 24, 2012 for the Expanded EPZ Boundary
- Item 2 - Newberry County Resolution Dated October 7, 2009 for the Expanded EPZ Boundary
- Item 3 - Fairfield County Resolution Dated July 13, 2009 for the Expanded EPZ Boundary
- Item 4 - Richland County Resolution Dated July 21, 2009 for the Expanded EPZ Boundary
- Item 5 - FEMA Approval Letter to SCEMD dated August 6, 2013 for the Expanded EPZ Boundary
- Item 6 - FEMA Approval Letter to SCE&G Dated July 10, 2014 for the ANS Report Related to the Expanded EPZ Boundary
- Item 7 - South Carolina Emergency Management Division and the Lexington County Emergency Preparedness Division Letter Dated November 6, 2014.



COUNTY OF LEXINGTON, SOUTH CAROLINA

RESOLUTION

R12-4

THE COUNCIL FOR THE COUNTY OF LEXINGTON, SOUTH CAROLINA, MEETING IN GENERAL SESSION THE 24TH DAY OF JULY, TWO THOUSAND AND TWELVE, ADOPTED THE FOLLOWING:

WHEREAS, South Carolina Electric & Gas Company (SCE&G) and the South Carolina Public Service Authority (SCPSA) jointly own the Virgil C. Summer Nuclear Station (VCSNS), a federally licensed nuclear facility located in Fairfield County, South Carolina, for the purpose of generating electric current; and

WHEREAS, advance planning is necessary to assure that the health and safety of the public will be protected in the unlikely event of a radiological emergency associated with the operation of said nuclear plant; and

WHEREAS, SCE&G has developed a VCSNS Radiation Emergency Plan so that in the unlikely event of an emergency, appropriate federal, state and local government officials are notified and appropriate monitoring and onsite measures are taken to protect the public; and

WHEREAS, Lexington County is responsible for the health, safety, security and welfare of its citizens; and

WHEREAS, Lexington County has the overall responsibility for emergency planning and local response in Lexington County concerning an incident at VCSNS; and

WHEREAS, Lexington County has prepared a Radiation Emergency Plan for radiological emergencies associated with the operation of the VCSNS; and

WHEREAS, federal, state and local governments have established a Plume Exposure Emergency Planning Zone around Unit 1 of the VCSNS; and

WHEREAS, SCE&G and the SCPSA have notified Lexington County of the intent to construct, and operate two Westinghouse AP1000 reactors ("VC Summer Units 2 and 3") on the existing VCSNS property.

NOW, THEREFORE, BE IT RESOLVED by the County Council for the County of Lexington, South Carolina as follows:

Section 1: Official Action. Lexington County Council continues to support emergency planning efforts for the citizens of Lexington County in support of V.C. Summer Nuclear Station Units 1, 2, and 3. It is the intention of the County Council that the existing Plume Exposure Emergency Planning Zone, identified as Zone "D-2" within the Lexington County Emergency Operations Plan and the South Carolina Operational Radiological Emergency Response Plan, be modified as follows:

- Emergency Planning Zone, D-2, within Lexington County: that area Lexington County bounded on the north, west and east by the Lexington County line. Bounded on the south by US-76 (Chapin Rd.), Sid Bickley Rd., Old Lexington Rd. including Chapin Elementary School, Old Bush River Rd., until it ends, cross the water to Bear Creek Rd., Amicks Ferry Rd., Lester Frick Rd., and St. Peter's Church Rd., to the Lexington/Newberry County Line.

William B. Banning, Sr., Chairman

James E. Kinard, Jr.

George H. "Smokey" Davis

Bobby C. Keisler

M. Todd Gullum

Johnny W. Jeffcoat, Vice Chairman

Frank J. Townsend, III

Debra B. Summers

K. Brad Matthews

ATTEST:

Diana W. Burnett, Clerk

STATE OF SOUTH CAROLINA)
)
COUNTY OF NEWBERRY)

RESOLUTION #09-09

WHEREAS, South Carolina Electric & Gas Company (SCE&G) and the South Carolina Public Service Authority (SCPSA) jointly own the V.C. Summer Nuclear Station, a federally licensed nuclear facility located in Fairfield County, South Carolina, for the purpose of generating electric current; and

WHEREAS, advance planning is necessary to assure that the health and safety of the public will be protected in the unlikely event of a radiological emergency associated with the operation of said nuclear plant; and

WHEREAS, SCE&G has developed a V.C. Summer Nuclear Station Radiation Emergency Plan so that in the unlikely event of an emergency, appropriate federal, state and local government officials are notified and appropriate monitoring and onsite measures are taken to protect the public; and

WHEREAS, Newberry County is responsible for the health, safety, security and welfare of its citizens; and

WHEREAS, Newberry County has the overall responsibility for emergency preparedness and local response in Newberry County concerning an incident at the V.C. Summer Nuclear Station; and,

WHEREAS, Newberry County has prepared a Radiation Emergency Plan for radiological emergencies associated with the operation of the V.C. Summer Nuclear Station;

WHEREAS, Federal, State and Local governments have established a Plume Exposure Emergency Planning Zone around Unit 1 of the V.C. Summer Nuclear Station;

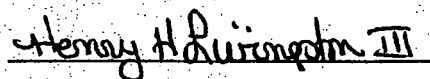
WHEREAS, SCE&G and the SCPSA have notified Newberry County of the intent to Construct, Operate and License two Westinghouse AP1000 reactors on the existing V.C. Summer Nuclear Station ("V.C. Summer Units 2 and 3");

NOW, THEREFORE BE IT RESOLVED, by the County Council of Newberry County, (the "County Council") as follows:

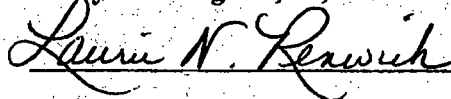
Section 1: Official Action. County Council continues to support Emergency Planning efforts for the citizens of Newberry County in support of V.C. Summer Nuclear Station Unit 1, as well as the proposed expansion of the Station. It is the intention of the County Council that the existing Plume Exposure Emergency Planning Zone shall be maintained to continue to support Unit 1 and also to support the Construction, Operation and Licensing of the proposed V.C. Summer Nuclear Station Units 2 and 3 within Newberry County, South Carolina.

Adopted in meeting duly assembled on this 7th day of October 2009.

NEWBERRY COUNTY COUNCIL



Henry H. Livingston, III, Chairman



Laurie N. Renwick, Clerk to Council

ATTEST:



Section 1: Official Action. Fairfield County Council continues to support Emergency Planning efforts for the citizens of Fairfield County in support of VC Summer Nuclear Station Unit 1, as well as the proposed expansion of the Station. It is the intention of the

County Council that the existing Plume Exposure Emergency Planning Zone within Fairfield County, South Carolina, shall be maintained to continue to support Unit 1 and also to support the Construction, Operation and Licensing of the proposed VC Summer Nuclear Station Units 2 and 3.

Adopted in meeting duly assembled on this 13th day of July 2009.

A handwritten signature in cursive script, reading "R. David Brown".

R. David Brown, Chairman
Fairfield County Council

A handwritten signature in cursive script, reading "Shryll M. Brown".

Shryll M. Brown
Clerk of Council

STATE OF SOUTH CAROLINA)
)
COUNTY OF RICHLAND)

**A RESOLUTION OF THE
RICHLAND COUNTY COUNCIL**

A RESOLUTION TO REAFFIRM THE RICHLAND COUNTY EMERGENCY PLANNING ZONE (EPZ) FOR TWO NEW POWER PLANTS TO BE BUILT AT THE V.C. SUMMER NUCLEAR STATION IN FAIRFIELD COUNTY

WHEREAS, South Carolina Electric & Gas Company (SCE&G) and the South Carolina Public Service Authority (SCPSA) jointly own the V.C. Summer Nuclear Station for the purpose of generating electric current, a federally licensed nuclear facility located in Fairfield County, South Carolina and

WHEREAS, advance planning is necessary to assure that the health and safety of the public will be protected in the unlikely event of a radiological emergency associated with the operation of said nuclear plant; and

WHEREAS, SCE&G has developed a Virgil C. Summer Nuclear Station Radiation Emergency Plan so that in the unlikely event of an emergency, appropriate federal, state and local government officials are notified and appropriate monitoring and onsite measures are taken to protect the public; and

WHEREAS, Richland County is responsible for the health, safety, security and welfare of its citizen; and

WHEREAS, Richland County has the overall responsibility for emergency preparedness and local response in County concerning an incident at Virgil C. Summer Nuclear Station; and,

WHEREAS, Richland County has prepared a Radiation Emergency Plan for radiological emergencies associated with the operation of Virgil C. Summer Nuclear Station;

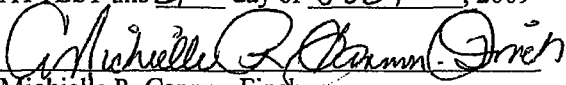
WHEREAS, Federal, State and Local governments have established a Plume Exposure Emergency Planning Zone around Unit 1 of the VC Summer Nuclear Station;

WHEREAS, SCE&G and the SCPSA have notified Richland County of the intent to Construct, Operate and License two Westinghouse AP1000 reactors on the existing VC Summer Nuclear Station site ("VC Summer Units 2 and 3");

NOW, THEREFORE BE IT RESOLVED, by the County Council of Richland County, (the "County Council") as follows:

Section 1: Official Action. Richland County Council continues to support Emergency Planning efforts for the citizens of Richland County in support of VC Summer Nuclear Station Unit 1, as well as the proposed expansion of the Station. It is the intention of the County Council that the existing Plume Exposure Emergency Planning Zone within Richland County, South Carolina, shall be maintained to continue to support Unit 1 and also to support the Construction, Operation and Licensing of the proposed VC Summer Nuclear Station Units 2 and 3.

Adopted in meeting duly assembled on this 21st day of July 2009.

ATTEST this 21st day of JULY, 2009

Michelle R. Cannon-Finch
Clerk of Council


Paul Livingston, Chair
Richland County Council

RC-14-0191
Enclosure 6
Item 5

Department of Homeland Security
Region IV
3003 Chamblee-Tucker Road
Atlanta, Georgia 30341



FEMA

August 6, 2013

Kim Stenson, Director
SC Emergency Management Division
2779 Fish Hatchery Road
West Columbia, South Carolina 29172

Dear Mr. Stenson:


FEMA Region IV Regional Assistance Committee (RAC) and FEMA Headquarters have reviewed your request for a change to the Lexington County portion of the VC Summer EPZ. This request has been approved by FEMA Headquarters contingent upon completion of the following two actions:

1. In accordance with all applicable U.S. Nuclear Regulatory Commission (NRC) regulations and procedures, that SCE & G receive NRC approval for the V.C. Summer Unit 1 Emergency Plan for the proposed revisions to the EPZ.
2. Once received, the offsite response organizations surrounding the V.C. Summer site submit to FEMA Region IV for review of the appropriate changes to their plans/procedures, maps of the EPZ, public information material, and impact that the additional population from the EPZ has on the evacuation time estimates. The required information would include changes to the geographical boundary descriptions and the alert and notification system (ANS), including additional sirens or other means for public notification. Any modifications to an ANS must be consistent with FEMA-REP-10.

FEMA Region IV REP looks forward to working with SCEMD as necessary to assist in completing these actions.

Should you have questions, please contact either Joe Harworth at 770/220-5464 or his Section Chief, Lawrence Robertson at 770/220-5466.

Sincerely,


Conrad S. Burnside, Chief
Technological Hazards Branch

RC-14-0191
Enclosure 6
Item 6

Department of Homeland Security
Region IV
3003 Chamblee-Tucker Road
Atlanta, Georgia 30341



FEMA

July 10, 2014

Thomas D. Gatlin,
Senior Vice President-Nuclear Operations
VC Summer Nuclear Station
Post Office Box 88, Mail Code 830
Jenkinsville, South Carolina 29065

Re: Virgil C. Summer Nuclear Station Units 1, 2 and 3
Docket No.: 50-395, 52-027 & 52-028
Operating License No.: NPF-12, NPF-93 and NPF-94
ALERT NOTIFICATION SYSTEM DESIGN REPORT

Dear Mr. Gatlin:

FEMA Headquarters Technical Hazards Division (THD) Professional Services & Integration (PS&I) Branch received the Virgil C. Summer Nuclear Station Siren System Alert and Notification System (ANS) Design Report Revision I dated January 15, 2012 from FEMA Region RIV. FEMA Headquarters THD PS&I Branch has reviewed the submitted documentation. Consistent with current management processes and direction, the ANS system as described in the Design Report has been approved.

If you have any questions please contact Lawrence Robertson, my designated Section Chief for the States of Georgia and South Carolina, at 770/220-5466.

Sincerely,

A handwritten signature in blue ink, appearing to read "Conrad S. Burnside", is written over a circular stamp.

Conrad S. Burnside, Chief
Technological Hazards Branch

cc: Mr. Kim Stenson, Director
SC Emergency Management Division
2779 Fish Hatchery Road
West Columbia, South Carolina 29172
R. E. (Bob) Williamson, Manager, Emergency Preparedness

The State of South Carolina
Military Department

RC-14-0191
Enclosure 6
Item 7



OFFICE OF THE ADJUTANT GENERAL

ROBERT E. LIVINGSTON, Jr.
MAJOR GENERAL
THE ADJUTANT GENERAL

November 6, 2014

Mr. Bob Williamson
Manager, Emergency Services
V.C. Summer Nuclear Station
P.O. Box 88
Jenkinsville, SC 29065

Dear Mr. Williamson:

The South Carolina Emergency Management Division and the Lexington County Emergency Preparedness Division will make all necessary changes to our radiological emergency response plans within 30 days of the Nuclear Regulatory Commission's approval to increase the 10-mile emergency planning zone in sector D-2.

If you should have any questions or the need for additional information, please contact Mr. Nathan Nienhius or Ms. Kendall Schoenecker at (803) 737-8500.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Stenson".

Kim Stenson
Director

KS/nn
cf:
Mr. David Kerr, Lexington County
Mr. Mike Kalec, Lexington County

Emergency Management Division
2779 Fish Hatchery Road
West Columbia, South Carolina 29172
(803) 737-8500 • Fax: (803) 737-8570