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July 15, 2005  
RC-05-0106

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION  
DOCKET NO. 50/395  
OPERATING LICENSE NO. NPF-12  
TRANSMITTAL OF RADIATION EMERGENCY PLAN REVISION 50

In compliance with 10CFR50.54(q), South Carolina Electric & Gas Company, acting for itself and as agent for South Carolina Public Service Authority, submits one controlled copy of Revision 50 to the Radiation Emergency Plan.

The changes in Revision 50 were reviewed in accordance with 10CFR50.54(q) and were found not to decrease the effectiveness of the Radiation Emergency Plan.

Should you have any questions, please contact Mrs. Michelle Bedenbaugh at (803) 345-4427.

Very truly yours,

Ronald B. Clary

MBB/RBC/mb  
Attachment

c: W. D. Travers  
(With Attachments 202I and 202J)

c: (Without Attachments)  
N. O. Lorick  
N. S. Carns  
T. G. Eppink  
R. J. White  
R. E. Martin  
M. P. Findlay  
NRC Resident Inspector  
RTS (L-99-0355)  
File (810.10-1, RR 6100)  
DMS (RC-05-0106)

Handwritten initials "AX45" in the bottom right corner of the page.

DETERMINATION OF A DECREASE IN THE EFFECTIVENESS OF THE  
RADIATION EMERGENCY PLAN IN ACCORDANCE WITH 10CFR50.54(g)

DOCUMENT EP-100 REVISION 50 CHANGE N/A DATE 4/20/05

TITLE: Radiation Emergency Plan

DIRECTIONS FOR COMPLETING THIS ATTACHMENT:

1. Review all statements in subsections 1.1 and 1.2 and check applicable boxes if the statement applies. Circle DOES or DOES NOT as appropriate.
2. Complete one subsection of section 2.0 for each box checked in sub-section 1.1 or 1.2. (Additional copies of page 3 may be used, if necessary).
3. Complete section 3.0. Provide amplifying information in section 4.0.
4. Answer the questions in section 5.0. Sign and date the form on line 5.4 and attach completed form to Procedure Package prior to forwarding package to the Manager, Nuclear Protection Services for signature.
5. PSRC review is required for the Radiation Emergency Plan prior to approval of the revision.

1.0 Effect of the Change on the Radiation Emergency Plan:

1.1 This change (DOES/DOES NOT) affect SECTIONS under 10CFR50.47(b). The following subject areas of 10CFR50.47(b) have been affected:

- ☐ (1) Assignment of Emergency Response Organization responsibilities.
- ☐ (2) Assignment of onshift Emergency Response Organization personnel.
- ☒ (3) Arrangements for utilizing State or Local resources and staff.
- ☒ (4) Emergency Classification and Action Levels, including facility system, and effluent parameters.
- ☒ (5) Notification of State and Local agencies, the Emergency Response Organizations, and the public.
- ☐ (6) Communications between State and Local agencies, the Emergency Response Organizations, and the public.
- ☐ (7) Coordination with the public through periodic dissemination of information.
- ☒ (8) Adequacy of emergency facilities and equipment.
- ☐ (9) Adequate methods, systems, and equipment for offsite response to a radiological emergency.
- ☒ (10) Plume exposure pathway EPZ protective actions.

- ☐ (11) Emergency worker's radiological exposure.
- ☐ (12) Medical services for contaminated injured individuals.
- ☐ (13) Reentry and Recovery plans.
- ☐ (14) Emergency response periodic exercises.
- ☐ (15) Radiological emergency response training.
- ☐ (16) Plan development, review, and distribution.

1.2 This change (DOES) DOES NOT affect sections under 10CFR50, Appendix E. The following subject areas of 10CFR50, Appendix E, have been affected:

- ☐ (I), (II), (III) Radiation Emergency Plans as described in the FSAR.
- ☐ (IV)A Organization for coping with radiological emergencies.
- ☐ (IV)B Release of radioactive materials (assessment).
- ☒ (IV)C Activation of Emergency Classification and Action Levels and activation of the Emergency Response Organizations.
- ☒ (IV)D Notification of Federal, State and Local agencies, and the public.
- ☒ (IV)E Emergency Facilities and Equipment including communication systems.
- ☐ (IV)F Training on and exercising the Radiation Emergency Plan.
- ☐ (IV)G Maintaining Radiation Emergency Plan and procedures, and the surveillance of equipment and supplies.
- ☐ (IV)H Reentry of facility and recovery following an accident.

2.0 Basis for Determination per 10CFR50.54(q):

For applicable item 10CFR50.47(b) of Section 1.0 above, this change  
(DOES/DOES NOT) decrease the effectiveness of the Radiation Emergency Plan.  
This change (DOES/DOES NOT) result in information presented in the Radiation  
Emergency Plan being no longer true or accurate.

Basis for answer: See Attached.

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For applicable item 10CFR50, Appendix E of Section 1.0 above, this change  
(DOES/DOES NOT) decrease the effectiveness of the Radiation Emergency Plan.  
This change (DOES/DOES NOT) result in information presented in the Radiation  
Emergency Plan being no longer true or accurate.

Basis for answer: See Attached.

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For applicable item 10CFR50.( ) of Section 1.0 above, this change  
(DOES/DOES NOT) decrease the effectiveness of the Radiation Emergency Plan.  
This change (DOES/DOES NOT) result in information presented in the Radiation  
Emergency Plan being no longer true or accurate.

Basis for answer: \_\_\_\_\_

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For applicable item 10CFR50.( ) of Section 1.0 above, this change  
(DOES/DOES NOT) decrease the effectiveness of the Radiation Emergency Plan.  
This change (DOES/DOES NOT) result in information presented in the Radiation  
Emergency Plan being no longer true or accurate.

Basis for answer: \_\_\_\_\_

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(Attach additional sheets for Section 2.0, as necessary)

3.0 Determination/Action per 10CFR50.54(g):

3.1 This change (DOES/DOES NOT) decrease the effectiveness of the Radiation Emergency Plan. (If the change does decrease the effectiveness of the Radiation Emergency Plan, then the change shall not be implemented without prior NRC approval).

3.2 This change (DOES/DOES NOT) require a further revision to the Radiation Emergency Plan or the Implementing Procedures. (10CFR50, Appendix E, does NOT require that the NRC be notified of changes to the Radiation Emergency Plan that do not decrease the effectiveness of the Plan prior to implementation).

3.2.1 List any additional Emergency Plan Procedures, forms, or supporting procedures requiring revision as a result of this revision:  
EPP-00.1 EPP-005 and EPP-023

4.0 Comments: \_\_\_\_\_  
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\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_

5.0 Review and Approval:

5.1 YES ☐ NO ☒

Decrease the effectiveness of the Radiation Emergency Plan?

5.2 YES ☐ NO ☒

NRC approval of document required prior to implementing?

5.3 YES ☒ NO ☐

Is a change required to Radiation Emergency Plan or other procedures? (If yes, see Section 3.2.1 above for details.)

5.4 Review completed by: 

Date: 5/23/05

5.5 Approved by: 

Date: 5/23/05

Manager, Nuclear Protection Services

**EP-100**

**Revision 50**

**Attachment to SAP-1110, Attachment II, Determination of a Decrease in the Effectiveness of the Radiation Emergency Plan in Accordance with 10CFR50.54.q**  
**Page 1 of 5**

**Description:** Section 1.1.23 – added statement concerning protective actions for Security events.

**Reason for Change:** Protective actions that pertain to Security events have been added to the implementing procedures. The increased sensitivity to Security events warrants this addition in the Plan.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an addition of protective measures for the plant population. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Section 2.5.3 k., Section 5.4.3 f. and Appendix C page 13A.C-1 – added Community Volunteer Fire Department to the list of fire companies that will provide support during emergencies

**Reason for Change:** This was at the request of Fairfield County.

**Effect of the Changes:** This change does affect sections in 10CFR50.47(b).

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an addition of resources that will be available for emergencies. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Figure 2-2 – changed the map to the current version.

**Reason for Change:** The site profile has changed with the addition of buildings, barriers, etc.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an administrative change. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Figure 2-7 – Editorial only.

**Description:** Table 2-1 – revised the meteorological data to show most current values.

**Reason for Change:** To show the most current data.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an administrative change. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

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**Attachment to SAP-1110, Attachment II, Determination of a Decrease in the Effectiveness of the Radiation Emergency Plan in Accordance with 10CFR50.54.q**  
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**Description:** Table 4-1, page 32 and 35 – reformatted the Detection Methods for EALs 102 and 104 to improve clarity. The wording was not changed.

**Reason for Change:** To improve the clarity of the Detection Methods based on feedback from IEDs and EDs..

**Effect of the Changes:** This change does affect sections in 10CFR50.47(b)(4) and 10CFR50, Appendix E(IV)C.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an improvement of the clarity of the Detection Method. The content was not changed. Revision of EPP-001 is required.

**Description:** Table 4-1, page 46 – added guidance to the Detection Method for EAL 381 to refer to SEG-001 in the Control Room for a list of Vital Areas.

**Reason for Change:** SEG-1 contains the list of Security Vital Areas to which the Detection Method refers. Since this is Safeguards material, it cannot be displayed in the Emergency Plan.

**Effect of the Changes:** This change does affect sections in 10CFR50.47(b)(4) and 10CFR50, Appendix E(IV)C.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an addition of the location of clarifying information that can be used in the classification process. Revision of EPP-001 is required.

**Description:** Section 5.2.1 – added (Cannot be delegated) to the Interim Emergency Director's duties that are specified in NUREG-0654 as being non-delegatable.

**Reason for Change:** To add clarification to which duties that cannot be delegated.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is clarification. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Figure 5-1 –changed title to Vice President, Nuclear Operations and deleted Manager, Plant Life Extension. Added Sr. Vice President, Generation. Relocated Information Systems and Technology to the proper location.

**Reason for Change:** The individual who is Site Vice President is not a Senior Vice President. The Senior Vice President, Generation is the Chief Nuclear Officer. The position of Manager, Plant Life Extension no longer exists.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an administrative change. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

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**Page 3 of 5**

**Description:** Table 5-2 – replaced the Nuclear Power Plant Emergency Notification Form with the current version.

**Reason for Change:** The States, counties and utilities that use this particular form revised the form to improve its functionality. The content was not altered.

**Effect of the Changes:** This change does affect sections in 10CFR50.47(b)(5) and 10CFR50, Appendix E(IV)D.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because the content has not been changed. EPP-002 has been revised.

**Description:** Sections 6.4.2 d., Section 7.1.2 and Figure 7-1 – changed the location of the Operations Support Center to the 436' elevation of the Auxiliary Service Building. Stated that a back-up facility is maintained on the 448' elevation of the Control Building.

**Reason for Change:** The location of the OSC is being changed due to the physical limitations of the current location. The new location has improved facilities, more room and a layout that will allow an improvement in communication flow and team dispatch. All supplies and equipment located in the current location will be moved to the new location. Since there may be a reduction in capability of the new location, the current location on the 448' elevation will be maintained as a back-up facility.

**Effect of the Changes:** This change does affect sections in 10CFR50.47(b)(8) and 10CFR50, Appendix E(IV)E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because the capability of the OSC is not adversely affected. No other revision to the Radiation Emergency is required. EPP-023 will be revised to include the new location and guidance for use of the backup facility.

**Description:** Tables 6-1 and 6-3 – added the consideration of sheltering as a protective measure for the public.

**Reason for Change:** Mandated by NRC Regulatory Issue Summary 2004-13, Supplement 1, Consideration of Sheltering in Licensee's Range of Protective Action Recommendations, dated August 2004.

**Effect of the Changes:** This change does affect sections in 10CFR50.47(b)(10).

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it includes additional protective measures that can be utilized to protect the health and safety of the public.. Revision of EPP-005 is required.

**Description:** Section 7.3.1 4. – changed the address of the Lexington County Emergency Operations Center to the current location.

**Reason for Change:** Lexington County relocated their EOC.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because the capability of the Lexington



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Page 4 of 5

County EOC has not been adversely affected. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Section 7.4 – deleted the specific reference to where the News Media Area is located and stated that it is co-located with the EOF.

**Reason for Change:** Remove this unneeded detail since the News Media Area is co-located with the EOF.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an administrative change. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Table 7-1 – changed the ranges of several detectors to improve the accuracy of the table.

**Reason for Change:** To improve the accuracy of the table.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an administrative change. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Figure 9-1 – changed the titles of two positions to make them current.

**Reason for Change:** Organizational title changes.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an administrative change. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

**Description:** Appendix A page 13A.A-6 – deleted EPP-026.

**Reason for Change:** Information no longer needed due to the replacement of the siren control system.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because this procedure provided guidance on the use of the Motorola Siren Control System which was replaced with a Federal Signal system. Guidance for the Federal Signal system is contained in EPP-021.. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

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**Description:** Appendix A page 13A.A-7 – added EPP-106

**Reason for Change:** To provide guidance on the administration of the Emergency Preparedness Performance Indicator program.

**Effect of the Changes:** This change does not affect sections in 10CFR50.47 or 10CFR50, Appendix E.

**Basis for the Determination per 10CFR50.54.q:** This change does not decrease the effectiveness of Radiation Emergency Plan because it is an administrative change. No other revision to the Radiation Emergency Plan or other implementing procedures is required.

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

NUCLEAR OPERATIONS  
COPY NO. 202H

**RADIATION EMERGENCY PLAN**

EP-100  
REVISION 50

SAFETY RELATED

Original signed by Mark P. Findlay  
DISCIPLINE SUPERVISOR

6/20/05  
DATE

Original signed by G.A. Lippard for D. Gatlin  
APPROVAL AUTHORITY

6/23/05  
DATE

# DOCUMENT REVIEW FORM

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Document Identification			
Originators Name: Mark Counts		Ext.: 54099	Mail Code: 507
Date: 4/25/05	Document No.: EP-100	Revision No.: 50	Change Letter: N/A
Title: Radiation Emergency Plan			<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS
<b>Development Process:</b> Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval <input type="checkbox"/> Restricted Chg (expires: _____)			
<b>Description:</b> Changed location of the OSC. Included sheltering as a Protective Action for the public. Added statement concerning protective actions for Security events. Added Community VFD to the list of responders. Improved clarity in EALs 102 and 104. Replaced Emergency Notification Form with current revision. Deleted EPP-026. Other minor changes. <i>THIS REVISION DOES NOT ALTER THE SCOPE OF THIS PROCEDURE.</i>			
<b>Reason/ Basis for Change:</b> To make the Radiation Emergency Plan current with existing and new practices. See the 10CFR50.54(q) review for details.			
Temporary Approval		Final approval required by:	
QR _____	DC&R _____	SS _____	(30 days) _____ / _____ Date
Document Reviewers (Enclosure C)			
Required	Position	Type/ Print Name	Comments Yes/No
	QR	B Schwartz	<input checked="" type="checkbox"/> <input type="checkbox"/>
	QA	R McCauley	<input checked="" type="checkbox"/> <input type="checkbox"/>
	GM,NSS	K Nettles	<input checked="" type="checkbox"/> <input type="checkbox"/>
	GM,NPO	D Gatlin	<input type="checkbox"/> <input checked="" type="checkbox"/>
	GM,ES	R Fowlkes	<input checked="" type="checkbox"/> <input type="checkbox"/>
	GM,OE	None Recieved	<input type="checkbox"/> <input type="checkbox"/>
Additional	Position	Type/ Print Name	Comments Yes/No
	PSRC		<input type="checkbox"/> <input type="checkbox"/>
		G Lippard	<input type="checkbox"/> <input checked="" type="checkbox"/>
	NL	J Ferris	<input type="checkbox"/> <input checked="" type="checkbox"/>
		LA Blue	<input type="checkbox"/> <input checked="" type="checkbox"/>
		W Bacon	<input type="checkbox"/> <input checked="" type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>
Concurrence: <u>[Signature]</u> 5/23/05 Discipline Supervisor / Date		Comment Due Date <u>5/9/05</u>	
Pre-implementation Actions			
All Comments Resolved		<input checked="" type="checkbox"/> Yes	<u>[Signature]</u> 6/22/05 Originator/ Date
Commitments Addressed per SAP-0630		<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA
50.59 Applicability/ Review Completed (SAP0107)		<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Attached
Pre-implementation Training Completed		<input type="checkbox"/> NA	<input checked="" type="checkbox"/> Yes
Training required after implementation		<input type="checkbox"/> NA	<input checked="" type="checkbox"/> Yes, CER # <u>05-2187</u>
PSRC Review Completed		<input type="checkbox"/> NA	<input checked="" type="checkbox"/> Yes, Mtg. No. <u>2005-10</u>
NSRC Review Completed		<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Mtg. No. _____
Other:		<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes
<u>[Signature]</u> 5/23/05 Discipline Supervisor / Date		<u>[Signature]</u> 6/16/05 Approval Authority / Date	

\* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

## REVISION SUMMARY

**LIST OF EFFECTIVE PAGES** - changed the Revision numbers for the effective pages.

**LIST OF TABLES** – changed page numbers for Table 6-3.

**Section 1.1.23** – added statement concerning protective actions for Security events.

**Section 2.5.3 k., Section 5.4.3 f. and Appendix C page 13A.C-1** – added Community Volunteer Fire Department to the list of fire companies that will provide support during emergencies. This was at the request of Fairfield County.

**Figure 2-2** – changed the map to the current version.

**Table 2-1** – revised the meteorological data to show most current values.

**Figure 2-7** - editorial change.

**Table 4-1, page 32 and 35** – reformatted the Detection Methods for EALs 102 and 104 to improve clarity. The wording was not changed.

**Table 4-1, page 46** – added guidance to the Detection Method for EAL 381 to refer to SEG-1 in the Control Room for a list of Vital Areas. Since this is Safeguards material, it cannot be displayed in the Emergency Plan.

**Section 5.2.1** – added (Cannot be delegated) to the Interim Emergency Director's duties that are specified in NUREG-0654 as being non-delegatable.

**Figure 5-1** –changed title to Vice President, Nuclear Operations and deleted Manager, Plant Life Extension. Added the title Sr. Vice President, Generation.

**Table 5-2** – replaced the Nuclear Power Plant Emergency Notification Form with the current version.

**Sections 6.4.2 d., Section 7.1.2 and Figure 7-1** – changed the location of the Operations Support Center to the 436' elevation of the Auxiliary Service Building. Stated that a back-up facility is maintained on the 448' elevation of the Control Building.

**Tables 6-1 and 6-3** – added the consideration of sheltering as a protective measure for the public.

**Section 7.3.1 4.** – changed the address of the Lexington County Emergency Operations Center to the current location.

## REVISION SUMMARY

Section 7.4 – deleted the specific reference to where the News Media Area is located and stated that it is co-located with the EOF.

Table 7-1 – changed the ranges of several detectors to improve the accuracy of the table.

Figure 9-1 – changed the titles of two positions to make them current.

Appendix A page 13A.A-6 – deleted EPP-026. Information no longer needed due to the replacement of the siren control system.

Appendix A page 13A.A-7 – added EPP-106 to provide guidance on the administration of the Emergency Preparedness Performance Indicator program.

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## 1.0 INTRODUCTION

The purpose of the Virgil C. Summer Nuclear Station Emergency Plan (REP) is to aid in protecting the health and safety of the general public, persons temporarily visiting or assigned to the station, and station employees. The content of the plan fulfills the requirements as set forth in Appendix E, Emergency Plans for Production and Utilization Facilities, of 10CFR50, Licensing of Production and Utilization Facilities.

Detailed procedures concerning the implementation of the Emergency Plan are included in the Emergency Plan Procedures. These procedures describe the step by step duties of individuals and groups in the event of an emergency.

Information submitted in this plan was developed in accordance with the draft guidelines in NUREG-0654 Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Procedures in Support of Nuclear Power Plants issued in November 1980 and with Regulatory Guide 1.70, Revision 2, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants issued in September 1975.

1.1 Definitions

1.1.1 Radiation Control Area Control Point (RCACP)

The RCACP is located in the control building, elevation 412' which is the health physics and decontamination areas. All personnel working or located in the radiation controlled areas (e.g, Reactor Building, Auxiliary Building and Fuel Handling Building) will evacuate to the RCACP when the radiation emergency alarm is sounded.

1.1.2 Accident

An unintentional or unexpected event, resulting in radiological exposure or physical injury to individuals and/or physical damage to property.

1.1.3 Alert

Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant.

1.1.4 Assessment Actions

Those actions taken during or after an accident to obtain and process information that is necessary to make decisions to implement specific emergency measures.

1.1.5 Emergency Operations Facility (EOF)

A facility located near the site that will be utilized to evaluate and coordinate all SCE&G emergency related activities. The facility will accommodate representatives from Federal, State and local governments as appropriate. The EOF will provide information needed by Federal, State, and local authorities for implementation of offsite emergency plans in addition to serving as a centralized meeting location for key representatives from responding agencies.

1.1.6 Emergency Planning Zones

Two zones that are established around the Virgil C. Summer Nuclear Power Station. One zone with a radius of 10 miles (16090 meters) for airborne exposure, and the other with a radius of 50 miles (80450 meters) for contaminated food. In these zones, predetermined PROTECTIVE ACTION plans are needed.

1.1.7 Emergency Repair Team

The emergency repair team is made up of personnel who are competent in repair work. These personnel will be used during an emergency condition to make temporary repairs necessary to terminate or lessen the effects of the emergency.

1.1.8 Exclusion Area

The area within a one mile radius of the Reactor Building which SCE&G owns and controls. SCE&G has the authority to determine all activities including the exclusion or removal of persons and property from the area during accident conditions.

1.1.9 General Emergency

Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity.

1.1.10 Implementing Procedures

Those detailed procedures which provide guidance to individuals and groups for implementation of the provisions of this plan.

1.1.11 Incident

An abnormal event, considered minor in nature that has potential to become an accident.

1.1.12 Ingestion Exposure Pathway

The path affected by radioactive fallout from the plume. Of major concern is the contamination of food and water in a 10-50 mile radius.

1.1.13 Low Population Zone

That area which surrounds the exclusion zone and includes an area up to three miles in radius from the station.

1.1.14 News Media Area

An area designated outside the Protected Area that will provide a location for the media so that information can be disseminated concerning plant conditions and emergency operations.

1.1.15 Notification of Unusual Event

The occurrence of an event or events which indicate or allow the recognition of a potential degradation of the level of safety of the plant.

1.1.16 Offsite

All land and water areas outside the one mile radius of the Reactor Building.

1.1.17 Offsite Holding Area

This area(s) will be used to monitor personnel and vehicles leaving the station during a radiation emergency. Decontamination of the personnel and vehicles will take place at the holding area(s). Locations of the offsite holding areas are indicated in the station Emergency Plan Procedures.

1.1.18 Onsite

All land and water areas inside the one mile radius of the Reactor Building, use of which must be authorized by SCE&G.



1.1.19 Operations Support Center

An onsite area in which support personnel can assemble for subsequent assignments to duties in support of emergency operations.

1.1.20 Plume Exposure Pathway

The means by which a radioactive cloud (plume) can expose the population-at-risk and/or onsite personnel to radiation. The time of potential exposure could range from hours to days. The principal exposure sources for this pathway are:

- a. Total effective dose equivalent whole body exposure to radiation from the radioactive plume and from deposited material; and
- b. Committed dose equivalent to the thyroid for inhalation exposure from the passing radioactive plume.

1.1.21 Population at Risk

Those persons for whom PROTECTIVE ACTIONS are being or would be taken.

1.1.22 Protected Area

The area immediately surrounding the nuclear station encompassed by physical barriers (double fence) and access to which is controlled for nuclear security purposes.

1.1.23 Protective Actions

Those emergency measures taken before or after an uncontrolled release of radioactive material has occurred for the purpose of preventing or minimizing radiological exposure to individuals. Also, measures that can be taken for the physical protection of plant personnel from a security event.

1.1.24 Protective Action Guides (PAGS)

Projected total effective dose equivalent or committed dose equivalent values to individuals in the general population that warrant protective action following a release of radioactive material. Protective actions would be warranted provided the reduction in individual dose expected to be achieved by carrying out the protective action is not offset by excessive risks to individual safety in taking the protective action.

1.1.25 Radiation Emergency Kit

Radiation emergency kits will be located at key areas within the station. The emergency kits will contain the necessary equipment for radiation monitoring, respiratory protection, protective clothing and other related health physics activities dependent upon its intended function.

1.1.26 Radiation Monitoring Team

The radiation monitoring team(s) will perform onsite and offsite monitoring and will provide radiation protection support at the local hospitals, station emergency facilities, assembly areas and during transport of potentially irradiated and/or contaminated casualties.

1.1.27 Site Area Emergency

The occurrence of event or events which involve actual or likely major failures of station functions needed for protection of the public. This class would include accidents which have a significant potential for the release of radioactive material.

1.1.28 Technical Support Center

An area which accommodates personnel acting in support of the command and control functions but separate from the control room. These personnel supply indepth diagnostic and corrective engineering assistance to the plant operations staff.

## 2.0 SCOPE AND APPLICABILITY

### 2.1 General Information and Site Description

The V. C. Summer Nuclear Station is owned jointly by South Carolina Electric and Gas (SCE&G) and South Carolina Public Service Authority (SCPSA) but is operated by South Carolina Electric and Gas (SCE&G). An area map showing geographical location of the facility is provided in Figure 2-1.

The design of the V. C. Summer Nuclear Station is that of a pressurized water type nuclear steam supply system supplied and manufactured by Westinghouse. The system uses chemical shim and control rods for reactivity control and U-tubed steam generators. A diagram identifying V. C. Summer facilities is provided in Figure 2-2.

The V. C. Summer Nuclear Station is located in Fairfield County in the state of South Carolina. The plant property line coincides with the site boundary and the boundary lines of the exclusion area. The exclusion area consists of a zone within approximately one mile of the reactor building. This area encompasses parts of the Monticello Reservoir and the Fairfield Pump Storage Facility. The Fairfield Pump Storage Facility and recreational use of Monticello Reservoir are the only activities not related to the nuclear facility within the exclusion zone. The plant property covers approximately 2,200 acres. The site boundary is approximately 5,350 feet south, east, and north and approximately 5,850 feet west of the reactor building. The largest industrial center 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 S.C. 215 which lies approximately 6,800 feet east of the reactor building centerline and is outside the exclusion area.

The site is located in a sparsely populated rural area of which forestry is the principal land use. In 1967, 86% of the region within fifty miles of the site was forest or agricultural land. Land usage of the next 40 years within ten miles of the site is estimated to be predominantly forestland.

The Broad River is the principal river and is located approximately 6,050 feet west of the reactor building outside the exclusion area. The Monticello Reservoir occupies 6,800 acres just north of the site with the southern portion of the Monticello Reservoir within the exclusion area. The Monticello Reservoir was created by constructing dams across Frees Creek, a tributary of the Broad River. Runoffs, plus small ground water contributions to the stream, is approximately 17" annually.

The prevailing wind direction at V. C. Summer Nuclear Station is from the southwest and the average wind speed is 6.1 miles per hour. The prevailing wind direction is fairly constant with an exception being in the fall and early winter during which time the prevailing winds are from the Northeast to Northwest. The occurrence of stable conditions as measured at the station site is about 51% annually. At these conditions, the average wind speed is 4.9 mph. Table 2-1 summarizes site wind information.

Highway access to the station is via S.C. 215 from Columbia or by Interstate 26 to S.C. 176 and then to S.C. 213 and S.C. 215.

## 2.2 Population Distribution

A three mile radius surrounding the V. C. Summer Nuclear Station is defined as the Low Population Zone (LPZ). The individuals residing in this area are distributed such that appropriate measures could be taken in their behalf in the event of a serious accident.

A population study was initiated at V. C. Summer Nuclear Station to determine updated population data. The study identified population density for each mile out to ten, i.e., 0-1, 1-2, 2-3, and for increments of five miles from ten miles to fifty miles, i.e., 10-15, 15-20. Diagrams illustrating population distribution from a 0-50 mile radius surrounding V. C. Summer Nuclear Station is included in Figures 2-3 and 2-4.

Another study was performed in 2002 based on the 2000 census data. This study concluded that the population within the 10 mile radius has remained virtually unchanged in the last decade.

The nearest population center of 25,000 or more is Columbia approximately 26 miles southeast of the site.

### 2.3 Emergency Planning Zones

Two primary zones have been identified for the purpose of development and implementation of emergency planning. The first Emergency Planning Zone (EPZ) has a 10 mile radius; this EPZ is referred to as the plume exposure pathway EPZ. Within this zone, evacuation is the immediate protective action to be recommended for the general public. The principal concern with the plume exposure pathway is that of whole body total effective dose equivalent exposure and/or committed dose equivalent exposure of the thyroid due to inhalation.

The second EPZ extends to a fifty mile radius. Once exceeding the 10 mile radius, the plume exposure pathway is no longer of significant concern. At this point, the ingestion pathway is of greatest concern. Due to iodine 131 particulate fallout, this would necessitate close monitoring of the crops, dairy cows, farm animals, etc.

Figures 2-5 and 2-6 indicate the area of concern in the 10 mile radius and the area of concern in the 50 mile radius, respectively.

## 2.4 Purposes and Objectives

Effective emergency preparedness needs to incorporate not only the emergency response for systems, but must also include response for people. Engineering safety systems at the V. C. Summer Nuclear Station are designed to ensure that the consequences of a design basis accident will be mitigated prior to any adverse effect to the general public or facility. The basis for emergency planning is to provide human emergency response in much the same way as safety systems do for design.

### 2.4.1 Regulatory Requirements

Section 50.34, Contents of Applications; Technical Information, 10CFR50, Licensing of Production and Utilization Facilities, requires that each application for a license to operate a facility include in a Final Safety Analysis Report (FSAR), along with other information, the applicant's plans for coping with emergencies including the items specified in 10CFR50 Appendix E, Emergency Plan for Production and Utilization Facilities. 10CFR100.3, Reactor Site Criteria, in the definitions of exclusion area and low population zone establishes additional criteria for plans to cope with emergencies and serious accidents.

Supplemental Guidance has been provided by the Nuclear Regulatory Commission (NRC) by the following documents:

NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.

NUREG-0610, Draft Emergency Action Level Guidelines for Nuclear Power Plants (Incorporated as Appendix 1 in NUREG-0654)

NUREG-0696, Functional Criteria for Emergency Response Facilities.

These documents describe proposed methods acceptable to the NRC staff for compliance with the Commission's regulations in regard to the content of emergency plans for nuclear power plants including provisions for the periodic review and revision of the emergency plans.

Revisions to this plan must ensure compliance with the requirements of SAP-630, 10CFR50.54.q. and 10CFR50 Appendix B. A 10CFR50.59 review is not required.

#### 2.4.2 Purpose of Emergency Preparedness

The purpose of emergency preparedness is to provide a mechanism that would be utilized in making decisions in the event of an emergency and to assure that the necessary equipment, supplies, and essential services are available.

#### 2.4.3 Objectives of the Emergency Plan

The objectives of the emergency plan are as follows:

- a. Establish criteria for classifying emergencies, performing notifications, activating emergency facilities and activating portions of the emergency organization.
- b. Establish an onsite emergency organization and assign responsibilities in the emergency organization for classifying emergencies, performing notifications, performing onsite protective actions, performing dose assessments and making recommendations to offsite authorities.
- c. Identify the support that will be provided to the onsite emergency organization by SCE&G headquarters and offsite organizations that will provide onsite support (i.e. fire, ambulance, medical).
- d. Identify the offsite authorities that are responsible for taking protective actions on behalf of members of the general public or that interface with this emergency plan.
- e. Identify emergency facilities and available communication systems to be utilized by the emergency organization.
- f. Identify training for personnel in the emergency organization.
- g. Provide for drills and exercises of the emergency organization.
- h. Provide for periodic review and update of the plan.

The Emergency Plan is designed to coordinate the site Emergency Plan with radiological incident plans developed by county, state and federal agencies through establishment of communication channels with these agencies and by setting criteria for the notification of such authorities.



## 2.5 Summary of Emergency Plan Interrelationships

Actions to be taken in response to emergency conditions are described in implementing procedures which are reviewed and approved as indicated in Section 8.3. These procedures provide the mechanism for response based on the general criteria described in this plan.

A listing of Emergency Plan Procedures is in Appendix A.

Other station operating and maintenance procedures are developed and issued to provide implementation instructions in various other areas relating to system operations, maintenance, health physics, chemistry and security and may be implemented in response to actions described in this plan.

### 2.5.1 Other South Carolina Electric and Gas Company Plans

South Carolina Electric and Gas Company has developed separate plans for emergencies related to fires and security. The planning for these respective emergencies operates within the framework established by this plan.

### 2.5.2 Participating Governmental Agencies

Continuing liaison is maintained with governmental agencies that interface directly with the Emergency Plan. The liaison ensures understanding of and proper interface with notifications to and responsibilities of state and county agencies. The agencies which interface with the Emergency Plan are:

- a. S.C. Department of Health and Environmental Control.
- b. Emergency Management Division - Adjutant General's Office
- c. Fairfield County Emergency Preparedness Agency.
- d. Newberry County Disaster Preparedness Agency.
- e. Lexington County Emergency Preparedness Division.
- f. Richland County Emergency Preparedness Office.
- g. Nuclear Regulatory Commission.
- h. Local Law Enforcement Agencies.

The radiological emergency response plans for the State of South Carolina, and Fairfield, Newberry, Lexington and Richland are supplemental to this plan.

2.5.3 Local Services Support

The following agencies have, by prior arrangement, agreed to respond to requests for assistance at the V. C. Summer Nuclear Station:

- a. Fairfield County Emergency Medical Service
- b. Lexington County Emergency Medical Service
- c. Pinner Clinic
- d. Palmetto Richland Memorial Hospital
- e. DOE (Oak Ridge Operations) Radiation Emergency Assistance Center Training Site (REACTS) Oak Ridge, Tennessee
- f. Blair Volunteer Fire Department
- g. Greenbrier - Bethel Volunteer Fire Department
- h. Jenkinsville - Monticello - Horeb Volunteer Fire Department
- i. Feasterville Volunteer Fire Department
- j. Lebanon Volunteer Fire Department
- k. Community Volunteer Fire Department

Figure 2-2  
SITE ARRANGEMENT

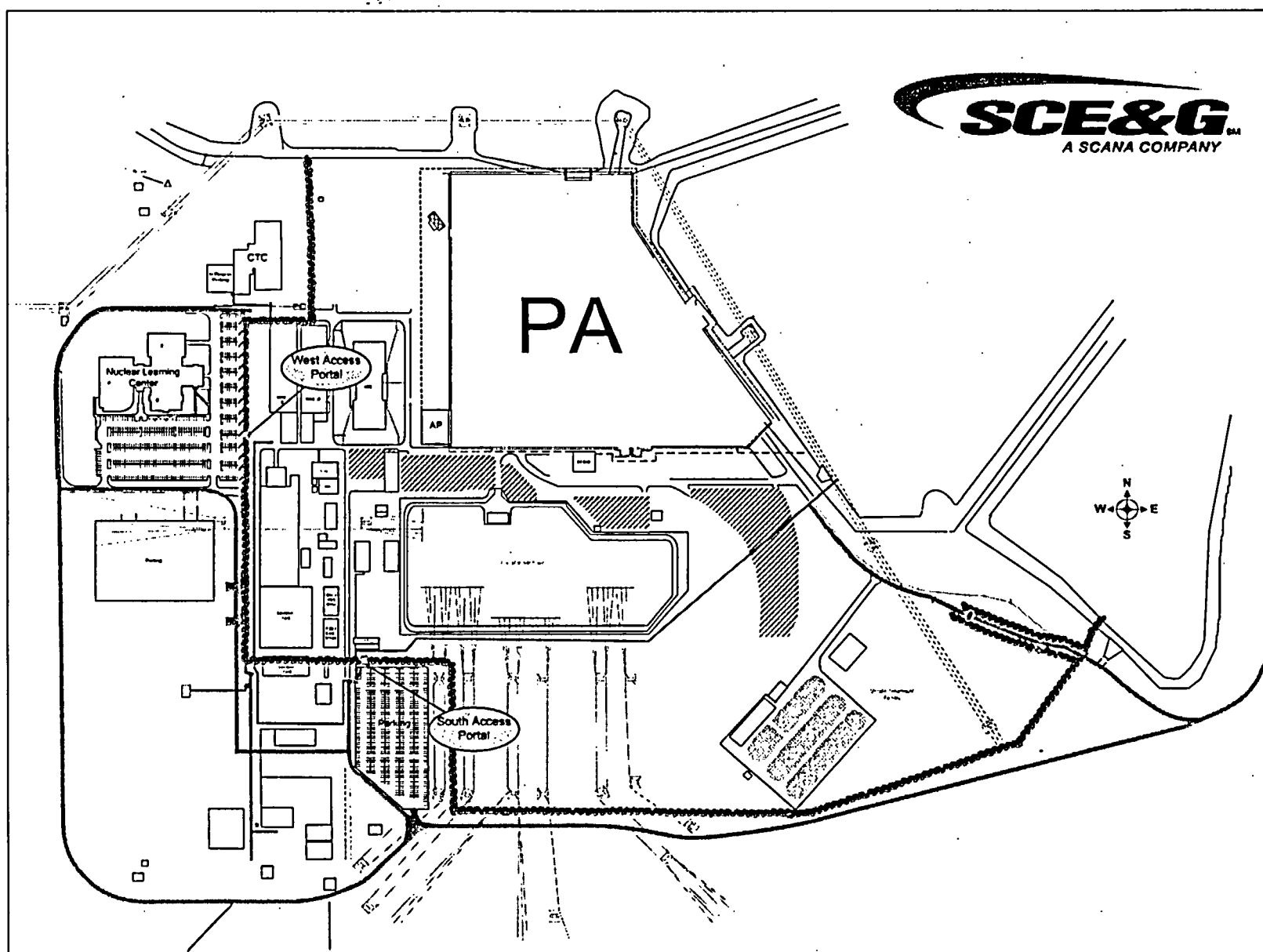


TABLE 2-1  
METEROLOGICAL DATA COMPARISON AND SUMMARY  
V.C. SUMMER NUCLEAR STATION  
PERCENTAGE OCCURRENCES AND FIVE  
YEAR ROLLING AVERAGE

	1999	Five Year Average	2000	Five Year Average	2001	Five Year Average	2002	Five Year Average	2003	Five Year Average
N	5.4	5.1	4.1	4.9	3.9	4.8	3.7	4.5	3.4	4.1
NNE	8.9	7.8	6.3	7.5	5.4	7.1	5.5	6.8	5.7	6.3
NE	8.3	8.3	9.6	8.3	9.2	8.7	10.0	9.0	8.1	9.1
ENE	6.3	5.4	7.6	5.8	6.7	6.2	8.8	6.9	6.0	7.1
E	3.6	4.0	3.8	3.7	4.9	4.0	5.5	4.4	4.3	4.4
ESE	2.8	2.8	2.8	2.8	2.9	2.8	3.0	2.9	2.8	2.9
SE	3.6	4.0	2.6	3.6	3.2	3.4	3.6	3.4	2.8	3.2
SSE	5.8	6.0	4.4	5.7	5.6	5.6	4.4	5.3	5.8	5.2
S	7.9	7.2	7.0	7.2	6.7	7.0	7.0	7.0	7.7	7.3
SSW	8.0	8.1	9.0	8.5	8.3	8.4	7.6	8.2	9.3	8.4
SW	10.1	10.5	11.8	11.1	11.5	11.0	9.0	10.6	12.5	11.0
WSW	10.0	11.5	10.9	11.3	10.9	11.0	10.0	10.7	12.4	10.8
W	7.1	7.2	7.9	7.3	9.5	7.9	8.8	8.1	8.7	8.4
WNW	4.5	4.7	4.8	4.7	4.6	4.7	5.3	4.7	4.4	4.7
NW	3.4	3.7	4.1	3.8	3.7	3.9	3.8	3.7	3.4	3.7
NNW	4.2	4.1	3.3	3.9	3.0	3.7	3.8	3.9	2.8	3.4
TOTALS	100	100	100	100	100	100	100	100	100	100

Figure 2-7  
V.C. SUMMER EMERGENCY INTERRELATIONSHIPS WITH GOVERNMENT AGENCIES

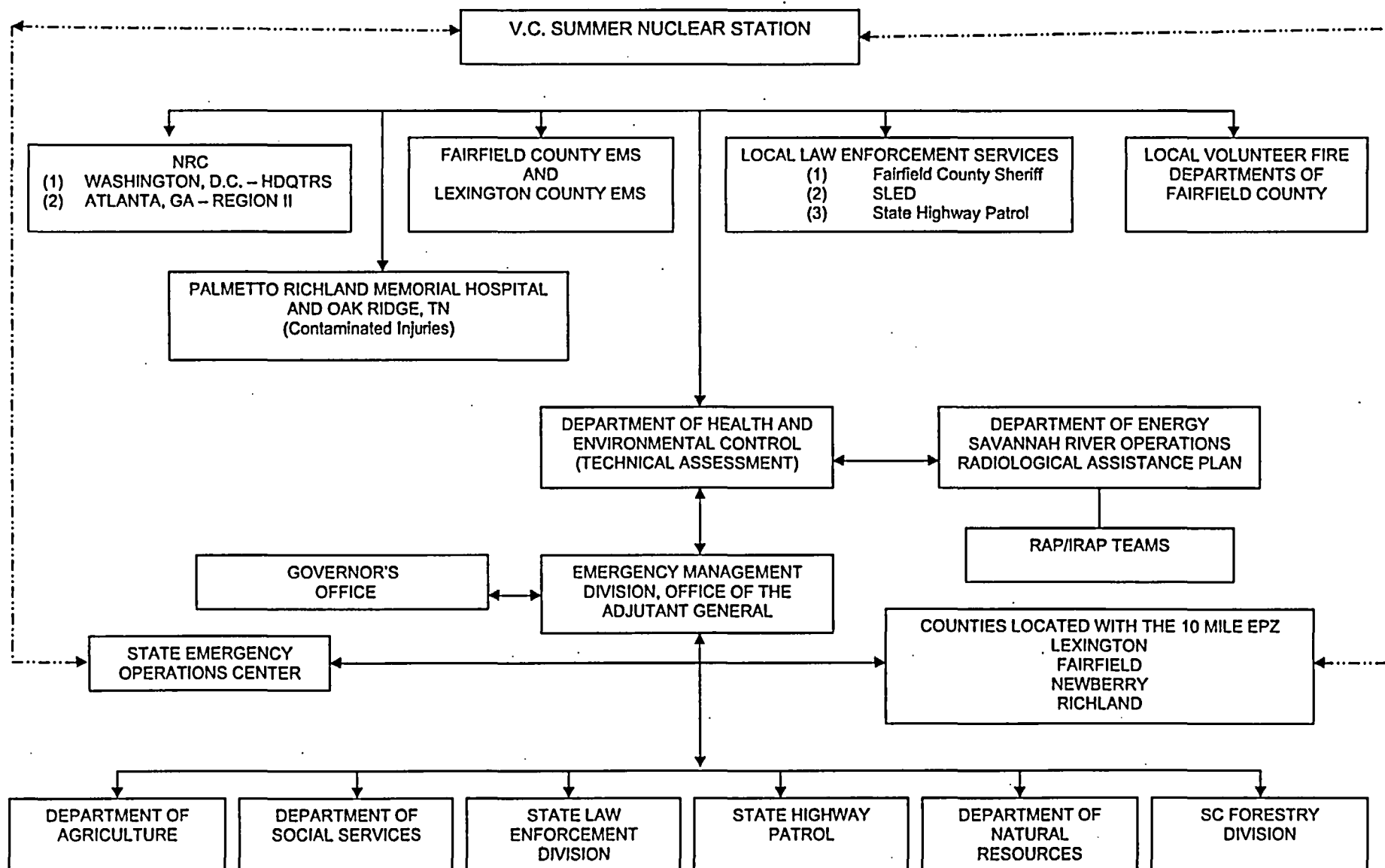


TABLE 4-1  
EMERGENCY ACTION LEVELS  
REACTOR COOLANT SYSTEM LEAKAGE OR LOCA (1 of 3)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<b>INITIATING CONDITION (101)</b> RCS LEAKAGE  <u>Detection Method:</u> <u>ANY</u> of the following exceeded (1 <u>OR</u> 2 <u>OR</u> 3): ..... 1. Unidentified Leakage greater than 10 gpm. ..... <u>OR</u> ..... 2. Pressure Boundary Leakage greater than 10 gpm. ..... <u>OR</u> ..... 2. Identified Leakage greater than 25 gpm. ..... .....	<b>INITIATING CONDITION (201)</b> REACTOR COOLANT LEAKAGE RATE EXCEEDS 50 GALLONS PER MINUTE  <u>Detection Method:</u> Evaluation of the following to determine leakage rate: ..... Note: This excludes SG Tube Leakage. (See Specific Table for SG Tube Leakage) 1. Excessive Makeup to the Volume Control Tank. 2. IPCS CHG <sub>NET</sub> 3. STP-114.002, Operational Leak Test.	<b>INITIATING CONDITION (301)</b> KNOWN LOSS-OF-COOLANT ACCIDENT GREATER THAN CHARGING PUMP CAPACITY  <u>Detection Method:</u> <u>ANY</u> of the following indications (1 <u>OR</u> 2 <u>OR</u> 3): ..... 1. Evaluate the following indications to determine if a LOCA condition exists (similar to EOP-1.0): a. Pressurizer low pressure reactor trip. b. Pressurizer low pressure safety injection. c. Reactor Building pressure $\geq$ 1.5 psig, d. Abnormal Reactor Building sump level, e. RBCU Drain Flow High, f. Abnormal radiation levels on RM-A2 or RM-G7, or RM-G18. ..... <u>OR</u> ..... 2. Stuck Open and Unisolable Pressurizer PORV or Safety Valve Leading to Pressurizer Relief Tank Rupture. ..... <u>OR</u> ..... 3. Initiating Bleed and Feed per EOP-15.0 (Refer to Initiating Condition 411 for possible escalation.) .....	<b>INITIATING CONDITION (401)</b> SMALL OR LARGE LOSS OF COOLING ACCIDENT WITH FAILURE OF EMERGENCY CORE COOLING SYSTEM TO PERFORM, LEADING TO SEVERE CORE DEGRADATION OR MELT.  <u>Detection Method:</u> Failure of <u>BOTH</u> of the following after depressurizing the RCS to < 140 psig per EOP-14.0. Failure of (1 <u>AND</u> 2): ..... 1. High Head Injection Flow ..... <u>AND</u> ..... 2. Low Head Injection Flow .....

TABLE 4-1  
EMERGENCY ACTION LEVELS  
REACTOR COOLANT SYSTEM LEAKAGE OR LOCA (2 of 3)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (102)</b> FAILURE OF A PRESSURIZER OR STEAM GENERATOR SAFETY OR RELIEF VALVE TO RESEAT (EXCEEDING NORMAL WEEPAGE)</p> <p><u>Detection Method:</u></p> <p>Pressurizer or Steam Generator Safety or Relief Valve opens and then fails to reseat as indicated by:</p> <p><u>EITHER 1 OR 2 OR 3:</u></p> <p>-----</p> <p>1. Valid open indication on <u>ANY</u> of the following: <u>EITHER</u> (a <u>OR</u> b <u>OR</u> c)</p> <p>a) Unisolable Pressurizer Relief Valve</p> <p><u>OR</u></p> <p>b) Pressurizer Safety Valve</p> <p><u>OR</u></p> <p>c) Valid Acoustical Monitor Indication</p> <p>----- <u>OR</u> -----</p> <p>2. Valid open indication on <u>EITHER</u> of the following:</p> <p>a.) Unisolable Steam Generator Relief Valve.</p> <p><u>OR</u></p> <p>b.) Stuck open Steam Generator Safety Valve.</p> <p>----- <u>OR</u> -----</p> <p>3. Excess feedwater flow to and steam flow from the affected Steam Generator.</p>			<p><b>INITIATING CONDITION (402)</b> SMALL LOSS OF COOLING ACCIDENT WITH INITIALLY SUCCESSFUL EMERGENCY CORE COOLING SYSTEM, FOLLOWED BY SUBSEQUENT FAILURE OF REACTOR BUILDING HEAT REMOVAL SYSTEMS THAT COULD LEAD TO CORE MELT</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following 1 <u>AND</u> 2 <u>AND</u> 3:</p> <p>-----</p> <p>1. Loss of primary or secondary coolant in progress.</p> <p>----- <u>AND</u> -----</p> <p>2. Failure to establish <u>EITHER</u> of the following after depressurizing the RCS to &lt; 140 psig per EOP-14.0.</p> <p>a) High Head Injection Flow</p> <p><u>OR</u></p> <p>b) Low Head Injection Flow</p> <p>----- <u>AND</u> -----</p> <p>3. RB Spray <u>AND</u> RBCU Cooling fails to function</p>

TABLE 4-1  
EMERGENCY ACTION LEVELS  
REACTOR COOLANT SYSTEM LEAKAGE OR LOCA (3 of 3)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
			<p><b>INITIATING CONDITION (403)</b> LOSS OF TWO OF THREE FISSION PRODUCT BARRIERS WITH POTENTIAL LOSS OF THE THIRD BARRIER (e.g., LOSS OF FUEL INTEGRITY AND PRIMARY COOLANT BOUNDARY AND HIGH POTENTIAL FOR RADIOACTIVITY RELEASE FROM CONTAINMENT)</p> <p><u>Detection Method:</u></p> <p><u>EITHER 1 OR 2 OR 3:</u></p> <hr/> <p>1. Primary coolant dose equivalent I-131 activity <math>\geq 300 \mu\text{Ci/gm}</math> <u>AND</u> LOCA in progress <u>AND</u> Reactor Building pressure <math>\geq 30</math> psig for at least 2 minutes.</p> <p>-----<u>OR</u>-----</p> <p>2. Primary coolant dose equivalent I-131 activity <math>\geq 300 \mu\text{Ci/gm}</math> <u>AND</u> breach of containment integrity and <u>EITHER</u> a <u>OR</u> b:</p> <p>a. RCS leakage greater than Technical Specification allowable.</p> <p><u>OR</u></p> <p>b. RCS pressure <math>\geq 2335</math> psig.</p> <p>-----<u>OR</u>-----</p> <p>3. LOCA <u>AND</u> breach of containment integrity and <u>EITHER</u> a <u>OR</u> b:</p> <p>a. Dose equivalent I-131 activity <math>\geq 1 \mu\text{Ci/gm}</math> in primary coolant.</p> <p><u>OR</u></p> <p>b. Core Exit temperature <math>\geq 700^\circ \text{F}</math>.</p> <hr/>



TABLE 4-1  
EMERGENCY ACTION LEVELS  
STEAM GENERATOR TUBE LEAK OR RUPTURE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (103)</b> EXCEEDING TECHNICAL SPECIFICATION PRIMARY TO SECONDARY LEAK RATE LIMIT</p> <p><u>Detection Method:</u></p> <p>Primary to Secondary Leak Rate Exceeds Technical Specification 3.4.6.2 Limits:</p> <p>&gt; 150 gpd from any one Steam Generator for &gt; 4 hours.</p> <p>-----</p> <p>-</p>	<p><b>INITIATING CONDITION (203)</b> RAPID FAILURE OF SEVERAL STEAM GENERATOR TUBES (e.g., SEVERAL HUNDRED GALLONS PER MINUTE PRIMARY-TO-SECONDARY LEAK RATE)</p> <p><u>Detection Method:</u></p> <p>Entry into EOP-4.0.</p> <p><b>ALERT</b></p> <p><b>INITIATING CONDITION (202)</b> RAPID GROSS FAILURE OF ONE STEAM GENERATOR TUBE WITH LOSS OF OFFSITE POWER</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3):</p> <p>-----</p> <p>1. Primary to Secondary Leakage Exceeds 10 gpm as determined per AOP-112.2.</p> <p>----- <u>AND</u> -----</p> <p>2. Safety Injection is <u>NOT</u> required per AOP-112.2.</p> <p>----- <u>AND</u> -----</p> <p>3. A loss of offsite power has led to the loss of Condenser vacuum.</p> <p>-----</p> <p>-</p>	<p><b>INITIATING CONDITION (302)</b> RAPID FAILURE OF SEVERAL STEAM GENERATOR TUBES (SEVERAL HUNDRED GALLONS PER MINUTE PRIMARY-TO-SECONDARY LEAK RATE) WITH LOSS OF OFFSITE POWER</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. Entry into EOP-4.0.</p> <p>----- <u>AND</u> -----</p> <p>2. A loss of offsite power has led to the loss of Condenser vacuum.</p> <p>-----</p> <p>-</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
MAIN STEAM LINE BREAKS OR SECONDARY DEPRESSURIZATION

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (104)</b> RAPID SECONDARY SYSTEM DEPRESSURIZATION</p> <p><u>Detection Method:</u></p> <p>FOR STUCK OPEN STEAM GENERATOR SAFETIES OR RELIEF VALVES SEE INITIATING CONDITION 102.</p> <p>Rapid decrease in S/G pressure resulting in:</p> <p><u>ALL</u> of the following: (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. Safety Injection Actuation</p> <p>----- <u>AND</u> -----</p> <p>2. <u>Either</u> A <u>OR</u> B:</p> <p>A. Steamline Pressure &lt; 675 psig</p> <p><u>OR</u></p> <p>B. Steamline Differential Pressure Greater Than 97 psid.</p> <p>-----</p>	<p><b>INITIATING CONDITION (204)</b> MAJOR STEAM LINE BREAK (e.g., GREATER THAN 6 INCHES EQUIVALENT DIAMETER) WITH A SIGNIFICANT PRIMARY-TO-SECONDARY LEAK RATE.</p> <p><u>Detection Method:</u></p> <p><u>BOTH</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. The EOP Network has determined a faulted Steam Generator exists.</p> <p>----- <u>AND</u> -----</p> <p>2. Primary to Secondary Leakage Exceeds 10 gpm as determined by <u>any</u> of the following:</p> <p>a) Pre-event analysis b) RM-G19 A, B, or C c) RM-A9, d) RM-L3, RM-L7, or RM-L10, or e) SG Sample Analysis.</p> <p>-----</p>	<p><b>INITIATING CONDITION (303)</b> MAJOR STEAM LINE BREAK WITH GREATER THAN 50 GALLONS PER MINUTE PRIMARY-TO-SECONDARY LEAKAGE <u>AND</u> INDICATION OF FUEL DAMAGE.</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3):</p> <p>-----</p> <p>1. The EOP Network has determined a faulted Steam Generator exists.</p> <p>----- <u>AND</u> -----</p> <p>2. Primary to Secondary Leakage Exceeds 50 gpm as determined by <u>any</u> of the following:</p> <p>a) Pre-event analysis, b) RM-G19 A, B, or C c) RM-A9, d) RM-L3, RM-L7, or RM-L10, or e) SG Sample Analysis.</p> <p>----- <u>AND</u> -----</p> <p>3. There is failed fuel indicated as determined by <u>BOTH</u> of the following:</p> <p>a) RML-1 High Range Valid Alarm. b) RCS DEI-131 <math>\geq</math> 300 <math>\mu</math>Cl/gm.</p> <p>-----</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
LOSS OF HEAT SINK

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
		SEE INITIATING CONDITION 301 (REACTOR COOLANT SYSTEM LOCA)	<p>INITIATING CONDITION (411) TRANSIENT INITIATED BY LOSS OF FEEDWATER AND CONDENSATE SYSTEMS (PRINCIPLE HEAT REMOVAL SYSTEM) FOLLOWED BY FAILURE OF EMERGENCY FEEDWATER SYSTEM FOR EXTENDED PERIOD. CORE MELTING POSSIBLE IN SEVERAL HOURS</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following exists (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. Inability to Establish Bleed and Feed Cooling when required per EOP-15.0</p> <p>----- <u>AND</u> -----</p> <p>2. Core Exit Temperatures <math>\geq</math> 700°F.</p> <p>-----</p>

TABLE 4-1  
EMERGENCY ACTION LEVELS  
TURBINE OR GENERATOR FAILURE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (105)</b> OTHER HAZARDS BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY</p> <p>(TURBINE-GENERATOR ROTATING COMPONENT FAILURE CAUSING RAPID PLANT SHUTDOWN)</p> <p><u>Detection Method:</u></p> <p>All of the following (1 AND 2):</p> <p>1. Turbine Trip</p> <p>-----AND-----</p> <p>2. Observation of Failure of <u>EITHER</u> a <u>OR</u> b:</p> <p>a. Turbine Rotating Assembly.</p> <p>-----OR-----</p> <p>b. Generator Rotating Assembly.</p>	<p><b>INITIATING CONDITION (292)</b> OTHER HAZARDS BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p>(TURBINE -GENERATOR FAILURE CAUSING CASING PENETRATION)</p> <p><u>Detection Method:</u></p> <p>All of the following (1 AND 2):</p> <p>1. Turbine Trip</p> <p>-----AND-----</p> <p>2. Observation of penetration of the turbine casing.</p>		

TABLE 4-1  
EMERGENCY ACTION LEVELS  
FUEL

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (106)</b> FUEL DAMAGE INDICATION</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. RM-L1 High Range Alarm,</p> <p>-----AND-----</p> <p>2. Primary coolant dose equivalent I-131 activity <math>\geq 30 \mu\text{Ci/gm}</math>.</p>	<p><b>INITIATING CONDITION (221)</b> POSSIBLE FUEL DAMAGE</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. RM-L1 High Range Alarm,</p> <p>-----AND-----</p> <p>2. Primary coolant dose equivalent I-131 activity <math>\geq 300 \mu\text{Ci/gm}</math>.</p>	<p><b>INITIATING CONDITION (321)</b> DEGRADED CORE WITH POSSIBLE LOSS OF COOLABLE GEOMETRY</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3):</p> <p>-----</p> <p>1. RM-L1 High Range off scale (<math>&gt;10^8</math> cpm) with primary coolant dose equivalent I-131 activity <math>\geq 300 \mu\text{Ci/gm}</math>,</p> <p>-----AND-----</p> <p>2. Core Exit Temperatures <math>\geq 700^\circ\text{F}</math>,</p> <p>-----AND-----</p> <p>3. No indication of forced or natural circulation.</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
FUEL HANDLING

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><b>INITIATING CONDITION (222)</b> FUEL HANDLING ACCIDENT WITH RELEASE OF RADIOACTIVITY TO REACTOR <u>OR</u> FUEL HANDLING BUILDING</p> <p><u>Detection Method:</u></p> <p><u>EITHER 1 OR 2:</u></p> <p>1. a. In the Reactor Building:</p> <p>Observation of damage to one spent fuel assembly.</p> <p>-----AND-----</p> <p>b. RM-G5, RM-G17A and RM-G17B high alarm.</p> <p>-----OR-----</p> <p>2. a. In the Fuel Handling Building: Observation of damage to one spent fuel assembly.</p> <p>-----AND-----</p> <p>b. RM-A6 high alarm, <u>OR</u> RM-G8 high alarm.</p>	<p><b>INITIATING CONDITION (322)</b> MAJOR DAMAGE TO MORE THAN ONE SPENT FUEL ASSEMBLY IN REACTOR BUILDING <u>OR</u> FUEL HANDLING BUILDING LEADING TO CLAD RUPTURE (e.g., LARGE OBJECT DAMAGES FUEL OR WATER LOSS BELOW FUEL LEVEL)</p> <p><u>Detection Method:</u></p> <p><u>EITHER 1 OR 2:</u></p> <p>1. a. In the Reactor Building:</p> <p>Observation of major damage to more than one spent fuel assembly <u>OR</u> water level below the tops of spent fuel assemblies.</p> <p>-----AND-----</p> <p>b. RM-G5, G17A and RM-G 17B high alarms.</p> <p>-----OR-----</p> <p>2. a. In the Fuel Handling Building: Observation of major damage to more than one spent fuel assembly <u>OR</u> water level below the tops of spent fuel assemblies.</p> <p>-----AND-----</p> <p>b. RM-A6 or RM-G8 high alarm.</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
ENGINEERED SAFETY FEATURE (FAILURE OF REACTOR TO TRIP)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><b>INITIATING CONDITION (231)</b> FAILURE OF THE REACTOR PROTECTION SYSTEM TO INITIATE AND COMPLETE A TRIP WHICH BRINGS THE REACTOR SUBCRITICAL</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. An automatic reactor trip fails when required,</p> <p>----- <u>AND</u> -----</p> <p>2. A manual reactor trip from either MCB handswitch <u>is successful</u>.</p>	<p><b>INITIATING CONDITION (331)</b> TRANSIENT REQUIRING OPERATION OF SHUTDOWN SYSTEMS WITH FAILURE TO TRIP (CONTINUED GENERATION, NO FUEL DAMAGE EVIDENT)</p> <p><u>Detection Method:</u> Entry into EOP-13.0 from EOP-1.0, Step 1.</p>	<p><b>INITIATING CONDITION (431)</b> TRANSIENT REQUIRING OPERATION OF SHUTDOWN SYSTEMS WITH FAILURE TO TRIP WHICH RESULTS IN CORE DAMAGE OR ADDITIONAL FAILURE OF CORE COOLING AND MAKEUP SYSTEMS WHICH COULD LEAD TO CORE MELT</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. Entry into EOP-13.0 from EOP-1.0, Step 1.</p> <p>----- <u>AND</u> -----</p> <p>2. <u>EITHER</u> a <u>OR</u> b.</p> <p>a) RM-L1 alarm, with primary coolant dose equivalent I-131 activity <math>\geq 300 \mu\text{Ci/gm}</math>.</p> <p><u>OR</u></p> <p>b) Inability to successfully complete "Initiate Emergency Boration of the RCS" when required per EOP-13.0. (With the reactor not tripped.)</p>

TABLE 4-1  
EMERGENCY ACTION LEVELS  
LOSS OF STATION AC POWER

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (107)</b> TOTAL LOSS OF OFFSITE POWER <u>OR</u> LOSS OF ONSITE AC POWER CAPABILITY</p> <p>Detection Method:</p> <p><u>EITHER 1 OR 2 OR 3:</u></p> <p>-----</p> <p>1. a) Loss of 115KV ESF Potential Lights</p> <p style="text-align: center;">AND</p> <p>b) 230KV ESF Potential Lights.</p> <p style="text-align: center;">-----OR-----</p> <p>2. Automatic actuation of <u>BOTH</u> trains of emergency Diesel Generators due to degraded or undervoltage conditions.</p> <p style="text-align: center;">-----OR-----</p> <p>3. <u>BOTH</u> Diesel Generators unavailable for &gt; 1 hour.</p>	<p><b>INITIATING CONDITION (241)</b> LOSS OF OFFSITE POWER AND LOSS OF ALL ONSITE AC POWER FOR MORE THAN 5 MINUTES</p> <p>Detection Method:</p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3): Lost for a period of from 5 to 15 minutes</p> <p>-----</p> <p>1. <u>BOTH</u> Diesel Generators unavailable,</p> <p style="text-align: center;">-----AND-----</p> <p>2. Loss of 115KV ESF Potential Lights</p> <p style="text-align: center;">-----AND-----</p> <p>3. Loss of 230KV ESF Potential Lights</p>	<p><b>INITIATING CONDITION (341)</b> LOSS OF OFFSITE POWER AND LOSS OF ONSITE AC POWER FOR MORE THAN 15 MINUTES</p> <p>Detection Method:</p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3): Lost for a period greater than 15 minutes</p> <p>-----</p> <p>1. <u>BOTH</u> Diesel Generators unavailable,</p> <p style="text-align: center;">-----AND-----</p> <p>2. Loss of 115KV ESF Potential Lights</p> <p style="text-align: center;">-----AND-----</p> <p>3. Loss of 230KV ESF Potential Lights</p>	<p><b>INITIATING CONDITION (441)</b> FAILURE OF OFFSITE AND ONSITE POWER ALONG WITH TOTAL LOSS OF EMERGENCY FEEDWATER MAKEUP CAPABILITY.</p> <p>Detection Method:</p> <p><u>ALL</u> of the following lost (1 <u>AND</u> 2 <u>AND</u> 3 <u>AND</u> 4):</p> <p>-----</p> <p>1. <u>BOTH</u> Diesel Generators unavailable,</p> <p style="text-align: center;">-----AND-----</p> <p>2. Loss of 115KV ESF Potential Lights</p> <p style="text-align: center;">-----AND-----</p> <p>3. Loss of 230KV ESF Potential Lights</p> <p style="text-align: center;">-----AND-----</p> <p>4. <u>EITHER</u> a <u>OR</u> b:</p> <p>a) Steam Driven Emergency Feedwater Pump fails to start <u>AND</u> is unavailable for one hour.</p> <p style="text-align: center;">OR</p> <p>b) Core Exit Temperatures <math>\geq 700^{\circ}</math> F.</p>



TABLE 4-1  
EMERGENCY ACTION LEVELS  
LOSS OF STATION DC POWER

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><b>INITIATING CONDITION (242)</b> LOSS OF ALL ONSITE DC POWER FOR A PERIOD GREATER THAN 5 MINUTES</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3): Lost for a period of from 5 to 15 minutes</p> <p>-----</p> <p>1. DC bus undervoltage alarms on all ESF buses, -----<u>AND</u>-----</p> <p>2. 480V ESF Channel A <u>OR</u> B Loss of DC Alarm. -----<u>AND</u>-----</p> <p>3. DG A <u>OR</u> B Loss of DC Alarm.</p>	<p><b>INITIATING CONDITION (342)</b> LOSS OF ALL VITAL ONSITE DC POWER FOR MORE THAN 15 MINUTES</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3): Lost for a period greater than 15 minutes</p> <p>-----</p> <p>1. DC bus undervoltage alarms on all ESF buses, -----<u>AND</u>-----</p> <p>2. 480V ESF Channel A <u>OR</u> B Loss of DC Alarm, -----<u>AND</u>-----</p> <p>3. DG A <u>OR</u> B Loss of DC Alarm.</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
RADIOLOGICAL EFFLUENTS (1 of 2)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (108)</b> GASEOUS EFFLUENT INSTANTANEOUS RELEASE RATE TECHNICAL SPECIFICATION LIMITS EXCEEDED FOR 1 HOUR (APPENDIX B TABLE II, COLUMN 1 10CFR20)</p> <p><u>Detection Method:</u> <b>EITHER (1 OR 2 OR 3 OR 4):</b></p> <p>1. RM-A3 (Gas) increases <math>&gt; 1 \times 10^5</math> cpm above bkgd in any 1 hour.</p> <p>-----OR-----</p> <p>2. RM-A3 (Iodine) increases <math>&gt; 8 \times 10^4</math> cpm above bkgd in any 1 hour.</p> <p>-----OR-----</p> <p>3. RM-A4 (Gas) exceeds 4 times the high alarm setpoint for more than 1 hour.</p> <p>-----OR-----</p> <p>4. RM-A4 (Iodine) in valid high alarm for more than 1 hour.</p> <p>Classification for gaseous radiological effluents can also be determined using EPP-005.</p>	<p><b>INITIATING CONDITION (261)</b> SUSTAINED HIGH RADIATION LEVELS OR HIGH AIRBORNE CONTAMINATION WHICH INDICATES A SEVERE DEGRADATION IN THE CONTROL OF RADIOACTIVE MATERIALS (e.g., INCREASE BY A FACTOR OF 1000 IN DIRECT RADIATION READINGS)</p> <p><u>Detection Method:</u> <b>EITHER (1 OR 2):</b></p> <p>1. Unexpected valid RMG readings as follows:</p> <p>a. RM-G2-4, 8-13, or 16; greater than 2.5 R/hr <u>OR</u></p> <p>b. RM-G7, 17A, 17B, or 18 greater than 100 R/hr <u>OR</u></p> <p>c. RM-G1; greater than 1 R/hr.</p> <p>-----OR-----</p> <p>2. Unexpected plant area iodine or particulate airborne concentration greater than 1000 DAC (as per 10CFR20 Appendix B, Table 1).</p> <p>Classification for gaseous radiological effluents can also be determined using EPP-005.</p>	<p><b>INITIATING CONDITION (361)</b> PROJECTED DOSE GREATER THAN 50 MILLIREM TEDE (WHOLE BODY)</p> <p><u>OR</u></p> <p>GREATER THAN 250 MILLIREM CDE (THYROID) AT OR BEYOND THE EXCLUSION AREA BOUNDARY</p> <p><u>Detection Method:</u> Non-routine release(s) cause an alarm of RM-A3, A4, A13, A14, or RM-G19 (or detection by other means) warrant an offsite dose assessment and the results indicate projections exceeding the above doses at or beyond the exclusion area boundary.</p> <p>Classification for gaseous radiological effluents can also be determined using EPP-005.</p>	<p><b>INITIATING CONDITION (461)</b> EFFLUENT MONITORS DETECT LEVELS CORRESPONDING TO 1 REM TEDE (WHOLE BODY)</p> <p><u>OR</u></p> <p>5 REM CDE (THYROID) AT THE EXCLUSION AREA BOUNDARY UNDER ACTUAL METEOROLOGICAL CONDITIONS.</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>1. Radiation Monitor levels exceed those specified for Site Area Emergency,</p> <p><u>AND</u></p> <p>2. Calculation on Dose Assessment Forms indicates levels exceeding 1 Rem TEDE (whole body) or 5 Rem CDE (thyroid) at the exclusion area boundary using radiation monitor readings and effluent stream flow rates (measured or assumed) for actual meteorological conditions; or using field measurements.</p> <p>Classification for gaseous radiological effluents can also be determined using EPP-005.</p>

TABLE 4-1  
EMERGENCY ACTION LEVELS  
RADIOLOGICAL EFFLUENTS (2 of 2)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (109)</b> LIQUID EFFLUENT CONCENTRATIONS TECHNICAL SPECIFICATIONS LIMITS EXCEEDED FOR 15 MINUTES (APPENDIX B TABLE II COLUMN 2 10CFR20)</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. <u>ANY</u> of the following liquid effluent monitors in valid High Alarm for longer than 15 min.</p> <p>RM-L5 or RM-L7 or RM-L9</p> <p>AND</p> <p>2. The associated isolation valve(s) fail to close:</p>	<p><b>INITIATING CONDITION (262)</b> RADIOLOGICAL EFFLUENT RELEASE RATE EXCEEDING 10 TIMES TECHNICAL SPECIFICATION INSTANTANEOUS LIMITS</p> <p><u>Detection Method:</u></p> <p><u>ANY</u> of the following valid radiation monitor readings for longer than 15 minutes (1 <u>OR</u> 2 <u>OR</u> 3 <u>OR</u> 4 <u>OR</u> 5):</p> <p>-----</p> <p>1. RM-A3 (Gas) is off scale high.</p> <p>----- <u>OR</u> -----</p> <p>2. RM-A3 (Iodine) is off scale high.</p> <p>----- <u>OR</u> -----</p> <p>3. RM-A4 (Gas) exceeds 40 times high alarm setpoint.</p> <p>----- <u>OR</u> -----</p> <p>4. RM-A4 (Iodine) exceeds 10 times high alarm setpoint.</p> <p>----- <u>OR</u> -----</p> <p>5. RM-L5, RM-L7, or RM-L9 exceeds 10 times high alarm setpoint <u>and</u> isolation valve(s) fail to close.</p>	<p><b>INITIATING CONDITION (362)</b> DOSE RATES LISTED BELOW ARE PROJECTED BASED ON GAMMA RADIATION MONITOR (RMG) READINGS AND/OR OTHER PLANT PARAMETERS OR ARE MEASURED AT THE EXCLUSION AREA BOUNDARY</p> <p><u>Detection Method:</u></p> <p><u>EITHER</u> 1 <u>OR</u> 2 <u>OR</u> 3:</p> <p>-----</p> <p>1. Reactor Building leak rate results in calculated dose rate at exclusion area boundary greater than <u>EITHER</u> (a <u>OR</u> b):</p> <p>a. Greater than 50 mrem/hr whole body for 0.5 hour.</p> <p>OR</p> <p>b. 500 mrem/hr whole body for 2 minutes.</p> <p>----- <u>OR</u> -----</p> <p>2. Radiation Monitoring Teams measure dose rates at one mile or greater from the plant at greater than <u>EITHER</u> (a <u>OR</u> b):</p> <p>a. 50 mrem/hr for 0.5 hour.</p> <p>OR</p> <p>b. Greater than 500 mrem/hr for 2 minutes (beta + gamma)</p> <p>----- <u>OR</u> -----</p> <p>3. Radiation Monitoring Teams measure thyroid dose rates (equivalent I-131 concentrations) at one mile or greater from the plant at greater than <u>EITHER</u> (a or b):</p> <p>a. 250 mrem/hr (<math>1.3 \times 10^{-7}</math> <math>\mu\text{Ci/cc}</math>) for 0.5 hour.</p> <p>OR</p> <p>b. 2500 mrem/hr (<math>1.3 \times 10^{-6}</math> <math>\mu\text{Ci/cc}</math>) for 2 minutes.</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
FIRE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (110)</b> FIRE WITHIN THE PROTECTED AREA OR THE SWITCHYARD LASTING MORE THAN 15 MINUTES</p> <p><u>Detection Method:</u></p> <p>Observation of Fire lasting more than 15 minutes within:</p> <p>EITHER 1 <u>OR</u> 2:</p> <p>-----</p> <p>1. Protected Area</p> <p>-----<u>OR</u>-----</p> <p>2. Switchyard</p>	<p><b>INITIATING CONDITION (271)</b> FIRE POTENTIALLY AFFECTING SAFETY SYSTEMS.</p> <p><u>Detection Method:</u></p> <p>Observation of a fire that has the potential for rendering a safety system inoperable per the Technical Specifications.</p>	<p><b>INITIATING CONDITION (371)</b> FIRE AFFECTING SAFETY TRAINS OR FUNCTIONS</p> <p><u>Detection Method:</u></p> <p>Observation of a fire that renders both trains of a safety system or function inoperable per the Technical Specifications.</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
SECURITY

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (111)</b> SECURITY THREAT OR ATTEMPTED ENTRY OR ATTEMPTED SABOTAGE</p> <p><u>Detection Method:</u></p> <p>Report to the Control Room by Security or observer.</p> <p>See EPP-001 Attachment III for additional guidance.</p>	<p><b>INITIATING CONDITION (281)</b> ONGOING SEVERE SECURITY THREAT</p> <p><u>Detection Method:</u></p> <p>Security safeguards contingency event which results in adversaries commandeering or causing significant damage to a Non-Vital area within the <u>Protected Area</u>.</p> <p>See EPP-001 Attachment III for additional guidance.</p>	<p><b>INITIATING CONDITION (381)</b> SECURITY THREAT INVOLVING IMMINENT LOSS OF PHYSICAL CONTROL OF THE PLANT</p> <p><u>Detection Method:</u></p> <p>Security safeguards contingency event which results in adversaries commandeering or causing significant damage to a <u>Vital Area</u> of the Plant.</p> <p>Refer to SEG-001 in the Control Room for a list of Vital Areas.</p> <p>See EPP-001 Attachment III for additional guidance.</p>	<p><b>INITIATING CONDITION (481)</b> SECURITY THREAT RESULTING IN LOSS OF PHYSICAL CONTROL OF THE FACILITY</p> <p><u>Detection Method:</u></p> <p>Physical attack on the Plant has resulted in occupation of:</p> <p><u>EITHER 1 OR 2:</u></p> <p>-----</p> <p>1. Control Room.</p> <p>----- <u>OR</u> -----</p> <p>2. Control Room Evacuation Panel Rooms.</p> <p>See EPP-001 Attachment III for additional guidance.</p>

TABLE 4-1  
EMERGENCY ACTION LEVELS  
EARTHQUAKE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (112)</b> EARTHQUAKE</p> <p><u>Detection Method:</u> <b>BOTH 1 AND 2</b></p> <hr/> <p>1. Seismic Recording System Start Indication,</p> <hr/> <p><b>-AND-</b></p> <hr/> <p>2. Confirmation of a seismic event through observation (felt or heard) in the Control Room.</p>	<p><b>INITIATING CONDITION (291)</b> EARTHQUAKE GREATER THAN THE 2/3 OPERATING BASIS EARTHQUAKE LEVEL</p> <p><u>Detection Method:</u> <b>BOTH 1 AND 2</b></p> <hr/> <p>1. Seismic Event Annunciator 2/3 OBE exceeded (one or more yellow lights lit),</p> <hr/> <p><b>-AND-</b></p> <hr/> <p>2. Confirmation of a seismic event through observation (felt or heard) in the Control Room.</p>	<p><b>INITIATING CONDITION (391)</b> EARTHQUAKE GREATER THAN OPERATING BASIS EARTHQUAKE LEVEL BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN</p> <p><u>Detection Method:</u> <b>BOTH 1 AND 2</b></p> <hr/> <p>1. Observation of the event (felt or heard) lasting &gt;2 seconds,</p> <hr/> <p><b>-AND-</b></p> <hr/> <p>2. <b>EITHER a OR b:</b></p> <p>a. RB Foundation Seismic Switch OBE exceeded.</p> <p><b>OR</b></p> <p>b. Seismic Event Annunciator OBE exceeded (one or more red lights lit).</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
TORNADO OR WIND

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<b>INITIATING CONDITION (112)</b> <b>TORNADO ONSITE</b>  <u>Detection Method</u> Observation of Tornado In Exclusion Area.	<b>INITIATING CONDITION (291)</b> <b>TORNADO STRIKING FACILITY</b>  <u>Detection Method:</u> Observation of a Tornado within <u>EITHER a or b:</u> ----- a) Protected Area ----- <u>OR</u> ----- b) Switchyard.	<b>INITIATING CONDITION (391)</b> <b>SUSTAINED WINDS IN EXCESS OF 100 MILES PER HOUR ONSITE BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN</b>  <u>Detection Method:</u> Sustained winds in excess of <b>100 mph</b> onsite: As measured by <u>EITHER a or b:</u> ----- a) Onsite meteorological instrumentation ----- <u>OR</u> ----- c) The National Weather Service.	

HURRICANE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<b>INITIATING CONDITION (112)</b> <b>HURRICANE NEAR SITE</b>  <u>Detection Method:</u> Sustained winds in excess of <b>50 mph</b> onsite due to a hurricane: As measured by <u>EITHER a or b:</u> a. Onsite meteorological instrumentation. ----- <u>OR</u> ----- b. The National Weather Service.	<b>INITIATING CONDITION (291)</b> <b>SUSTAINED HURRICANE WINDS GREATER THAN 75 MILES PER HOUR NEAR SITE</b>  <u>Detection Method:</u> Sustained winds in excess of <b>75 mph</b> onsite due to a hurricane: As measured by <u>EITHER a or b:</u> a. Onsite meteorological instrumentation, ----- <u>OR</u> ----- b. The National Weather Service.	SAME AS TORNADO ABOVE	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
AIRCRAFT CRASH

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (113)</b> ONSITE AIRCRAFT CRASH BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY</p> <p><u>Detection Method:</u> Observation of Aircraft Crash within the Exclusion Area.</p>	<p><b>INITIATING CONDITION (292)</b> AIRCRAFT CRASH ON FACILITY BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p><u>Detection Method:</u> Observation of a Aircraft Crash within:  <u>EITHER</u> a or b: a. Protected Area ----- <u>OR</u> ----- b. Switchyard. -----</p>	<p><b>INITIATING CONDITION (392)</b> AIRCRAFT CRASH INTO VITAL STRUCTURES BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN</p> <p><u>Detection Method:</u> Aircraft crash causing damage <u>or</u> fire in <u>ANY</u> of the following areas:</p> <ul style="list-style-type: none"> <li>a. Reactor Building.</li> <li>b. Control Building Room.</li> <li>c. Auxiliary Building.</li> <li>d. Fuel Handling Building.</li> <li>e. DG Building.</li> <li>f. Intermediate Building.</li> <li>g. SW Building Intake Structures.</li> </ul>	

TRAIN DERAILMENT

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (113)</b> ONSITE TRAIN DERAILMENT BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY</p> <p><u>Detection Method:</u> 2. Observation of Train Derailment within the Exclusion Area.</p>			



TABLE 4-1  
EMERGENCY ACTION LEVELS  
MISSILE IMPACTS OR EXPLOSION

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><b>INITIATING CONDITION (292)</b> MISSILE IMPACTS ON FACILITY WITH RESULTANT MAJOR DAMAGE BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p><u>Detection Method:</u>  Observation of missile impacts on Plant structures or components with major damage.</p>	<p><b>INITIATING CONDITION (392)</b> MISSILE OR EXPLOSION IMPACT ON FACILITY RENDERING SEVERE DAMAGE TO SHUTDOWN EQUIPMENT BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN</p> <p><u>Detection Method:</u>  Loss of functions needed for hot shutdown (See specific Initiating Condition for this situation).</p>	
<p><b>NOTIFICATION OF UNUSUAL EVENT</b></p> <p><b>INITIATING CONDITION (113)</b> ONSITE EXPLOSION (EXCLUDING PLANNED ACTIVITIES) BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY</p> <p><u>Detection Method:</u>  Observation of Explosion within the Exclusion Area or warning from offsite</p>	<p><b>ALERT</b></p> <p><b>INITIATING CONDITION (292)</b> KNOWN EXPLOSION AT FACILITY RESULTING IN MAJOR DAMAGE TO PLANT STRUCTURES OR EQUIPMENT BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p><u>Detection Method:</u>  Observation of Major Damage by Explosion.</p>		

TABLE 4-1  
EMERGENCY ACTION LEVELS  
TOXIC OR FLAMMABLE GAS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>NEAR OR ONSITE TOXIC OR FLAMMABLE GAS RELEASE OF A MAGNITUDE THAT THREATENS PERSONNEL BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY</p> <p><u>Detection Method:</u></p> <p>Observation or credible warning of an unplanned release of toxic or flammable gas within the Exclusion Area.</p>	<p><u>INITIATING CONDITION (292)</u></p> <p>ENTRY INTO FACILITY ENVIRONS OF TOXIC OR FLAMMABLE GASES IN CONCENTRATION WHICH EXCEEDS THE LIMITS OF FLAMMABILITY OR TOXICITY BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p><u>Detection Method:</u></p> <p>Observation or credible warning of an unplanned release of toxic or flammable gas within:</p> <p><u>EITHER</u> a <u>OR</u> b:</p> <ul style="list-style-type: none"> <li>a. Protected Area,</li> <li>----- <u>OR</u> -----</li> <li>b. Switchyard.</li> </ul>	<p>ENTRY OF TOXIC OR FLAMMABLE GASES INTO VITAL AREA WHICH INVOLVES A SIGNIFICANT DEGRADATION OF PLANT SAFETY BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN</p> <p><u>Detection Method:</u></p> <p>Entry of Toxic or Flammable Gas into <u>ANY</u> of the following areas:</p> <ul style="list-style-type: none"> <li>a. Control Room,</li> <li>b. Cable Spreading Room,</li> <li>c. Reactor Building,</li> <li>d. ESF Switchgear Rooms,</li> <li>e. Control Room Evacuation Panel Rooms or</li> <li>f. Emergency Diesel Generator Rooms</li> </ul>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
LOSS OF RHR AT HALF PIPE OPERATIONS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><b>INITIATING CONDITION (297)</b> LOSS OF RESIDUAL HEAT REMOVAL FLOW FOR MORE THAN 20 MINUTES DURING HALF-PIPE OPERATIONS WITH VESSEL HEAD INSTALLED</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>THROUGH</u> 4) For a period of 20 to 40 minutes:</p> <p>1. Both RHR Loop A FLO LO <u>AND</u> RHR Loop B FLO LO annunciators in alarm, -----AND-----</p> <p>2. <u>NEITHER</u> RHR Pump is running, -----AND-----</p> <p>3. Core exit temperature increasing on core exit thermocouples, -----AND-----</p> <p>4. Reactor Vessel Head is in place and RCS loops are drained to 431'-5" or less.</p>	<p><b>INITIATING CONDITION (397)</b> LOSS OF RESIDUAL HEAT REMOVAL FLOW FOR MORE THAN 40 MINUTES DURING HALF-PIPE OPERATIONS WITH VESSEL HEAD INSTALLED <u>AND</u> HIGH HEAD SAFETY INJECTION/CHARGING UNAVAILABLE.</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>THROUGH</u> 5) For a period greater than 40 minutes:</p> <p>1. Both RHR Loop A FLO LO <u>AND</u> RHR Loop B FLO LO annunciators in alarm, -----AND-----</p> <p>2. <u>NEITHER</u> RHR pump is running, -----AND-----</p> <p>3. Core exit temperature increasing on core exit thermocouples, -----AND-----</p> <p>4. Reactor Vessel Head is in place and RCS loops are drained to 431'-5" or less, -----AND-----</p> <p>5. <u>NEITHER</u> train of Charging/SI is available.</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
LOSS OF PLANT ANNUNCIATORS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><u>INITIATING CONDITION (296)</u> MOST OR ALL ANNUNCIATOR ALARMS LOST</p> <p><u>Detection Method:</u> Greater than 75% of the MCB annunciators inoperable.</p>	<p><u>INITIATING CONDITION (396)</u> MOST OR ALL ANNUNCIATORS LOST <u>AND</u> PLANT TRANSIENT INITIATED OR IN PROGRESS</p> <p><u>Detection Method:</u> <u>ALL</u> of the following (1 <u>AND</u> 2): ----- 1. Greater than 75% of the MCB Annunciators inoperable, <u>AND</u> 2. Reactor Trip or Safety Injection actuation initiated or in progress. -----</p>	

CONTROL ROOM EVACUATION

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><u>INITIATING CONDITIONS (295)</u> EVACUATION OF CONTROL ROOM ANTICIPATED OR REQUIRED WITH CONTROL OF SHUTDOWN SYSTEMS ESTABLISHED FROM LOCAL STATIONS</p> <p><u>Detection Method:</u> Same as Initiating Condition.</p>	<p><u>INITIATING CONDITION (395)</u> EVACUATION OF CONTROL ROOM AND CONTROL OF SHUTDOWN SYSTEMS NOT ESTABLISHED FROM LOCAL STATIONS IN 15 MINUTES.</p> <p><u>Detection Method:</u> Same as Initiating Condition.</p>	

TABLE 4-1  
EMERGENCY ACTION LEVELS  
EMERGENCY DIRECTOR DISCRETION

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p><b>INITIATING CONDITION (293)</b> OTHER PLANT CONDITIONS EXIST THAT WARRANT ACTIVATION OF TECHNICAL SUPPORT CENTER AND PLACING EMERGENCY OPERATIONS FACILITY PERSONNEL ON STANDBY</p> <p><u>Detection Method:</u> As determined by IED/ED.</p>	<p><b>INITIATING CONDITION (393)</b> OTHER PLANT CONDITIONS EXIST THAT WARRANT ACTIVATION OF EMERGENCY FACILITIES AND RADIATION MONITORING TEAMS AND A PRECAUTIONARY PUBLIC WARNING</p> <p><u>Detection Method:</u> As determined by IED/ED.</p>	<p><b>INITIATING CONDITION (493)</b> OTHER PLANT CONDITIONS EXIST THAT WARRANT ACTIVATION OF EMERGENCY FACILITIES AND RECOMMENDED PROTECTIVE MEASURES FOR THE PUBLIC</p> <p><u>Detection Method:</u> As determined by IED/ED.</p>

TABLE 4-1  
EMERGENCY ACTION LEVELS  
OTHER

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p><b>INITIATING CONDITION (115)</b> UNPLANNED LOSS OF ALL ONSITE OR OFFSITE COMMUNICATIONS CAPABILITY.</p> <p><u>Detection Method:</u></p> <p>Unplanned loss of <u>EITHER 1 OR 2</u>:</p> <p>-----</p> <p>1. <u>ALL</u> of the following onsite communications capability affecting the ability to perform routine operations.</p> <p>a. Internal telephone system, b. Gai-Tronics system and c. Radio System</p> <p>----- <u>OR</u> -----</p> <p>2. <u>All</u> offsite communications capability. (When extraordinary means must be used to make communications.)</p> <p>a. Internal telephone system, b. Bell Lines, c. Fiberoptic Links and d. Radio System</p>	<p><b>INITIATING CONDITION (294)</b> LOSS OF ALL FUNCTIONS NEEDED FOR PLANT COLD SHUTDOWN</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following lost (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. RHR system not functional in Modes 1 to 4,</p> <p><u>AND</u></p> <p>2. Inability to reject heat to the condenser and atmosphere.</p>	<p><b>INITIATING CONDITION (394)</b> LOSS OF FUNCTIONS NEEDED FOR PLANT HOT SHUTDOWN</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following lost: (1 <u>AND</u> 2 <u>AND</u> 3 <u>AND</u> 4):</p> <p>-----</p> <p>1. Inability to establish charging pump injection,</p> <p><u>AND</u></p> <p>2. Inability to establish Emergency Feedwater Flow,</p> <p><u>AND</u></p> <p>3. RHR System not functional (applicable to Modes, 1, 2, and 3 only),</p> <p><u>AND</u></p> <p>4. Inability to reject heat to the condenser <u>AND</u> atmosphere.</p>	
<p><b>NOTIFICATION OF UNUSUAL EVENT</b></p> <p><b>INITIATING CONDITION (114)</b> INABILITY TO REACH REQUIRED SHUTDOWN WITHIN TECHNICAL SPECIFICATION LIMITS</p> <p><u>Detection Method:</u></p> <p>Same as Initiating Condition</p>			

## 5.0 ORGANIZATIONAL CONTROL OF EMERGENCIES

Emergency planning must consider the capabilities of the normally present operating staff augmented by support from other utility personnel and local and distant support agencies. The initial phases of an emergency situation at an operating nuclear power plant will 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, and (3) promptly notifying other groups and individuals in the emergency organization. The followup phase of the emergency situation may require augmentation to the emergency organization. In the case of a General Emergency, this will result in the mobilization of all personnel resources of the South Carolina Electric and Gas Company under the direction of the President and Chief Operating Officer.

The Normal Plant Organization at the Virgil C. Summer Nuclear Power Station has complete capability at all times to perform the detection, classification and notification functions required in the early phases of an emergency. These capabilities are augmented, as required, by the Onsite Emergency Organization and the Offsite Emergency Organization.

This section of the Radiation Emergency Plan addresses the assignment of personnel and the establishment of responsibilities and authority for the:

- Normal Plant Organization
- Onsite Emergency Organization
- Offsite Emergency Organization

Operating and engineering activities at the Virgil C. Summer Nuclear Power Station are under the control of the Sr. Vice President, Nuclear Operations. The overall SCE&G and V. C. Summer Nuclear Station Functional Organization is shown in Figure 5-1.

SCE&G also has various engineering service contracts with the NSSS supplier and the Architect-Engineers for both routine and emergency services. Organizational structure and communication arrangements exist to assure that these services are available and can be obtained in a timely manner.

## 5.1 Normal Station Organization

The Virgil C. Summer operating organization is in conformance with ANSI N18.1 and includes the personnel encompassing both the management and operating units. 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 5-1.

The General Manager, Nuclear Plant Operations is responsible for the overall management of the facility. The Managers, Operations, Maintenance Services, Planning/Outage, Chemistry Services, and Health Physics Services report directly to the General Manager, Nuclear Plant Operations. See Figure 5-1 for additional details.

The Manager, Operations is responsible for the functional, safe and efficient operation of the plant in accordance with established procedures and the Technical Specifications. All operations personnel report to the Manager, Operations.

The Shift Supervisors, one of whom is on duty at all times, are responsible for the safety 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 Senior Reactor Operator's License. The Shift Supervisor maintains control over the conduct of operations and personnel in the Control Room.

The Manager, Maintenance Services is responsible for organizing and conducting the preventive and repair maintenance programs for mechanical and electrical equipment and instrumentation.

The Manager, Planning/Outage is responsible for organizing and conducting the scheduling of plant outage activities and special projects.

The Manager, Chemistry Services is responsible for the investigation and evaluation of the correct application of nuclear plant chemistry controls.

The Manager, Health Physics Services is responsible for the organization and conduct of the Station radiation protection program. His prime responsibility is that of maintaining radiation exposures of employees and the public to levels below regulatory limits while pursuing excellence in maintaining radiation exposures "as low as reasonably achievable" (ALARA).



The Manager, Nuclear Protection Services is responsible for the station security and emergency planning.

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 as a Shift Technical Advisor.

During off-hour shifts, the plant is manned to maintain continuous operation. The Normal Operational staff includes (as a minimum) two licensed Senior Reactor Operators (the Shift Supervisor and Control Room Supervisor), two licensed Reactor Operators, and two 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 Interim Emergency Director. Initial actions in regard to first aid, firefighting, rescue, damage control and radiation monitoring are performed by the normal operational staff.

## 5.2 Onsite Emergency Organization

In the event of an emergency as defined in Section 3.0 and 4.0, the Onsite Emergency Organization and appropriate emergency teams will be activated. If an emergency condition should occur during backshift periods at V.C. Summer Nuclear Station, the Shift Supervisor (Interim Emergency Director) will notify the Emergency Director (ED) and will alert and activate additional emergency personnel by means of normal telephone or radio pager communications. If emergency conditions warrant, the IED/ED, will designate an appropriate communicator to perform this function under his guidance. The estimated time to notify the emergency response personnel is approximately 20 minutes. The responsibilities of each position in the emergency organization are discussed below. The personnel who are trained and qualified for emergency response positions are listed by name in the Emergency Planning Telephone Directory which is updated quarterly. The Onsite Emergency Organization in general is shown in Figure 5-2. The extent to which the organization is manned will depend on the duration and classification of the emergency. The staffing requirements for the V.C. Summer Nuclear Station during emergency conditions are shown in Table 5-1.

In general, the emergency organization will be housed in three onsite centers:

- Control Room
- Technical Support Center (TSC)
- Operations Support Center (OSC)

The TSC and OSC will be activated about 1 hour after declaration of an Alert classification or greater. These centers are described in detail in Section 7.1. The activities in these centers are discussed below.

### 5.2.1 Interim Emergency Director

The Interim Emergency Director is the Shift Supervisor. The Shift Supervisor is always responsible for maintaining the plant in a condition as dictated by the extent of the emergency and applicable operating procedures.

As Interim Emergency Director, the Shift Supervisor's duties include:

- a. Verify the existence of an emergency and classify the emergency. (Can not be delegated.)
- b. Ensure notification of plant and Company management, and plant personnel of the existence of an emergency.
- c. Ensure activation of appropriate portions of the emergency organization.
- d. Ensure notification of offsite organizations and agencies.
- e. Verify proper operation of plant systems and monitors.
- f. Initiate assessment actions and monitor the affects of the emergency.
- g. Provide status, assessment information and recommended protection action to offsite emergency response agencies when conditions warrant. Recommendations will include and ensure expected protective action as afforded in residential units for direct and inhalation exposure. (Can not be delegated.)
- h. Implement the provisions of this Plan and applicable plant procedures. Regardless of existing plans, the judgment of the Interim Emergency Director plays a vital rôle in any emergency and may in some cases, take precedence over previously proposed action.
- i. Initiate protective measures onsite. The safety and well-being of station personnel are the responsibility of the Interim Emergency Director. No planned radiation exposures in excess of normal station limits are permitted without the authorization of the Interim Emergency Director. (Can not be delegated.)
- j. Ensure the enforcement of existing procedures regarding Control Room access and formality in order to prevent crowding and to ensure that the chain of command remains clear.

- k. Deactivate the emergency organization if the only class entered was Notification of Unusual Event after conferring with the Emergency Director. (Can not be delegated.)
- l. Take reasonable action that departs from a license condition or technical specification when such action is immediately needed to protect the public health and safety. (Can not be delegated.)

#### 5.2.2 Emergency Director

The Emergency Director is responsible for overall supervision of emergency operations onsite and assumes the duties described for the Interim Emergency Director as soon as he is onsite and thoroughly cognizant of the situation. The Emergency Director will base his operation from the Technical Support Center. The following duties cannot be delegated outside of the appropriate Emergency Director designees. If designees are unavailable, the Offsite Emergency Coordinator will assume those responsibilities.

In addition to the duties described for the Interim Emergency Director, the Emergency Director:

- a. Verifies correct control room response to the emergency condition.
- b. The Emergency Director is responsible for the verification of plant conditions and declaration of the proper emergency classification based on those plant conditions. The Emergency Director is responsible for downgrading Notification of Unusual Event and Alert classifications when conditions allow. For Site Area and General Emergencies, concurrence from the Emergency Control Officer, S. C. Department of Health and Environmental Control and the Nuclear Regulatory Commission will be obtained prior to downgrading and entering the recovery process.
- c. Confers with the Interim Emergency Director prior to his deactivation of the emergency organization during a Notification of Unusual Event.

- d. Initiates activation of additional plant personnel as indicated by the existing conditions based upon his analysis of the likely duration of the emergency.
- e. Confirms the activation of appropriate emergency facilities.
- f. Confers with the Supervisors in the Onsite Emergency Organization in regard to necessary additional facilities, equipment, supplies, or technical services which may be needed.
- g. Determines which design and construction/repair problems and procurement activities will be turned over to the Offsite Emergency Organization.
- h. Determines which functions in the Onsite Emergency Organization must be manned on a continuous 24 hours operations schedule for a protracted period and makes the appropriate assignments of plant personnel to assure adequate relief for continuous coverage.

#### 5.2.3 Technical Support Supervisor

The Technical Support Supervisor will base his operations in the Technical Support Center. The Technical Support Supervisor and the personnel he supervises will be responsible for assessing plant status, developing recommendations and procedures for emergency plant operations and maintenance, and providing technical support as required.

The Technical Support Staff will interface with the Engineering Support Group in the Offsite Emergency Organization.

#### 5.2.4 Radiological Assessment Supervisor

The Technical Support Center is the base of operations for the Radiological Assessment Supervisor (RAS) who is responsible for determining the extent and magnitude of the radiological hazards associated with an emergency situation. After the RAS arrives at the site, he will be responsible for radiological monitoring and assessment, of both onsite and offsite areas. Following the activation of the EOF, offsite radiation monitoring and sampling of media and dose assessment will become the responsibility of the Offsite Radiological Monitoring Coordinator.

The Radiological Assessment Supervisor is responsible for providing both offsite and onsite radiological information to the station staff. The radiation monitoring team(s), which reports to the Radiological Assessment Supervisor and are located in the Operations Support Center or Health Physics Laboratory when not needed, are discussed in Section 5.2.9.

5.2.5 Operations Supervisor

The Operations Supervisor will normally be in the Control Room. The Operations Supervisor will be responsible for providing liaison between the Shift Supervisor and Technical Support Center staff. The Operations Supervisor will provide technical assistance to the Shift Supervisor with the Shift Supervisor maintaining control of all plant operations.

5.2.6 Operations Support Center Supervisor

The Operations Support Center Supervisor will be in the Operations Support Center. Reporting to the Operations Support Center Supervisor are the emergency teams for firefighting, first aid, operations support and emergency repairs. The members of the radiation monitoring team will support the Operations Support Center as they are directed by the Radiological Assessment Supervisor.

5.2.7 TSC Lead Communicator

The TSC Lead Communicator will relay status and assessment information to the offsite authorities responsible for coordinating and implementing offsite emergency measures. The procedural steps necessary to complete the emergency notifications are stated in EPP-002, Communication and Notification. The communications systems available to the Technical Support Center are discussed in Section 7.0. Authorized periodic updates on status and assessment information will also be generated by the TSC Lead Communicator.

5.2.8 Security Supervisor

The Security Supervisor will be in the Operations Support Center. If the emergency involves a security related event, the Security Supervisor will report to the Technical Support Center. He will be responsible for the physical security of the plant, access control to the plant protected area and access control to plant vital areas.

## 5.2.9 Emergency Teams

Emergency Teams include field teams from the Health Physics, Maintenance, and Operations Groups. These personnel are trained in the use of radiation detection and communications systems. The response capabilities for vehicles and crews to be in the field is approximately 15 minutes.

### 5.2.9.1 Radiation Monitoring Team

On a backshift, the immediate response to a radiation emergency is from a member of the shift crew trained in the use of portable radiation measurement equipment.

When an event involving the release of radiation has occurred, the Interim Emergency Director (Shift Supervisor) will call out the members of the plant staff who are part of a Radiation Monitoring Team, and the Radiological Assessment Supervisor. As discussed in Section 5.2.4, the Radiological Assessment Supervisor is responsible for determining the extent and magnitude of the radiological hazards associated with an emergency situation. The members of the Radiation Monitoring Team will be assigned to conduct the radiation surveys both onsite and offsite until the Off-Site Radiological Monitoring Coordinator and staff are assembled. Additional Radiation Monitoring Teams will be assigned to monitor onsite personnel at designated holding areas. If required, a Radiation Monitoring Team will be assigned to conduct radiation surveys offsite. A Radiation Monitoring Team will be available onsite for performing radiological surveys as directed. The monitoring equipment to be used by the Radiation Monitoring Team is listed in Appendix B.

### 5.2.9.2 Fire Brigade

Personnel from the Operations and Maintenance Groups will comprise the first line fire brigade on all shifts. At all times, plant personnel that are off shift will be subjected to call out. Additional fire fighting support as described in Section 5.4.3 will be available to provide assistance if needed.

5.2.9.3 Medical Emergency Response Team

Trained personnel from the duty operating shift will be available at all times onsite to administer first aid treatment as required. If required, additional offsite support can be provided by Pinner Clinic, Fairfield County Emergency Medical Services, or Lexington County Emergency Medical Services.

5.2.9.4 Emergency Repair Team

The Emergency Repair Team will be utilized to effect temporary repairs to mitigate the effects of the emergency conditions and to perform maintenance activities associated with recovery. In the event an emergency occurs on a back shift, maintenance personnel can be called out in sufficient time to perform repairs.

5.2.9.5 Operators Support Team

The Operators Support Team will be composed of offshift personnel who will be called in to the Operations Support Center for subsequent assignment of duties in support of emergency operations.



### 5.3 Offsite Emergency Organization

The Offsite Emergency Organization, when activated, will provide all external support required for the Onsite Emergency Organization. Specifically, the offsite organization will provide augmenting technical expertise in engineering and in environmental monitoring and assessment; logistics support such as transportation, food, communications, materials and supplies, and other needed services.

If an emergency condition should occur at the V. C. Summer Nuclear Station requiring notification of the offsite Emergency Organization, the Emergency Director or his designee will notify the Offsite Emergency Coordinator and will alert and activate, as necessary, additional personnel by means of normal telephone or radio pager communications.

The Offsite Emergency Organization will also be the focal point for the news media, NRC officials, and other federal, state and local officials that are dispatched to the near-site area. The Offsite Emergency Organization is shown in Figure 5-3. The personnel who are trained and qualified for emergency response positions are listed by name in the Emergency Planning Telephone Directory which is updated quarterly. Figure 5-4 shows the interface between the Onsite and Offsite Emergency Organizations.

The Emergency Operations Facility (EOF) will be the focal point for the Offsite Emergency Organization. The EOF will be activated about 1 hour after declaration of a Site Area Emergency classification or greater. This facility is discussed in detail in Section 7.0. The positions in the Offsite Emergency Organization and their respective responsibilities are discussed in the following sections.

#### 5.3.1 Emergency Control Officer

The Emergency Control Officer has the authority to commit corporate resources and to manage the overall emergency and recovery operation. The Emergency Control Officer is responsible for:

- a. Managing SCE&G's overall response to emergencies.
- b. Ensuring effective liaison with Westinghouse, the Architect/Engineer, and other service and equipment contractors.

- c. Determining if a recovery organization is required and, if required, the scope and functions of the recovery organization.
- d. Activating additional corporate resources beyond those listed below to respond to emergencies.
- e. Approving announcements to be released to the News Media.

#### 5.3.2 Offsite Emergency Coordinator

The Offsite Emergency Coordinator will be the central coordinator for the offsite organization. The Offsite Emergency Coordinator will be responsible for:

- a. Maintaining awareness of plant status and offsite consequences of the emergency.
- b. Coordinating between the Onsite Emergency Organization and the Offsite Emergency Organization, when activated, in regard to obtaining necessary additional facilities, equipment, supplies, personnel, or technical services.
- c. Managing and supervising the activities of the Emergency Operations Facility.
- d. Serving as the primary contact for Federal, State, and County radiological emergency response agencies which dispatch personnel to the plant vicinity. The Offsite Emergency Coordinator will periodically update these representatives on the status of the plant and determine and provide recommendations on protective actions to be taken by the general public.
- e. Keeping the Emergency Control Officer and the Emergency Director apprised of the actions taken.
- f. Informing the various emergency response groups when the recovery response phase organization is to be implemented.
- g. If the Emergency Control Officer is not available, approving announcements to be released to the News Media by the Media Coordinator.

### 5.3.3 Technical Support Coordinator

The Technical Support Coordinator is responsible for design activities that are requested of the Offsite Emergency Organization by the Emergency Director or members of the onsite emergency organization. The Technical Support Coordinator is responsible for:

- a. Establishing necessary agreements to provide engineering support for the Virgil C. Summer Nuclear Station on an emergency basis such as Westinghouse and the Architect/Engineer.
- b. Establishing contact with outside engineering support organizations to resolve technical matters as necessary.
- c. Staffing the Emergency Operations Facility to ensure engineering activities are adequately staffed in a timely manner.
- d. Coordinating the integration of other supporting engineering personnel into the emergency organization.

### 5.3.4 Offsite Radiological Monitoring Coordinator

The Offsite Radiological Monitoring Coordinator will be responsible for:

- a. Conducting radiation surveys and sampling of environmental media in areas outside of the Protected Area.
- b. Coordinating offsite surveys with other surveys conducted by local and Federal teams.
- c. Retrieving the TLD's located offsite and determining cumulative population doses.
- d. Reporting data to the Radiological Assessment Supervisor and to the Offsite Emergency Coordinator.
- e. If requested, arranging support for 24 hours per day offsite radiation monitoring capability.
- f. Providing technical assistance in the evaluation of offsite and onsite radiological conditions including dose projections.
- g. Coordinating the operations of the Environmental Laboratory.

5.3.5 Media Coordinator

The Media Coordinator will be responsible for disseminating information to the public via the media. The Media Coordinator will report directly to the Emergency Control Officer. The Media Coordinator will prepare and issue official press releases as approved by the Emergency Control Officer, arrange press conferences, and prepare technically accurate information for release to the public.

5.3.6 Security Coordinator

Upon the establishment of the Emergency Operations Facility, the Security Coordinator will reside in the facility and report directly to the Offsite Emergency Coordinator. The Security Coordinator will be responsible for maintaining EOF security, coordinating EOF security with site security, and for interfacing with local law enforcement officials as needed.

The Security Coordinator will be responsible for badging activities and screening personnel for access and ensure training of personnel is completed prior to badging.

5.3.7 General Services Coordinator

The General Services Coordinator will be responsible to the Offsite Emergency Coordinator for all other needed support services and supplies. This will include typing and reproduction services, transportation, personnel accommodations, temporary offsite facilities and communications, and meals.

The General Services Coordinator will also be responsible for procurement and receipt of items requested by the Technical Support Coordinator.

5.3.8 EOF Communicator

The EOF Communicator will be responsible to the Offsite Emergency Coordinator for the operation of the communications systems at the Emergency Operations Facility and will act as liaison between the Offsite Emergency Coordinator and the other Centers.

#### 5.4 Local Services Support

The nature of an emergency may require augmenting the onsite emergency organization; therefore, it may become necessary to request and utilize assistance furnished by local personnel, organizations and activities. As a result, support service arrangements have been made with offsite groups to provide aid in the event of an emergency situation at the Virgil C. Summer Nuclear Station. Support services encompass medical assistance, fire control, evacuation, ambulance services, and law enforcement. Since it is imperative that the availability of these support agencies be on such short notice, written Letters of Agreement have been entered into with the organizations.

The agencies in the Letters of Agreement have outlined their responsibilities, assuring their response to a call for aid by the Interim Emergency Director or Emergency Director. A listing of the appropriate Letters of Agreement have been included in Appendix C. The updated Letters of Agreement will be maintained on file at the plant by the Emergency Services Supervisor or Security. The local services support groups are listed in the following subsections.

##### 5.4.1 Medical Support

Various types of medical emergencies require the aid of different medical support groups. In order to assure availability of medical support groups, Letters of Agreement have been entered into with medical groups capable of handling emergency situations. Dr. Pinner of Pinner Clinic serves as Virgil C. Summer's company physician and is available to respond to the site if medical treatment is required.

The Palmetto Richland Memorial Hospital is the closest hospital which will be used to treat accident victims who may be contaminated and/or irradiated. The REAC/TS hospital will provide a back-up response capability for patients with serious contamination or who receive a high exposure to radiation.

Victims of accidents or medical emergencies who are not contaminated or irradiated may be treated at the closest appropriate medical facility as determined by the responding Emergency Medical Services Crew Chief.

Both hospitals will cooperate with SCE&G to provide medical services for the V. C. Summer Nuclear Station. Both hospitals will provide for receiving and treatment, on a priority basis, of potentially irradiated and/or contaminated victims. Communications with Palmetto Richland Memorial hospital and REAC/TS hospital in Tennessee are by normal telephone lines.

#### 5.4.2 Medical Transportation

In situations when transportation of a victim(s) to a hospital is required, several options are available. The principal means of transportation is provided by the Fairfield County Emergency Medical Services (FCEMS). When an accident occurs requiring transportation of accident victim(s) to Palmetto Richland Memorial Hospital, an ambulance from the Fairfield County Emergency Medical Service will respond. The FCEMS is located approximately two miles from the V. C. Summer Nuclear Station and is staffed with Emergency Medical Technicians, Paramedics and additional qualified personnel capable of handling emergency situations. V. C. Summer Nuclear Station maintains a communications link with FCEMS by means of a dedicated telephone, radio, and normal telephone lines.

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 utilized in a case where multiple casualty victims would need transportation to offsite medical facilities. LCEMS is located approximately 15 miles from the V. C. Summer Nuclear Station and is staffed with Emergency Medical Technicians and Paramedics. Should the need arise, assistance from LCEMS will be requested by FCEMS.

#### 5.4.3 Fire-Fighting Support

In the event that fire fighting assistance is necessary several fire fighting companies have entered into Letters of Agreement with V. C. Summer Nuclear Station to provide support. The fire fighting companies which have submitted Letters of Agreement are as follows:

- a. Blair Volunteer Fire Department
- b. Greenbrier-Bethel Volunteer Fire Department
- c. Jenkinsville-Monticello-Horeb Volunteer Fire Department
- d. Feasterville Volunteer Fire Department
- e. Lebanon Volunteer Fire Department
- f. Community Volunteer Fire Department

Fire-fighting support can be requested through the Fairfield County Dispatcher in Winnsboro who will dispatch the fire fighting unit to the scene. If the fire brigade leader decides that outside assistance is necessary, relative to capability for the fire brigade to contain a fire, the fire brigade leader and shift supervisor will generate contact with outside support units in agreement with the Summer Station to provide volunteer (trained) personnel, and fire fighting equipment such as pumpers, tankers, and miscellaneous fire fighting equipment.

#### 5.4.4 Local Law Enforcement

In the event that local law enforcement assistance is necessary at the Virgil C. Summer Nuclear Station, several agencies will be available. These agencies include the Fairfield County Sheriff's Department, the South Carolina Law Enforcement Division, and the South Carolina Highway Patrol. If the nature of the emergency requires outside assistance in maintaining the security of the station, these agencies would be notified. The interrelationship of Local Law Enforcement with the station security group during an emergency is outlined in the station security plan.

## 5.5 Coordination With Government Agencies

The close coordination between the state, county and federal emergency plans and the V. C. Summer Emergency Plan is required to ensure the health and safety of the public. Discussed below are the agencies which have the responsibility for identifying protective actions for the general public and the authority to implement these actions. Section 5.6 discusses other Federal agencies which may be involved with an emergency situation. These agencies and their roles are discussed below. The locations of the emergency operations centers for these agencies are given in Section 7.3.

### 5.5.1 South Carolina Department of Health and Environmental Control

The S. C. Department of Health and Environmental Control is responsible for maintaining a radiological hazard assessment capability and providing radiological technical support, coordination and guidance for the State.

### 5.5.2 The S. C. Emergency Management Division - Office of the Adjutant General

When notified by the State Warning Point, the Emergency Management Division (EMD), Office of the Adjutant General, will coordinate off-site support from state, federal, and other support agencies in accordance with the South Carolina Operational Radiological Emergency Response Plan (SCORERP) and the South Carolina Emergency Operations Plan (SCEOP). The EMD will coordinate with other required state agencies and with involved local governments all protective actions ordered by the Governor. Figure 5-5 shows evacuation routes to Relocation Centers and evacuation times.

When notified that an emergency exists at V. C. Summer Nuclear Station, the state will verify receipt by all counties in the 10-mile EPZ and will also ensure that DHEC has received the emergency notification and is in contact with the appropriate personnel at V. C. Summer Nuclear Station.

Communication to off-site authorities is by a dedicated (ESSX) line to the State Warning Point at the SC Emergency Operations Center, the County Warning Points, and the Backup State Warning Point. State and County Warning Points are manned and operational 24-hours a day. SCE&G will provide a representative at the State Emergency Operations Center to serve as a liaison with state agencies.



The SEOC will activate at the Alert emergency classification and, once activated, all communications will be directed to the SEOC and the counties in accordance with the ESSX communication procedures.

Full activation of Fairfield, Newberry, Lexington and Richland EOCs will be in accordance with the counties' Emergency Operations Plan (EOP). County Emergency Operations Centers will be brought to standby status at Alert and full activation at Site Area Emergency classification level.

Other additional actions performed by EPD are outlined in SCORERP.

#### 5.5.3 Fairfield County Emergency Preparedness Agency

The Fairfield County EOC will be placed on standby at an Alert classification and full activation at a Site Area Emergency.

If the SEOC is operational, all Protective Action will be coordinated by the state with all four county governments over the dedicated (ESSX) decision line located in the SEOC, the four county EOCs and V. C. Summer Nuclear Station Control Room. When a decision has been made by the state and counties on a protective action, the decision will be relayed to V. C. Summer Nuclear Station. Siren and EAS activation will be coordinated over the decision line also. The time of siren and EAS activation will be relayed to V. C. Summer Nuclear Station immediately.

In the event of an immediate emergency and the SEOC is not operational, the counties will take the protective action recommended by V. C. Summer Nuclear Station. EAS activation will be coordinated by Fairfield County with the other three counties and relayed to the appropriate EAS station. (WCOS primary and WTCB secondary)

A representative from SCE&G will be dispatched to the Fairfield County EOC upon their request, to serve as a liaison with county agencies.

#### 5.5.4 Newberry County Disaster Preparedness Agency

The Newberry County EOC will be placed on standby at an Alert classification and full activation at a Site Area Emergency.

If the SEOC is operational, all Protective Action will be coordinated by the state with all four county governments over the dedicated (ESSX) decision line located in the SEOC, the four county EOC's and V. C. Summer Control Room. When a decision has been made by the state and counties on a protective action, the decision will be relayed to V. C. Summer Nuclear Station. Siren and EAS activation will be coordinated over the decision line also. The time of siren and EAS activation will be relayed to V. C. Summer Nuclear Station immediately.

In the event of an immediate emergency and the SEOC is not operational, the counties will take the protective action recommended by V. C. Summer Nuclear Station. EAS activation will be coordinated by Fairfield County with the other three counties and relayed to the appropriate EAS station. (WCOS primary and WTCB secondary)

A representative from SCE&G will be dispatched to the Newberry County EOC upon their request, to serve as a liaison with county agencies.

#### 5.5.5 Richland County Emergency Preparedness Office

The Richland County EOC will be placed on standby at an Alert classification and full activation at a Site Area Emergency.

If the SEOC is operational, all Protective Action will be coordinated by the state with all four county governments over the dedicated (ESSX) decision line located in the SEOC, the four county EOC's V. C. Summer Control Room. When a decision has been made by the state and counties on a protective action, the decision will be relayed to V. C. Summer Nuclear Station. Siren and EAS activation will be coordinated over the decision line also. The time of siren and EAS activation will be relayed to V. C. Summer Nuclear Station immediately.

In the event of an immediate emergency and the state is not operational, the counties will take the protective action recommended by V. C. Summer Nuclear Station. EAS activation will be coordinated by Fairfield County with the other three counties and relayed to the appropriate EAS station. (WCOS primary and WTCB secondary)

A representative from SCE&G will be dispatched to the Richland County EOC upon their request, to serve as a liaison with county agencies.

#### 5.5.6 Lexington County Emergency Preparedness Division

The Lexington County EOC will be placed on standby at an Alert classification and full activation at a Site Area Emergency.

If the SEOC is operational, all Protective Action will be coordinated by the state with all four county governments over the dedicated (ESSX) decision line located in the SEOC, the four county EOC's and V. C. Summer Control Room. When a decision has been made by the state and counties on a protective action, the decision will be relayed to V. C. Summer Nuclear Station. Siren and EAS activation will be coordinated over the decision line also. The time of siren and EAS activation will be relayed to V. C. Summer Nuclear Station immediately.

In the event of an immediate emergency and the SEOC is not operational, the counties will take the protective action recommended by V. C. Summer Nuclear Station. EAS activation will be coordinated by Fairfield County with the other three counties and relayed to the appropriate EAS station. (WCOS primary and WTCB secondary)

A representative from SCE&G will be dispatched to the Lexington County EOC upon their request, to serve as a liaison with county agencies.

## 5.6 Other Federal Agencies

### 5.6.1 Nuclear Regulatory Commission

In the event of an emergency, the NRC Office of Inspection and Enforcement, Region II, and Emergency Response Center, Rockville, Md., will be notified by the plant staff as required by 10CFR50. Personnel may be dispatched to the scene in the event of an emergency to lend support in the areas of observation and accident evaluation.

### 5.6.2 Federal Emergency Management Agency

The Federal Emergency Management Agency will provide guidance intended for use by the State and local governments that guide the emergency planning and preparedness activities. FEMA will make contributions when requested to assist in the development of State and local plans.

### 5.6.3 Department of Energy (DOE)

In the event of an emergency, the Department of Energy Savannah River Operations Office, will furnish advice, consultation and assistance regarding the protection of personnel, treatment of injured and/or exposed persons, minimization of further exposure and contamination, protection of materials, determination of existence and extent of contamination, public and press relations and cleanup of radioactive materials. The South Carolina Department of Health and Environmental Control, is responsible for notifying the DOE Savannah River Operations Office. However, this office will be notified directly by the Emergency Director and/or Offsite Emergency Coordinator if necessary. When requested, the Department of Energy Savannah River Operations Office will immediately dispatch an advanced support element with a reasonable arrival time of 2 hours. Also, a followup support team will be dispatched, to join the advanced element, but will require a reasonable arrival time of 4 hours.

### 5.6.4 Environmental Protection Agency

The United States Environmental Protection Agency when requested will provide significant additional emergency resources in the event of a serious accident. The supportive services consist of qualified radiation monitoring teams to protect the health and safety of the public.

#### 5.7 Public Notification - Early Warning

The primary means for alerting the public within the 10 mile EPZ around the V. C. Summer Nuclear Station will be accomplished by a siren system.

Activation of the Siren System will occur at the V. C. Summer Nuclear Station 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 siren signal will be a three minute steady signal. Upon determination of the need for public notification, the siren system can be activated within 15 minutes.

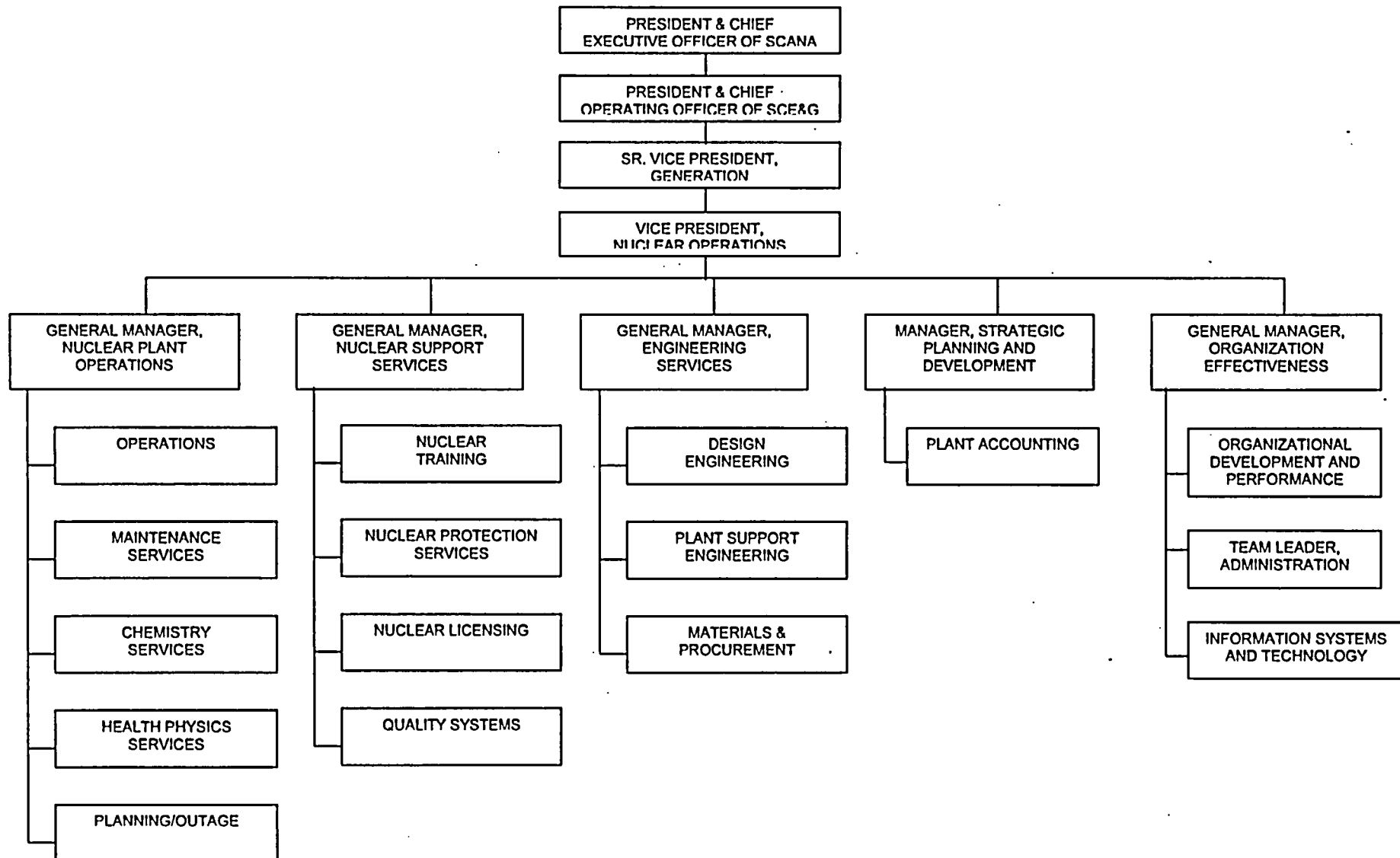
The locations of the sirens were determined by a comprehensive engineering study which addressed population density, geographical features, siren output and mounting heights of sirens, to ensure coverage.

The siren system will be maintained by SCE&G with ongoing testing to insure proper operation. The testing frequency includes a quarterly "growl" test and an annual full cycle test.

5.8 Institute of Nuclear Power Operations (INPO)

INPO, is an organization founded to provide assistance to affected utilities in quickly applying the resources of the nuclear industry to meet the needs of an emergency. INPO, when notified of an emergency situation at a nuclear plant, will provide emergency response as requested. The type of assistance is referenced in the applicable letter of agreement listed in Appendix C. The updated Letter of Agreement will be maintained on file by the Emergency Services Supervisor.

**Figure 5-1**  
**SCE&G AND V. C. SUMMER NUCLEAR STATION FUNCTIONAL ORGANIZATION**



**Table 5-2**  
**V. C. SUMMER NUCLEAR STATION**  
**NOTIFICATION OF EMERGENCY CONDITIONS**

The following information (page 89) will be provided to the COUNTY WARNING POINTS of Fairfield, Newberry, Richland, and Lexington Counties, and the State of South Carolina Warning Point. The State Warning Point will notify the South Carolina Department of Health and Environmental Control.



## NUCLEAR POWER PLANT EMERGENCY NOTIFICATION FORM

1. ☒ DRILL ☐ ACTUAL EVENT MESSAGE # \_\_\_\_\_

2. ☒ INITIAL ☐ FOLLOW-UP NOTIFICATION: TIME \_\_\_\_\_ DATE \_\_\_\_/\_\_\_\_/\_\_\_\_ AUTHENTICATION # \_\_\_\_\_

3. SITE: V. C. Summer Confirmation Phone # (\_\_\_\_) \_\_\_\_\_

4. EMERGENCY CLASSIFICATION: ☒ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA EMERGENCY ☐ GENERAL EMERGENCY  
BASED ON EAL # \_\_\_\_\_ EAL DESCRIPTION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. PROTECTIVE ACTION RECOMMENDATIONS: ☒ NONE  
☐ EVACUATE \_\_\_\_\_  
☐ SHELTER \_\_\_\_\_  
☐ CONSIDER THE USE OF KI (POTASSIUM IODIDE) IN ACCORDANCE WITH STATE PLANS AND POLICY.  
☐ OTHER \_\_\_\_\_

6. EMERGENCY RELEASE: ☒ None ☐ Is Occurring ☐ Has Occurred

7. RELEASE SIGNIFICANCE: ☒ Not applicable ☐ Within normal operating limits ☐ Above normal operating limits ☐ Under evaluation

8. EVENT PROGNOSIS: ☒ Improving ☐ Stable ☐ Degrading

9. METEOROLOGICAL DATA: Wind Direction\* from \_\_\_\_\_ degrees Wind Speed\* \_\_\_\_\_ mph  
(\*May not be available for Initial Notifications) Precipitation\* \_\_\_\_\_ Stability Class\* ☒ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

10. ☒ DECLARATION ☐ TERMINATION Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

11. AFFECTED UNIT(S): ☒ 1 ☒ 2 ☒ 3 ☒ All

12. UNIT STATUS:  
(Unaffected Unit(s) Status Not Required for Initial Notifications)  
☒ U1 \_\_\_\_\_ % Power Shutdown at Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
☐ U2 \_\_\_\_\_ % Power Shutdown at Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
☐ U3 \_\_\_\_\_ % Power Shutdown at Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

13. REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### FOLLOW-UP INFORMATION (Lines 14 through 16 Not Required for Initial Notifications)

EMERGENCY RELEASE DATA. NOT REQUIRED IF LINE 6 A IS SELECTED.

14. RELEASE CHARACTERIZATION: TYPE: ☒ Elevated ☐ Mixed ☐ Ground UNITS: ☒ Ci ☐ Ci/sec ☐  $\mu$ Ci/sec  
MAGNITUDE: Noble Gases: \_\_\_\_\_ Iodines: \_\_\_\_\_ Particulates: \_\_\_\_\_ Other: \_\_\_\_\_  
FORM: ☒ Airborne Start Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Stop Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
☐ Liquid Start Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Stop Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

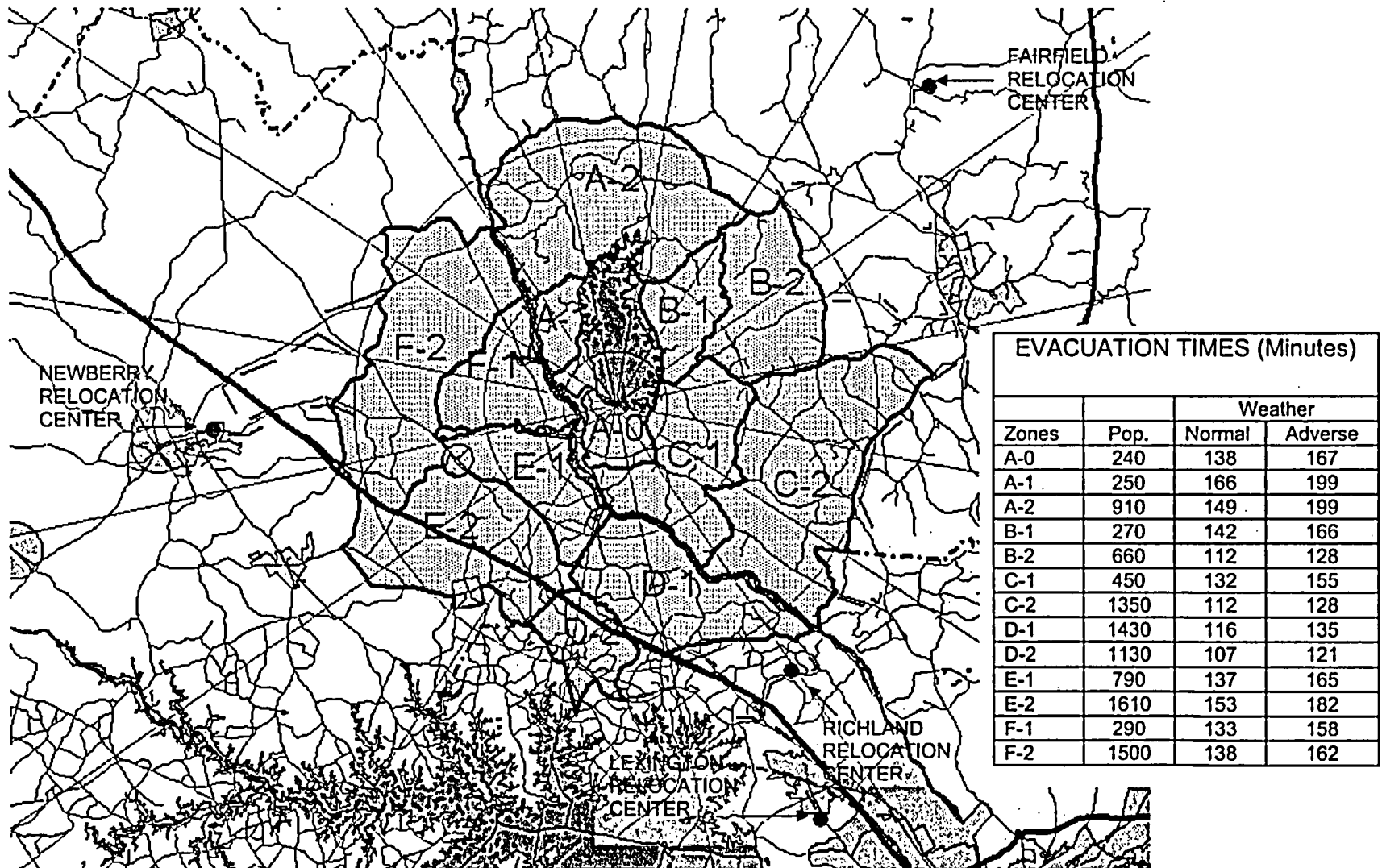
15. PROJECTION PARAMETERS: Projection period: \_\_\_\_\_ Hours Estimated Release Duration \_\_\_\_\_ Hours  
Projection performed: Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

16. PROJECTED DOSE: DISTANCE TEDE (mrem) Adult Thyroid CDE (mrem)  
Site boundary \_\_\_\_\_  
2 Miles \_\_\_\_\_  
5 Miles \_\_\_\_\_  
10 Miles \_\_\_\_\_

17. APPROVED BY: \_\_\_\_\_ Title \_\_\_\_\_ Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
NOTIFIED BY: \_\_\_\_\_ RECEIVED BY: \_\_\_\_\_ Time \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Figure 5-5  
V. C. Summer Nuclear Station  
Evacuation Routes and Times

EP-100  
APRIL, 2005  
REVISION 50



The means to warn or advise persons involved in taking protective actions is the responsibility of local counties and the Emergency Management Division of the Adjutant General's Office. SCE&G will assist the Counties in the preparations and dissemination of information material on protective actions to the general public.

c. Personnel Accountability

Within 30 minutes of the time of the declaration for a Site Area Emergency or a General Emergency requiring a site evacuation, a list of personnel unaccounted for will be provided to the Emergency Director. This list will be continually updated until all personnel are located. The Emergency Director may initiate search and rescue efforts, if deemed necessary.

6.4.2 Use of Onsite Protective Equipment and Supplies

The following onsite locations have been designated as emergency assembly points and areas where emergency teams shall be assembled and equipped. Emergency equipment and supplies shall be used in accordance with the Emergency Plan Procedures or as directed by the Emergency Director or his alternate.

a. Control Room

The Control Room, located on elevation 463' of the Control Building is designed to be habitable under accident conditions and shall serve as the onsite Emergency Control Center. Emergency lighting, power, air filtration, ventilation system and shielded walls enables the operators to remain in the Control Room to ensure that the reactor will remain in a safe condition. In addition, the operators shall be able to evaluate situational conditions and relay pertinent information and data to the appropriate onsite and offsite agencies and organizations during all emergencies. To ensure that shift personnel and other personnel assembled at the location can remain self-sufficient, emergency equipment and supplies shall be stored in, or near, the Control Room. The exact location and the type and quantity of emergency equipment and supplies available is specified in EPP-103, Emergency Equipment Checklist.

b. Radiation Control Area Control Point (RCACP)

The RCACP is located in the Control Building, elevation 412', which is the health physics and decontamination areas. Personnel working or located in radiation controlled areas (e.g., Reactor Building, Fuel Handling Building and Auxiliary Building, etc.) will evacuate to the RCACP located on the 412' elevation of the Control Building when the radiation emergency alarm is sounded. Radiation emergency kits will be located at designated areas in the station as per EPP-103, Emergency Equipment Checklist. The emergency kits will contain the necessary equipment for measuring radiation and airborne radioactivity levels, respiratory protection, protective clothing and other related health physics activities.

c. Technical Support Center

The Technical Support Center, located adjacent to the Control Room, can accommodate personnel acting in support of the command and control functions by furnishing indepth diagnostic and corrective engineering assistance. Emergency equipment and supplies are located in this area which permit radiation surveying and sampling for airborne radioactivity. The equipment and supplies available is described in EPP-103, Emergency Equipment Checklist.

d. Operations Support Center

The Operations Support Center is located on the 436' elevation of the Auxiliary Service Building. A back-up facility will be maintained on the 448' elevation of the Control Building. This is an area for support personnel to assemble for subsequent assignment to duties in support of emergency operations. Emergency equipment and supplies are located in this area, and are used for such tasks as personnel monitoring, emergency repair of equipment and first aid. Equipment and supplies available in this area are described in EPP-103, Emergency Equipment Checklist.

#### 6.4.3 Contamination Control Measures

This section describes provisions for preventing or minimizing direct or subsequent ingestion exposure to radioactive materials deposited on the ground or other surfaces.

Access to the owner controlled area shall be controlled. In addition, within the owner controlled area, there are no areas for producing agricultural products. In-station contamination control shall be exercised in accordance with approved radiation protection procedures. In cases where it is possible that the plant drinking water supply or food may be contaminated, the water supply and food products will be sampled before unrestricted use. Plant areas and equipment being returned to normal use will meet the contamination control levels utilized during normal plant operating conditions as outlined in the health physics procedures.

Offsite areas will be controlled by the State of South Carolina. Protective Guidelines have been provided through the South Carolina Operational Radiological Emergency Response Plan.

## 6.5 Aid to Affected Personnel

This section of the plan describes measures which will be used by V. C. Summer Nuclear Station to provide necessary assistance if individuals are injured or exposed to radiation and/or radioactive materials.

### 6.5.1 Emergency Personnel Exposure

Any personnel employed by V. C. Summer Nuclear Station who has completed the onsite radiation control and safety training program shall be eligible to receive emergency dose rates as described below. The Health Physics group will assure coverage on each shift on a 24 hour per day basis and that designee will be responsible for the issuance of personnel dosimetry with proper record keeping maintained. Health Physics personnel will ensure that dosimeters are read on a periodic frequency. Dosimetry issued to personnel meets, as a minimum, the guidelines of the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program. The training program shall specifically explain the expected risks associated with emergency exposures and those circumstances in which they may be required. Onsite personnel assigned duties in performing assessment actions and personnel decontamination during emergency conditions will follow guidelines outlined in Health Physics Procedures for normal operations. Prior to acting in a situation that could result in a person receiving an emergency exposure, he should have approval from the Interim Emergency Director/ Emergency Director or Offsite Emergency Coordinator.

Listed below are the emergency dose limits which a V. C. Summer Nuclear Station employee may receive.

a. 5 rem TEDE

All activities.

b. 10 rem TEDE

When emergency onsite action is required to eliminate a source or potential source that represents a hazard to the general public or to prevent a substantial loss in property.

c. 25 rem TEDE

For life saving operations such as search and rescue for known missing persons or for protection of large populations.

d. No limits on lifesaving or protection of large populations if worker is a volunteer who is fully aware of the risks involved.

e. Dose to the lens of eye is limited to 3 times the above values.

f. Dose to other organs (including skin and body extremities) is limited to 10 times the above values.

6.5.2 Decontamination and First Aid

Onsite personnel decontamination facilities for emergency conditions are fully equipped with decontamination material. The decontamination facility at V. C. Summer Nuclear Station is located at the Radiation Control Area Control Point elevation 412' of the Control Building. The decontamination facility consists of a men's and women's shower, toilet, locker room and change area locations. Decontamination supplies such as various decontamination solutions, surgical brushes and soft bandages will be stored in the decontamination facility. Action levels for decontamination personnel and equipment are specified in plant procedures. Emergency equipment located around the site are available and include personnel monitoring equipment. There is also additional personnel monitoring equipment located at the Radiation Control Area Control Point including dosimeters and high and low range survey instruments. A comprehensive list of materials and equipment supplies in the emergency kits can be found in EPP-103, Emergency Equipment Checklist.

During normal operations, personnel decontamination is the responsibility of the Health Physics Group. In emergency situations, decontamination is the responsibility of the radiation monitoring team. When decontamination of an area or equipment is required, a joint effort of personnel from operations, maintenance, and the radiation monitoring team will work jointly. There is always personnel onsite for decontamination.

EPP-010, Personnel/Vehicle Decontamination, provides instructions for the decontamination of station personnel during emergency conditions. Procedures include methods for decontamination of onsite personnel, and for those personnel who evacuate the site, and lists the acceptable contamination limits. Following decontamination activities, all waste disposal operations will be accomplished by means of plant systems and procedures.

There are two emergency treatment facilities located onsite for the treatment of those individuals requiring emergency first aid. They are located at the Radiation Control Area Control Point, elevation 412' of the Control Building and the 436' elevation of the Service Building. Medical supplies such as bandages and dressings, assorted first aid ointments, splints, stethoscope, tourniquet and sphygmomanometer for blood pressure are available.

In that there are no full-time medical personnel onsite, shift personnel will be trained, as a minimum, in Multimedia or equivalent First Aid. There will be a minimum of one person on each shift capable of administering first aid in the event of an accident. If more than first aid is required for the treatment of a victim, the appropriate medical facility as specified in Section 5.4.1 shall be notified and medical transportation as specified in section 5.4.2 will be obtained.

During emergency conditions at the point where internal contamination or exposure is of concern, the Radiological Assessment Supervisor or Offsite Radiation Monitoring Coordinator will initiate the use of radio-protective drugs (Thyroid Blocking Agents), such as potassium iodine, as specified in EPP-020, Emergency Personnel Exposure Control. The plant procedures will specify the levels for administering the potassium iodine and the appropriate storage locations within the plant. Decontamination efforts for personnel or the public offsite will occur as referenced in Section 6.4.1 (A & B).



**Table 6-1**  
**PROTECTIVE ACTION GUIDES (PAGs)**  
**RECOMMENDED PROTECTIVE ACTIONS TO REDUCE WHOLEBODY (TEDE)**  
**AND THYROID DOSE (CDE) FROM EXPOSURE TO A GASEOUS PLUME**

Projected Dose (mRem) to the Population	(a) Recommended Actions	Comments
Wholebody (TEDE) <1000 Thyroid (CDE) <5000	(b) No planned protective actions. State may issue an advisory to seek shelter and await further instruction. Monitor environmental radiation levels.	Previously recommended protective actions may be reconsidered or terminated.
Wholebody (TEDE) ≥1000 Thyroid (CDE) ≥5000	(c) Conduct mandatory evacuation. Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels. Control access.  Consider the use of KI (potassium iodide) in accordance with State plans and policy.	Seeking shelter would be an alternative if evacuation were not immediately possible or when the release duration can be accurately determined and will be of short duration. Sheltering should never be used with dose >10 Rem TEDE.
Wholebody (TEDE) ≥5000 Thyroid (CDE) ≥25000	(c) Conduct mandatory evacuation when constraints such as inclement weather make evacuation at lower levels impractical. Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels. Control access.	Seeking shelter would be an alternative if evacuation were not immediately possible or when the release duration can be accurately determined and will be of short duration. Sheltering should never be used with dose >10 Rem TEDE.

- a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take existing conditions into consideration.
- b) At the time of the incident, officials may shelter portions or all of the 10-mile radius in keeping with the principle of maintaining radiation exposures as low as reasonably achievable.
- c) Recommended Actions for PAGs are to be applied to affected areas outside as well as inside the 10 mile Emergency Planning Zone.

Table 6-3  
PROTECTIVE ACTION RECOMMENDATIONS

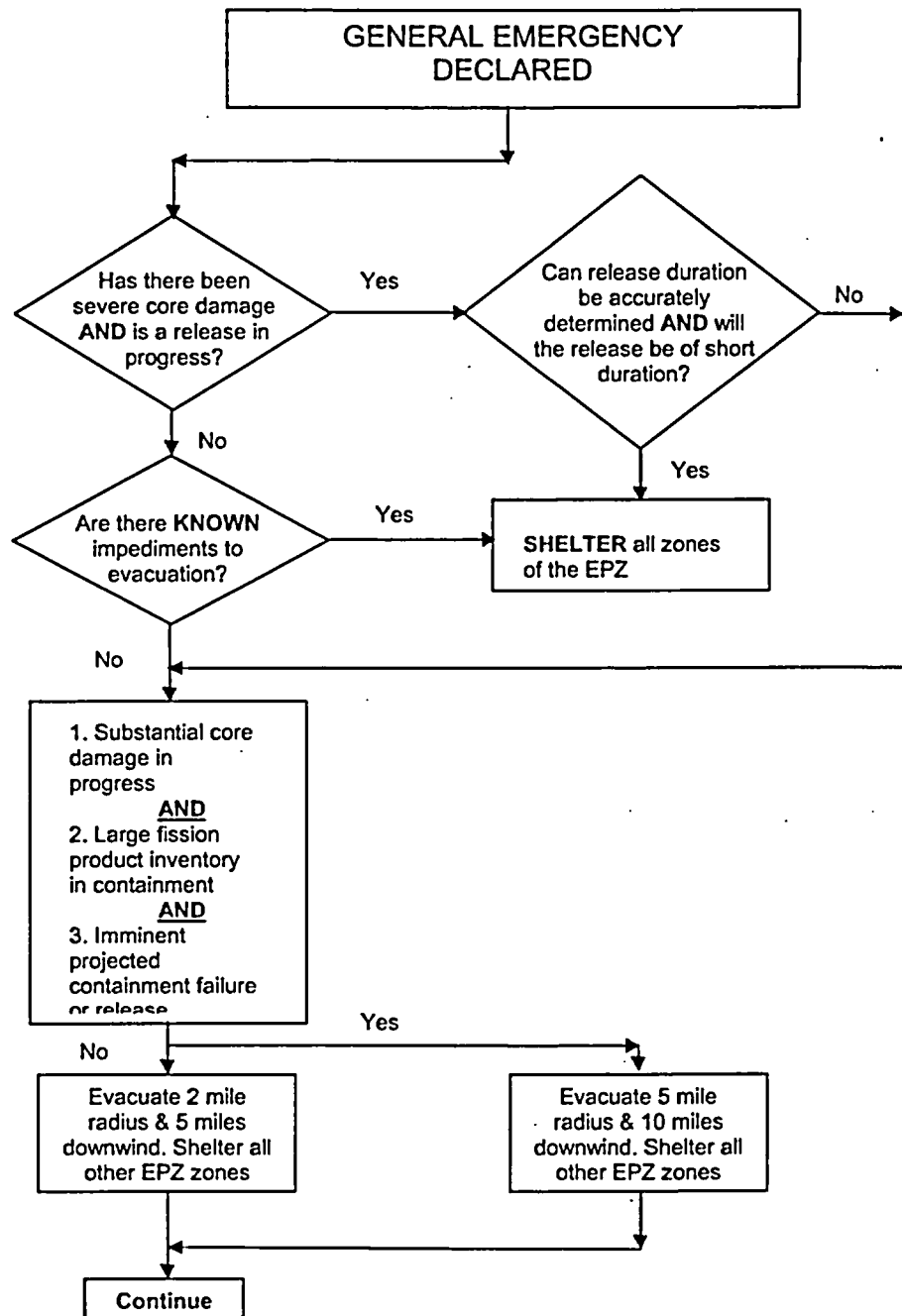
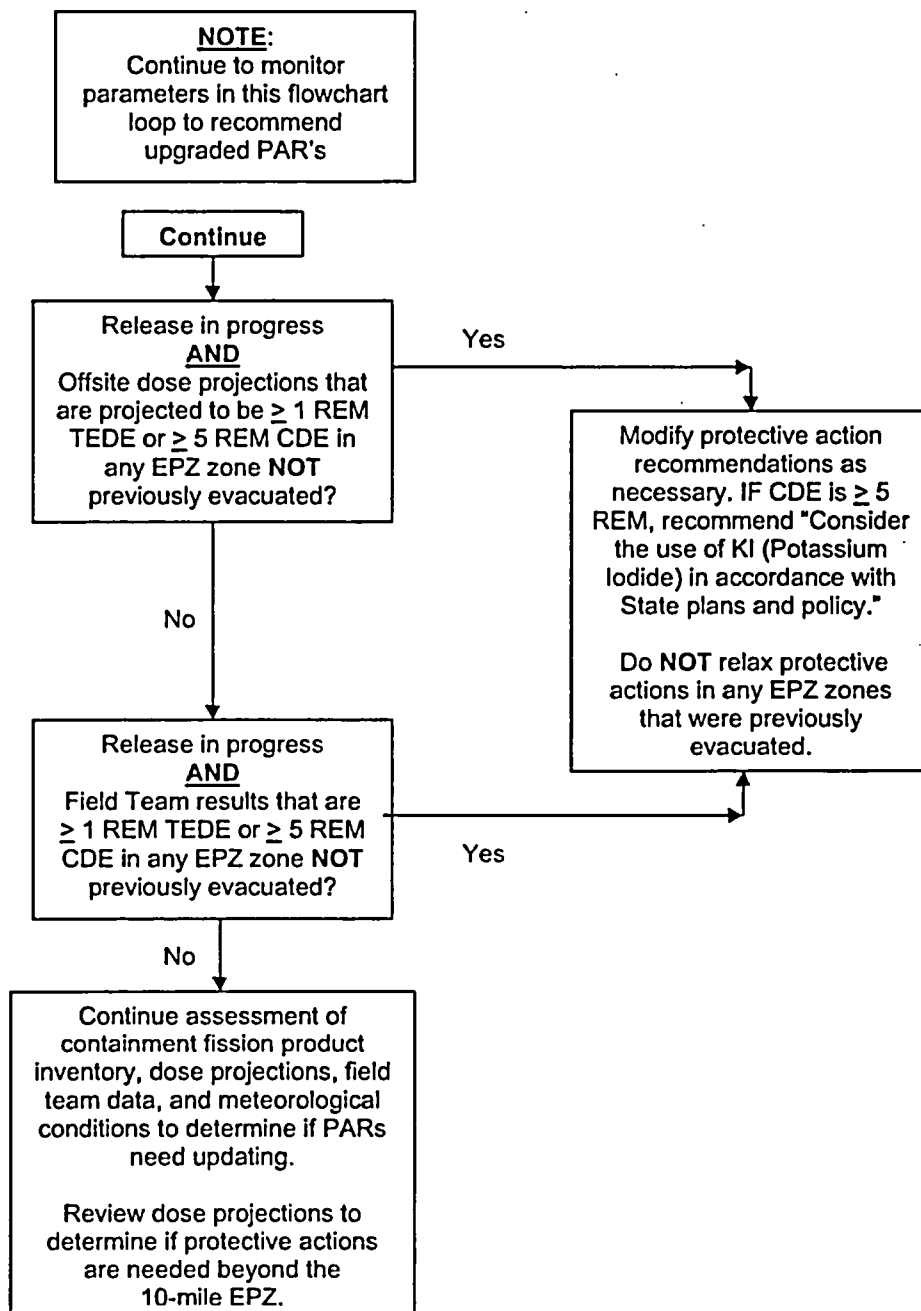


Table 6-3  
PROTECTIVE ACTION RECOMMENDATIONS



## 7.0 EMERGENCY FACILITIES AND EQUIPMENT

This section describes the equipment and facilities that are utilized to:

- a. Assess the extent of accident hazards.
- b. Mobilize the resources required to mitigate the consequences of an accident.
- c. Provide protection to station personnel.
- d. Support accident mitigation operations.
- e. Provide immediate care for injured personnel.
- f. Affect damage control.

A diagram identifying the emergency facilities and their general location in relation to each other is attached as Figure 7-1. Many of the Virgil Summer facilities and much of the equipment is normally used for routine plant operations. Other items are reserved for use only on an "as needed" basis. All onsite emergency centers are located at the Virgil Summer Nuclear Station.

7.1 SCE&G Onsite Emergency Centers

7.1.1 Technical Support Center

The Technical Support Center is located adjacent to the Control Room. The purpose of the Technical Support Center is to provide an area outside of the Control Room that can accommodate personnel acting in support of the command and control functions by furnishing more in-depth diagnostic and corrective engineering assistance. Plant drawings and supporting information are readily available to occupants of this area.

7.1.2 Operations Support Center

The Operations Support Center is located on the 436' elevation of the Auxiliary Service Building. The purpose of establishing an Operations Support Center is to provide an area for support personnel to muster for subsequent assignment to duties in support of emergency operations. A back-up facility is maintained on the 448' elevation of the Control Building.

## 7.2 SCE&G Emergency Operations Facility

The SCE&G Emergency Operations Facility (EOF) is located in the basement of the Nuclear Training Center. The Nuclear Training Center is located approximately one mile west of Jenkinsville, S. C. on State Highway 213. From the EOF, the offsite emergency organization will evaluate and coordinate all SCE&G emergency related activities and provide information to Federal, State and local authorities responding to radiological emergencies. Communication linkup with the plant to the EOF is accomplished by the use of direct communication (Dedicated Phone Line). Space has been provided for representatives from Federal, State and Local Governments. If the EOF is evacuated, the Back-up EOF, located at the corporate offices in Columbia, S.C., will be activated to support the offsite emergency operations.

### 7.3 County and State Emergency Centers

#### 7.3.1 County Emergency Operations Centers

Potential emergencies could directly impact those people living within the 10 mile EPZ and property within the 50 mile EPZ. Therefore, primary emergency planning efforts have been performed by those County Emergency Organizations within the 10 mile EPZ: Newberry, Fairfield, Lexington and Richland Counties.

Each of these counties maintain an Emergency Operations Center (EOC). These centers are in the following locations:

1. Newberry County EOC  
3491 Main Street  
Newberry, SC 29108
2. Fairfield County EOC  
350 Columbia Road  
Winnsboro, SC 29180
3. Lexington County EOC  
436 Ballpark Road  
Lexington, SC 29072
4. Richland County EOC  
1410 Laurens Street  
Columbia, SC 29204

### 7.3.2 State Emergency Operations Center (SEOC)

The South Carolina Emergency Operations Center is located at 1100 Fish Hatchery Rd., West Columbia, SC. The SEOC is a facility with the necessary communication control capabilities from which essentially all disaster functions are directed and controlled by the Governor. During any abnormal event or condition, the Governor can activate the SEOC; and in the event of a nuclear accident at any Fixed Nuclear Facility in South Carolina, the Governor has in place the immediate authorization to activate the SEOC by the Emergency Management Division of the Adjutant General's Office in South Carolina. When the Governor determines that personnel and resources of state government are needed to support disaster operations of affected local governments, authorization is given by the Governor to activate the SEOC.



7.4 News Media Area

A News Media Area is co-located with the EOF. Equipment and facilities in the News Media Area will allow the various media representatives to receive correct information concerning emergency conditions. If evacuation of the News Media Area becomes necessary, the back-up News Media Area located at the corporate offices in Columbia, S.C. will be activated to maintain public information of the emergency conditions to the media.

## 7.5 Communications Systems

The members of the emergency organization require correct and up to date information concerning the emergency situation. Therefore, the communications systems that will be used by the emergency organizations must meet the following basic criteria:

1. Provide for prompt initial notification.
2. Maintain reliability.
3. Provide for alternate methods of communication.

The additional communications installed between the emergency facilities along with normal onsite and offsite communication systems meet these objectives. Communications offsite may use one or more of the following:

1. Conventional telephone system (PBX)
2. Fiberoptic system
3. Radio systems
4. Private telephone lines
5. Dedicated telephone line(s)

### 7.5.1 Normal Communications Systems

Communication normally used onsite include:

1. Main Page/Party Line System
2. Redundant Communication System
3. Private Branch Exchange System (PBX)
4. SCE&G Fiberoptic System
5. Maintenance Communication System
6. Fuel Handling Paging System

7.5.1.1 Main Page/Party Line Communication System

This system of a network of phone stations and speakers strategically located throughout the station. Each phone station contains a telephone type receiver-transmitter handset, and channel selector switches. In some cases, an integral speaker is provided.

7.5.1.2 Redundant Communication Systems

The Redundant Communication System is a completely separate communication system consisting of a network of 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.

Each phone station contains a telephone type receiver-transmitter, a handset, amplifiers and speakers. The operation of the system is similar to that described for the Main Communication System except that there are only paging facilities. Phone stations and speakers of the Redundant Communication System are red in color.

7.5.1.3 Private Branch Exchange System (PBX)

This system consists of a network of telephone handsets located through out the site. The system is served by twelve groups of trunks. Two are ITC Deltacom, one for local and one for Long Distance outbound. Six groups of trunks connect to the SCE&G Fiberoptic system, one to the Nuclear Training Center, two to the Palmetto Center Core PBX (one of these connects to a long distance service) and two connect to BellSouth in Columbia, S. C. Two groups of trunks connect to the central office of the BellSouth Telephone Company in Chapin, S. C., one group of trunks connects to the Winnsboro Exchange of the General Telephone Company and one group of trunks connects to the Newberry Exchange of the BellSouth Telephone Company.

1. At 61 meters above ground level the upper wind speed and wind direction sensors as well as the upper temperature sensor for the 10-61 meter differential temperature measurements are mounted on the 10 foot instrument boom.
2. At 40 meters above ground level, the upper temperature sensor for the 10-40 meter delta temperature measurement is mounted on the 10 foot instrument boom.
3. At 10 meter above ground level the lower wind speed and wind direction sensors as well as the lower temperature sensor for the 10-61 and 10-40 meter differential temperature measurements and ambient temperature readings are mounted on the 10 foot boom.

Data from the meteorological measurements system is provided to an onsite data capture computer (which is capable of various data manipulations). Meteorological data necessary for the estimation of offsite dose projections is available via terminals to personnel in the Control Room, TSC, and EOF. Should the computerized information or the computer based assessment system not be available or if results are suspect, alternate proceduralized manual methods are available to provide appropriate assessment guidance. When onsite meteorological information is not available for the estimation of offsite dose projections, meteorological data from the National Weather Service in Columbia, S.C., will be used.

#### 7.6.5 Control Room Instrumentation

Appropriate parameters indicative of the status of the Reactor and various plant systems are displayed in the Control Room. Assessment of the following systems are possible:

- a. Nuclear Instrumentation
- b. Reactor Coolant
- c. Main Steam
- d. Feedwater
- e. Chemical and Volume Control
- f. Safety Injection
- g. Reactor Building Spray

- h. Residual Heat Removal
- i. Reactor Building Cooling
- j. Emergency Feedwater

Table 7-2 specifically lists those instruments available for monitoring major systems.

#### 7.6.6 Laboratory Facilities

The V. C. Summer Laboratory facility is equipped to provide the radiological analysis support required during normal plant operations. This equipment can also be utilized in the analysis of abnormal events to assist in the diagnosis of plant conditions. (A backup laboratory is available at the Nuclear Training Center which can be used to analyze samples when the onsite laboratory is not available.) The response time for personnel to the Nuclear Training Center on a backshift is 60 minutes. An additional laboratory facility is available at the Department of Health and Environmental Control. The Department of Health and Environmental Control 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.

#### 7.6.7 Post Accident Sampling

Special chemistry procedures have been developed to allow for sampling of reactor coolant during post accident conditions. These procedures allow for the determining of abnormal activity levels indicative of release of gap activity and/or partial fuel melt conditions.

In the event of an unplanned release, charcoal cartridges located in the control room air, main plant vent, and sampling room iodine monitors are removed and analyzed in the Count Room with the use of gamma spectrometer instrumentation. Silver zeolite cartridges are then placed in the monitors to collect iodine in a noble gas environment.

Health Physics procedures include provisions for determining iodine concentrations in noble gas environments. Personnel on the radiation monitoring team are trained in the proper methods of analyzing the iodine activity in a noble gas environment.

#### 7.6.8 Facilities and Equipment for Offsite Monitoring

The pre-positioned onsite and offsite environmental monitoring locations provide for continuous offsite monitoring capability. These locations have been selected on meteorological data, prevailing wind direction, and population concentration. Air sampling monitors sample for both particulate activity and iodine activity. Integrated radiation levels are determined by thermoluminescent dosimeter (TLD's). The offsite TLD locations are well out of direct radiation influence from the plant and will provide estimates of the gaseous radiation levels due to abnormal radiological releases. Time integrated dose measurements can be made by selective changing of TLD's periodically. Table 7-3 summarizes the radiological information available at the environmental sampling stations, Figures 7-3-1 through 7-3-3 indicate their locations. Table 7-3 also enumerates local hydrological sampling sites including both surface and ground water location.

The Environmental Surveillance Laboratory located at the NTC provides additional environmental sampling capabilities through the use of portable sampling equipment. The radiation monitoring teams will use pre-positioned emergency sampling kits which will include the following equipment:

- Ion chamber dose rate monitors (whole body, exposure assessment)

- Portable battery powered low volume air samplers with silver zeolite cartridges (particulate and iodine assessment)

- Portable GM Instrumentation (I-131 determination)

Instrumentation utilized has the capability to measure radio iodine concentrations as low as  $1 \times 10^{-7}$  microcurie per cc under field conditions.

In addition, air sample filters and cartridges can be counted in either the normal or backup Count Room upon the return of the radiation monitoring team(s).

#### 7.6.9 Dose Assessment and Measurement

The estimation of doses for both onsite and offsite requires quantification of the amount of radioactive material involved, qualification of the release by nuclide and appropriate mathematical modeling which considers the ways in which the radiation is absorbed by man or the environment. Data from laboratory and or field analyses, Radiation Monitoring System responses and meteorological parameters for current plant operating conditions are used to estimate exposures to individuals and the total population.

Grab sample analysis and radiation monitor response trending in the principal release pathways are performed as part of the plant's procedures for normal operation. At the time a monitor detects an abnormal release, nuclide specific release rates are based on grab sample isotopic analysis for that release path, and the magnitude of the release rate as determined by monitor responses or sampling.

Effluent monitor readings are used in conjunction with the most recent grab sample analysis and monitor responses to estimate isotope-specific release rates for critical nuclides. The release rates are combined with meteorological measurements as input to a dose calculation which is capable of estimating onsite and offsite exposures under site specific meteorological conditions.

Should site specific meteorological data not be available, the National Weather Service in Columbia can be contacted to provide area specific data for use in the calculations. Alternative methods have also been proceduralized to allow for "worst case" dose assessments should permanent monitors be off scale or inoperable and/or grab sample data to be unavailable.

In the period immediately following recognition of abnormal conditions, if effluent monitors are offscale or inoperable, release rates will be estimated from analyses already summarized in the FSAR. Based on the available safety parameter data, the individual performing the dose assessment will choose from among the accident types indicated in the FSAR. When multiple analyses of an accident type are available in the FSAR, the relevant differences in assumptions will have been tabulated, and the dose assessor will again choose the one most similar to plant conditions as they are understood. The isotope-specific release rates in the FSAR for the accident/assumption set chosen will have been tabulated and will be used as input to the dose calculation methodology.

As the accident progresses and releases actually occur, data for scaling or revising the default release rates would come from the following: analyses of grab samples, dosimeters and portable monitor readings by monitor teams dispatched from the plant.

Dose rates may be determined for direct exposure resulting from measurable contamination and water and air concentrations using various calculational models and/or direct measurements. Doses from ingested or inhaled materials may be calculated by the use of pathway models. Total effective dose equivalent and committed dose equivalent projections will be compared to the PAG's.

The procedural steps necessary to determine emergency dose assessment and projections from either the computerized or the manual method is outlined in EPP-005, Offsite Dose Calculations.



## 7.7 Protective Facilities and Equipment

Protective facilities include the V. C. Summer Control Room. This area is located on the 463' elevation of the Control Building in a seismically rated structure and has adequate shielding to permit safe occupancy for extended periods of time without exceeding an exposure limit of 5 rem. The Control Room ventilation system has redundant fans and chillers and is provided with radiation and smoke detectors with appropriate alarms and interlocks. Provisions have been made for the Control Room air to be circulated through high efficiency particulate (HEPA) and activated charcoal filters. Scott air packs are located in the Control Room to permit continued occupancy if the ventilation system fails.

If it is determined that evacuation of non-essential personnel is required, the primary offsite assembly area is the Nuclear Training Center located south of the station. Dependent upon wind direction, the Nuclear Training Center may not be feasible as an offsite assembly point. The Recreation Lake area located at the north end of the reservoir will be used as the alternate offsite assembly area.

7.8 First Aid and Medical Facilities

First Aid facilities at V. C. Summer Nuclear Station are designed to support a wide range of immediate care ranging from simple first aid up to and including procedures requiring a physician.

Emergency treatment areas are located onsite for the treatment of those individuals requiring first aid. These areas are located at the Radiation Control Area Control Point at the 412' elevation of the Control Building and at the 436' elevation of the Service Building. Medical equipment and supplies are available at these locations.

When offsite medical facilities are required for the treatment of victims, several facilities are available. These facilities are discussed in detail in Section 5.4.1.

## 7.9 Damage Control Equipment

The V. C. Summer Nuclear Station is extensively equipped to conduct preventive maintenance and repairs on mechanical, structural, electrical and instrumentation and control equipment found in the station.

Each maintenance crew is qualified and, when required, certified to perform the tasks associated with their craft in the working environment of a nuclear station.

The emergency repair party will be utilized to effect temporary repairs to mitigate the effects of an emergency condition and to perform maintenance activities associated with recovery.

In addition to the equipment and materials required for normal maintenance, other items are available to handle extraordinary maintenance jobs that might arise in damage control. Appendix B lists typical damage control equipment.

**Figure 7-1**  
**EMERGENCY FACILITIES GENERAL LOCATION**

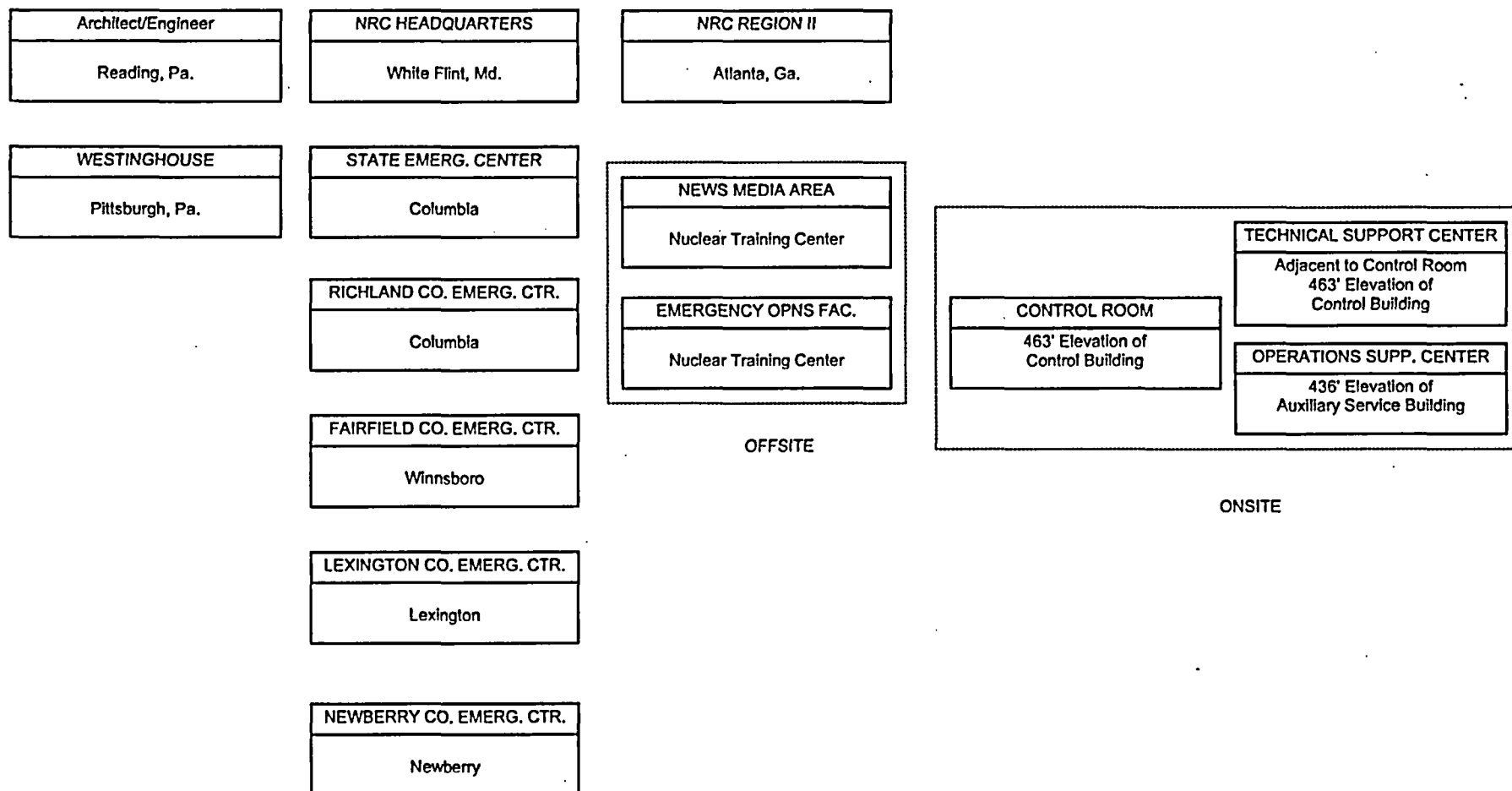


Table 7-1  
RADIATION MONITORING SYSTEM DESCRIPTION

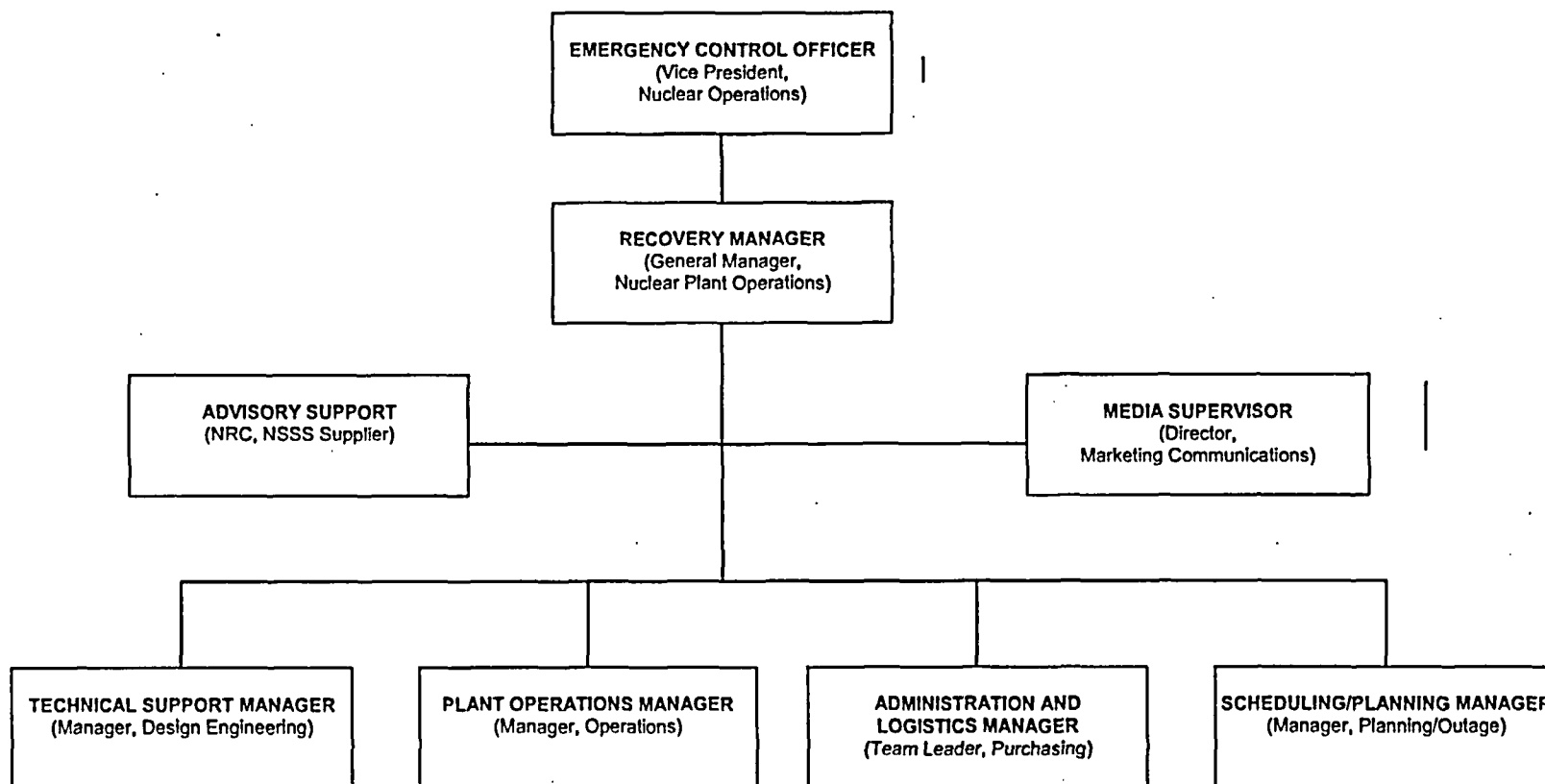
INSTRUMENT CHANNEL	LOCATION	RANGE
Alpha Gamma Monitor		
RM-G1	Control Room	0.1 mr/hr - 10 r/hr
RM-G2	Radio Chemical Laboratory	0.1 mr/hr - 10 r/hr
RM-G3	Sampling Room	0.1 mr/hr - 10 r/hr
RM-G4	Hot Machine Shop	0.1 mr/hr - 10 r/hr
RM-G5	Reactor Building Personnel Access	0.1 mr/hr - 10 r/hr
RM-G6	Reactor Building Refueling Bridge	0.1 mr/hr - 10 r/hr
RM-G7	Reactor Building	1 r/hr - 10 <sup>7</sup> r/hr
RM-G8	Fuel Handling Building Refueling Bridge	0.1 mr/hr - 10 r/hr
RM-G9	Auxiliary Building Demineralizer Area	0.1 mr/hr - 10 r/hr
RM-G10	Waste Gas Decay Tank Area	0.1 mr/hr - 10 r/hr
RM-G11	Auxiliary Building Drumming Area	0.1 mr/hr - 10 r/hr
RM-G12	Auxiliary Building Waste Hold-up Tank Area	0.1 mr/hr - 10 r/hr
RM-G13	Auxiliary Building Charging Pump Area	0.1 mr/hr - 10 r/hr
RM-G14	Reactor Building In-Core Instrumentation Area	0.1 mr/hr - 10 r/hr
RM-G15	Movable Monitor	0.1 mr/hr - 10 r/hr
RM-G16	Turbine Building	0.1 mr/hr - 10 r/hr
RM-G17A	Reactor Building Manipulator Crane	1 mr/hr - 100 r/hr
RM-G17B	Reactor Building Manipulator Crane	1 mr/hr - 100 r/hr
RM-G18	Reactor Building	1 r/hr - 10 <sup>7</sup> r/hr
RM-G19A	Main Steam Line	0.1 mr/hr - 10 <sup>7</sup> mr/hr
RM-G19B	Main Steam Line	0.1 mr/hr - 10 <sup>7</sup> mr/hr
RM-G19C	Main Steam Line	0.1 mr/hr - 10 <sup>7</sup> mr/hr
Atmospheric Radiation Monitors		
RM-A1	Control Room Supply Air	Particulate: 4.7 x 10 <sup>-11</sup> to 1 x 10 <sup>-7</sup> µci/cc (Cs-137)
		Gas: 2 x 10 <sup>-6</sup> to 2 x 10 <sup>-2</sup> µci/cc (Kr-85)
		Iodine: 2 x 10 <sup>-11</sup> to 1 x 10 <sup>-7</sup> µci/cc (I-131)
RM-A2	Reactor Building Air Sample	Particulate: 5.5 x 10 <sup>-11</sup> to 1 x 10 <sup>-7</sup> µci/cc (Cs-137)
		Gas: 2.6 x 10 <sup>-6</sup> to 2 x 10 <sup>-2</sup> µci/cc (Kr-85)
		Iodine: 2 x 10 <sup>-11</sup> to 2 x 10 <sup>-7</sup> µci/cc (I-131)

Table 7-1  
RADIATION MONITORING SYSTEM DESCRIPTION

(continued)

INSTRUMENT CHANNEL	LOCATION	RANGE
Atmospheric Radiation Monitors (cont'd)		
RM-A3	Main Plant Vent	Same as RM-A1
RM-A4	Reactor Building Purge Exhaust	Same as RM-A1
RM-A6	Fuel Handling Building Exhaust	Same as RM-A1
RM-A7	Sampling Room Monitor (Movable)	Same as RM-A1
RM-A8	Spent Fuel Area Monitor (Movable)	Same as RM-A1
RM-A9	Condenser Exhaust Monitor	$4 \times 10^{-6}$ to $4 \times 10^{-2}$ $\mu\text{Ci/cc}$ (Xe-133)
RM-A10	Waste Gas Discharge	$2 \times 10^{-4}$ to $2 \times 10^0$ $\mu\text{Ci/cc}$ (Kr-85)
RM-A11	Auxiliary Building Ventilation Monitor	$2 \times 10^{-6}$ to $2 \times 10^{-2}$ $\mu\text{Ci/cc}$ (Kr-85)
RM-A12	Movable Atmospheric Monitor	Same as RM-A1 Particulate
RM-A13	Main Plant Vent	$8.6 \times 10^{-3}$ to $8.6 \times 10^5$ $\mu\text{Ci/cc}$ (Xe-133)
RM-A14	Reactor Building Purge Exhaust	$8.6 \times 10^{-3}$ to $8.6 \times 10^5$ $\mu\text{Ci/cc}$ (Xe-133)
Liquid Radiation Monitors		
RM-L1	Primary Coolant Letdown Monitor	$1 \times 10^{-3}$ to $1 \times 10^3$ $\mu\text{Ci/cc}$ (Cs-137)
RM-L2A	Component Cooling Monitors	$1 \times 10^{-6}$ to $2 \times 10^{-2}$ $\mu\text{Ci/cc}$ (Cs-137)
RM-L2B	Component Cooling Monitors	$1 \times 10^{-6}$ to $2 \times 10^{-2}$ $\mu\text{Ci/cc}$ (Cs-137)
RM-L3	Steam Generator Blowdown	Same as RM-L2
RM-L4	Spent Fuel Cooling Water Monitor	Same as RM-L2
RM-L5	Liquid Waste Effluent	Same as RM-L2
RM-L6	Boron Recycle	Same as RM-L2
RM-L7	Nuclear Blowdown Waste Effluent	Same as RM-L2
RM-L8	Turbine Building Sump	$2 \times 10^{-7}$ to $2 \times 10^{-3}$ $\mu\text{Ci/cc}$
RM-L9	Liquid Waste Effluent	Same as RM-L2
RM-L10	Steam Generator Blowdown Effluent	Same as RM-L2
RM-L11	Condensate Polisher Backwash Effluent	$1 \times 10^{-6}$ to $1 \times 10^3$ $\mu\text{Ci/cc}$ (Cs-137)

**Figure 9-1  
RECOVERY ORGANIZATION**



EP-100

APPENDIX A

Index of Emergency Plan Procedures



## LIST OF EMERGENCY PLAN PROCEDURES

<u>EPP</u>		<u>EMERGENCY PLAN</u> <u>Section(s)</u>
<u>ONSITE EPP's</u>		
EPP-001	<u>Activation and Implementation of Emergency Plan</u>  Upon recognition that abnormal plant conditions exist, this procedure will be used by the operator to determine the appropriate Emergency Action Level(s) and properly classify the emergency condition.	4.1, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 6.1
EPP-001.1	<u>Notification of Unusual Event</u>  This procedure defines the actions to be taken when a Notification of Unusual Event is declared.	3.0, 4.1, 4.1.1, 6.1, 6.2,
EPP-001.2	<u>Alert</u>  This procedure defines the actions to be taken when an Alert Event is declared.	3.0, 4.1, 4.1.2, 6.1, 6.2, 6.4
EPP-001.3	<u>Site Area Emergency</u>  This procedure defines the actions to be taken when a Site Area Emergency is declared.	3.0, 4.1, 4.1.3, 6.1, 6.2, 6.4
EPP-001.4	<u>General Emergency</u>  This procedure defines the actions to be taken when a General Emergency is declared.	3.0, 4.1, 4.1.4, 6.1, 6.2, 6.4

## LIST OF EMERGENCY PLAN PROCEDURES

<u>EPP</u>		EMERGENCY PLAN <u>Section(s)</u>
EPP-002	<u>Communication and Notification</u>  This procedure lists the methods for notifying and mobilizing emergency personnel to augment the onsite emergency organization; the methods for notifying Federal, State, and local authorities, and the procedures for record keeping.	3.0, 6.1, 7.5
EPP-003	<u>Plant Radiological Surveying</u>  This procedure provides detailed guidelines for in-plant radiological surveys. The procedure also lists the equipment to be used for surveys. Forms are provided to ensure that correct information will be given to the Technical Support Center.	6.4.2, 5.1.2, 6.2, 6.5.1, 7.6.7
EPP-004	Deleted	
EPP-005	<u>Offsite Dose Calculations</u>  This procedure provides a method for estimating offsite doses and relating those projected doses to the EPA protective action guides (PAG's). Methods to determine meteorological conditions are also included.	4.1.4, 5.1.2, 6.2, 7.6.1, 7.7

## LIST OF EMERGENCY PLAN PROCEDURES

<u>EPP</u>		EMERGENCY PLAN' <u>Section(s)</u>
EPP-006	<u>Transportation Accidents Involving Radioactive Material</u>  This procedure provides guidelines and instructions for responding to transportation accidents involving radioactive material.	
EPP-007	<u>Environmental Monitoring</u>  This procedure provides instructions for retrieving TLD's and air samples from the environmental stations. It also gives general guidance on obtaining other environmental samples, soil, vegetation, etc., to be used in estimating contamination.	7.6.9
EPP-008	Procedure Deleted	
EPP-009	<u>Onsite Medical</u>  This procedure provides guidelines for handling those individuals who have been injured with or without associated contamination.	5.4.1, 5.4.2, 7.8
EPP-010	<u>Personnel/Vehicle Decontamination</u>  This procedure provides instructions for the decontamination of station personnel and vehicles during emergency conditions. It includes methods for decontamination of those personnel and vehicles who evacuate the site, and lists the acceptable contamination limits.	6.5.2

## LIST OF EMERGENCY PLAN PROCEDURES

<u>EPP</u>		EMERGENCY PLAN <u>Section(s)</u>
EPP-011	<u>Personnel Search and Rescue</u>  This procedure provides guidelines for initiating and following up a search and rescue effort to locate missing individuals onsite.	6.4.1
EPP-012	<u>Onsite Personnel Accountability and Evacuation</u>  This procedure provides instructions for accountability and evacuating non-essential station personnel offsite.	6.4.1
EPP-013	<u>Fire Emergency</u>  This procedure provides guidelines for the prompt and efficient handling of a fire emergency.	5.4.3, 7.6.2
EPP-014	<u>Toxic Release</u>  This procedure provides guidelines for protecting station personnel in the event toxic material is released onsite.	7.6
EPP-015	<u>Natural Emergency (Earthquake, Tornado)</u>  The purpose of this procedure is to provide guidelines for initiating protective action when either a tornado, or earthquake threatens plant structures.	7.6
EPP-016	DELETED	

## LIST OF EMERGENCY PLAN PROCEDURES

<u>EPP</u>		EMERGENCY PLAN <u>Section(s)</u>
EPP-017	<u>Post-Recovery and Re-Entry</u>  This procedure provides instructions for re-entry activities into the affected area of the plant after the emergency condition(s) have ceased and provides guidance on the implementation of a recovery organization.	5.1.4, 6.5.1, 9.0
EPP-018	DELETED	
EPP-019	DELETED	
EPP-020	<u>Emergency Personnel Exposure Control</u>  This procedure provides guidelines for the issuance of emergency dosimetry equipment to onsite emergency personnel, the reading of TLD's onsite, maintenance of dosimetry records and handling personnel who have been overexposed to radiation, either externally or internally.	5.2.1.i, 6.5.1
EPP-021	<u>Activation of the Early Warning Siren System (EWSS)</u>  This procedure provides instructions and guidelines for the activation of the EWSS.	5.7
EPP-022	DELETED	
EPP-023	<u>Emergency Response Facilities</u>  This procedure provides guidance for the conduct of operation for the onsite Emergency Response Centers.	3.0, 5.2, 6.4.2, 7.1
EPP-024	DELETED	

LIST OF EMERGENCY PLAN PROCEDURES

<u>EPP</u>		EMERGENCY PLAN <u>Section(s)</u>
EPP-025	DELETED	
EPP-026	<u>DELETED</u>	
<u>OFFSITE EPP's</u>		
EPP-050	DELETED	
EPP-051	<u>Emergency Operations Facility</u>  This procedure provides descriptions of the functional capabilities of the EOF and the functional interaction of principal member of the Offsite Emergency Organization during an emergency.	3.0, 5.0, 5.3, 7.2 7.4
EPP-052	<u>Emergency Information Plan</u>  This procedure provides descriptions of the actions necessary to implement the Emergency Information Plan in the News Center in the event of a nuclear plant emergency or event.	3.0, 7.4

## LIST OF EMERGENCY PLAN PROCEDURES

<u>EPP</u>		EMERGENCY PLAN <u>Section(s)</u>
<u>ADMINISTRATIVE EPP's</u>		
EPP-101	Deleted	
EPP-102	<u>Emergency Training and Drills</u>  This procedure lists the training and drills required for emergency preparedness.	8.1
EPP-103	<u>Emergency Equipment Checklist</u>  This procedure provides checklists to ensure the availability of emergency equipment.	8.4
EPP-104	<u>Verification of Communications Operability</u>  This procedure provides checklist to verify the operability of the designated emergency communications.	7.5
EPP-105	<u>Conduct of Drills and Exercises</u>  This procedure provides guidance for the preparation, conduct and documentation of drills and exercises	8.1.2
EPP-106	<u>Emergency Preparednes Performance Indicator Procedure</u>  This procedure provides guidance on the administration of the Performance Indicator program.	N/A

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APPENDIX B

List of Emergency Equipment and Supplies



LIST OF EMERGENCY EQUIPMENT AND SUPPLIES

Emergency Equipment

Below is a list of typical equipment and supplies dedicated for emergency use. Refer to EPP-103, Emergency Equipment Checklist, for specific equipment and supplies found in the various locations.

- A. Control Room
  - (1) Emergency Plan and Procedures
  - (2) Graphs, Overlays and Maps
  - (3) Drawings of Facility and Plant Site
  - (4) Self-Contained Breathing Apparatus
  - (5) Portable radios
  - (6) Telephone
- B. Operations Support Center
  - (1) Protective Clothing
  - (2) Telephones
  - (3) Flashlights w/batteries
- C. Technical Support Center
  - (1) Emergency Plan and Procedures
  - (2) Graphs, Overlays and Maps
  - (3) Drawings of Facility and Plant Site
  - (4) Logbook
  - (5) First Aid Kit
  - (6) Protective Clothing
  - (7) Flashlights w/batteries
  - (8) Telephones
  - (9) High Range Survey Instrument
  - (10) Portable Air Sampler
  - (11) Dosimeter and Charger
  - (12) FSAR and Technical Specifications
- D. Offsite Holding Area Kit
  - (1) GM Survey Meter
  - (2) Smear Paper and Envelopes
  - (3) Disposable Protective Clothing
  - (4) First Aid Kit
  - (5) Radiation Signs and Rope
  - (6) Poly Bags

- E. Ambulance Emergency Kit
  - (1) Protective Clothing
  - (2) Poly Bags
  - (3) Radiation and Contamination Signs and Rope
  - (4) Absorbent Material
  - (5) Smear Paper and Envelopes
  
- F. Radiation Monitoring Kit
  - (1) GM Survey Meter
  - (2) High Range Ionization Instrument
  - (3) First Aid Kit
  - (4) Stop Watch
  - (5) Portable Air Sampler
  - (6) Radiation Signs and Rope
  - (7) Procedures
  
- G. Repair Equipment  
(Normal and emergency damage control and repair equipment is maintained by the maintenance disciplines.)

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APPENDIX C

Letters of Agreement and Memorandum of Understanding

The V. C. Summer Nuclear Station maintains Letters of Agreement and/or Memorandums of Understanding with the following:

The State of South Carolina, Emergency Management Division (This letter includes the South Carolina Department of Health and Environmental Control.)  
The South Carolina Highway Patrol  
The South Carolina Law Enforcement Division  
The County of Newberry  
The County of Lexington  
The County of Richland  
The County of Fairfield  
Fairfield County Sheriff's Department  
Fairfield County Emergency Medical Services  
Lexington County Emergency Medical Services  
The Department of Energy, Savannah River Office  
Palmetto Richland Memorial Hospital  
Radiation Emergency Assistance Center/Training Site, DOE, Oak Ridge  
Pinner Clinic  
The Institute of Nuclear Power Operations  
Jenkinsville - Monticello - Horeb Volunteer Fire Department  
Greenbrier - Bethel Volunteer Fire Department  
Blair Volunteer Fire Department  
Feasterville Volunteer Fire Department  
Lebanon Volunteer Fire Department  
Community Volunteer Fire Department  
Adams Mark Hotel, Columbia, South Carolina

Letters of Agreement and/or Memorandums of Understanding are reviewed annually and updated as required. Current copies are retained in the Emergency Services Unit files, Security files or Nuclear Licensing files.

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APPENDIX D

South Carolina Operational Radiological Emergency Response Plan  
(Separate Document)

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APPENDIX E

Fairfield County Emergency Operations Plan  
(Separate Document)

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APPENDIX F

Newberry County Emergency Operations Plan  
(Separate Document)

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APPENDIX G

Richland County Emergency Operations Plan  
(Separate Document)



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APPENDIX H

Lexington County Emergency Operations Plan  
(Separate Document)

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APPENDIX I

Interagency Radiological Assistance Plan (IRAP)  
(Separate Document)

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APPENDIX J

Evacuation Time Estimates  
(Separate Document)