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PSEG NUCLEAR LLC
EMERGENCY PLAN
January 11, 2001
CHANGE PAGES FOR
REVISION #40

The Table of Contents forms a general guide to the current revision of each section of the PLAN. The changes that are made in this TOC Revision #40 are shown below. Please check that your revision packet is complete and remove the outdated material listed below.

-	ADD			REMOVE	
Page	Description	Rev.	Page	Description	Rev.
i	T.O.C. (i)	40	i	T.O.C. (i)	39
All	T.O.C. (ii)	11	All	T.O.C. (ii)	10
ALL	Section 1	8	ALL	Section 1	7
ALL	Section 2	10	ALL	Section 2	9
ALL	Section 4	7	ALL	Section 4	6
ALL	Section 5	8	ALL	Section 5	7
ALL	Section 6	8	ALL	Section 6	7
ALL	Section 7	9	ALL	Section 7	8
ALL	Section 8	7	ALL	Section 8	6
ALL	Section 9	11	ALL	Section 9	10
ALL	Section 10	8	ALL	Section 10	7
ALL	Section 11	11	ALL	Section 11	10
ALL	Section 12	10	ALL	Section 12	9
ALL	Section 14	6	ALL	Section 14	5
ALL	Section 15	8	ALL	Section 15	7

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PSEG NUCLEAR LLC EMERGENCY PLAN TABLE OF CONTENTS

January 11, 2001
REVISION 40

PSE&G CONTROL COPY # EPIP059

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES

LIST OF NUREG-0654 CROSS REFERENCE TO PLAN

LIST OF NUREG-0654 CROSS REFERENCE TO PLAN

LIST OF NUREG-0654 CROSS REFERENCE TO PLAN

NUREG-0654 REF. SECTION	EMERGENCY PLAN SECTION	NUREG-0654 REF. SECTION	EMERGENCY PLAN SECTION
Part O (contd)			
3	Section 16		
4.a	Section 16		
4.g	Section 16		
4.h	Section 16		
5	Section 16		
Part P			
1	Section 16		
2	Section 17		
3	Section 17		
4	Section 17		
5	Section 17		
6	Section 1		
7	TOC, Att 1		
8	TOC, List of NUREG Cross Ref.		
9	Section 17		
10	Section 17		

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SECTION 1

INTRODUCTION

1.0 Purpose

This plan has as its fundamental purpose the protection of health and safety of the general public and site personnel from the potential hazards of a radiological emergency.

2.0 Background

This plan is submitted in accordance with the requirements of 10 CFR 50.54(q), 10 CFR 50 Appendix E and the objectives of NUREG 0654 (November 1980).

3.0 Scope

This plan identifies the normal and emergency operating organizations, the emergency facilities available, and the overall program for managing and recovering from an emergency situation. The plan shows which federal, state, and local authorities and agencies are available for assistance, and that liaison with such authorities and agencies can be and is established in order to obtain assistance and implement protective actions if necessary. In this manner, the plan reflects the combined efforts and coordination of all responsible organizations, and addresses the general criteria and organization for managing an emergency.

4.0 Planning Basis

In developing this plan, the following reference documents were used as the planning basis:

(1) "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", NUREG-0654/FEMA, REP.- 1, Rev. 1 (November 1980); and

(2) "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants" NUREG-0396, EPA 510/1-78-016 (December 1978).

The overall objective of this plan is to prevent or reduce radiation exposures to the public resulting from an accident at Salem and Hope Creek Generating Stations. The actual or potential exposures considered in the development of this plan are due to the two principal pathways (plume and ingestion). Although the selected planning basis is independent of specific accident sequences, a number of accident descriptions were considered in the development of this plan, including the core melt accident release categories of the Reactor Safety Study (WASH 1400).

The planning basis used two predominant Emergency Planning Zones (EPZs).

(1) Plume exposure pathway EPZ -- The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited material; and (b) inhalation exposure from the passing radioactive plume.

(2) Ingestion exposure pathway EPZ -- The principal exposure from this pathway is the ingestion of contaminated milk. The planning effort for this pathway involves the identification of potential sources of contaminated milk and associated control points and mechanisms that prevent it from entering the human food chain. Ingestion pathway exposures in general would represent a problem in the days or weeks following an accident, although some early protective actions to minimize subsequent contamination of milk are provided in the state plans. Additionally, the secondary exposure pathway of ingestion of contaminated foods (either human or animal) was considered in the planning effort.

The EPZs are the areas for which planning is performed to assure that prompt effective actions can be taken to protect the public in the event of an accident. The state's response organizations, rather than local, have taken principal responsibility for the planning associated with the ingestion exposure pathway. This plan uses a radius of about 10 miles for the plume exposure pathway and a radius of about 50 miles for the ingestion exposure pathway. The EPZs for Salem and Hope Creek Generating Stations are shown in Figure 1-1. The principal towns and the city within ten miles of the site are listed in Table 1-1.

The following definitions are used in the plan:

(1) Accident

An unforeseen and unintentional event which may result in an emergency.

(2) Action Steps

Those steps listed in the Emergency Plan Implementing Procedures which are used to provide direction to appropriate individuals to reduce risk to the health and safety of the public, site personnel and emergency workers in the event an emergency occurs.

(3) Affected Station

Distinguishes the station, either Hope Creek or Salem Generating Station, which experiences a specific emergency event. The designation of the affected station determines the leadership sequences for the emergency response organization for Artificial Island.

(4) Artificial Island

The area encompassing both the Salem and Hope Creek Generating Stations' protected areas, as well as an owner controlled area immediately adjacent to the protected area, as described in the Salem and Hope Creek Stations' Final Safety Analysis Reports.

(5) 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.

(6) Committed Effective Dose Equivalent (CEDE)

The sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues.

(7) Contamination

The presence of radioactive material in undesirable locations.

(8) Curie (Ci)

A unit of radioactivity; 1 Curie is that amount of radioactive material in which 3.7×10^{10} disintegrations occur per second. The millicurie and microcurie are respectively one thousandth and one millionth of a Curie.

(9) Deep Dose Equivalent (DDE)

Applies to external whole body exposure. It is the dose equivalent at a tissue depth of 1 cm (1000 mg/cm^2).

(10) Decontamination

The removal of radioactive contaminants from surfaces or equipment, by cleaning or washing with water or a decontamination solution, if required.

(11) Drill

The supervised instruction period aimed at testing, developing and maintaining skills in a particular operation of emergency preparedness. A drill is often a component of an exercise.

(12) Emergency

That situation or condition which may lead to undue risk to the health and safety of the public or to site personnel. The emergency action levels that are used to identify these emergencies are described in the Event Classification Guide (as discussed in Section 5 of this plan).

(13) Emergency Action Levels (EAL)

Pre-designated parameters of radiological dose rates, specific contamination levels of airborne, waterborne, or surface-deposited concentrations of radioactive materials, or specific

instruments/parameters (including their rates of change) that may be used as thresholds for initiating a particular level of emergency, a notification procedure, or a particular protective action.

(14) Emergency Coordinator (EC)

That person who has the authority and responsibility to immediately and unilaterally initiate any emergency action including the decision to notify and provide protective action recommendations to authorities responsible for implementing offsite emergency measures.

(15) Emergency News Center (ENC)

A facility operated by PSEG NUCLEAR for the purpose of disseminating accurate information to the news media.

(16) Emergency Operations Center (EOC)

A state or local government's command and communication center which is activated to evaluate the radiological emergency and coordinate the protective actions that may need to be implemented.

(17) Emergency Operations Facility (EOF)

A facility operated by PSEG NUCLEAR for the coordination of decisions affecting accident mitigation and public safety. The EOF is described in Section 9.0 of this plan.

(18) Emergency Plan Implementing Procedures (EPIPs)

Specific procedures defining in detail the actions to be taken in the event of an accident by the emergency staff. The procedures are separate from, but may incorporate and refer to, normal plant operating procedures and instructions.

(19) Exercise

An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency plans of the principal response organizations.

(20) Fixed Nuclear Facility (FNF)

A site where nuclear materials are employed in commercial power generating operations.(This term is used extensively in the offsite emergency plans.)

(21) Mitigating Actions

Those emergency measures taken to reduce the consequences of or terminate an emergency situation in order to prevent an uncontrolled release of radioactive material or to reduce the magnitude of a release, e.g., shutting down equipment, fire fighting, repair and damage control.

(22) Offsite

That area outside of the Protected Area.

(23) Onsite

Protected Area.

(24) Operations Support Center

An onsite emergency response facility which functions to coordinate the corrective and protective action activities of site personnel outside of the Control Room. These activities include repairs, fire fighting, damage control, search and rescue, medical response, bomb searches, and local plant system lineup changes.

(25) Owner Controlled Area

This refers to that area within the PSEG NUCLEAR property line (700 acre site).

(26) Population at Risk

Those persons for whom protective actions are being or would be taken.

(27) Protective Actions

Those emergency measures taken after a release of radioactive material has occurred, or before a release which is expected to occur which would exceed a Protective Action Guide (PAG), for the purpose of preventing or minimizing radiological exposures to persons and the public.

(28) Protective Action Guides (PAG)

Projected radiological dose or dose commitment values to individuals in the general population which would warrant protective action following a release of radioactive material. Protective actions would be warranted only when the reduction in individual dose expected to be received is not offset by excessive risks to individual safety should the protective action be taken. The PAG does not include the dose that has unavoidably occurred prior to the assessment (under no circumstances will a PAG dose be considered an acceptable dose).

(29) Protected Area

That area within the boundaries of the Security fence.

(30) Rad

Acronym for radiation absorbed dose, basic unit of absorbed dose of radiation. Technically, a dose of one rad means the absorption of 100 ergs of radiation energy per gram of absorbing material (refer to SI units).

(31) Radiation (as referred to in this plan)

Any or all of the following: a form of energy which includes gamma rays, x-rays, neutrons, high-speed electrons, positrons, and other atomic particles which occur from radioactive decay or nuclear fission.

(32) Radiation Accident

Any unexpected event, occurrence or circumstance involving an actual or potential radiation exposure or radioactive contamination in excess of federal regulations and/or the facility technical specifications.

(33) Radiological Control Area (RCA)

That portion of each plant where exposure to nuclear radiation, radioactive material or radioactive contamination is a concern.

(34) Recovery Actions

Those actions taken after the emergency to restore the plant as nearly as possible to its pre-emergency condition.

(35) Release of Radioactive Material

Plant effluent greater than tech spec limits.

(36) Rem

Acronym for Roentgen Equivalent Man, a measure of the dose equivalence of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of one roentgen of X-rays or gamma radiation (refer to SI units).

(37) Roentgen

A unit of radioactive exposure; the amount of X-radiation or gamma radiation that will provide one electrostatic unit of charge (positive or negative) in one cubic centimeter of dry air at standard pressure and temperature conditions (2.58×10^4 coulombs per Kilogram of air).

(38) Sector

22½° division of the Emergency Planning Zones (EPZs). The sector (N) is bisected by a line from the Salem and Hope Creek Generating Stations directly north.

(39) Technical Support Center (TSC)

This emergency response facility provides a location outside of the Control Room area, where technical support of operations, accident assessment, and initial augmentation of emergency plan implementation may be conducted.

(40) Utility

PSEG, the operator of Salem and Hope Creek Generating Stations.

(41) Total Effective Dose Equivalent (TEDE)

Term used in conjunction with 10CFR20 and EPA 400 summarizing total dose to the individual which

includes exposure from all sources both internal and external to the body.

5.0 State Government Emergency Planning for Contiguous Jurisdictions

5.1 Principal Government Jurisdiction in the EPZs

The States of Delaware and New Jersey are the principal offsite authorities for emergency planning and response for both EPZs. This plan outlines the activities of the states and their response capabilities and includes the agreement between the utility and the states but does not include the states' plans. A list of all supporting emergency plans is provided as Table 1-2.

5.2 Secondary Government Jurisdictions in the EPZs

The secondary jurisdictions in the EPZs include the affected counties within New Jersey and Delaware and the contiguous States of Pennsylvania and Maryland. These governmental entities have agreements with the States of New Jersey *or* Delaware. The arrangements are outlined in this plan but are not included as part of this plan since they are a part of the appropriate state's plan.

6.0 Integrated Guidance and Criteria

NRC and FEMA have consolidated the guidance intended for use by the licensees, state and local governments in NUREG-0654 FEMA-REP-1, Rev. 1. Should an accident occur, the public can be best protected when the response by all parties is fully integrated. Each party involved must have a clear understanding of what the overall level of preparedness must be and what role it will play in the event of an accident. This understanding can be best achieved if there is an integrated development and evaluation of plans. There must also be an acceptance by the parties and a clear recognition of the responsibility they share for safeguarding public health and safety. This plan has been developed to meet these goals.

Although NUREG-0654 indicates that the criteria are applicable to one or more specific organizations, the intention throughout NUREG-0654 is to provide for an adequate state of emergency preparedness around the facility. To meet this intent this plan has been developed to complement the emergency plans of the States of New Jersey and Delaware.

7.0 Technical Assistance

The planning for response to the offsite consequences of an accident at Artificial Island and implementation of protective actions resulting from that accident are the responsibility of the States. This plan provides for cooperation with and assistance to the States of New Jersey and Delaware.

8.0 Emergency Response Organization (ERO)

PSEG (Utility) has established an organization to respond to emergencies at Salem and Hope Creek Generating Stations. This organization consists of PSEG Nuclear response personnel. These response organizations and their method of notification, resources, initiation and limitations are detailed in the appropriate sections of this plan.

9.0 Form and Content of Plans

This plan has been written following the outline of NUREG-0654 (November 1980) to minimize the need for cross referencing and to aid the review process.

10.0 Emergency Plan Implementing Procedures

Emergency planning implementing procedures provide directions for implementation of the Emergency Plan. Each Table of Contents to the procedure volumes is considered the controlled listing of procedures and revisions. Emergency Plan Procedures, including Salem and Hope Creek Event Classification and Notification Procedures, are also listed in Plan Attachment 1-1.

TABLE 1-1

LIST OF CITIES AND TOWNS
WITHIN 10 MILES OF HOPE CREEK AND SALEM GENERATING STATIONS

Town	Population 1990 Census	Distance (in miles) & Location from Site
Delaware:		
Bay View Beach	113	3.4 WNW
Delaware City	1682	7.5 WNW
Middletown	2793	9.5 W
Odessa	271	6.2 W
Port Penn	244	4.2 NNW
St. Georges	353	9.0 NW
Townsend	278	9.5 WSW
Woodland Beach	82	9.7 SSE
New Jersey:		
L.A.C. township	1858	0.0 E
Quinton township	2511	8.5 NE

Nearest Major City	Population 1990 Census	Distance (in miles) & Location from Site
Salem	6883	8.0 NNE

TABLE 1-2
OFFSITE EMERGENCY PLANS
SUPPORTING PSEG NUCLEAR EMERGENCY PLAN

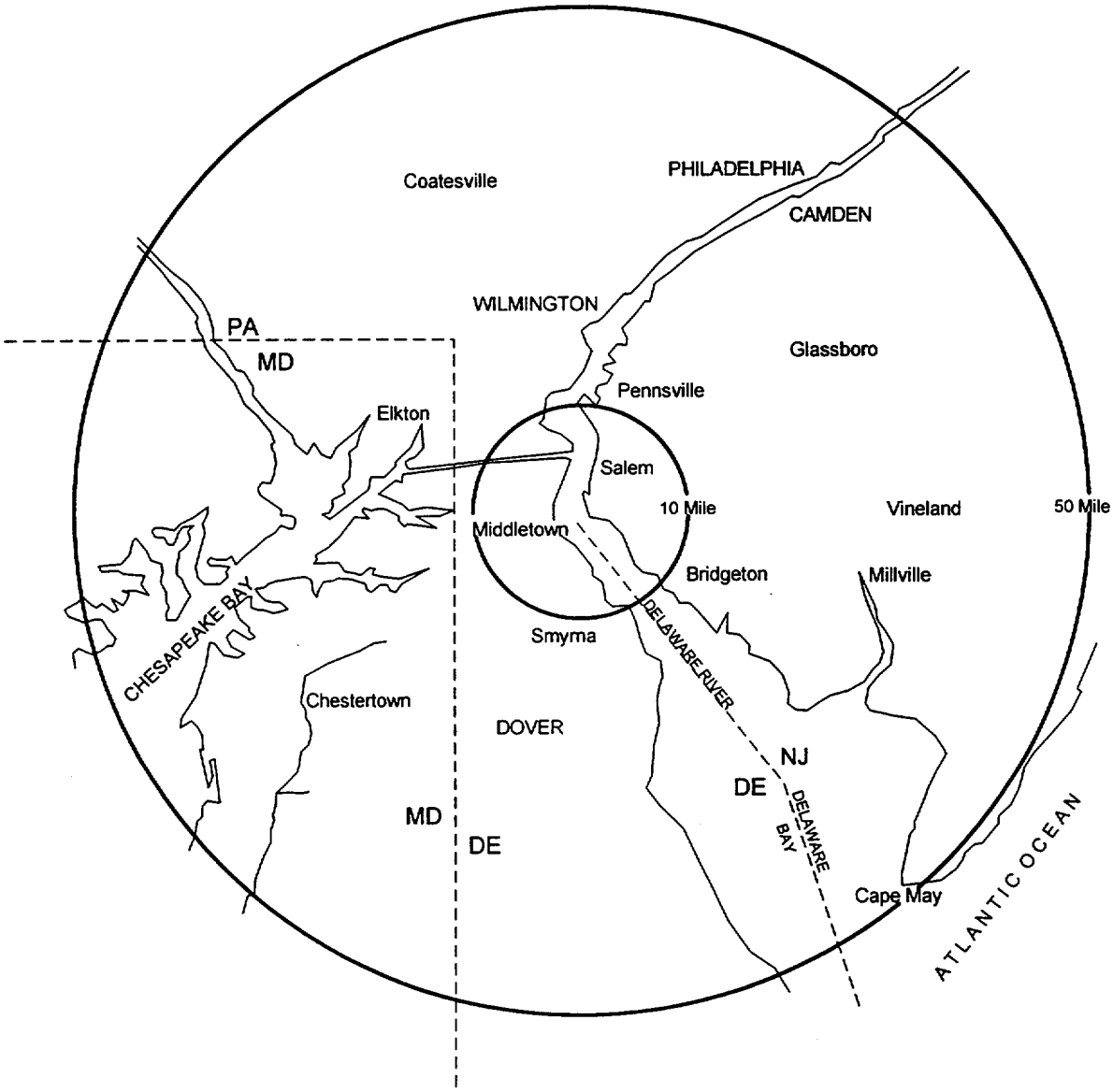
Plan	Responsible Agency
Plume Exposure Pathway	
New Jersey Radiological Emergency Response Plan	Office of Emergency Management, New Jersey State Police
Salem County Radiological Emergency Response Plan	Salem County Office of Emergency Management
Elsinboro Township Radiological Emergency Response Plan	Elsinboro Township Office of Emergency Management
Lower Alloways Creek Township Radiological Emergency Response Plan	Lower Alloways Creek Office of Emergency Management
Mannington Township Radiological Emergency Response Plan	Mannington Township Office of Emergency Management
Pennsville Township Radiological Emergency Response Plan	Pennsville Township Office of Emergency Management
Quinton Township Radiological Response Plan	Quinton Township Office of Emergency Management
Salem City Radiological Emergency Response Plan	Salem City Office of Emergency Management
Cumberland County Radiological Emergency Response Plan	Cumberland County Office of Emergency Management
Greenwich Township Radiological Emergency Response Plan	Greenwich Township Office of Emergency Management

TABLE 1-2 (cont)
OFFSITE EMERGENCY PLANS
SUPPORTING PSEG NUCLEAR EMERGENCY PLAN

Plan	Responsible Agency
Plume Exposure Pathway	
Stow Creek Township Radiological Emergency Response Plan	Stow Creek Township Office of Emergency Management
Delaware Radiological Plan	Delaware Emergency Management Agency
New Castle County Radiological Emergency Plan	New Castle County Department of Public Safety
Kent County Radiological Emergency Plan	Kent County Emergency Planning and Operations
Ingestion Pathway	
Maryland Disaster Assistance Plan, Annex O, Radiological Emergency Response Plan	Maryland Civil Defense & Disaster Preparedness Agency
Pennsylvania Disaster Operations Plan, Annex E, Fixed Nuclear Facility Incidents	Pennsylvania Emergency Management Agency

FIGURE 1-1

10 AND 50 MILE RADII FROM
SALEM AND HOPE CREEK GENERATING STATIONS



SECTION 1

SIGNATURE PAGE

Prepared By: MARK AZZARO (Rev 1) 10/13/00
(If Editorial Revisions Only, Last Approved Revision) Date

Reviewed By: N/A N/A
Station Qualified Reviewer Date

Reviewed By: Raymond Reece (R. REECE) for D. MILLER 10/13/2000
Department Manager Date

Reviewed By: Raymond Reece (R. REECE) for D. MILLER 10/13/200
Manager-EP & IT Date

Reviewed By: N/A N/A
Manager - Quality Assessment Date
(If Applicable)

SORC Review and Station Approvals

N/A N/A N/A N/A
Mtg. No. Salem Chairman Mtg. No. Hope Creek Chairman

N/A N/A
Date Date

N/A N/A
Vice President Nuclear – Operations Date

Effective Date of this Revision 1/11/2001
Date

1.0 PSEG Nuclear LLC

1.1 Internal Responsibility

PSEG Nuclear LLC, operator of Salem and Hope Creek Generating Stations, has the primary responsibility for planning and implementing emergency measures within the site boundary. In addition to accident mitigation, this responsibility includes accident assessment and the evaluation of any real or potential risk to the public health and safety. Based upon this evaluation, appropriate offsite agencies are promptly notified of the Protective Action Recommendations (PAR) for the affected population areas.

The Manager - Emergency Preparedness & Instructional Technology (Manager - EP & IT) is the individual who is responsible for maintaining emergency preparedness for the PSEG Nuclear. The Manager - EP & IT reports to the Director - Quality, Nuclear Training & Emergency Preparedness, who reports to the President and Chief Nuclear Officer. He reports directly to the President of PSEG Power. Organization charts of both the corporate structure and nuclear department are presented in Figures 2-1 and 2-2.

During an emergency and for its duration, accident mitigation is the responsibility of the Operations Superintendent (OS). Support is supplied by the Technical Support Center (TSC) staff under the direction of the Emergency Duty Officer (EDO). Protective Action Recommendations are made from the TSC following its activation. Additional support is available from the Emergency Operations Facility (EOF), which is staffed and may be activated for Alerts and is always activated at a Site Area Emergency. Protective Action Recommendations are made from the EOF following its activation.

The Emergency Response Organization at each level of response is described in Section 3. Each emergency manager/supervisor is responsible for maintaining and ensuring the continuity of personnel and resources.

1.2 External Agreements

PSEG Nuclear has entered into agreements with the appropriate emergency response organizations which would provide onsite and offsite support in the event of an emergency at Hope Creek or Salem Generating Stations. These agreements are provided in the Emergency Plan Attachment, Attachment 2. Figures 2-3 and 2-4 show how these organizations interface with PSEG Nuclear. Figure 2-5 show how these organizations interface for protective action decision making.

2.0 Principal Government Jurisdictions in the EPZs

2.1 The State of Delaware

The Delaware Emergency Management Agency (DEMA), Department of Public Safety, has developed the Delaware Radiological Emergency Preparedness (REP) Plan and serves as the lead agency for coordinating state emergency actions as authorized in the Delaware Code Annotated Title 20, Chapter 31.

The Delaware Department of Natural Resources and Environmental Control (DNREC), as authorized by the Delaware Code Annotated Title 7, Chapter 60 is responsible for protecting the environment to include participation in accident assessment, mitigation and recovery efforts in the event of a radiological incident.

The Delaware Department of Health and Social Services (DHSS), as authorized by the Delaware Code Annotated, Title 16, Chapter 1, has the overall responsibility for protecting health and safety of the general public to include accident assessment, social services mitigation and recovery efforts in the event of radiological incident.

The Delaware Department of Agriculture (DDA), as authorized by the Delaware Code Annotated Title 29, Chapter 81, is responsible for protection of agriculture in the interest of health and safety of the public.

Delaware's accident assessment and protective action response is developed by the Accident Assessment Advisory Group (AAAG). The AAAG comprises members of the DNREC, DHSS with the Deputy Director of the Division of Public Health (DPH)and Division of Water Resources (DWR) Senior Science Advisor serving as the Co-Chairperson of the AAAG. Protective Action Recommendations are developed and provided to the DEMA Director, by the AAAG Chairperson.

The resources and response organization of the State of Delaware are described in the Delaware Radiological Emergency Plan. The development of protective actions is performed as outlined in Figure 2 - 5 and discussed in detail in Sections 10 and 11.

2.2 The State of New Jersey

The Office of Emergency Management (OEM) of New Jersey State Police (NJSP)is granted the authority to assist in supervising and coordinating the emergency response activities of the state government and of all of the political subdivisions as outlined in the New Jersey Civil Defense Act of 1942, Chapter 251, as amended.

The New Jersey Department of Environmental Protection (DEP) is empowered by New Jersey Public Law 1958, Chapter 116 and Public Law 1961, Chapter 124, to take/recommend radiological protective actions as necessary to protect the public health or welfare.

The Superintendent of NJSP is the agency head that acts as New Jersey's emergency coordinator responsible for directing and/or coordinating all emergency response by New Jersey state agencies. The response organization for the State of New Jersey is provided as Figure 2-7.

The New Jersey Department of Environmental Protection is the lead agency for New Jersey's assessment of radiological emergencies. The Commissioner of the DEP is the agency head responsible for the response of that organization. The actions taken by DEP are coordinated through and parallel with the actions of the NJSP.

The resources and response organizations of the State of New Jersey are described in the New Jersey Radiological Emergency Response Plan. The development of protective actions is performed as outlined in Figure 2-5 and is discussed in detail in Sections 10 and 11.

2.2.1 Local Governments

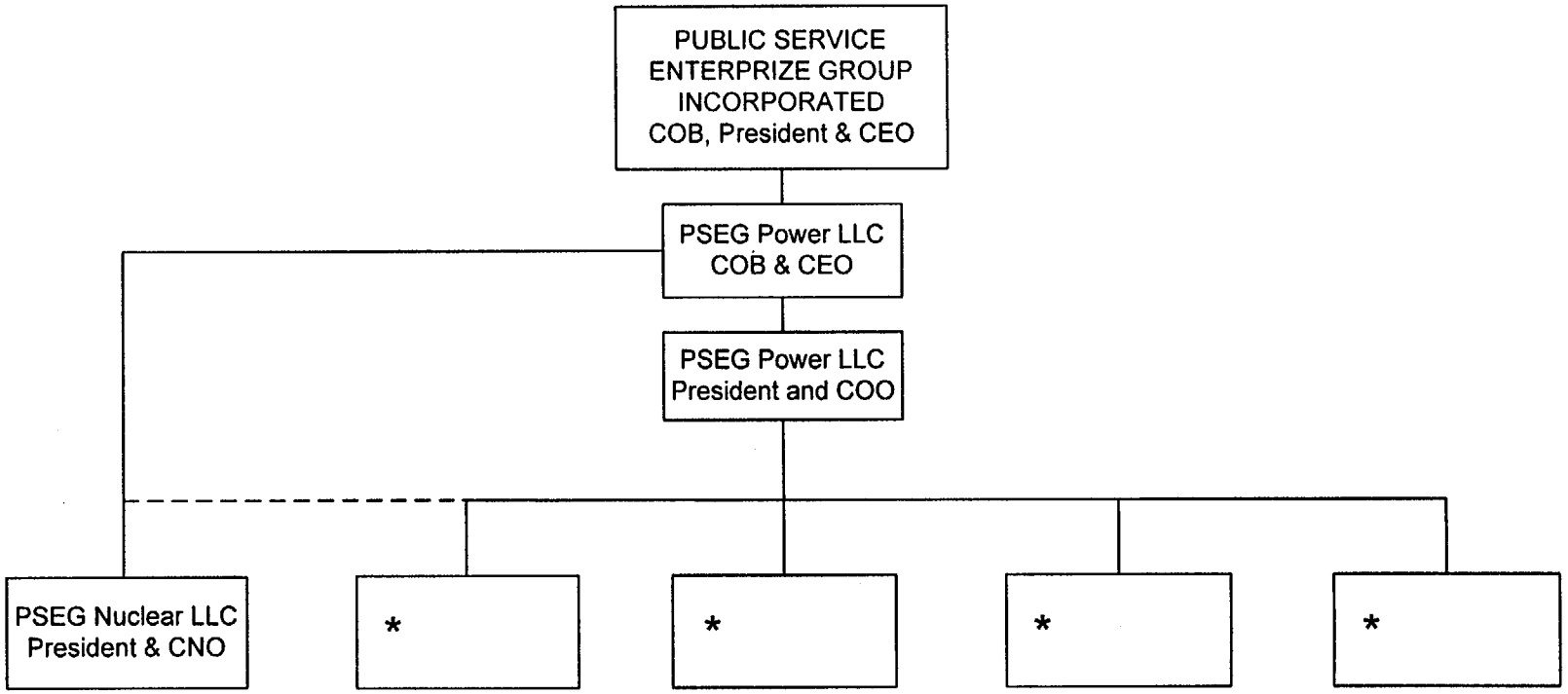
The County Emergency Management Coordinators for Salem and Cumberland Counties in New Jersey and the County Emergency Preparedness Coordinators for New Castle and Kent Counties in Delaware are the local government representatives who act as the county emergency coordinators. The response organizations for the counties are provided in Figures 2-8 through 2-11.

3.0 Contiguous (Ingestion Pathway) States

The States of Pennsylvania and Maryland are contiguous (Ingestion pathway) states. The ingestion exposure pathway planning area is shown in Emergency Plan Section 1, Figure 1-1. The State of New Jersey has taken the primary responsibility for notification and communications with the contiguous (ingestion pathway) States of Pennsylvania and Maryland.

The Memoranda of Understanding (Emergency Plan Attachments, Attachment 2) between the State of New Jersey and the States of Pennsylvania and Maryland are available for review and is provided in supplementary volumes. Should the accident cause conditions offsite, which justify monitoring of the ingestion pathway, the utility's emergency coordinator function verifies with the States of New Jersey and Delaware that the ingestion pathway is being monitored. Additionally, the individual acting in the emergency coordinator function verifies with the State of New Jersey that the States of Pennsylvania and Maryland have been notified. The State of Delaware also has agreements in force with the States of Maryland and Pennsylvania regarding emergency notifications. The criteria for recommending ingestion pathway monitoring is that radionuclide concentrations in excess of 10CFR20 Appendix B limits could potentially exist *or* are verified to exist offsite.

FIGURE 2-1
PSEG CORPORATE ORGANIZATION



*NOTE: Contact corporate Human Resources for the latest corporate PSEG structure.

FIGURE 2-2
PSEG NUCLEAR ORGANIZATION

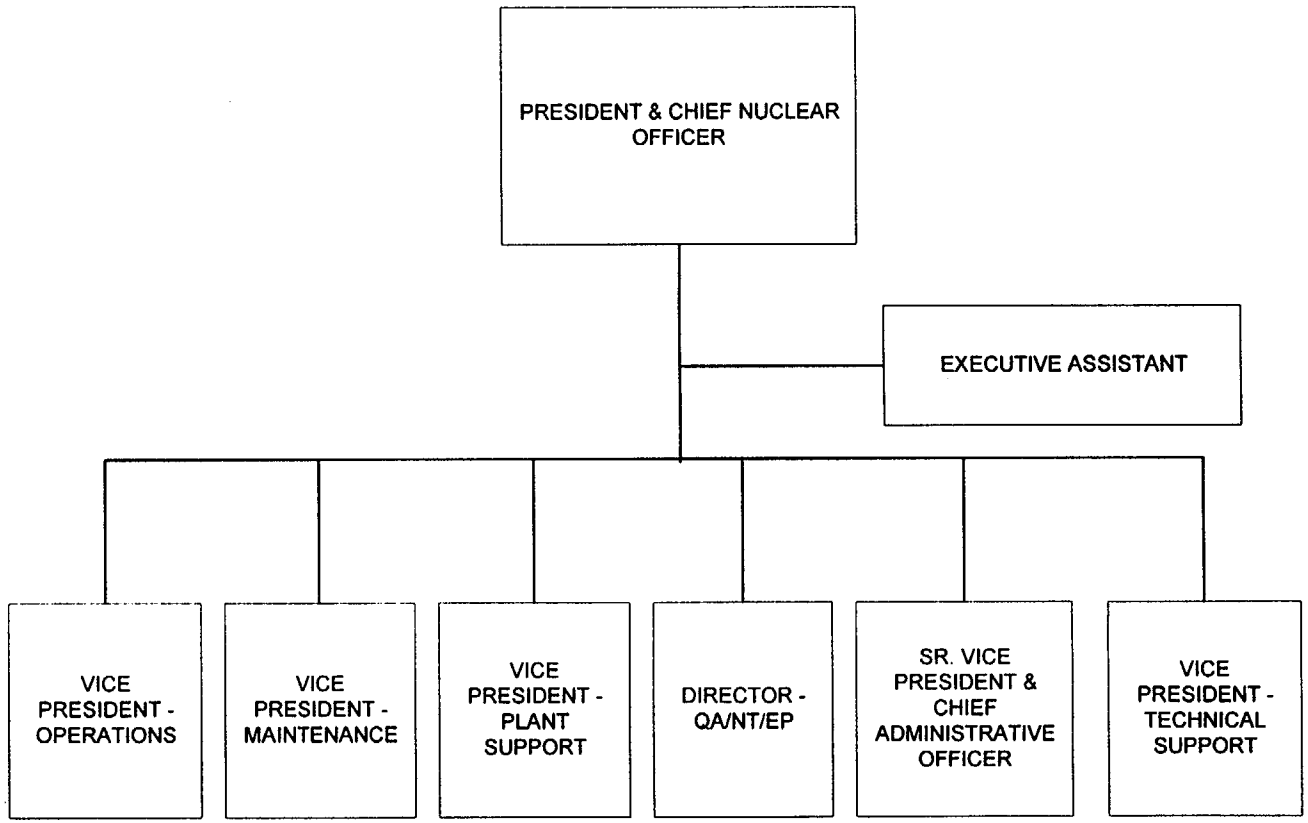
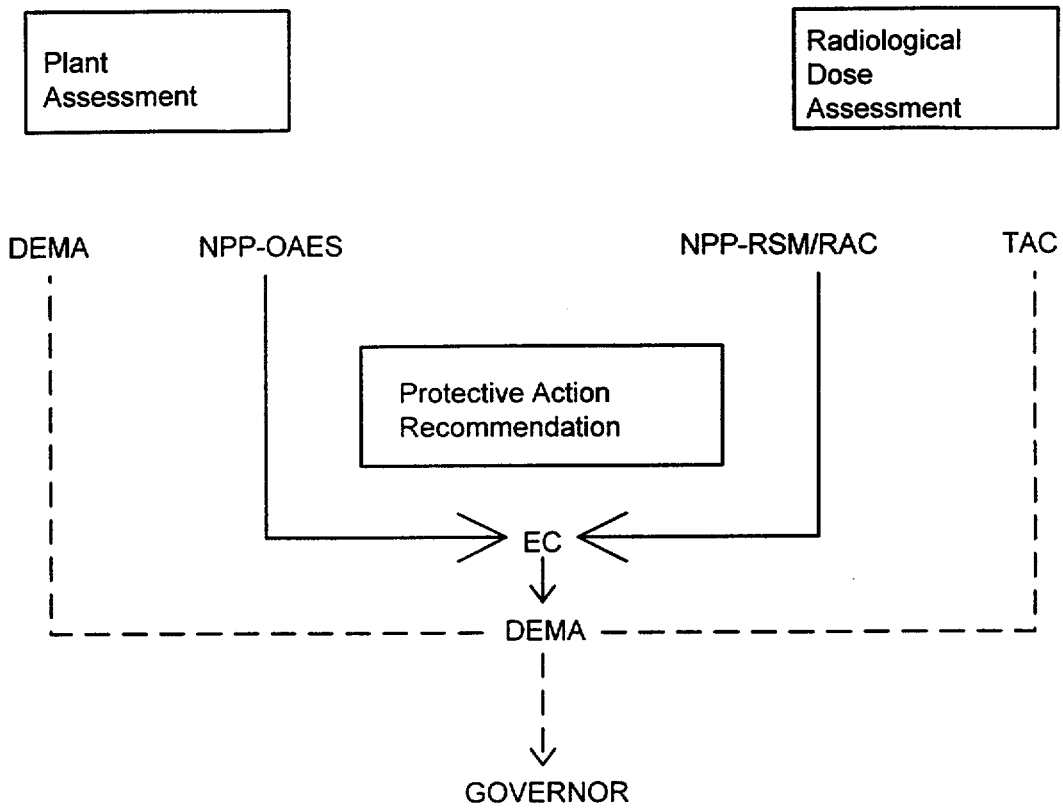


FIGURE 2-3
DELAWARE STATE INTERFACE

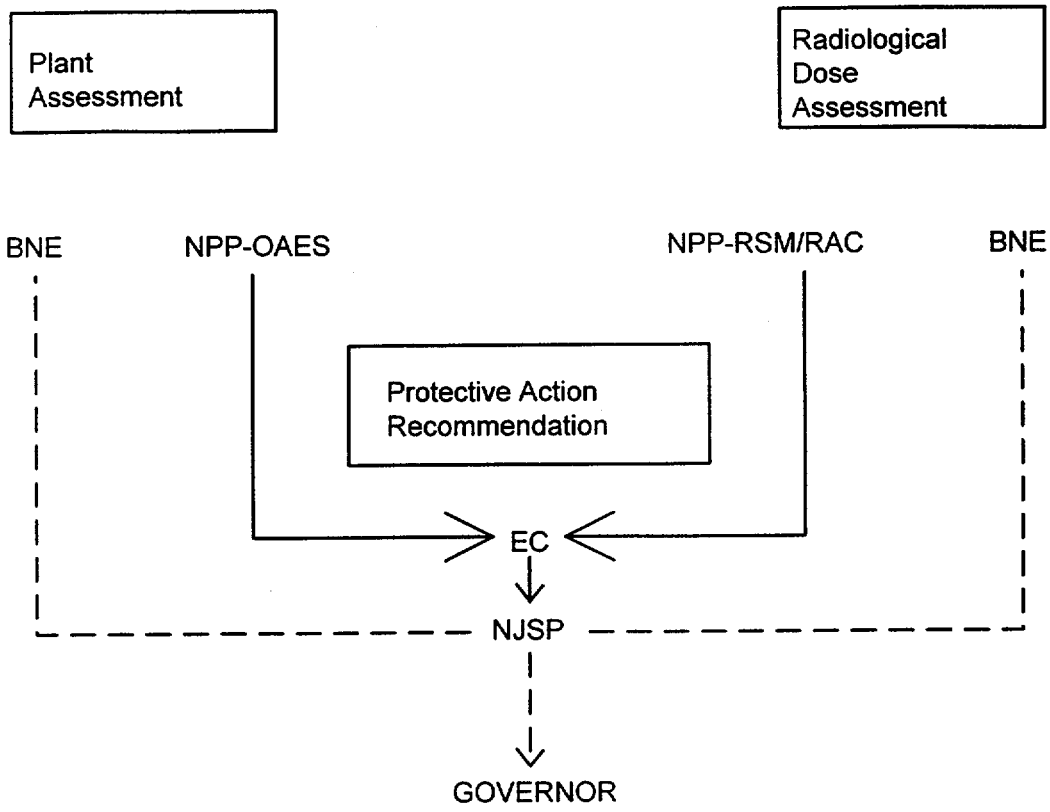


Key to Abbreviations/Symbols

— — — — state communication
———— utility communication

EC Emergency Coordinator (Operations Superintendent, Emergency Duty Officer, Emergency Response Manager)
NPP Nuclear Power Plant (Fixed Nuclear Facility)
RAC Radiological Assessment Coordinator
RSM Radiological Support Manager
OAES Operations Assessment and Engineering Staff
TAC TECHNICAL ASSESSMENT CENTER, State of Delaware
DEMA Delaware Emergency Management Agency, State of Delaware

FIGURE 2-4
NEW JERSEY STATE INTERFACE



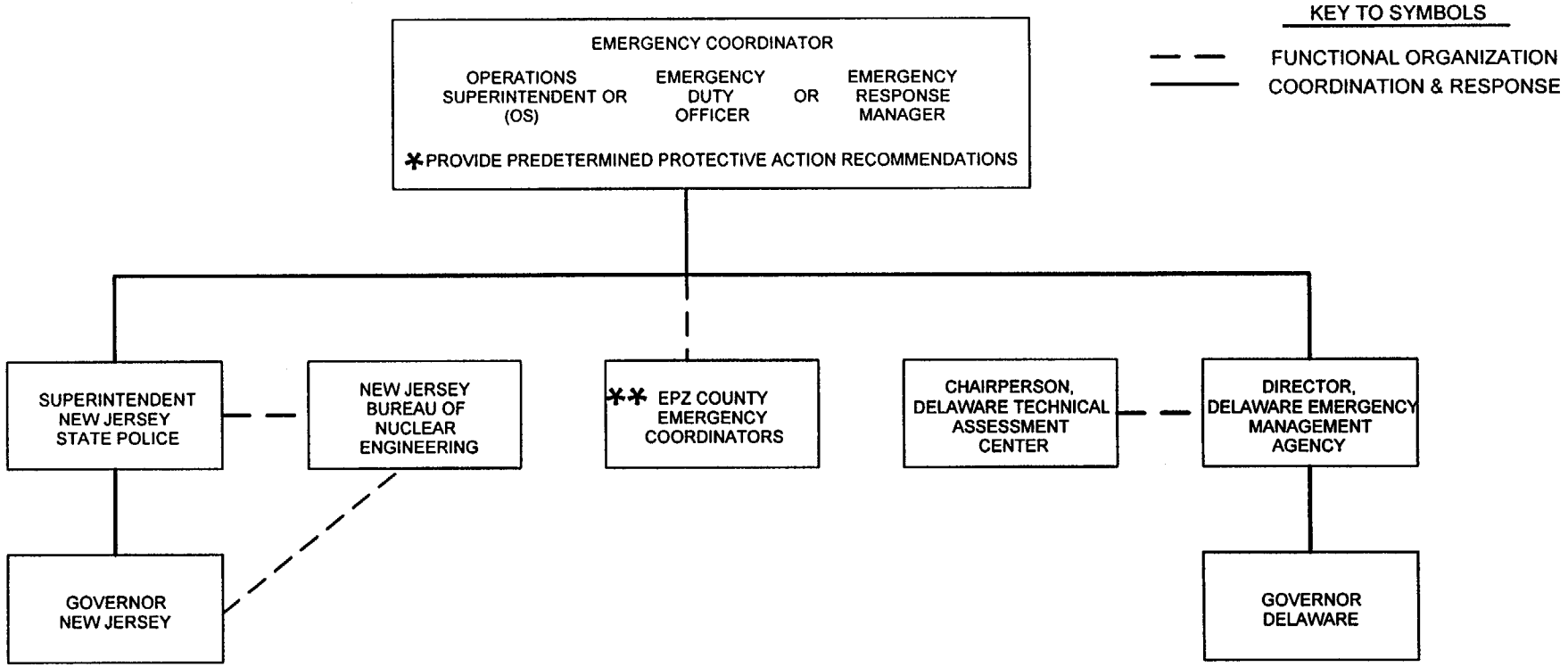
Key to Abbreviations/Symbols

— — — — state communication
———— utility communication

EC Emergency Coordinator (Operations Superintendent, Emergency Duty Officer, Emergency Response Manager)
NPP Nuclear Power Plant (Fixed Nuclear Facility)
RAC Radiological Assessment Coordinator
RSM Radiological Support Manager
OAES Operations Assessment and Engineering Staff
BNE New Jersey Bureau of Nuclear Engineering, Department of Environmental Protection
NJSP New Jersey State Police

FIGURE 2-5

DECISION CHAIN
PROTECTIVE ACTIONS
FOR
EVENTS CLASSIFIED AS GENERAL EMERGENCY



*PREDETERMINED PROTECTIVE ACTION RECOMMENDATIONS ARE DEVELOPED IN ACCORDANCE WITH IE INFORMATION NOTICE 83-28 AND NUREG - 0654, REV. 1. RELEASE ASSESSMENT WILL THEN BE PERFORMED TO ENSURE APPROPRIATE PROTECTIVE ACTIONS HAVE BEEN DEVELOPED.

**COUNTY EMERGENCY COORDINATORS ARE SHOWN HERE BECAUSE THEY ARE NOTIFIED DIRECTLY IF THE STATE(S) CANNOT BE CONTACTED AT A GENERAL EMERGENCY.

FIGURE 2-6

STATE OF DELAWARE
RADIOLOGICAL EMERGENCY RESPONSE
STATE ORGANIZATION

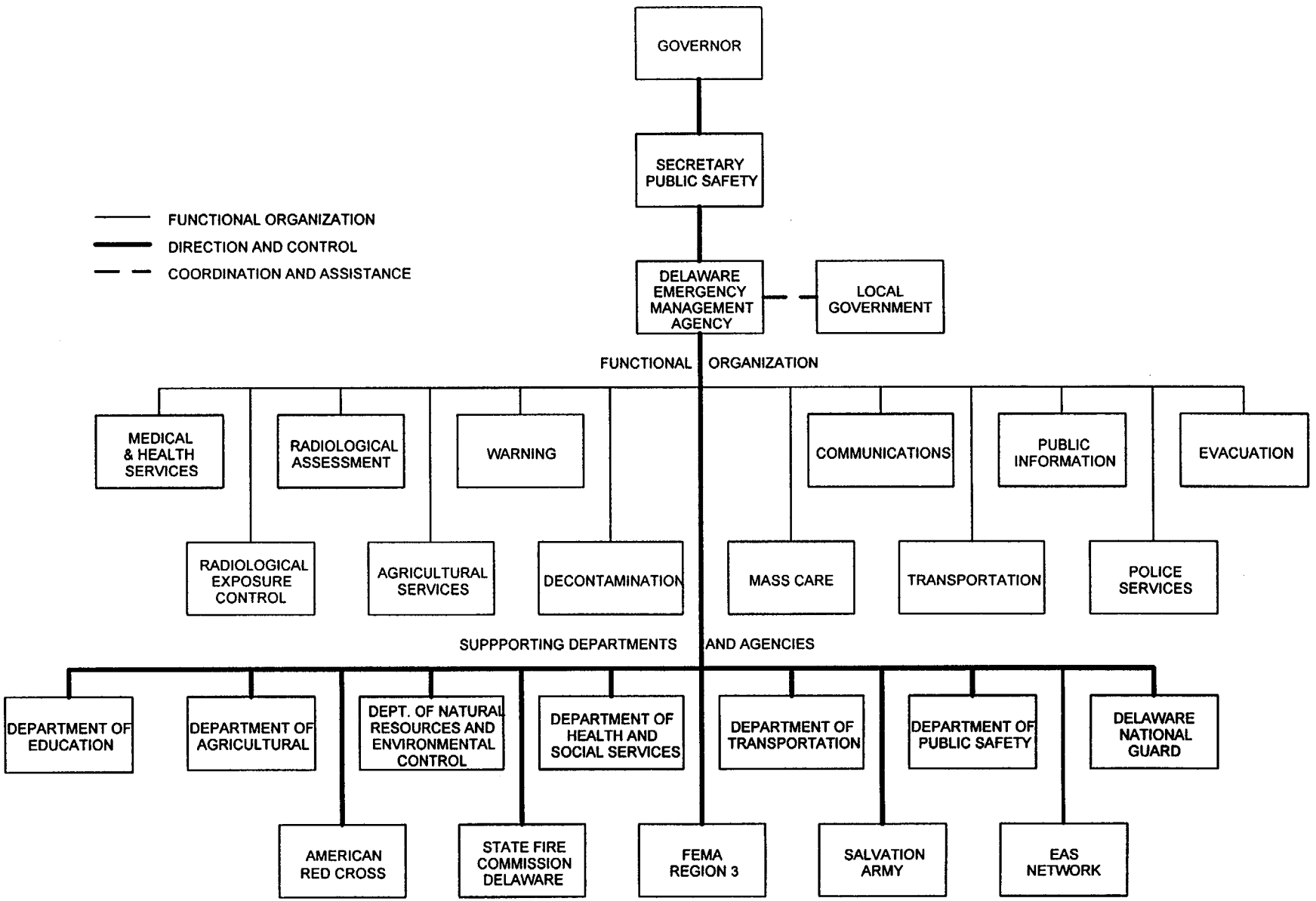


FIGURE 2-7

STATE OF NEW JERSEY
RADIOLOGICAL EMERGENCY RESPONSE
STATE ORGANIZATION

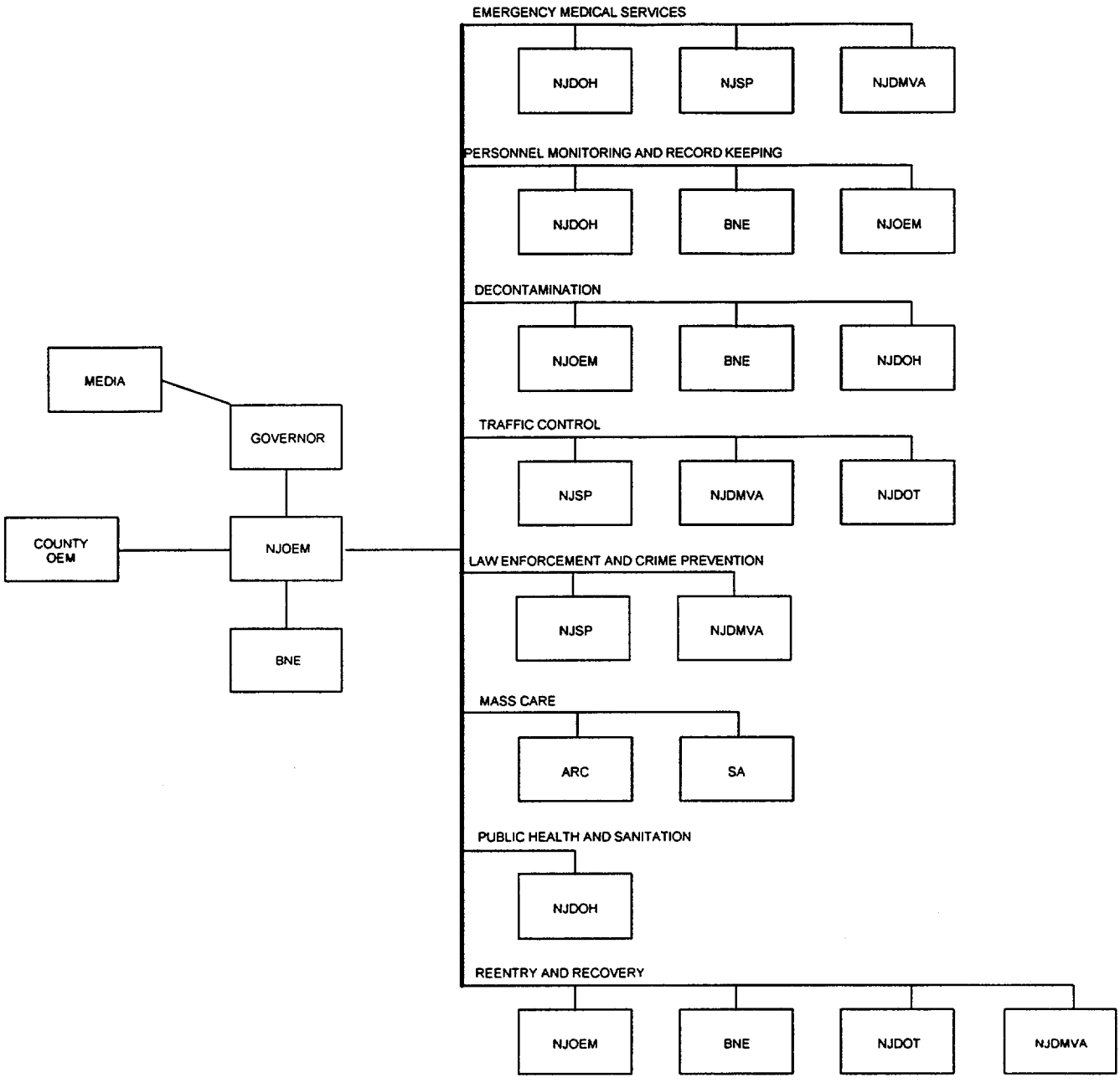
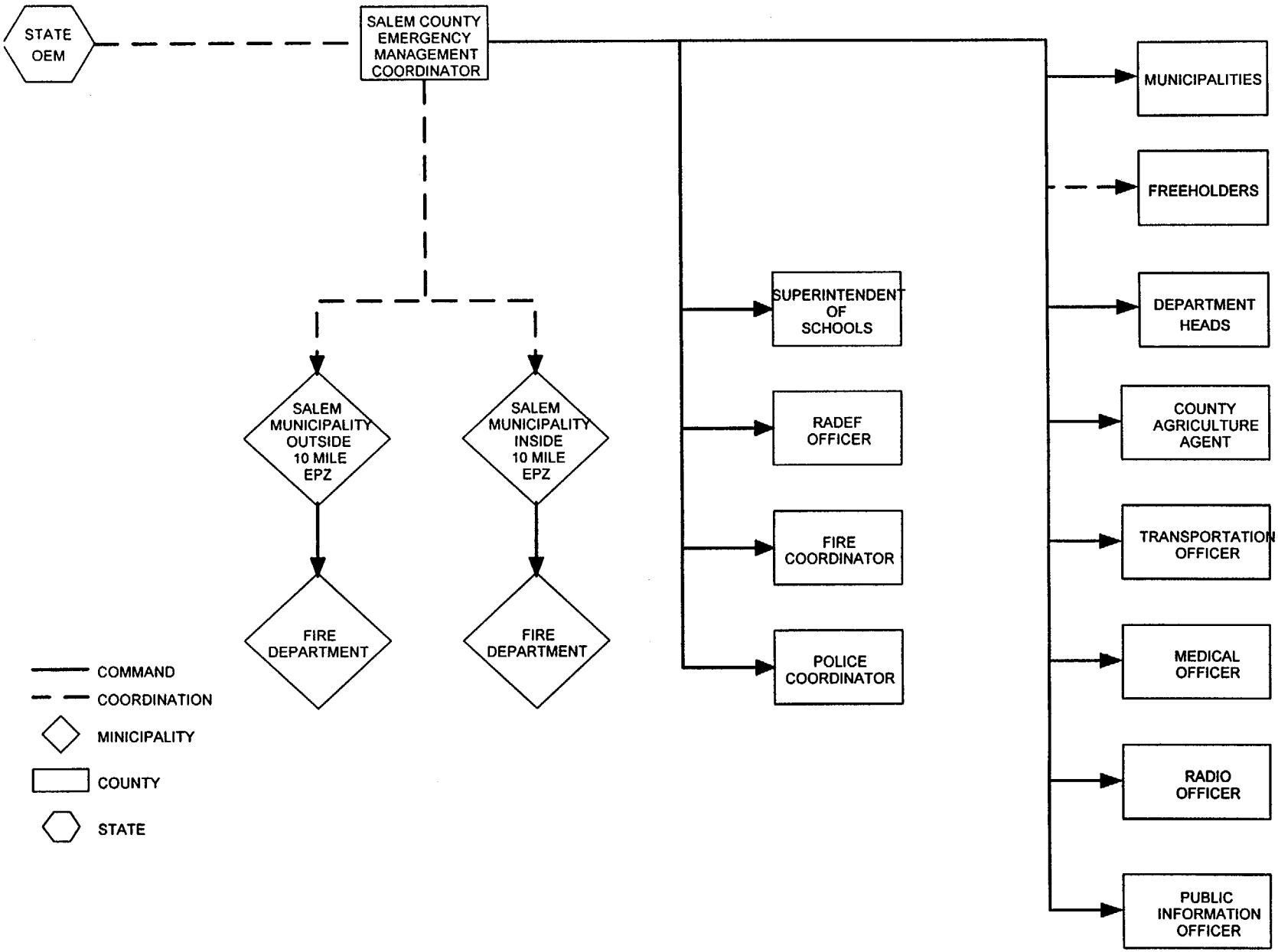


FIGURE 2-8

SALEM COUNTY
COUNTY EMERGENCY ORGANIZATION



CUMBERLAND COUNTY
COUNTY EMERGENCY ORGANIZATION

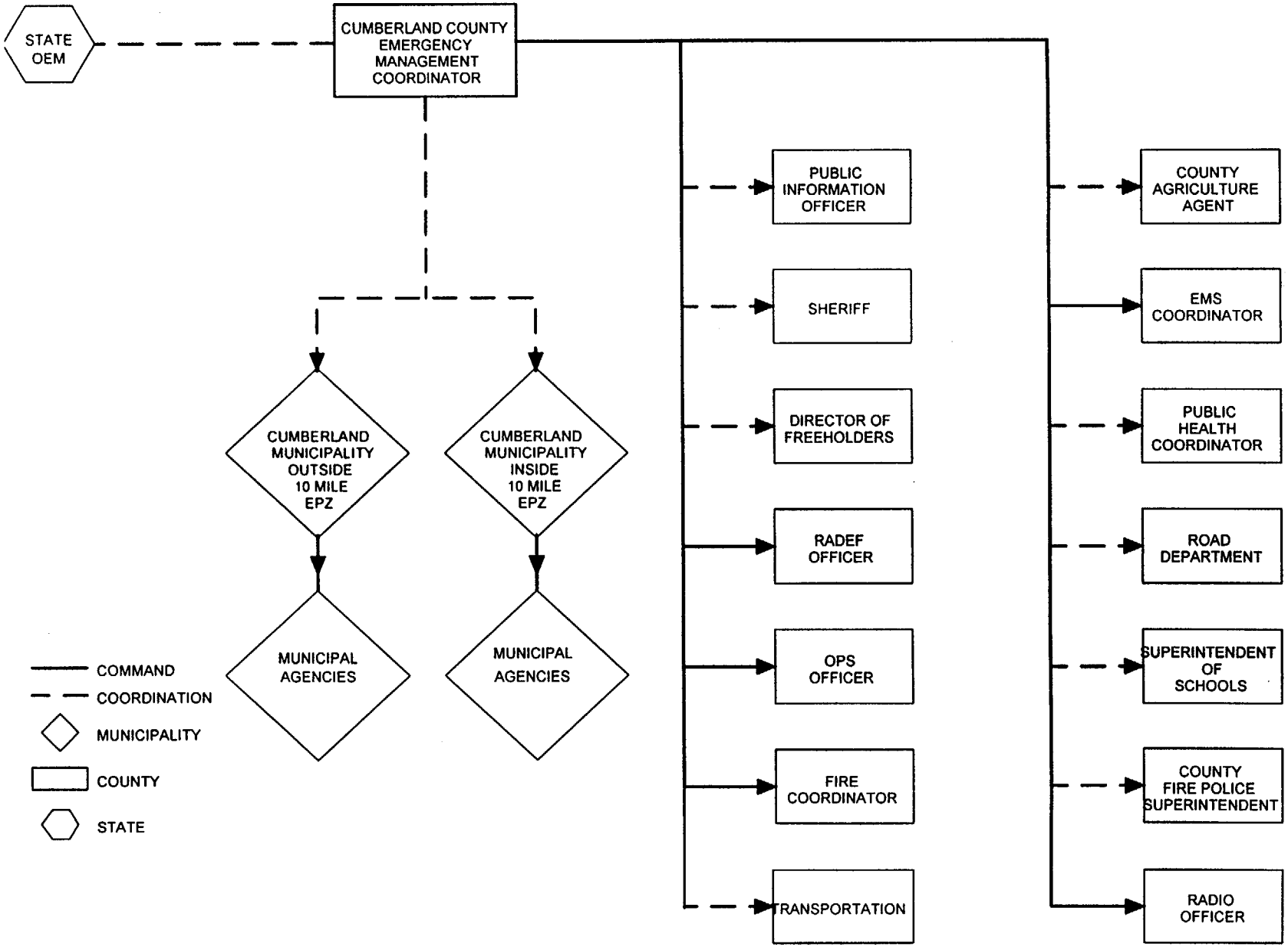
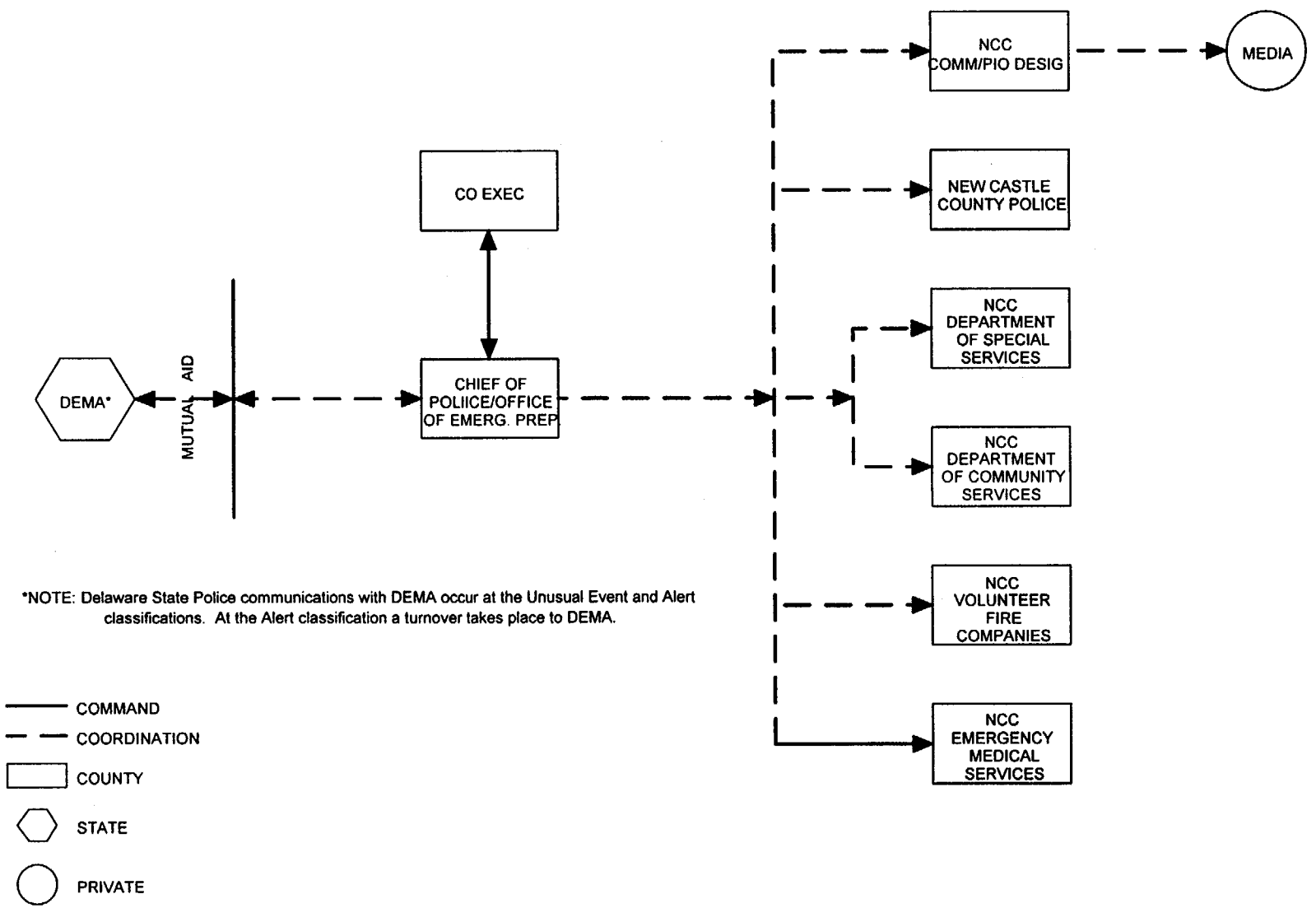


FIGURE 2-10

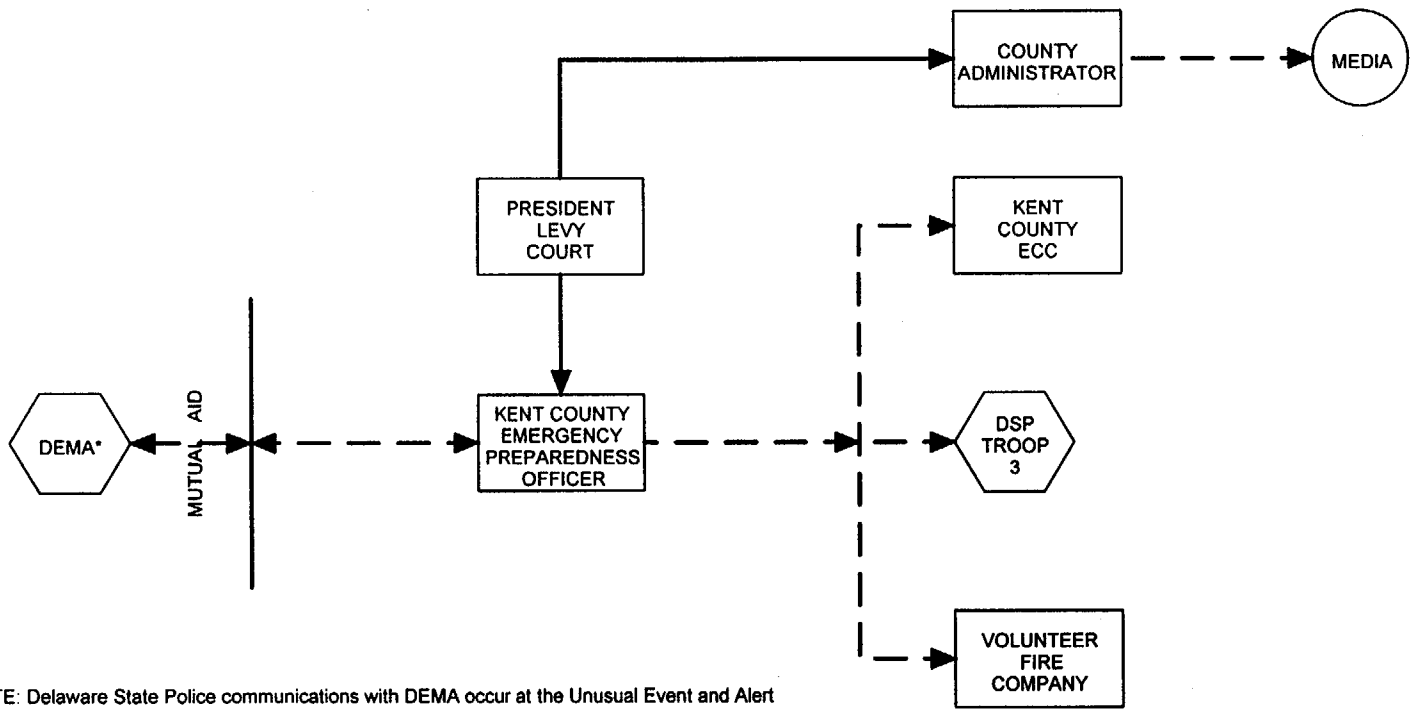
NEW CASTLE COUNTY (NCC)
COUNTY EMERGENCY ORGANIZATION



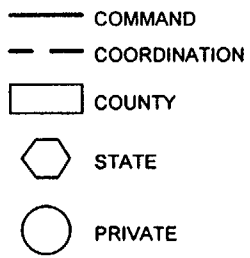
*NOTE: Delaware State Police communications with DEMA occur at the Unusual Event and Alert classifications. At the Alert classification a turnover takes place to DEMA.

FIGURE 2-11

KENT COUNTY
COUNTY EMERGENCY ORGANIZATION



*NOTE: Delaware State Police communications with DEMA occur at the Unusual Event and Alert classifications. At the Alert classification a turnover takes place to DEMA.



SECTION 2

SIGNATURE PAGE

Prepared By: _____ 10/3/00
(If Editorial Revisions Only, Last Approved Revision) Date

Reviewed By: _____ 10/20/2000
Station Qualified Reviewer Date

Reviewed By: _____ 10/27/00
Department Manager Date

Reviewed By: _____ 10/27/00
Manager- EP & IT Date

Reviewed By: _____ 11/28/00
Manager - Quality Assessment Date
(If Applicable)

SORC Review and Station Approvals

N/A Mtg. No. _____ N/A Salem Chairman N/A Mtg. No. _____ N/A Hope Creek Chairman

N/A Date N/A Date

_____ 12/13/00
Vice President – Operations Date

Effective Date of this Revision _____ 1/11/2001
Date

1.0 Local Services Support

The local services support to be relied on in the event of an emergency is classified into two general categories: Medical and Fire Protection.

1.1 Medical Support

Medical support is provided by the Memorial Hospital of Salem County. The specific resources and capabilities of medical support are provided in Section 13.0 of this Plan.

1.2 Fire Protection

Fire protection support is provided for Salem and Hope Creek Generating Stations in accordance with station technical specifications. The resources are provided at the request of the Operations Superintendent (OS) of the affected unit or Emergency Duty Officer (EDO). Additionally, local fire companies respond (in accordance with appropriate agreements) to fires at Salem and Hope Creek Generating Stations. While these personnel are onsite they will be under the direction and control of the OS or Control Room Supervisor (CRS) of the affected unit prior to OSC activation and for OSC Coordinator after the OSC is activated.

2.0 State and County (Local) Government Response

For events classified as an Unusual Event, Alert or Site Area Emergency, the contact with the local governments and states is provided through the states. Following this initial contact, the states will be responsible for assessing the information provided, activating their response organization (as required) notifying the local governments, the U.S. Coast Guard and the public. If the states cannot be contacted within fifteen minutes, the affected station notifies the local governments (counties) and the U.S. Coast Guard directly.

For events classified as a General Emergency, Salem and Hope Creek Generating Stations make direct contact with the States of New Jersey and Delaware. If the states cannot be contacted within fifteen minutes, the affected station notifies the local governments (counties). Following this initial contact the states, or if the states could not be contacted the counties, will be responsible for assessing the information provided, activating their response organization (as required), notifying appropriate local governments, and the public.

Following contact by the state, or PSE&G, each county and the U.S. Coast Guard are responsible for assessing the information provided and activating their response organizations.

The Plan provides the appropriate space and facilities to the principal State and Federal response organizations at the Emergency Operations Facility (EOF). The utility assigns a person to assist the States of New Jersey and Delaware in accordance with the Memorandum of Understanding with each State. This allows state response personnel to have immediate access to all station radiological and operational data. Additionally, PSE&G is prepared to provide representatives to the state EOCs to assist the state (at their request) in answering questions and contacting the appropriate utility personnel.

3.0 Federal Response

The federal response is expected to consist primarily of representatives from the U.S. Department of Energy (U.S. DOE), U.S. Nuclear Regulatory Commission (NRC), and U.S. Coast Guard (USCG). PSE&G provides space in the EOF as required. Since the federal response (other than NRC) is primarily related to offsite protective actions and radiological assessment, it is implemented at the request of the States of New Jersey and/or Delaware. The Federal Emergency Management Agency (FEMA) acts as coordinator of the federal response. Emergency Management from New Jersey and Delaware provides information and assistance to FEMA as required to assist it in coordinating the federal response.

3.1 U.S. Nuclear Regulatory Commission

The NRC is notified via a dedicated telephone line (ENS) from the Control Room, Technical Support Center (TSC) or Emergency Operations Facility (EOF), to the Rockville, Maryland Operations Center within one hour after identifying the existence of an emergency condition. The NRC is responsible for the coordination of the federal government's technical response activities. Response support is initially supplied by the Office of Inspection and Enforcement, Region I, King of Prussia, Pennsylvania.

3.2 U.S. Coast Guard (USCG)

The U.S. Coast Guard is notified of all emergency events at Salem and Hope Creek Generating Stations. At the request of the States of New Jersey or Delaware they will provide rescue and/or notification operations on the Delaware River and associated waterways.

3.3 U.S. Department of Energy (DOE)

Radiological assistance teams are provided by Brookhaven National Laboratories, Brookhaven Area Office in Upton, New York. This assistance generally is requested by the States of New Jersey and Delaware. DOE is responsible for coordinating the offsite radiological monitoring and evaluation activities of the federal government.

3.4 Federal Emergency Management Agency (FEMA)

FEMA has the responsibility for coordinating all offsite nontechnical response activities of the federal government. They serve as the primary point of contact for requests for federal assistance from state and local officials, and other federal agencies.

3.5 National Weather Service

When requested, the National Weather Service provides backup meteorological data for Salem and Hope Creek Generating Stations.

4.0 Federal Resources

The resources of the Federal government through the implementation of the Federal Radiological Emergency Response Plan (FRERP) may be used to supplement the onsite surveys or relieve Utility offsite survey teams. This Plan does not use FRERP resources for making protective action assessments or recommendations.

The individual assigned the emergency coordinator function is the Utility individual who is authorized to request FRERP resources. The FRERP teams are instructed to go to the EOF and report to the Radiological Support Manager. Survey team efforts offsite are managed and survey data are assembled and analyzed at the EOF. The EOF is also the location where the Federal response coordination will be conducted. Facilities are available at the EOF to support the Federal response. Figure 4-1 provides information on airports near the site.

5.0 Other Organizations

Other organizations that are available for emergency support duties are called upon and report to the Technical Support Center (TSC) or Emergency Operations Facility (EOF).

5.1 PSEG Maplewood Testing Services

The PSEG Maplewood Testing Services is a wholly owned research subsidiary of PSEG. Maplewood provides environmental sampling and meteorology consultation, is a part of the PSEG Research Corporation. The testing service located in Maplewood, New Jersey, has extensive facilities and equipment for analysis of materials, environmental radioactivity analysis, and radiation surveys. Equipment available for radiation analysis includes: low level alpha-beta counters, gamma spectroscopy system, beta-gamma counter, and several types of portable radiation survey instruments. The equipment is maintained and periodically calibrated to appropriate radiation standards.

In addition, the Energy Laboratory has manpower available to assist in sample collection in the aftermath of an incident involving the release of radioactive materials. The emergency services and manpower from the Laboratory would be requested by the emergency coordinator.

5.2 Reactor Vendor

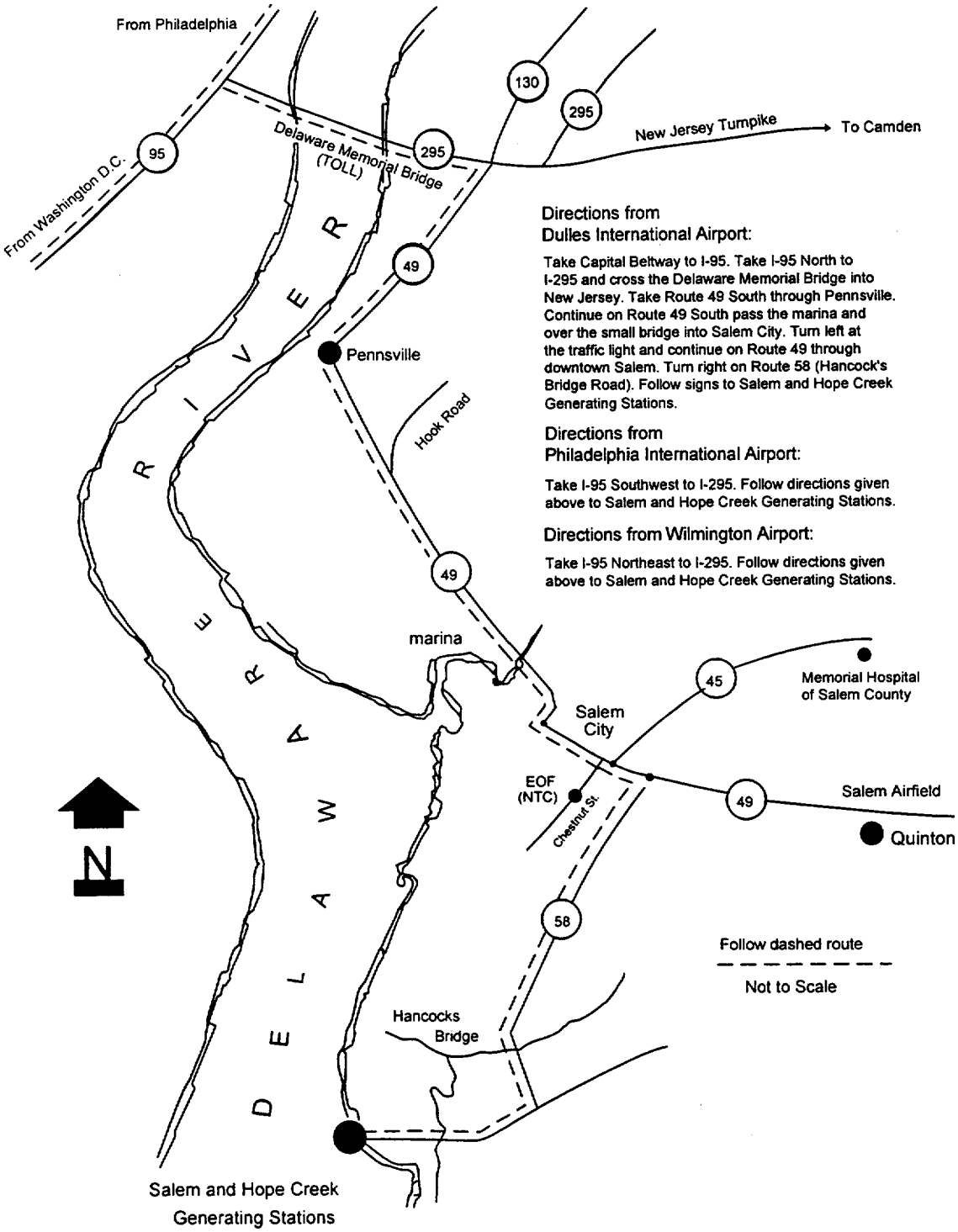
The emergency response capabilities of both Nuclear Steam Supply System (NSSS) vendors in support of Salem and Hope Creek Generating Stations are provided in supplements to the Plan listed in Emergency Plan Attachments Book, section 2-1.

5.3 Institute of Nuclear Power & Operations (INPO)

INPO requested that all utilities with nuclear generating stations provide INPO with information concerning material and personnel resources. This information is available in their "Emergency Resources Manual," to which PSEG is a signatory. This source of information is used by the emergency coordinator function in requesting assistance from other Utility Companies.

Supplementing this Plan (see Attachment 2-1) is the letter of agreement from INPO that outlines INPO's role in assisting a member utility during an emergency.

FIGURE 4-1
SALEM and HOPE CREEK GENERATING STATIONS
ACCESS FROM AREA AIRPORTS



SECTION 4

SIGNATURE PAGE

Prepared By: George R. Thomson (Rev. 6) 09/19/00
(If Editorial Revisions Only, Last Approved Revision) Date

Reviewed By: N/A N/A
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Department Manager Date

Reviewed By: Raymond Reece (R. Reece) for D. Miller 09/20/2000
Manager-EP & IT Date

Reviewed By: N/A N/A
Manager - Quality Assessment Date
(If Applicable)

SORC Review and Station Approvals

N/A N/A N/A N/A
Mtg. No. Salem Chairman Mtg. No. Hope Creek Chairman

N/A N/A
Date Date

Vice President – Operations 12/13/00
Date

Effective Date of this Revision 1/11/2001
Date

The emergency classification system is designed to provide a consistent method for categorizing possible events or accidents into one of four emergency classifications: Unusual Event, Alert, Site Area Emergency, and General Emergency. Refer to the "Introduction" section of the Event Classification Guide (ECG) for a detailed description of the emergency classifications.

1.0 Unusual Event (UE)

Unusual Events, as used for emergency planning purposes, characterize off-normal plant conditions, which may not in themselves be particularly significant from an emergency response standpoint, but could reasonably have the potential to increase in significance if proper action is not taken or if circumstances beyond the control of the operating staff render the situation more serious from a safety standpoint. For Unusual Events, the States of New Jersey and Delaware are notified promptly (within 15 minutes) following the declaration of the emergency. No offsite response is necessary.

1.1 Alert

The Alert classification is the lowest level at which some emergency offsite response may be anticipated. At this level, physical occurrences within the plant require station staff emergency organization response. This level, however, is associated with a judgment that the emergency situation can be corrected and controlled by the plant staff and it is unlikely that an offsite hazard will evolve.

For Alerts, the States of New Jersey and Delaware are notified promptly (within 15 minutes) following the declaration of the emergency. Furthermore, the onsite Technical Support Center (TSC) and Operational Support Center (OSC) are activated. Staffing of the Emergency Operating Facility (EOF) and Emergency News Center (ENC) is a planned option. Activation of the EOF will occur if, based on plant conditions, the emergency coordinator requires EOF support. State Emergency Operations Center (EOC) will activate, county and municipal EOC's may activate.

1.2 Site Area Emergency (SAE)

The Site Area Emergency classification reflects conditions where there is a clear potential for significant releases, such releases are likely, or they are occurring, but does not involve indications of a core melt situation based on current

information. For Site Area Emergency, the States of New Jersey and Delaware are notified promptly (within 15 minutes) following the declaration of the emergency. A protective action recommendation (e.g., no protective actions are recommended at this time) is communicated to the states in the initial notification message following the declaration of a Site Area Emergency. Furthermore, the OSC, TSC, EOF, and ENC are activated. State, county, and municipal EOC's activate.

2.0 General Emergency (GE)

A General Emergency classification level reflects conditions involving an actual or imminent substantial core degradation or melting with the potential for loss of containment integrity. For General Emergency, the States of New Jersey and Delaware are notified promptly (within 15 minutes) following the declaration of the emergency. A protective action recommendation of either sheltering and/or evacuation out to a fixed distance is communicated to the states in the initial notification message following the declaration of a General Emergency. Furthermore, if not previously done, all PSE&G Emergency Response Facilities are activated. State, county, and municipal EOCs activate.

3.0 Event Classification Guides (ECG)

The Event Classification Guides (ECG) for Salem and Hope Creek list the action levels for all reportable incidents required by NUMARC/NESP-007, station technical specifications, the Code of Federal Regulations, and special Licensee commitments.

The ECG's subject categories of initiating conditions are summarized for Salem (Attachment 5-1) and Hope Creek Generating Stations (Attachment 5-2). Like the Emergency Plan, the ECG is subject to specific reviews and approvals proscribed by technical specifications and Section 17 of this plan. The current revision of the ECGs provides the current controlled, approved document.

The ECG volume guides the emergency coordinator to an immediate and appropriate emergency response specific to the event. The ECG volumes contain the initiating conditions and associated emergency action levels. Since these volumes have been provided to the NRC in accordance with 10CFR50, as approved or revised (10 CFR50.54q) and Appendix E, they have been included in this plan as attachments. The ECG volumes are considered proper annexes of the PSEG Emergency Plan.

The EALs have been discussed and agreed upon by PSEG and the state governments. Further, the EALs will be reviewed annually as discussed in Section 17.4.

SECTION 5

SIGNATURE PAGE

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Reviewed By: N/A — N/A
Department Manager — Date

Reviewed By: Craig W. Zinner — 12/29/00
Manager - EP & IT — Date

Reviewed By: N/A — N/A
Manager - Quality Assessment — Date
(If Applicable)

SORC Review and Station Approvals

N/A — N/A
Mtg. No. — Salem Chairman

N/A — N/A
Mtg. No. — Hope Creek Chairman

N/A
Date

N/A
Date

N/A
Vice President – Operations

N/A
Date

Effective Date of this Revision 1-11-01
Date

1.0 INITIAL NOTIFICATION

1.1 PSEG NUCLEAR LLC EMERGENCY RESPONSE ORGANIZATION

The initial notification of an emergency or a change in emergency classification is in accordance with Figure 6-1. Table 6-1 provides an initial notification and action summary as discussed in NUREG-0654. The station plant paging systems are utilized to notify onsite personnel of emergency conditions and that activation of emergency response facilities may be required.

An automated Emergency Outdial System computer is utilized to callout the balance of emergency response personnel for full organizational augmentation and activation of emergency response facilities. The system activates the appropriate digital group pagers while simultaneously calling other personnel on the telephone. The system is interactive and recognizes emergency response personnel by their employee identification numbers.

Additional PSEG Nuclear LLC telephone notifications are made in accordance with applicable Event Classification Guide Attachments and Emergency Plan Implementing Procedures.

1.2 INITIAL NOTIFICATION - STATES

The initial notification to the states of an emergency or a change in emergency classification is made to the State Police Headquarters of New Jersey and Delaware. Upon completion of the initial message, each State Police Headquarters verifies the call by performing a callback check and then makes the notifications indicated in Figures 6-2 and 6-3.

The procedures for initial notifications to the State of New Jersey and Delaware are identical for all emergency classes. Once activated however, the Delaware Emergency Management Agency (DEMA) will take initial notifications instead of the Delaware State Police. This notification is made promptly following the declaration of the emergency (within 15 minutes). An example of the message format for this initial notification used in the emergency procedures is provided as Figure 6-4. These notifications meet the requirements of NUREG-0654, Element E-3. Appropriate forms are utilized for each emergency classification.

1.3 INITIAL NOTIFICATION - LOCAL

For events classified as an Unusual Event, Alert or Site Area Emergency classifications, each state, following notification by the utility, initially notifies the local authorities. If, however, the utility has not been able to contact a state, the utility directly notifies the local (county) authorities.

All initial notifications must be accomplished within 15 minutes. Accident assessment, protective action recommendations, and other information normally provided to the state are communicated to the local authorities (or other agencies as provided in the Memorandum of Understanding with the state) until the state assessment agency assumes its communications and assessment responsibilities.

For events classified as a General Emergency, Salem and Hope Creek Generating Stations make direct contact with the States of New Jersey and Delaware. If the states cannot be contacted within fifteen minutes, the affected station notifies the local governments (counties). Following this initial contact the states, or if the states could not be contacted the counties, will be responsible for assessing the information provided, activating their response organization (as required), notifying appropriate local governments, and the public.

Following contact by the state, or PSE&G, each county and the U.S. Coast Guard are responsible for assessing the information provided and activating their response organizations.

1.4 FOLLOWUP COMMUNICATION - STATES

The followup communication with the states is initiated by a return call from the authorized state agency. For the State of Delaware, the Delaware Emergency Management Agency is responsible for followup communications. For the State of New Jersey, the Department of Environmental Protection, Bureau of Nuclear Engineering and/or the New Jersey State Police Office of Emergency Management is responsible for followup communications.

The procedures for followup communications with the States of New Jersey and Delaware are identical for all emergency classes. An example message format for followup communications used in the emergency plan procedures is provided as Figure 6-5. These notifications meet the requirements of NUREG-0654, Element E-4. Appropriate forms are utilized for each emergency classification.

1.5 FOLLOWUP COMMUNICATIONS - LOCAL

Followup communications with the local authorities are provided by the appropriate state agency for all emergency classifications.

1.6 NOTIFICATION OF THE NRC

This plan provides for appropriate notification of the NRC for the events described in the Event Classification Guide.

2.0 PROMPT ALERTING AND NOTIFICATION OF THE PUBLIC

Following initial notification, the states make a determination on protective actions and activate the Prompt Alerting and Notification System. This system can be activated directly by Salem County in New Jersey and by the Delaware State Police in Delaware for a rapidly developing emergency.

Land use within Salem and Hope Creek Nuclear Generating Stations plume exposure Emergency Planning Zone (EPZ) is principally rural. The area within five miles of the stations is largely water and marsh land. This area attracts only a limited number of hunters and trappers, most of whom are local residents. The towns and city within ten miles of Salem and Hope Creek Nuclear Generating Stations are listed in Table 1-1.

2.1 SIREN SYSTEM AS THE FIRST PROMPT ALERTING SYSTEM

The Prompt Alerting and Notification System by the states (Figure 6-6) consists of subsystems which meet the criteria of FEMA REP-10. The system provides notification of the population within zero to five miles of the stations in 15 minutes and notification of the population within five to ten miles in 45 minutes. The first Prompt Alerting and Notification subsystem consists of a siren system controlled from a continuously (24 hour) staffed location in New Jersey and Delaware. Within zero to ten miles of Salem and Hope Creek Nuclear Generating Stations this system is designed to provide siren coverage for essentially 100% of the permanent resident population. In addition, it provides siren coverage of population centers throughout the plume exposure EPZ and selected coverage for the areas known to have recreational or transient populations. An area map showing this system is provided as Figure 6-7. Figure 6-7 includes a listing of siren locations and types. This system is as represented in the Alert and Notification System Report submitted by New Jersey, Delaware, and PSE&G to FEMA Region 2 on January 31, 1986 and tested on December 10, 1986.

2.2 PUBLIC ADDRESS SYSTEMS AS THE SECOND PROMPT ALERTING SYSTEM

The second prompt alerting and notification subsystem combines alerting, notification, and information into a single system. This system, which is used for waterborne transient boaters within the plume exposure EPZ, consists of a radio alert and notification system coordinated by the United States Coast Guard (USCG) on Marine Channel 16 and supplemented by broadcasts via Emergency Alert System (EAS) and National Oceanographic and Atmospheric Administration (NOAA) Weather Radio. The USCG and states also dispatch boats and helicopters to make direct contact with boaters.

2.3 TRANSIENT ALERTING AND NOTIFICATION SYSTEM

Prompt alerting and notification of the transient population within the plume exposure EPZ utilizes the prompt alerting and notification system for the permanent resident population. The States of Delaware, New Jersey and the USCG have established methods for augmenting the prompt alerting and notification system that provides additional assurance that transients are notified in the event of an emergency requiring implementation of protective actions for the public. In general, the agencies in charge of parks and recreation, the Delaware National Guard, the marine police and the state police assist in the notification of transients within their jurisdictions. The alerting and notification of transients may utilize motor vehicles, aircraft, boats or road blocks. The methods used inform/educate the transient population of the prompt alerting system and their required response is provided in Section 8.0 of this plan. These subsystems are augmented by the use of route alerting by police and fire personnel.

2.4 ROUTE ALERTING AS A BACK-UP ALERTING SYSTEM

The prompt alerting subsystems described previously are all augmented by the use of public address systems used by police and fire personnel.

2.5 ALERT NOTIFICATION SYSTEM REPORT

The Alert Notification System Report for Salem and Hope Creek Generating Stations, submitted to FEMA to meet REP 10 requirements, provides appropriate reports on the design, hardware, and other applicable components of the systems, including specific letters of agreement, plans and procedures.

TABLE 6-1

NOTIFICATION AND ACTION SUMMARY

Class/Condition	Licensee Actions	Offsite
A. Unusual Event		
1. No radiological release requiring offsite response or monitoring is Expected. 2. Potential degradation of the level of safety of the plant.	1. Promptly inform NJ OEM and DE DSP/DEMA authorities. 2. Assess event conditions and initiate corrective actions. 3. Augment on-shift resources as needed. 4. Escalate emergency level or terminate the event.	1. Verify event classification/ status. 2. Notify key personnel. 3. Provide assistance if requested. 4. Standby until termination.
B. Alert		
1. Potential/actual safety system degradation. 2. Potential/actual radiological release is fraction of EPA PAG.	1. Promptly inform NJ OEM and DE DSP/DEMA State authorities. 2. Mobilize additional personnel to activate TSC. Emergency Duty Officer assumes control as Emergency Coordinator. Provide periodic plant status updates to the states. 3. Assess event conditions & initiate corrective actions. 4. Dispatch field monitoring teams as applicable. 5. Provide states with escalated emergency level or terminate event.	1. Alert state response personnel & key county personnel. 2. Activate state EOC. Alert to standby/ activate Kent County, Cumberland County, New Castle County, and Salem County Emergency Coordinators. 3. Initiate field monitoring, if appropriate. 4. Escalate emergency level or terminate event.

TABLE 6-1 (cont)

NOTIFICATION AND ACTION SUMMARY

Class/Condition	Licensee Actions	Offsite
C. Site Area Emergency		
1. Actual/likely major failure of plant function needed to protect public. 2. Radiological release may exceed EPA PAG at site boundary. 3. Possible degraded core. 4. Imminent loss of physical control of plant.	1. Promptly inform NJ OEM and DE DSP/DEMA state authorities. 2. Augment all resources to activate EOF. Emergency Response Manager assumes control as emergency coordinator. 3. Assess event conditions and initiate corrective actions. 4. Conduct accountability and release nonessential personnel. 5. Dispatch radiological monitoring teams. 6. Provide states with: On/offsite radiological data, plant conditions, and meteorological data. 7. Provide state with dose projections and recommend protective actions. 8. Escalate or de-escalate emergency class.	1. Initiate prompt notification and activate EAS and keep public informed. 2. Alert all emergency response personnel and activate specific functions. Activate state, county and local EOCs. 3. Monitor appropriate locations. 4. Alert contiguous and ingestion pathway states. 5. Provide assistance to the site, if required. 6. Escalate or de-escalate emergency class.

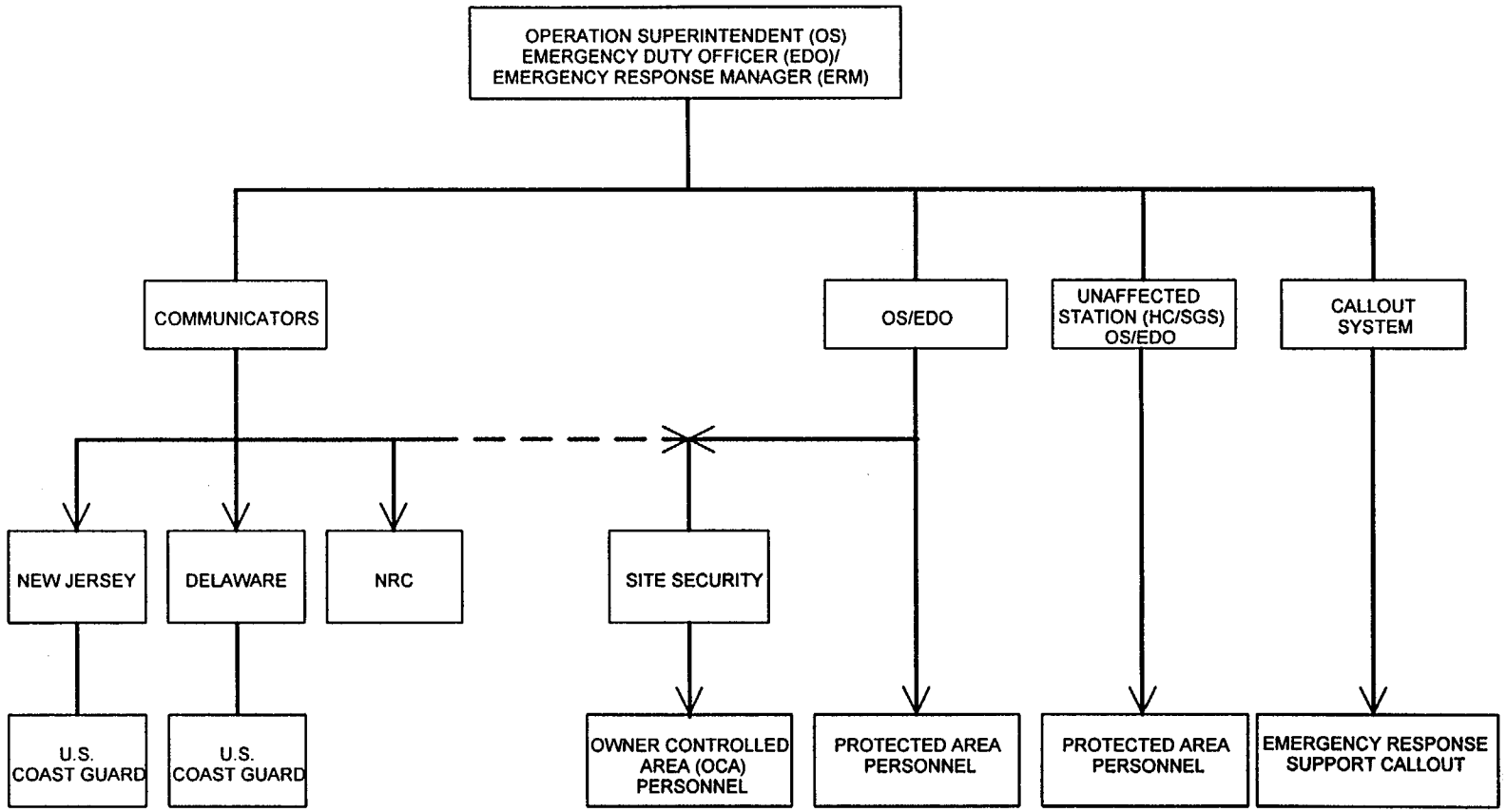
TABLE 6-1 (cont)

NOTIFICATION AND ACTION SUMMARY

Class/Condition	Licensee Actions	Offsite
D. General Emergency		
1. Actual/imminent core degradation or melting with potential containment failure. 2. Actual/potential radiological release exceeding EPA PAG offsite. 3. Loss of two fission Product barriers and Potential loss of the third.	1. Promptly notify State authorities: NJ OEM and DE DSP/ DEMA. Provide predetermined (based on plant condition) protective action recommendations. 2. Assess event conditions and initiate corrective actions. 3. Augment all Resources. 4 Keep federal and state authorities informed of event status and developments. 5. Regularly provide radiological and meterological data to the States. 6. Initiate actions, mitigate the incident and terminate any radiological releases. 7. Initiate recovery action and reduce emergency class.	1. Activate emergency and protective action functions. 2. Make and implement protective actions, including pathway measures. 3. Regularly inform the public of Emergency status. 4. Coordinate field monitoring with federal, offsite and onsite teams. 5. Continuously assess event effects upon the public. 6. Reduce emergency and initiate recovery action.

FIGURE 6-1

NOTIFICATION METHOD - PSE&G



LEGEND

– – – – – COMMUNICATOR NOTIFIES SITE SECURITY OF CLASSIFICATION ONLY, TO PREPARE THEM FOR PROTECTIVE ACTION DECISIONS COMING FROM THE OS/EDO.

FIGURE 6-2

NOTIFICATION METHOD - NEW JERSEY

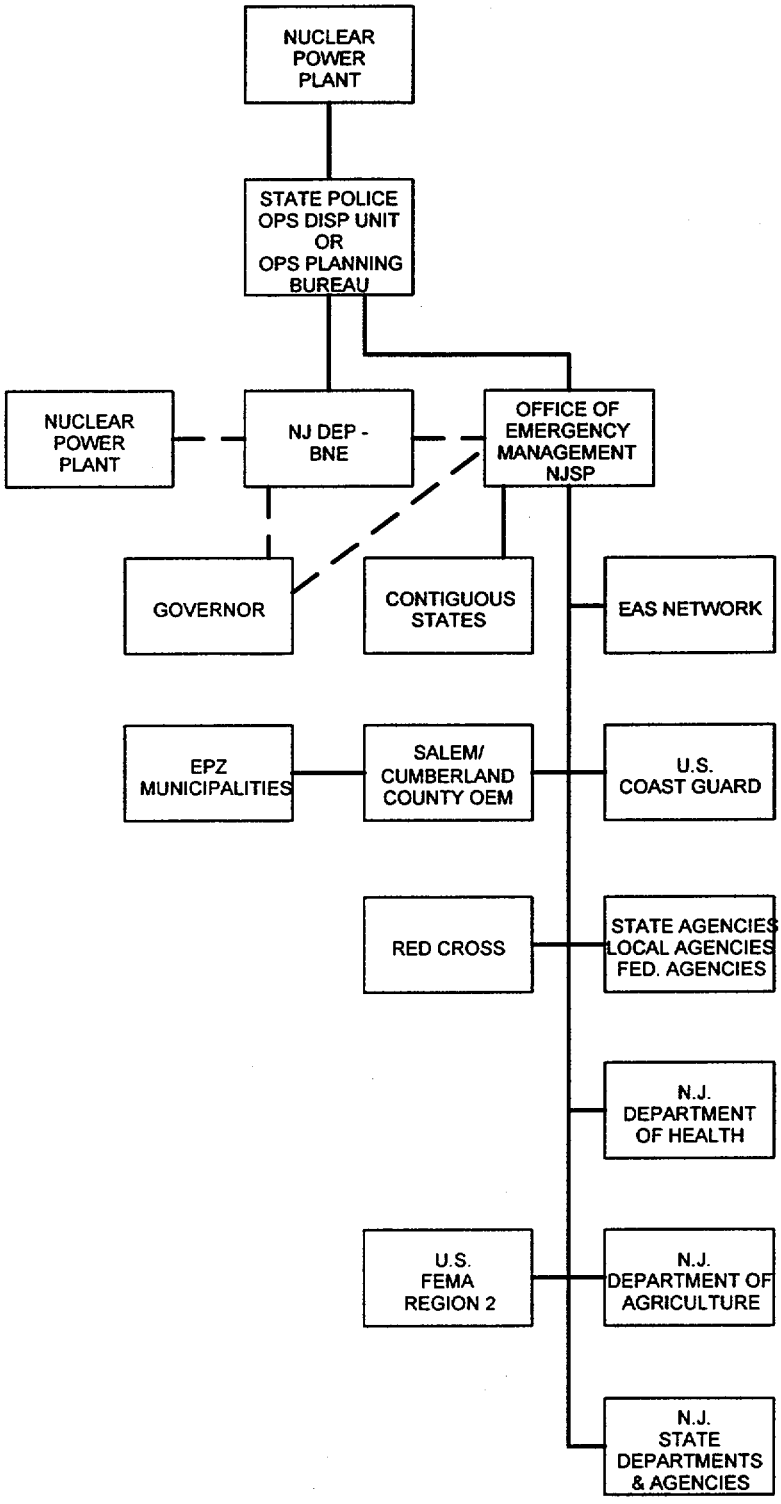


FIGURE 6-3

NOTIFICATION METHOD - DELAWARE

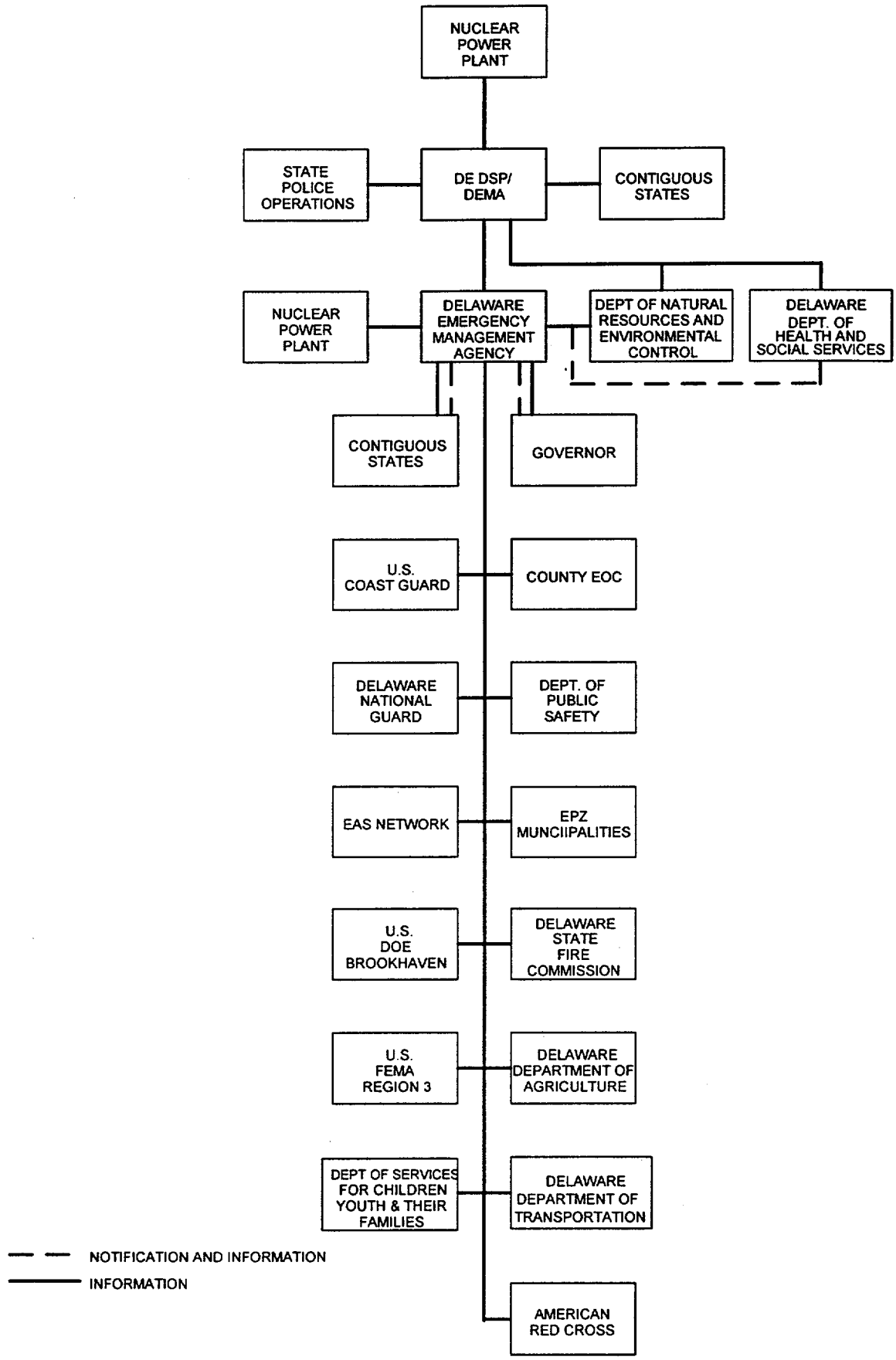


FIGURE 6-4
TYPICAL INITIAL CONTACT MESSAGE FORM

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____ , COMMUNICATOR IN THE ☐ CONTROL ROOM
(NAME) ☐ TSC
☐ EOF

AT THE **SALEM** NUCLEAR GENERATING STATION, UNIT NO. _____.

II. ☐ THIS IS NOTIFICATION OF A **SITE AREA EMERGENCY** WHICH WAS

DECLARED AT _____ ON _____.
(TIME - 24 HOUR CLOCK) (DATE)

EAL #(s) _____, _____, _____

DESCRIPTION OF EVENT: _____

_____

III. ☐ NO RADIOLOGICAL RELEASE IS IN PROGRESS. } see NOTE for release definition

☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS.

IV. 33 FT. LEVEL WIND DIRECTION (From):_____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

V. ☐ **NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME**

_____
EC Initials
(Approval to Transmit ICMF)

NOTE: Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 2.42E+05 µCi/sec Noble Gas or 2.1E+01 µCi/sec I-131.

FIGURE 6-5
TYPICAL STATION STATUS CHECKLIST

SSCL

STATION STATUS CHECKLIST

(Pg. 1 of 2)

Operational Information

SALEM GENERATING STATION Unit No.____ Message Date _____ Time _____

Transmitted By: Name _____ Position _____
(CR/TSC/EOF)

1. Date and Time Event Declared: Date _____ Time _____ (24 hr clock)

2. Event Classification: ☐ Unusual Event ☐ Site Area Emergency
☐ Alert ☐ General Emergency

3. Cause of Event: Primary Initiating Condition used for declaration

EAL #(s) _____

Description of the event _____

_____

_____

_____

4. Status of Reactor: ☐ Tripped/Time _____ ☐ At Power ☐ Startup
☐ Hot Standby ☐ Hot Shutdown ☐ Cold Shutdown ☐ Refuel

5. RZR/RCS Pressure _____ psig Core Exit TC _____ °F

6. Is offsite power available? ☐ YES ☐ NO

7. Are two or more diesel generators available? ☐ YES ☐ NO

8. Did any Emergency Core Cooling Systems actuate? ☐ YES ☐ NO

9. Is the Containment barrier failed? (Loss per EAL section 3.3) ☐ YES ☐ NO

10. Other pertinent information _____

_____

_____

_____

Approved: _____
EC or TSS or SSM

FIGURE 6-5 (cont)
TYPICAL STATION STATUS CHECKLIST

STATION STATUS CHECKLIST
(PAGE 2 OF 2)
RADIOLOGICAL INFORMATION

SALEM GENERATING STATION UNIT NUMBER: ___ CALCULATION TIME: _____ DATE: _____

1. GASEOUS RELEASE>TECH SPEC (T/S) LIMITS:
(T/S LIMITS: 2.42 E+05 µCi/sec NG or 2.1E+01 µCi/sec IODINE)
YES: [ ] RELEASE START TIME: _____ DATE: _____
NO: [ ]

A. RELEASE TERMINATED: YES [ ]NO [ ] N/A [ ]
B. ANTICIPATED OR UNKNOWN DURATION OF RELEASE: _____ HOURS
C. TYPE OF RELEASE: GROUND [ ] ELEVATED: [ ]N/A [ ]
D. ADJUSTED WIND SPEED: _____(mph) _____(m/sec) WIND DIR (deg from) _____
E. STABILITY CLASS: _____ (A-G) DELTA T: _____(deg C)
F. VENT PATH OF RELEASE: R41 [ ] R45B/C [ ] R44 [ ] R46 [ ]
G. NG RELEASE RATE: R41_____R45B/C_____R44_____
R46_____(µCi/sec)
H. I-131 RELEASE RATE: R41_____R45B/C_____R44_____
R46_____ DEFAULT (µCi/sec) (circle if default)
I. TOTAL RELEASE RATE NOBLE GAS: _____(µCi/sec)
J. TOTAL RELEASE RATE IODINE-131: _____(µCi/sec)

2. PROJECTED OFFSITE DOSE RATE CALCULATIONS:

DISTANCE FROM VENT (IN MILES)	XU/Q (1/M2)	TEDE RATE (MREM/HR)	TEDE DOSE (4 DAY) (MREM)	THYROID-CDE RATE (MREM/HR)	THYROID-CDE DOSE (MREM)
MEA 0.79	_____	_____	_____	_____	_____
2.00	_____	_____	_____	_____	_____
LPZ 5.00	_____	_____	_____	_____	_____
EPZ 10.00	_____	_____	_____	_____	_____

3. OTHER PERTINENT INFORMATION: _____

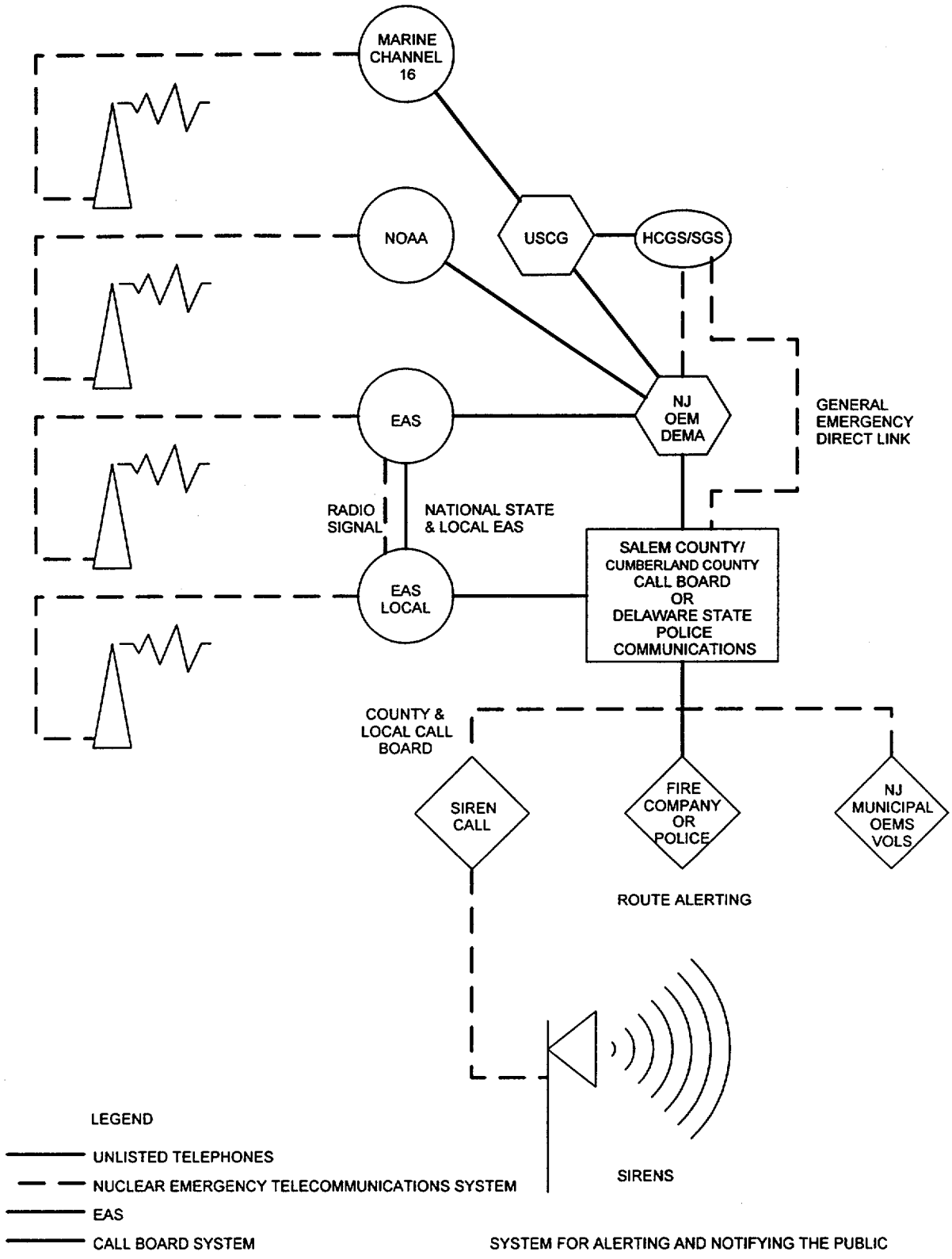
_____

4. UPDATE TO STATES (IF VERBALLY TRASMITTED):

	NAME	TIME	INITALS
STATE OF NEW JERSEY:	_____	_____	_____
STATE OF DELAWARE :	_____	_____	_____
AGENCY:	_____	_____	_____

APPROVED: _____
EC or RAC or RSM

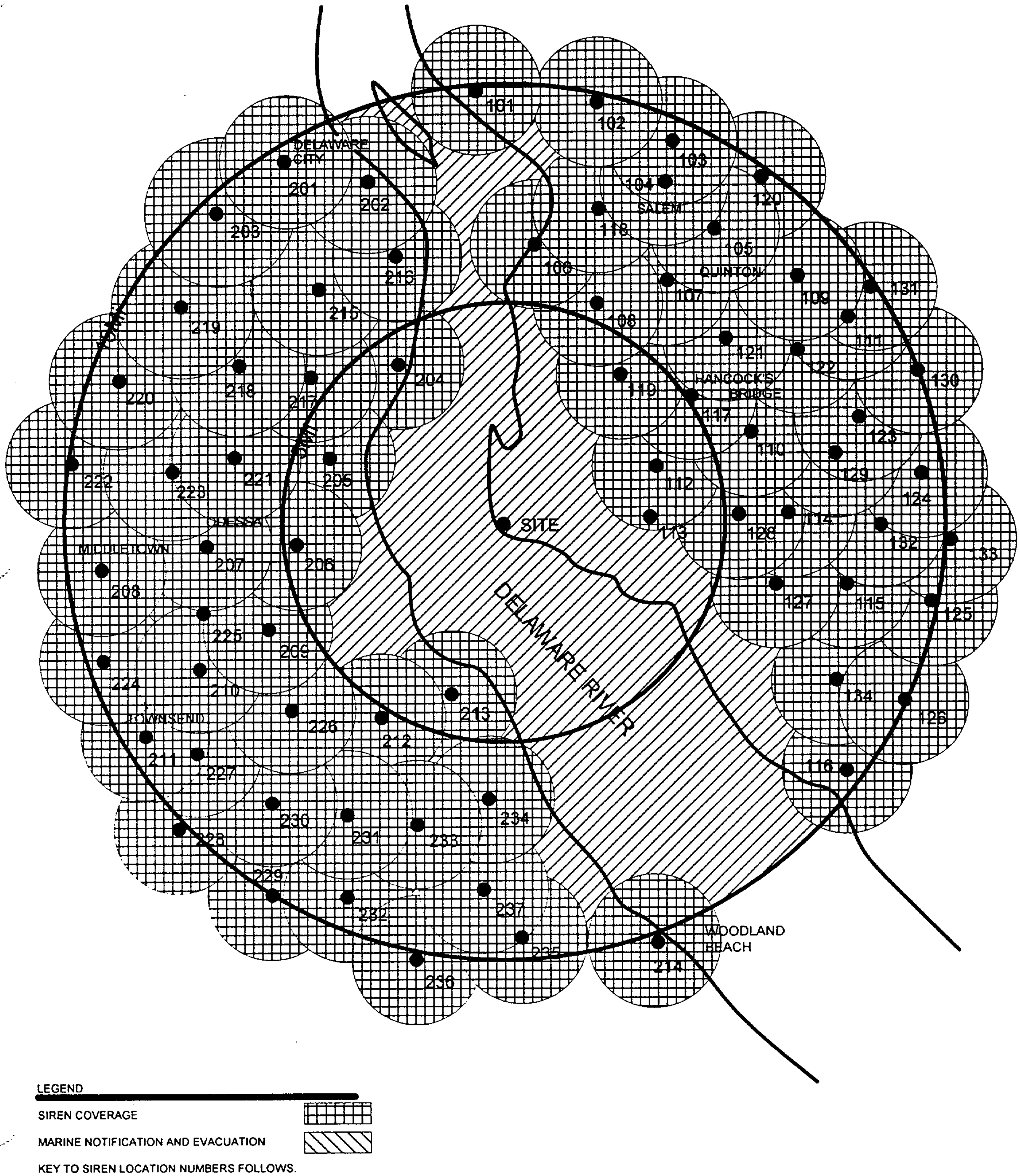
FIGURE 6-6
PROMPT NOTIFICATION SYSTEM



SYSTEM FOR ALERTING AND NOTIFYING THE PUBLIC

FIGURE 6-7

APPROXIMATE AREA OF PROMPT NOTIFICATION SYSTEM COVERAGE



ATTACHMENT 6
SIREN LOCATIONS

Siren No.	State/City & County	Location	Type[1]	HP[2]	PH[2]
		New Jersey			
101	NJ/Pennsville Salem Co.	Fort Mott Rd, 0.1 miles South of Fort Mott Park.	P	10	1
102	NJ/Pennsville Salem Co.	Route 49, 1000 ft. South of intersection with Harrisonville Lighthouse Rd.	C	50	3
103	NJ/Salem Salem Co.	Route 45, 0.2 miles East of intersection with Tide Mill Rd.	B	10	3
104	NJ/Salem Salem Co.	New Market St. at intersection with Belden St.	C	50	3
105	NJ/Salem Salem Co.	Quinton Rd., 0.2 miles West of intersection with Harris Rd.	B	10	3
106	NJ/Elsinboro Salem Co.	Delaware Ave., 0.1 miles East of intersection with Locust Ave.	C	50	3
107	NJ/Haggerville Salem Co.	Salem-Hancocks Bridge Rd. 1 mile from intersection with Amwellburg Rd.	C	50	3
108	NJ/Elsinboro Salem Co.	Fort Elfsborg-Hancocks Bridge Rd., 1200 ft. South East of intersection with Money Island Rd.	P	10	1
109	NJ/Quinton Salem Co.	Quinton Fire Dept., at the intersection of Rte 49 with Lake Ave.	C	50	3
110	NJ/Lower Alloways Creek Salem Co.	Harmersville-Pecks Corner-Cohansy Rd., 2000 ft. East of intersection with Mays Lane.	P	10	1
111	NJ/Quinton Salem Co.	Burden Hill Rd. 3000 ft. South West of intersection with Route 49.	P	10	1

FIGURE 6-7 (cont)

Siren No.	State/City & County	Location	Type[1]	HP[2]	PH[2]
112	NJ/Lower Alloways Creek Salem Co.	Alloway Crk. Neck Rd. 2000 ft. South of intersection with Grosscup Rd. on Access Rd. to Artificial Island.	P	10	1
113	NJ/Lower Alloways Creek Salem Co.	Alloway Crk. Neck Rd. 1.8 miles South of intersection with Grosscup Rd. on Access Rd. to Artificial Island.	P	10	1
114	NJ/Lower Alloways Creek Salem Co.	Frog Ocean Rd., 1800 ft. East of intersection with Stow Neck Rd.	C	50	3
115	NJ/Stow Creek Cumberland Co.	Landing Rd. 0.1 miles West of intersection with Canton Rd.	C	50	3
116	NJ/Greenwich Cumberland Co.	Bay Side Rd., 1 mile West of intersection with Tindall Island Rd.	P	10	1
117	NJ/Lower Alloways Creek Salem Co.	.02 miles NE of Alloway Creek Neck Rd. on Locust Island Rd.	C	50	3
118	NJ/Elsinboro Salem Co.	.03 miles West of Hacket Rd. on Amwellbury Rd.	P	15	1
119	NJ/Elsinboro Salem Co.	Abbott's Farm Rd., 4300 ft. South of intersection with Fort Elfsborg-Hancocks Bridge Rd.	P	15	1
120	NJ/Salem Salem Co.	Quaker Neck Rd. at inter-section with Sandy Ridge Rd.	P	15	1
121	NJ/Lower Alloways Creek Salem Co.	Beasley Neck Rd., 500 ft. North of intersection with Hogate Boulevard.	P	15	1

FIGURE 6-7 (cont)

Siren No.	State/City & County	Location	Type[1]	HP[2]	PH[2]
122	NJ/Quinton Salem Co.	Cross Rd., 0.6 miles North of intersection with Hogate Boulevard.	P	15	1
123	NJ/Quinton Salem Co.	Quinton-Jericho Rd., at intersection with Mill Pond Rd.	P	15	1
124	NJ/Quinton Salem Co.	Quinton-Jericho Rd., 500 ft. North West of intersection with Gravelly Hill Rd.	P	15	1
125	NJ/Stow Creek Cumberland Co.	Willis Rd., 0.6 miles East of Frank Davis Rd.	P	15	1
126	NJ/Greenwich Cumberland Co.	0.5 miles North of Mill Rd. on Canton Rd.	P	15	1
127	NJ/Lower Alloways Creek Salem Co.	Frog Ocean Rd. at intersection with Frog Rd.	P	15	1
128	NJ/Lower Alloways Creek Salem Co.	Stow Neck Rd., 0.5 miles South of intersection with Long Bridge Rd.	P	15	1
129	NJ/Lower Alloways Creek Salem Co.	Maskell's Mill Rd. at intersection with Batter Cake Lane.	P	15	1
130	NJ/Quinton Salem Co.	Harmersville-Pecks Corner Cohansey Rd., 3500 ft. West of intersection with Route 49.	P	15	1
131	NJ/Quinton Salem Co.	Burden Hill Rd., 2000 ft. North of intersection with Route 49.	P	15	1
132	NJ/Lower Alloways Creek Salem Co.	Buckhorn Rd. 8000 ft. West of intersection with Macanippuck Rd.	P	15	1

FIGURE 6-7 (cont)

Siren No.	State/City & County	Location	Type[1]	HP[2]	PH[2]
133	NJ/Stow Creek Salem Co.	Macanippuck Rd., 2000 ft. South of intersection with Buckhorn Rd.	P	15	1
134	NJ/Greenwich Cumberland Co.	Stathems Neck Rd., 5500 ft. West of intersection with Gum Tree Rd. (At the bend in the road).	P	15	1
		Delaware			
201	DE/Delaware City New Castle Co.	Route 72 at intersection with Clarks Corner Rd.	C	50	3
202	DE/Delaware City New Castle Co.	Clinton St. at intersection with Second St.	P	10	1
203	DE/St. Georges New Castle Co.	0.3 miles North of old C&D Canal Bridge on old Route 13.	P	10	1
204	DE/Port Penn New Castle Co.	Biddles Corner-Port Penn Rd., 0.1 miles West of intersection with River Rd.	P	15	3
205	DE/Bayview New Castle Co.	McDonough Bayview Rd., 0.2 miles West of intersection with Thomas Corner Rd.	P	15	1
206	DE/Thomas Landing New Castle Co.	0.8 miles North of Old Corbit Rd. on Route 9.	P	10	1
207	DE/Odessa New Castle Co.	0.1 mile North of Rte. 299 on Rte 13 South.	P	10	1
208	DE/Middletown New Castle Co.	Main St. at intersection with New Rd.	C	50	3
209	DE/Mathews Corners New Castle Co.	0.5 miles SE of Rte 299 junction on Rte. 9.	P	10	1

FIGURE 6-7 (cont)

Siren No.	State/City & County	Location	Type[1]	HP[2]	PH[2]
210	DE/Fieldboro New Castle Co.	Noxontown Rd., 0.1 miles West of intersection with Route 13.	P	10	1
211	DE/Townsend New Castle Co.	Townsend Pine Tree Corner Rd., 0.1 miles West of intersection with Blackbird Middletown Rd.	P	15	3
212	DE/Taylors Bridge New Castle Co.	0.2 miles North of Walker School Rd. on Taylor's Bridge Rd.	P	10	1
213	De/Taylors Bridge New Castle Co.	2 miles East of Rte 9 on Cedar Swamp Rd.	P	10	1
214	DE/Woodland Beach Kent Co.	0.4 miles SE of Delaware Ave. 50 yds off Woodland Beach Rd in boat ramp parking lot.	P	10	1
215	DE/Port Penn New Castle Co.	Route 9, 0.8 miles South of Reedy Point Rd.	P	15	1
216	DE/Port Penn New Castle Co.	1.9 miles NE of Port Penn Rd. on Dutch Neck Rd.	P	15	1
217	DE/Port Penn New Castle Co.	0.4 miles SW of Port Penn Rd. on Corner Rd.	P	15	1
218	DE/St. Georges New Castle Co.	Route 13, 2500 ft. South of intersection with Biddles Corner-Port Penn Rd.	P	15	3
219	DE/Biddles Corner New Castle Co.	0.4 miles North of Airmont Drive on Lorewood Grove Rd.	P	15	1
220	DE/Mt. Pleasant New Castle Co.	0.5 miles North of Churchtown Rd. on Ratlidge Rd.	P	15	1
221	DE/McDonough New Castle Co.	Route 13, 1000 ft. South of intersection with McDonough-Bayview Rd.	P	15	3

FIGURE 6-7 (cont)

Siren No.	State/City & County	Location	Type[1]	HP[2]	PH[2]
222	DE/Armstrong New Castle Co.	Route 301, 1500 ft. North of intersection with Armstrong Corner Rd.	P	15	3
223	DE/Armstrong New Castle Co.	1.2 miles North of Marl Pitt Rd. on Shallcross Lake Rd. (At bend in the road)	P	15	1
224	DE/Middletown New Castle Co.	0.5 miles South of Noxontown Mill Rd. on Route 71.	P	15	1
225	DE/Fieldboro New Castle Co.	1.1 miles South of Rte. 299 on Rte 13 North.	P	15	1
226	DE/Blackbird New Castle Co.	Taylors Bridge Rd. at intersection with Union Church Rd.	P	15	1
227	DE/Ginns Corner New Castle Co.	Route 13 North 0.7 miles North of mile marker 68.	P	15	3
228	DE/Blackbird New Castle Co.	0.2 miles West of Blackbird Forrest Rd. on Blackbird Station Rd.	P	15	1
229	DE/Blackbird New Castle Co.	Route 13 South 0.2 miles South of mile marker 75.	P	15	1
230	DE/Blackbird New Castle Co.	Gum Bush Rd., 2000 ft. North East of intersection with Blackbird Landing Rd.	P	15	1
231	DE/Walker New Castle Co.	Walker School Rd. at intersection with Gardner Rd.	P	15	1
232	DE/Walker New Castle Co.	Paddock Rd., 1750 ft. North of intersection with Black Diamond and Walker School Rds.	P	15	1

FIGURE 6-7 (cont)

Siren No.	State/City & County	Location	Type[1]	HP[2]	PH[2]
233	DE/Taylors Bridge New Castle Co.	Paddock Rd., 3500 ft. West of intersection with Route 9.	P	15	1
234	DE/Taylors Bridge New Castle Co.	Thoroughfare Neck Rd., 6000 ft. East of intersection with Route 9.	P	15	1
235	DE/Brick Store Kent Co.	County Rd. 82, 1000 ft. South of intersection with Route 9.	P	15	1
236	DE/Smyrna New Castle Co.	End of Brick Store Landing Rd., 1500 ft. East of intersection with County Rd. 503.	P	15	1
237	DE/Brickstore Kent Co.	0.6 miles South of Smyrna River Bridge on Route 9.	P	15	1

NOTES:

(1) Type P,B, or C sirens:

P = Penetrator
B = Banshee
C = Cyclone

(2) Other siren information:

HP = Horsepower
PH = Phase

SECTION 6

SIGNATURE PAGE

Prepared By: James J. Schaffer (Rev. 3) 10/4/00
(If Editorial Revisions Only, Last Approved Revision) Date

Reviewed By: N/A N/A
Station Qualified Reviewer Date

Reviewed By: Raymon Reece (R. Reece) for D. Miller 10/04/2000
Department Manager Date

Reviewed By: Raymon Reece (R. Reece) for D. Miller 10/04/2000
Manager- EP & IT Date

Reviewed By: N/A N/A
Manager - Quality Assessment Date
(If Applicable)

SORC Review and Station Approvals

N/A N/A N/A N/A
Mtg. No. Salem Chairman Mtg. No. Hope Creek Chairman

N/A N/A
Date Date

N/A N/A
Vice President – Operations Date

Effective Date of this Revision 1/11/2001
Date

PSE&G CONTROL COPY # EPIP059

SECTION 7

EMERGENCY COMMUNICATIONS

1.0 The Plan provides for establishing communications on a continuous (24- hours per day) basis with the following organizations:

1) The State of New Jersey
2) The State of Delaware
3) Salem County New Jersey
4) Cumberland County New Jersey
5) New Castle County Delaware
6) Kent County Delaware
7) Lower Alloways Creek Township
8) PSEG (Internal Communication)
9) U.S. NRC

The actual notification methods are outlined in Section 6.0 of this Plan.

2.0 General Equipment and System Descriptions

To assure that external notifications and communications are available during an emergency, PSEG Nuclear LLC maintains both dedicated and commercial communications systems as part of its emergency response capabilities. Table 7-1 summarizes the dedicated and commercial communications services maintained in emergency response facilities on and offsite. The following descriptions of the available communications systems emphasize the features which distinguish them. All are highly reliable telephone systems.

2.1 NETS

The Nuclear Emergency Telecommunications System (NETS) is a privately controlled, self-contained telephone exchange that operates as a closed system, not accessible from other phone exchanges. This feature allows the system to be dedicated to emergency response use. The system may use either PSEG microwave, Bell Atlantic microwave, fiber optics, or buried cable transmission as needed. The exchange switching equipment is maintained at the Nuclear Training Center. As an independent system with an uninterruptible power supply, it may operate with or without local phone service or external power.

2.2 ESSX

The Electronic Switch System Exchange I (ESSX-I) is also a privately controlled exchange, which PSEG operates with its own microwave signal system. This system is also independent of local phone service, since each circuit is independently wired. The microwave signal is generated from corporate facilities in Newark, NJ, separated from any local effects of weather or telephone use. The exchange is accessible from other exchanges, but circuits are located only in PSEG facilities. It is considered the primary backup for the NETS system.

2.3 DID

Direct Inward Dial (DID) system is named for the dominant feature of the commercial Bell Atlantic telephone service for the site. DID allows station telephones to be extensions or tied lines of the same systems. These exchanges can take advantage of backup power supplies provided to the stations, and may use either PSEG microwave, Bell Atlantic microwave, or buried cable transmission systems to maintain external communications. This commercial telephone service is available as an additional backup for the NETS and ESSX-I system.

3.0 Emergency Communications with the States of New Jersey and Delaware and Counties of Cumberland, Salem, Kent, and New Castle

3.1 Primary Emergency Communications

The primary communications system between Salem/Hope Creek Generating Stations, the states, and counties is the NETS system described above. NETS telephones are located in onsite emergency response facilities, and offsite emergency facilities of PSEG, as well as the Emergency Operations Center Facilities of the states and counties.

The system is used to notify the states for all emergency action levels and provide emergency communications with the counties. See Table 7-1 for a summary of NETS equipment and locations.

3.2 Secondary Communication

The secondary communications to the New Jersey and Delaware states and counties are provided by both the ESSX and DID systems, described above, which are strategically placed throughout emergency facilities. Both systems can be used to contact the states and counties via commercial telephone lines.

4.0 Additional Methods for State and County Contacts

EMRAD (Emergency Radio) radio frequency communications equipment is located in the Control Room areas in each station and the EOF, and provide still another means of contacting the state of New Jersey, and the New Jersey counties of Salem and Cumberland.

National Attack Warning and Alert System (NAWAS) communications, which are available in the Control Room areas, TSC, and the EOF, provide still another means of contacting the state of Delaware.

5.0 Emergency Communications with the NRC

A dedicated communications system with the NRC, the Federal Telecommunications System (FTS); consists of direct lines to the NRC. FTS lines are used to provide general accident information. These telephones are installed in the Control Rooms, TSC's, and the EOF.

6.0 PSEG Internal Communications

6.1 Telephone Systems

Table 7-1 summarizes the equipment and locations for NETS access. Those locations include all PSEG emergency response facilities on and offsite.

As described above, NETS telephones are also used for PSEG internal communications for emergency response.

The NETS is used to initiate and expedite implementation of Emergency Plan Procedures. Any NETS locations may contact any other NETS location or access commercial back up services.

ESSX-I system also acts as a backup system for NETS in the PSEG internal communications network. DID, as described earlier, is the principal telephone system used for normal business at the site and is also a backup system for emergency response.

All PSEG emergency facilities on and offsite can be contacted from these systems.

6.2 Salem and Hope Creek Stations' Alarm Systems

6.3 Fire Alarm

At each station the fire alarm consists of a location-coded series of tones that is broadcast at each site over the PA system via the tone generator in the PA system. It is initiated by any of the following:

1. Automatic sprinkler actuation
2. Smoke detector actuation
3. Manual pull-stations

Each fire alarm sequence of tones indicates a different location. Charts indicating the coding system are posted throughout the station. The fire alarm location code is broadcast three (3) times over the PA system and automatically shut off.

6.4 Radiation Alert Alarm

The Salem and Hope Creek Stations radiation alert alarms are continuous, pulse-tone sounds, generated electronically in the tone generators of the PA systems. They are broadcast through-out each station via the PA page channels. The alarms are initiated manually by pushbutton from each control room.

6.5 Local Area Evacuation Alarms

There are three local area evacuation alarms at each station.

At Hope Creek Generating Station the alarms are:

1. Reactor Building Evacuation Alarm
2. Refueling Floor Evacuation Alarm
3. Emergency Diesel Room Evacuation Alarm

At the Salem Generating Station, the three alarms are:

1. Containment Evacuation Alarm
2. Fuel Handling Building Evacuation Alarm
3. Emergency Diesel Room Evacuation Alarm

These alarms signal that evacuation of these local areas is required immediately. These alarms are independent of each other and local only. They are loud klaxons.

6.6 Reactor Building Evacuation (HCGS)/Containment Evacuation (SGS)

The containment evacuation alarm, a klaxon, is sounded when the neutron count rate from source-range nuclear instrumentation exceed a preset level while the reactor is shut down.

This condition sounds the containment evacuation alarm and is annunciated in the control room. When this alarm is sounded, all personnel in the containment must exit, maintaining (or establishing) containment integrity as they leave. The alarm continues to sound as long as the neutron flux remains above the setpoint.

This alarm system is required by 10 CFR 70, and must be operable whenever nuclear fuel is stored in the fuel building. It has been designed in accordance with ANSI N16.2, 1969, to meet requirements for a Criticality Accident Alarm System.

6.7 Refueling Floor Evacuation Alarms (HCGS)/Fuel Handling Building (SGS)

The detectors for the fuel building evacuation alarm are gamma monitors that serve both as area monitors and as criticality monitors for the fuel building.

If the activity level at either detector exceed the setpoint, the evacuation alarm is sounded. This alarm indicates the entire fuel building should be evacuated. This condition is annunciated in the control room (i.e., high radiation at specified location); the radiation monitoring panel shows that the detector has triggered the evacuation alarm. The alarm sounds as long as the set point is exceeded.

This alarm system is required by 10 CFR 70, and must be operable whenever nuclear fuel is stored in the fuel building.

It has been designed in accordance with ANSI N16.2, 1969, to meet requirements for a Criticality Accident Alarm System.

6.8 Emergency Diesel Generator Room Evacuation Alarm

Each emergency diesel generator room (four at HCGS, six at SGS) has an independent alarm system that sounds if a heat detector in a diesel room is actuated, indicating fire. The diesel room in which the alarm is sounding should be evacuated immediately. The heat detector in each diesel room, upon actuation, activates these system responses:

1. Alarms in the control room (part of the fire detection system),
2. Sounds the evacuation alarm in that particular emergency diesel room,
3. After the preset time delay, automatically discharges the carbon dioxide (CO_2) fire extinguishing system for the effected diesel room into that room. (Note: CO_2 System discharge can also be manually initiated from outside the diesel room at any time via pullbox).

Thus, the emergency diesel room evacuation alarm warns anyone present that there is both a fire danger as well as an impending CO_2 danger.

7.0 Salem and Hope Creek Stations Public Address (PA) Systems

Each station PA is a completely transistorized voice communication system. Hope Creek maintains six voice channels: one page and five party. Salem Station also maintains six voice channels: one page and five party. The system is designed for use in extreme environmental conditions such as dust, moisture, heat and noise. The system consists of handsets, speakers and their associated amplifiers.

The power for this system is 120 volts AC from an inverted DC source to provide reliable communications during an emergency.

8.0 Salem and Hope Creek Stations Radio Systems

One of the stations' radio systems is the VHF security radio system. This is a multi-frequency system, which is utilized for routine security duties. When an emergency event is declared, two specific frequencies are assigned for communication: one frequency is assigned for onsite communications between the Control Rooms, TSCs, and onsite

radiation monitoring teams; one frequency is assigned for offsite communications between the EOF, and offsite radiation monitoring teams. In addition to the base stations assigned to each TSC and other emergency response facilities, there are numerous portable units that are available as backup communications devices. This system is routinely tested in accordance with the Station Security Plan. This test frequency has been determined to be more conservative than required by NUREG-0654 or 10CFR50, Appendix E.

A second radio system is the Operations and Fire Protection Departments' UHF radio system. This multi-frequency system is used routinely by both station Operations Departments and the Fire Protection Department. When an emergency event is declared, these radio frequencies serve both station operations support centers (OSC).

9.0 Notification of Owner Controlled Area

Notification of the Owner Controlled Areas, also discussed in Section 11, Protective Response, is provided for the protection of personnel located external to the stations' protected area. The primary notification method for the owner controlled area is an onsite siren system which directs evacuation. The backup means for notifying the owner controlled area is through the use of security force members making specific contacts or utilizing public address equipment.

TABLE 7-1
NUCLEAR BUSINESS UNIT
EMERGENCY RESPONSE FACILITIES COMMUNICATIONS SUPPORT

*LOCATION	NETS LINE	DID LINE	ESSX LINE	FAX MACHINES	**SPECIAL EQUIPMENT
SA U/1 CR	2	2	1	-	A B G H I J
SA U/2 CR	2	2	1	-	A B G H I J
SA OSO	5	3	1	1	D F I J K
SA OSC	[1] 4	4	1	-	A E I
SA CP	3	2	-	1	E I
SA TSC	[2] 22	14	4	2	B C E F I J
EOF	35	21	14	4	B D E F J
ENC	18	-	-	3	36 Commercial Lines
HC CR	[3] 4	2	1	-	A G H I J
HC SSO	3	4	1	1	B D F G I J K
HC OSC	4	2	1	-	A E I
HC CP	3	2	-	1	I
HC TSC	21	13	4	2	B C E F I J

Note [1] - One NETS is located in Work Control Center
Note [2] - Plus three NRC - NETS bridge extensions
Note [3] - Three in Control Room; one in Break Room

*

SA = Salem Generating Station
U/1 = Unit 1
U/2 = Unit 2
CR = Control Room
OSC = Operations Support Center
EOF = Emergency Operations Facility
HC = Hope Creek Station
CP = Control Point
TSC = Technical Support Center
OSO = OS Office Complex
SSO = Shift Supervisor Office
ENC = Emergency News Center

**

A = UHF RADIO
B = VHF RADIO
C = OSC RADIO MONITOR
D = EMRAD RADIO
E = WALKIE-TALKIES
K = STATE CALLBACK
F = NAWAS
G = EMERGENCY EXTENSION 3333
H = SYSTEM OPERATOR (LOAD DISPATCHER)
I = PLANT PAGE
J = NRC/ENS (FTS 2000)

TABLE 7-1 (Cont.)
NUCLEAR BUSINESS UNIT
EMERGENCY RESPONSE FACILITIES COMMUNICATIONS SUPPORT

LOCATION	NETS	SECONDARY NUMBERS
NJ STATE POLICE (NJSP)	8	2
NJ - BNE	3	2
SALEM COUNTY	2	1 - NORMAL 1 - 24 HRS.
CUMBERLAND COUNTY	2	1 - NORMAL 1 - 24 HRS.
LOWER ALLOWAYS CREEK	1	1
DELAWARE (DEMA)	4	2
DEL STATE POLICE (DSP)	1	1
KENT COUNTY	1	1
NEW CASTLE COUNTY	1	1
WILMINGTON, DE (WDEL)	1	
MEMORIAL HOSPITAL OF SALEM COUNTY	1	

Telecopiers (fax machines) provided (1 each) to the NJSP, NJ-BNE, DSP and DEMA.

LOCATION	NETS
PSEG Security Department	2
PSEG Fire Department	1
PSEG Medical Department	1

SECTION 7

SIGNATURE PAGE

Prepared By: James J. Schaffer — 10/4/00
(If Editorial Revisions Only, Last Approved Revision) — Date

Reviewed By: [signature] — 10/04/2000
Station Qualified Reviewer — Date

Reviewed By: [signature] — 10/5/00
Department Manager — Date

Reviewed By: [signature] — 10/5/00
Manager- EP & IT — Date

Reviewed By: [signature] — 10/17/00
Manager - Quality Assessment — Date
(If Applicable)

SORC Review and Station Approvals

Mtg. No.	N/A	Salem Chairman	Mtg. No.	N/A	Hope Creek Chairman

N/A — Date

N/A — Date

[signature]
Vice President – Operations — 12/13/00 — Date

Effective Date of this Revision 1/11/2001
Date

SECTION 8

PUBLIC INFORMATION

PSE&G CONTROL COPY # EPIP059

1.0 Public Awareness

The public information program consists of general information on the topics of nuclear energy, radiation, and emergency planning. Additionally, specific information on protective response is provided as an information insert in appropriate local publications at least annually.

1.1 General Information - Program Content

The information on each general topic consists of material on the following:

1.2 Nuclear Energy

a. Definition of energy in general terms.
b. How nuclear energy produces electricity.
c. Safeguards designed into nuclear power plants.
d. Comparisons with other energy sources.
e. Definitions of basic nuclear terminology.

1.3 Radiation

a. Radiation sources in the environment.
b. Safeguards designed into nuclear power plants to prevent or minimize the release of radiation to the environment.
c. Definitions of basic radiation terminology.

1.4 Emergency Planning

a. Description of the public response options of sheltering or evacuation.
b. Evacuation methods, routes and relocation centers.
c. Methods of notification.
d. Special consideration for the handicapped.
e. Special considerations for farms and agricultural concerns.

This information is provided in various forms (pamphlets, advertisements, or other means) either individually or as a set such that the general topic areas are covered annually.

1.5 Protective Response - Program Content

The program for protective response information is more specific in nature and contains material on the following:

1) Protective response options (sheltering and evacuation).
2) Evacuation methods, routes and relocation centers.
3) Methods of alerting and notification.

This information is provided in appropriate formats to the transient and permanent resident of the Plume Exposure Emergency Planning Zone (EPZ). Pamphlets, advertisements in locally distributed newspapers, or telephone books, placards, or postings at recreational facilities may be used, as appropriate, to maintain transient information. Annually, selected information is either updated and redistributed or verified to be in place at appropriate locations.

2.0 Public Information During an Emergency

Until activation of the EOF normal public information planning (incorporating both non-emergency events and emergency events as a plan basis) will be used. This system will be activated by the Communications Representative by calling the appropriate contact in the Public Affairs Department and appropriate media representatives.

Upon activation of the ENC, all information (press releases) formally released to the media is approved by the Company Spokesperson or ENC Manager in accordance with the agreements on media releases between the utility and the states.

The Public Information Liaison, located in the EOF, will ensure that the necessary information is provided to the ENC by the emergency response organization. A timely exchange of information is ensured among the designated spokespersons for the Utility and representatives of the States of New Jersey and Delaware by systematically recording the receipt of new press releases.

3.0 Media Awareness

An information program for media and the general public is provided to present the information outlined in paragraph 1.1. This program is offered at least annually and all appropriate local news media representatives are invited to attend. This program may take place as a part of the annual exercise.

4.0 Rumor Control

Rumor control is provided to minimize the possibility that a source of public information (e.g., NRC, FEMA, State or utility) could be using out-of-date Utility information. This is accomplished by providing Utility information to other public information sources simultaneously and providing Public Information Officers with access to the Utility public information source. Additionally, telephone access numbers are listed in the annual public information brochure to allow access to quickly confirm or deny the accuracy of a given report or rumor.

SECTION 8

SIGNATURE PAGE

Prepared By: W. A. Weckstein, Rev 1 — 10/9/00
(If Editorial Revisions Only, Last Approved Revision) — Date

Reviewed By: N/A — N/A
Station Qualified Reviewer — Date

Reviewed By: N/A — N/A
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Reviewed By: N/A — N/A
Manager - Quality Assessment — Date
(If Applicable)

SORC Review and Station Approvals

Mtg. No. ____ N/A Salem Chairman — Mtg. No. ____ N/A Hope Creek Chairman

N/A — Date; N/A — Date

N/A
Vice President – Operations — Date N/A

Effective Date of this Revision 1/11/2001
Date

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SECTION 9

EMERGENCY FACILITIES AND EQUIPMENT

1.0 PSEG Nuclear LLC - Emergency Facilities and Equipment

Emergency facilities and equipment are maintained for the PSEG Nuclear LLC both on and offsite. Equipment specifically for monitoring and assessment of operational, radiological, geophysical events, and similar instrumentation is described in Section 10, Accident Assessment. The Emergency Operations Facility and Emergency News Center are offsite facilities that serve the PSEG Nuclear LLC.

Although onsite facilities are described separately in paragraph sections 2.0 and 3.0, to reflect station specifics, they have common functions, and fulfill the same organizational and operational commitments.

1.1 Control Rooms

Control Rooms continue their control functions during emergency response. Additional classification and notification responsibilities are met from the control room until other emergency facilities are activated. The emergency equipment and communications support that are available to each control room are shown in Tables 9-1 and 7-1. The specific features of major communications systems are described in Section 7, Emergency Communications.

1.2 Operations Support Centers

Operations Support Centers (OSC) function as information relay stations, dispatching offices, assembly and assignment points, and also as accountability stations for teams assigned from the OSC. Emergency equipment and communication systems that are available to the OSC are presented in Table 9-1 and Table 7-1, respectively. Specific features of the communications systems are described in Section 7, Emergency Communications.

1.3 Technical Support Centers

The Technical Support Centers (TSCs) also have common functions and similar equipment and support. The TSC provides a well equipped location onsite to support plant management during an emergency. The TSC functions as an augmented communication/analysis center of technical data to supplement the Control Room staff's technical analysis and to support plant operations personnel.

The TSC is used by members of the emergency response organization to relieve control room operators of (and remove from the control room) any plant specific duties not directly related to the direct handling of plant controls. Such duties include directing analysis and assessment of the emergency conditions and performing functions associated with the Emergency Operations Facility, when that is not activated.

The TSC is activated for Alert, Site Area Emergency, or General Emergency action levels. The TSC is used as the assembly point for utility personnel, onsite vendor support, NRC, or for the personnel who are directly involved in assessment of an accident and mitigation.

It is estimated that a TSC facility can be fully activated within one hour following initial notification of personnel assigned to the TSC. This estimate is only a target value and may vary based on initial notifications, travel, and other conditions.

The Emergency Duty Officer (EDO) determines when the TSC is staffed based on manning requirements as identified in the PSEG Nuclear LLC Emergency Organization Chart. The EDO's discretion may be used to declare the TSC activated with less than the staffing required in the organization chart based on extenuating circumstances and plant conditions. Efforts to staff all required positions shall continue until the positions are filled or the emergency is terminated.

Emergency equipment and communications support that are available to the TSC are presented in Table 9-1 and Table 7-1, respectively. The specific features of the communications systems are described in Section 7, Emergency Communications.

1.4 Emergency Vehicles

An ambulance is available to transport injured or contaminated-injured personnel to Memorial Hospital of Salem County or another facility.

2.0 Onsite Emergency Facilities and Equipment - Salem

Emergency facilities and equipment were developed to meet the intent of NUREG-0737, Supplement 1, except as indicated.

2.1 Control Room Area

The Salem Control Rooms have been designed to meet the habitability requirements of the General Design Criteria 19 and Standard Review Plan Section 6.4. The emergency equipment provided in the Control Rooms and Operations Support Center is shown in Table 9-1.

2.2 Operations Support Center (OSC)

The Operational Support Center (OSC) is located in the operations conference room, adjacent to the Operations Superintendent (OS) office, in the Control Room Complex. In the event of an emergency, the operating personnel (not on duty in the Control Rooms) and support personnel will report to the OSC for personnel assembly. An OSC Coordinator will be designated by the OS to coordinate repair and corrective action teams for Alert and higher classifications. The Salem TSC will serve as a backup OSC if required.

2.3 Technical Support Center (TSC)

The Salem Technical Support Center (TSC) is located on the third floor of the Clean Facilities (B) Building isolated from the containment building. The TSC meets all habitability requirements outlined in NUREG-0737, Supplement 1. This center supplies technical support to the operations personnel in the Control Room area.

The analytical and assessment capabilities assigned to the Salem TSC include:

Safety Parameter Display System (SPDS)
Computerized Dose Assessment
Plant Engineering Support

Documentation available within the TSC supports emergency classification, procedures, and assessments. Document groups include:

Emergency Plans and Procedures
Operating Procedures (Emergency and Normal)
Departmental Support Documents
Technical Specifications
Engineering Support Material
Updated Final Safety Analysis Report
Technical Drawings

The Salem TSC is in proximity to the Technical Document Room (TDR), which maintains an inventory of several thousand plant-specific documents or drawing groups as well as applicable codes, standards, and regulations. The TSC Ventilation System services the TDR. The TSC is convenient to other support facilities within the B Building. Detailed information on the TSC can be obtained by reviewing the "Salem TSC Configuration Baseline Documentation" [DE-CB.BBD-0012 (Z)].

2.4 Control Point (CP)

During normal operations, this area serves Salem as the access control point for personnel entering or leaving the Radiological Controlled Area. The emergency equipment provided at this location is shown in Table 9-1. Communications equipment is described in Section 7, Emergency Communications.

3.0 Onsite Emergency Facilities and Equipment - Hope Creek

Emergency facilities and equipment were developed to meet the intent of NUREG-0737, Supplement 1, except as indicated.

3.1 Control Room Area

The HCGS Control Room (CR) areas have been designed to meet the applicable habitability requirements. Typical emergency equipment in the Control Room area and Operations Support Center (OSC) is shown in Table 9-1.

3.2 Operations Support Center (OSC)

The Operations Support Center (OSC) is located in the conference room adjacent to the Control Room. In the event of an emergency, operations personnel not on duty and other support personnel report to the OSC to form repair and corrective action teams. Additionally, an OSC Coordinator is designated to coordinate the teams' efforts. The office space above the Hope Creek TSC will serve as a back up OSC, if required.

3.3 Technical Support Center (TSC)

The Hope Creek TSC is located on Elevation 132' in the reactor building, but isolated and shielded from the rest of the reactor building. The TSC meets all habitability requirements outlined in NUREG-0737, Supplement 1.

The analytical and assessment capabilities assigned to the TSC includes:

Radiological Monitoring System (RMS)
Control Room Integrated Display System (CRIDS)
Safety Parameter Display System (SPDS)
Computerized Dose Assessment
Plant Engineering Support

Documentation available within the TSC assists in a variety of analyses and assessments. Document groups include:

Emergency Plan Implementing Procedures.
Normal Operating Procedures.
(Emergency) Abnormal Operating Procedures.
Plant Technical Specifications.
Updated Final Safety Analysis Report.
Selected Vendor Manuals.
Technical Drawings.

Additional documentation is immediately available in the Technical Document Room.

The TSC is located within the protected area convenient to the Control Room, Operations Support Center and Control Point and is a dedicated emergency response Facility. Access is controlled through single entry access. Other entries and exits are maintained locked.

Habitability is controlled to meet the same habitability standards as required in the Control Room. The heating, ventilating, and air conditioning (HVAC) systems include the use of high efficiency particulate absorber (HEPA) and charcoal filtration, which prolongs habitability should inplant conditions degrade.

Sufficient monitoring and protective equipment is kept in a secured area, the Radiation Protection Locker, of the TSC and available to the TSC staff.

3.4 Control Point (CP)

During normal operation, this area is located at the 137' elevation and serves as the regular Access Control Point for personnel entering or leaving the Radiological Controlled Area. Emergency equipment is provided at the Control Point and is listed in Table 9-1.

4.0 Offsite Emergency Facilities and Equipment

4.1 Emergency Operations Facility - General Description

The Emergency Operations Facility (EOF) is controlled and operated by PSEG Nuclear LLC. It serves as the near site support center to form management of the aggregate response to a radiological emergency as defined by NUREG-0654, Revision 1, and Appendix 1. PSEG NUCLEAR commits to operating the EOF so as to fulfill the functional requirements of paragraph 4.1 of NUREG0737, Supplement 1. It should be noted that based on the backup EOF exemption granted for the Salem Generation Station Plan, and the fact that the location of Salem and Hope Creek Generating stations is treated as a single site, it is assumed that the exemption is applicable to all EOF requirements for Salem and Hope Creek Generating Stations.

The EOF provides facilities and equipment to support staff performance of four major functions:

1. Management of overall emergency response activities.
2. Coordination of radiological and environmental assessment.
3. Development of recommendations for protective actions for the public.
4. Coordination of emergency response operations with Federal, state, and local agencies in accordance with the Emergency Plan.

The communications systems available at the EOF are presented in Table 7-1. Specific features of those systems are described in Section 7, Emergency Communications.

It is estimated that the EOF Facility can be staffed and capable of activation within 60 minutes, following initial notification of personnel assigned to the EOF. The 60 minutes is only a target value and may vary based on initial notifications, travel, and other conditions.

Activation and use of the Emergency Operations Facility is at the option of PSEG Nuclear LLC at the Alert emergency classification. The option is exercised depending upon management's evaluation of the potential consequences of the situation based upon the nature of initiating conditions, trends subsequently perceived, and results of actions taken to mitigate potential consequences. EOF activation is mandatory in the event of declaration of a Site Area Emergency or General Emergency.

An individual who is designated as the Emergency Response Manager (ERM) manages the activated EOF. The ERM directs PSEG Nuclear LLC's offsite response activities and coordinates actions with and provides appropriate support to the Technical Support Center (Emergency Duty Officer). The EOF is staffed by PSEG Nuclear LLC and other (Federal, state, and support personnel, as required) emergency personnel designated by the PSEG Nuclear LLC Emergency Plan.

The ERM determines when the EOF is fully staffed based on manning requirements as identified in the PSEG Nuclear LLC Emergency Organization Chart. The ERM's discretion may be used to declare the EOF activated with less than the staffing required in the organization chart based on extenuating circumstances and plant conditions. Efforts to staff all required positions shall continue until the positions are filled or the emergency is terminated.

Equipment is provided in the EOF for acquisition, recording, display and evaluation of containment and operational conditions, radiological releases, and meteorological data. The data is analyzed and evaluated to determine the nature and scope of any protective measures, which may be recommended to state and local officials for protection of the public health and safety, if the magnitude and potential effects of a radioactive release dictate. The equipment includes a display of information collected by the Radiological Monitoring System (RMS). All equipment, displays, and instrumentation to be used to perform essential EOF functions are located in the EOF.

Facilities are provided in the EOF for NRC, FEMA, New Jersey, Delaware and local emergency response agency personnel responsible for implementing emergency response actions for protection of the general public. This arrangement enhances coordination of activities and exchange of information among participating agencies and the PSEG Nuclear LLC emergency response organization. The agencies also operate from other offsite control centers located at their respective agency facilities.

To ensure EOF activation readiness, PSEG Nuclear LLC provides normal industrial security for the EOF complex including lock and key control, a personnel identification system, exterior lighting, and a perimeter security system providing offsite alarm notification and response by local police department. If the EOF is activated, access to the building and facility is restricted to authorized personnel by the industrial security system.

4.2 Location, Structure, and Habitability

The Emergency Operations Facility is located in PSEG Nuclear LLC Training Center on Chestnut Street in Salem, New Jersey. This site is located 7.5 miles from the Technical Support Center. The site location is judged to provide operational and logistical benefits with regard to its relationship to the areas transportation system. Salem is at the intersection of the two state highways (Routes 45 and 49). Three county highways, Routes 557, 540, and 581, connect to Routes 45 and 49.

A freight only railroad and an airfield serve the city of Salem capable of accommodating small commercial aircraft. In addition, the Nuclear Training Center has a helicopter-landing pad. There is also a landing pad located just outside of the Protected Area. This makes possible rapid movement of personnel between the station and the EOF.

This transportation network makes the EOF readily accessible by road and air to designated personnel of all agencies and activities assigned an emergency response role by the emergency plan.

The physical structure of the facility has been well engineered for the design life of the plant. The building is a 65,000 square foot structure on reinforced concrete footings and floor slab, with supporting steel columns, beams, and joists. The built up roofing material is supported on a steel deck.

The EOF conforms to all applicable building codes and has been designed to withstand winds and floods with 100 year recurrence frequency. The State of New Jersey Department of Environmental Protection identifies the 10 year and 100 year high water levels at the EOF site as 7.1 feet and 8.9 feet above mean sea level, respectively. The floor elevation of the EOF is 9.0 feet. The elevation of the road to the EOF is slightly over 4 feet. Thus, record high water levels would flood the access road and preclude access to the EOF by vehicle and could hamper activities of mobile monitoring teams in some areas. The EOF would continue to be accessible by helicopter. Internal EOF operations would continue without adverse impact.

The SGS Final Safety Analysis Report, Environmental Report, Operating License Stage, Appendix B Report, Site environmental studies, identifies high winds with a 100 year recurrence frequency as having a maximum velocity of 100 miles per hour. It is not anticipated that such winds will significantly affect self contained internal EOF operations. This is due to the strength of building construction and the availability of backup power.

However, activities of mobile monitoring teams would have to be suspended. Under such conditions, radiation exposures would be correspondingly low. Remote monitoring would continue to be available to the extent transmission lines survive. Similarly, data transmission could be adversely impacted by damage to microwave and radio antennae and transmission lines, particularly if winds were accompanied by electrical storms, which are often associated with squall lines, tornadoes and hurricanes. Under such circumstances, atmospheric conditions could be expected to intermittently affect data transmission and communications.

Protective clothing is maintained at the EOF, in accordance with the emergency plan. In addition, mutual support agreements with other utilities in the region include providing emergency equipment, including radiation survey devices and protective clothing. Potassium iodide for the staff is also stored in the EOF emergency equipment locker.

Additional supplies are available from Radiation Management Corporation, Philadelphia, Pennsylvania or other approved vendors. A description of the methodology to determine airborne I-131 concentrations is presented in Section 10 of the Emergency Plan. Detection limits for I-131 are less than 1E-7 uci/cc if not masked by noble gases. Masking is not expected to be a factor due to use of silver zeolite filter cartridges and adequate purge times in sample collections.

Full face respirators with charcoal filters are maintained in the EOF. However, airborne contamination is not expected to present a major problem at the EOF due to its location and the upgraded ventilation system.

4.3 Size

The EOF meets or exceeds the space requirements of paragraph 8.4.1c of NUREG-0737, Supplement 1. Approximately 5240 square feet of floor space in the Nuclear Training Center is designated for use as the Emergency Operations Facility. This provides more than 75 square feet of workspace per person for a staff of up to 70 persons and 650 square feet for conference rooms.

Additional space is available in the building to accommodate another 100 persons in the unlikely event of a situation in which a greatly augmented staff would be required. Normal EOF occupancy by all concerned parties and agencies is not expected to exceed 80 persons.

The functional layout of the EOF depicts designated workspaces:

1. Space for EOF data system equipment for data transmission and reception (Data Center, Communications Center).
2. Space to repair, maintain and service equipment displays and instrumentation (in Nuclear Training Center workshops and labs).
3. Space to accommodate communications equipment and its use by EOF personnel to perform their assigned functions.
4. Space for ready access to functional displays of EOF data (Data Center, provisions for installation of remote terminal in the Dose Assessment Area).
5. Space for storage of plant records and historical data or space for the means to readily acquire and display the records.
6. Space for emergency response activities.
7. Office space for state, local and FEMA personnel.
8. Separate office space to accommodate a minimum of ten NRC personnel during emergency activation of the EOF (NRC offices).

Personnel are assigned to work areas in functional groups. Groups, which perform related tasks and therefore would have the most need for face to face interaction, are, in most cases, located adjacent to one another. Each workstation is assigned sufficient display space, equipped and staffed as appropriate to its function.

4.4 Radiological Monitoring

The EOF complies with the radiation protection provisions of paragraph 8.4.1B of NUREG-0737, Supplement 1 by providing radiological monitoring equipment in the facility. This equipment provides the capability to monitor airborne radioactivity (gross beta, gamma, iodine, and particulates) to ensure that EOF personnel are not subjected to adverse radiological conditions. Available equipment and a table in a Emergency Plan Implementing Procedure permits the detection of radioiodines at a concentration as low as 1.00E-07 uCi/cc using a field counting methodology (A portable continuous air sampler collects iodine in a silver zeolite cartridge. The cartridge is then counted using a count rate meter. The corrected counts per minute value are then compared to a graph to find the iodine concentration).

The continuous air monitor sampler may be moved to various points in the facility, is equipped with a strip chart recorder, an alarm light, and an alarm bell. The alarm setting is variable and will be set slightly above background to give an early warning of adverse conditions, which may affect EOF habitability. In addition, the alarm light provides visual warning of radiation levels. The air sampler is maintained and calibrated on a regular schedule by station personnel.

More detailed counting analysis is available at the station (emergency situation permitting) or any other licensed facility (i.e. Peach Bottom, Limerick, etc.).

Survey meters are available, which have sensitivity ranges up to 50 R/hr. Additional EOF radiation monitoring equipment includes high and low range self reading dosimeters (or equivalent electronic dosimeters), TLDs, and air samplers. Radiation monitoring equipment is stored in the emergency equipment closet (Table 9-1). The radiological assessment staff performs habitability of the EOF, in accordance with procedure.

The Radiological Support Managers have a variety of radiological, health physics, and nuclear power plant experience.

4.5 Instrumentation, Data System Equipment, and Power Supplies

The EOF complies with the provisions of paragraph 8.4 1G NUREG-0737, Supplement 1 by providing an EOF data system consisting of a Radiological Monitoring System, an operational parameter data information system which provides plant variables to a typewriter, and a safety parameter display system which provides live data to video monitor.

The EOF data system performs its functions independently of personnel actions in the Control Room and the TSC and will not degrade or interfere with Control Room and plant functions.

Backup power is provided to ensure data system availability. Backup power is supplied by a diesel generator in conjunction with an automatic transfer switch, which activates the generator upon loss of power. The generator provides electrical output sufficient to supply all facility lighting, the telephone system and all EOF data and communications systems described in this document. Electrical equipment load in the EOF does not affect any safety related power source. The data system has been designed to preclude loss of any stored data vital to EOF functions due to power supply failure or circuit transient.

4.6 Technical Data and Data System

The comprehensive EOF technical data system is capable of reliable collection, storage, analysis, display, and communication of information on containment conditions, radiological releases, and meteorology sufficient to determine site and regional status, determine changes in status, forecast status and take appropriate actions. Variables from the following categories that are essential to EOF functions are available in the EOF.

a. Appropriate variables from Table 1 of Regulatory Guide 1.97 (Rev. 2) and;
b. The meteorological variables in Regulatory Guide 1.97 (Rev. 2) for site vicinity and regional data available via communication from the National Weather Service.

5.0 Emergency News Center

Emergency News Center (ENC) facilities are at the Salem County 911 Center. The ENC provides space for media briefings; media work area, and telephone access. Separate work areas are maintained for PSEG Nuclear LLC, NRC, State and County personnel. The facility is convenient to major highways. Designed for public use, the building has sufficient facilities to support
use by 200 or more media personnel

The communications equipment is described in Section 7 and summarized in Table 7-1. For media use, commercial telephone lines have been assigned from a physically distant exchange, which would reduce the load on local telephone services during an emergency.

Under appropriate circumstances, space for a limited number of press representatives may be made available at the EOF.

6.0 Additional Offsite Capabilities

6.1 Offsite Environmental Radiological Monitoring

Section 10, Accident Assessment presents a discussion of other assessment capabilities and instrumentation. The Stations are located on a man-made island, which, within four miles, is surrounded by tidal marshlands or river. The thermo luminescent dosimeter (TLD) points of the routine offsite environmental radiological monitoring program include TLDs in neighboring towns and cities and at schools and public assembly points, and at distances sufficiently close to the station to provide meaningful data in the event of an accident. No TLDs were deployed on marshlands where no serviceable roads existed. The Operational Radiological Monitoring program for the Station conforms to the NRC Radiological Assessment Branch Technical Position as described in Section 10 of the Emergency Plan.

6.2 Meteorological Monitoring

A meteorological program in accordance with the recommendation of NRC Regulatory Guide 1.23 "Onsite Meteorological Program" and Section 2.3.3 of NUREG 75/087 (Rev. 3) has been established. Monitoring and assessment capabilities are discussed in Section 10.

The dose calculation methodology of Section 10 of the Emergency Plan, concerning the transport and diffusion of gaseous effluents, is consistent with the characteristics of the Class A model outlines in NUREG-0654 (November 1980).

7.0 Field Assessment and Monitoring

The EOF, once activated, is the location for collection and assessment of all offsite radiological monitoring information from the survey teams. Periodically the information on doses calculated in accordance with Section 10 of the Plan is multiplied by the projected sector population data from Emergency Plan Attachment 11 to provide an estimated integrated dose to the affected population.

8.0 Administration and Maintenance of Emergency Facilities and Equipment

The emergency equipment listed in Table 9-1 is inventoried and operationally checked quarterly, and after each use to allow for replacement in the event of normal servicing and calibration. The instrument calibration frequency has been established in accordance with the appropriate technical guidance.

Table 9-1 is a generic listing of typical equipment maintained both on and offsite. Detailed listings are part of emergency preparedness inventory procedures.

TABLE 9-1

EMERGENCY EQUIPMENT SUMMARY

(TYPICAL)

EQUIPMENT	CR/OSC	CP/SFTK	TSC/HFTK	EOF/FTK
RO2A SURVEY INSTRUMENT *	L	L	L	L
RM14/E140N *	L	L	L	L
TELETECTOR *	L	L	L	N/A
E520 SURVEY INSTRUMENT *	L	L	L	L
RO2 SURVEY INSTRUMENT *	L	L	N/A	N/A
HIGH RANGE DOSIMETERS *	L	L	L	L
LOW RANGE DOSIMETERS *	L	L	L	L
DOSIMETER CHARGER *	A	L	L	L
AIR SAMPLER (A/S)	L	L	L	L
DC POWERED A/S	A	A	L	L
MARINELLI BEAKER WITH A/S HEAD	A	L	N/A	N/A
CHARCOAL CARTRIDGES FOR A/S	L	L	L	L
SILVER ZEOLITE CARTRIDGES FOR A/S (SEALED)	L	L	L	L
PARTICULATE FILTER PAPERS FOR A/S	L	L	L	L
ENVELOPES FOR PARTICULATE A/S	L	L	L	L
FLASHLIGHTS WITH BATTERIES	L	L	A	L
SPARE BATTERIES (REPLACEMENT SET FOR EACH INSTRUMENT)	L	L	L	L
SAMPLE CONTAINERS OR SMALL BAGS	L	L	L	L
SMEARS	L	L	L	L
RAD INFO SIGNS	L	A	L	A

Meaning of the NOTES appear at the end of the Table.

TABLE 9-1

EMERGENCY EQUIPMENT SUMMARY(cont.)

(TYPICAL)

EQUIPMENT	CR/OSC	CP/SFTK	TSC/HFTK	EOF/FTK
BARRICADE ROPE OR RIBBION AND STANCHIONS	L	A	L	N/A
TAPE	L	L	L	L
LARGE PLASTIC BAGS	L	L	L	L
STEP OFF PADS (SOP)	L	A	L	A
PAPER OR CLOTH COVERALLS	L	L	L	L
SHOE COVERS	A	L	L	L
RUBBER GLOVES	A	L	L	L
HOODS AND CAPS	A	L	L	L
RESPIRATORS AND CHARCOAL/PARTICULATE CARTRIDGES	A	A	A	A
EMERGENCY PLAN PROCEDURES (AS APPLICABLE)	L	L	L	L
SCBAs	L	A	N/A	N/A
CHECK SOURCES (BUTTON) *	L	L	L	L
KI TABLETS	L	L	L	L
ABSORBENT MATERIAL	N/A	L	L	L
CALCULATOR/COMPUTER	N/A	L	L	L
THERMOLUMINECENT DOSIMETERS (TLDs)	L	A	L	L
LOGS, PAPER SUPPLIES, PENS, CLIP BOARDS, etc.	L	L	L	L
PLASTIC SHEETING	N/A	A	A	A
FIRST AID KIT	L	L	L	L

TABLE 9-1 (cont)

EMERGENCY EQUIPMENT SUMMARY

NOTES/LOCATION DESCRIPTIONS

L = Location (Both Hope Creek and Salem)
A = Accessible in general area of the Emergency Response Facility.
N/A = Not Applicable in that specific ERF.
* = "or equivalent"

1. The Control Room/Operations Support Center (CR/OSC) area comprises adjacent hallways, lockers, and storage areas.

2. Control Point (CP) comprises adjacent and accessible area including lockers, equipment issue areas, and dress out areas.

3. Salem Onsite Field Monitoring Team Locker/Kit (SFTK)

4. Technical Support Centers (TSC) are dedicated facilities.

5. The Hope Creek Onsite Field Monitoring Team Locker/Kit (HFTK).

6. Emergency Operations Facility (EOF) includes the adjacent meeting rooms and the Field Monitoring Team Kit Room.

7. The EOF Field Monitoring Kits (FMK) describes materials reserved for Field Monitoring.

SECTION 9

SIGNATURE PAGE

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N/A N/A
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N/A N/A
Vice President – Operations Date

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Date

SECTION 10

ACCIDENT ASSESSMENT

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1.0 General

1.1 Emergency Action Level Determination

The plant parameter and instrument values used to identify an emergency class are provided in Plan Attachment 5-1 and 5-2.

2.0 Accident Assessment and Instrumentation - Salem Generating Station

There are several monitoring systems used to support emergency planning activities at Salem Generating Station. The primary systems utilized are listed below.

- Radiation Monitoring System (See Radiation Monitoring System Manuals) and CBD DE-CB. RM - 0064(Q)
- Safety Parameters Display System (SPDS)
- Post Accident Sampling System (PASS)

2.1 Radiological Monitoring Instrumentation - Salem Generating Station

The radiological monitors consist of process radiation monitors, effluent radiation monitors and area radiation monitors, (see Table 10-1). The system continuously displays and/or records the radiation levels in key areas. The Unit 1 Radiation Monitoring System (RMS) is a predominately analog system while the Unit 2 Radiation Monitoring System (RMS) is predominately a digital system. Both systems have been modified to comply with the recommendations of NUREG 0578. The Unit 2 RMS consists of individual sensors with independent micro processors (MPs) which are able to perform a variety of tasks. The MPs can convert count rate pulses from the individual channels into various engineering units or factor in flow rate information to provide information to the operator to aid accident assessment. The information is fed to two mini computers which are in a master-slave configuration for redundancy. The operator, by keying in certain commands, is able to display selected radiation monitoring channels in a particular elevation on his display screen. The information may be trended for pre-selected time periods, as required. The listing of the radiation monitoring

channels which may be used to assess an accident is provided in Table 10-1.

Permanent monitor channels are not always available at a location of interest and the use of portable area monitors may be required during an accident. Unit 2 RMS uses a "communication loop" in which the radiation monitors in the "field" communicate to the computer via a loop of wire.

2.2 Process and Area Monitors

In order to provide the operators with essential information on plant conditions during an emergency, various plant processes are continuously monitored. Many of these processes involve Limiting Conditions for Operations (LCO) and are controlled by the Technical Specifications. If an LCO parameter "goes out of specification" it requires the operators to implement the action required by the associated action statement. The intent of this action is to take corrective measures under abnormal conditions before a situation becomes more serious. These parameters would be monitored closely during an accident for assessment purposes. These process indications that are monitored are also listed in Table 10-1.

2.3 Gaseous Release Path Monitoring

In addition to the main plant vent, a monitored vent, the other potential major release points from the plant during an accident are the main steam dump valves, pilot operated relief valves and the turbine driven auxiliary feed water pump. Procedures have been developed to monitor these potential release pathways and perform the necessary dose assessment.

2.4 Reactor Coolant and Containment Air Sampling - Salem Generating Station

Sampling of reactor coolant and containment gaseous activity will be performed using the Post Accident Sampling System. The Post Accident Sampling System is integrated into emergency operations through emergency procedures. The plant vent, which is the final release point is continuously monitored by the RMS for noble gases. The iodine cartridge can be physically removed and taken into a laboratory for analysis by a multi-channel analyzer available in the station (Hope Creek will provide backup analysis). There are also provisions provided in the plant vent for extracting a grab sample.

Analysis of reactor coolant and containment air samples provides detailed information on the status of the reactor core. These samples can be used to provide confirmation of a loss of the fission product barriers.

3.0 Accident Assessment Instrumentation - Hope Creek Generating Station

There are several monitoring systems used to support emergency planning activities for the Hope Creek Generating Station.

The plant computer systems and their functions are described in Final Safety Analysis Report (UFSAR). Specifically, the primary systems utilized to support emergency planning activities are:

- Control Room Integrated Display Systems (CRIDS)(UFSAR Section 7.5.1.3)
- Radiation Monitoring System (RMS) (UFSAR Sections 11.5 and 12.3.4), Hope Creek CBD DE-CB.SD - 0044(Z) and CBD DE-CB- SP.0044 (Q)
- Post-Accident Sampling System (PASS) (UFSAR Section 9.3.2)
- Safety Parameters Display System (SPDS) (UFSAR Section 7.5.1.3.3.4)

3.1 Radiological Monitoring Instrumentation - Hope Creek Generating Station

The radiological monitors consist of process radiation monitors, effluent radiation monitors and area radiation monitors. The system continuously displays and/or records the radiation levels in key areas. The listing of the radiation monitoring channels which may be used to assess an accident are provided in Table 10-2. A complete description of the radiation monitor program is provided in UFSAR Sections 11.5 and 12.3.4. PSEG NUCLEAR - EP also has portable hand held instruments which can be used, if thought necessary.

3.2 Process and Area Monitors

In order to provide the operators with essential information on plant conditions during an emergency, various plant processes are continuously monitored. Many of these processes will involve Limiting Conditions for Operations (LCO) and are controlled by the Technical Specifications. If an LCO

parameter "goes out of specification," it requires the operators to implement the action statement. The intent of this action is to take corrective measures under abnormal conditions before a situation becomes more serious. These parameters would be monitored closely during an accident for assessment purposes.

3.3 Gaseous Release Path Monitoring

There are four designed gaseous release pathways. These include the North Plant Vent, the South Plant Vent, the Filtration Recirculation Ventilation System (FRVS) and the Hardened Torus Vent (HTV). The North Plant Vent serves the off-gas system, the solid radwaste exhaust system, and the chemistry lab exhaust system.

The South Plant Vent serves the following systems:

a. Reactor Building Ventilation System (RBVS)
b. Radwaste Area Exhaust System
c. Service Area Exhaust System
d. Turbine Building Exhaust System
e. Turbine Building Compartment Exhaust System
f. Turbine Building Oil Storage Room Exhaust System
g. Gland Seal Exhaust
h. Mechanical Vacuum Pump Discharge
i. Radwaste Decontamination Evaporator Exhaust

The locations of the North and South Plant Vents are shown on general arrangement drawings in the Hope Creek UFSAR (Figures 1.2-8 and 1.2-9).

In the Reactor Building Ventilation System exhaust ductwork, radiation monitors isolate the normal heating, ventilation and air-conditioning (HVAC) flow path and initiate FRVS upon sensing high radiation. With the reactor building isolated, FRVS recirculates the reactor building air through high-efficiency particulate absorbers (HEPA) and charcoal filters. A small amount of effluent is then filtered and released via one of two vent fans. These fans discharge through a vent atop the reactor building to maintain the building at a negative pressure of approximately 0.25-inch water gauge.

The Hardened Torus Vent is a flow path designed to mitigate the effects of a loss of decay heat removal capability. This piping provides a direct venting of the primary containment to the environment, taking advantage of the scrubbing properties of the torus water. The 12 inch diameter torus vent pipe runs from the torus, through the Reactor Building

square roof and up the outside of the reactor building cylinder wall.

Continuous monitoring or sampling is provided for all expected radioactive release pathways, with main control room annunciation to indicate when levels are higher than allowed limits.

In addition to the systems mentioned above, a list of portable sampling and survey instrumentation has been provided in the Hope Creek UFSAR. Multi-channel analyzers for isotopic analysis are also available within the Hope Creek station with backup support available from Salem Station.

3.4 Reactor Coolant and Containment Air Sampling - Hope Creek Generating Station

Analysis of reactor coolant and containment air samples provide detailed information on the status of the reactor core. These samples can be used to provide confirmation of a loss of a fission product barrier.

Sampling of reactor coolant and containment airborne activity will be performed using the Post Accident Sampling System (PASS). The final release point will be continuously monitored by the RMS for noble gases and continuously sampled for particulates and iodines.

4.0 Dose Assessment From Plant Effluent Monitors for Artificial Island

Plume dose calculation procedures use plant effluent monitor data to project offsite doses due to noble gases and iodines. The primary purposes of the offsite dose calculation are to determine the axial location of highest expected dose at selected distances from the release point, to project dose rates and time integrated doses for downwind portions of the Emergency Planning Zone, and to determine if protective actions are to be recommended. These procedures and calculation capabilities are to be available at the Hope Creek Control Point, Salem Control Room, Hope Creek TSC, Salem TSC, and EOF. The procedures will use the meteorological dispersion factor (X/Q), dose rate or commitment conversion factors, and plant effluent monitor readings to project an offsite dose. The X/Q are selected according to the existing temperature differentials, wind speed, and distance from the plant vent. The dose calculation is based on expected isotopic mixtures or specific mixtures if an isotopic mix has been determined. The plant effluent monitor readings are used

in the calculations. The actual isotopic mix of the releases can be used if the releases have been sampled and analyzed. Calculated offsite doses are then compared to Protective Action Guides developed using EPA-400-R-92-001.

The Hope Creek Radiation Monitoring System computer and Salem Safety Parameter Display Systems provide early indication of abnormal radiological conditions from both process and area monitors. The computer systems provide monitoring capability for the radiological parameters identified in Regulatory Guide 1.97, including high range monitoring capability for effluent release paths. This data will be automatically provided to the MIDAS computers at Hope Creek and Salem Stations.

The Hope Creek Digital Radiation Monitoring System provides radiological release rate information. The Salem Computer Systems provide meteorological data acquisition for both Salem Units. MIDAS software provided by PLG EQE International has been installed in computer systems in each station to provide redundant emergency dose assessment modeling capability in manual mode and all modes at the EOF.

The MIDAS System for emergency response is operational on microprocessor based computers. Each system receives meteorological (MET) and Radiation Monitor System (RMS) data automatically from other plant computers via RS-232 dedicated phone lines or manually via user entry. The user interface is made using graphics screen prompts where selections are made using a system mouse. Source term information is available using several release options including (1) RMS, (2) user entry of monitor date, (3) default accident release, (4) event trees, (5) release rate by isotope, and (6) back calculation. Dispersion is computed using either a straight line or variable trajectory dispersion model. Both models are time dependent and provide integrated doses as well as dose rates using EPA 400 dose factors. Ingestion pathway calculations including (1) airborne concentrations, (2) ground level contamination, (3) foodstuff contamination, (4) ground shine committed dose, and (5) population doses are performed in accordance with the intermediate phase objectives provided in EPA 400.

Several choices are available to the user for determining the source term. If a Design Basis Accident is assumed, but the release rate is unknown, preset release scenarios can be used for up to ten accident scenarios. Otherwise, real time data from effluent monitors will be used.

Upon declaration of a General Emergency (which is done by evaluating specific system parameters), a predetermined Protective Action Recommendation (PAR) is provided to the State governments in New Jersey and Delaware.

The predetermined PARs are developed as outlined in NUREG-0654, Rev. 1, Appendix 1, and Inspection and Enforcement Information Notice 83-28. These PARs are incorporated into both the Event Classification Guide and Emergency Plan Implementing Procedures for Protective Action Recommendations. The use of predetermined PARs allows the transmission and consideration of protective actions in a manner which affords timely notification of the Emergency Planning Zone (EPZ) municipalities/counties.

The dose calculations use the best information available from the plant effluent monitoring and sample system and the field monitoring team surveys. The doses are integrated over the appropriate sectors and distances around the station. Transient population is not expected to affect person-rem dose calculations significantly within 10 miles of the plant.

5.0 Dose Assessment From Containment Radiation Monitoring

Dose assessment, utilizing containment high range dose rate monitors, can be obtained with the use of dose assessment computer programs.

6.0 Dose Estimates When Instruments Are Off-Scale or Out of Service

6.1 Defaults for Salem Generating Station

Emergency Plan Procedures describe in detail how projected dose calculations will be made if radiation monitors normally used for monitoring the Containment or Plant Vent are inoperable or off-scale. The procedures call for determining the type of accident, which is occurring and classifying it according to five (5) classes which are described below.

Class	Conditions Associated with Accident Class
Default 1 (LOCA)	Severe core damage is postulated. Fuel melting is evident by thermocouple readings indicating that the melting point of uranium oxide has been reached. It is also assumed that one hundred percent of the noble gases become airborne in the Containment along with 25% of the iodines.

Default 1 (LOCA) (cont.)	The Containment is assumed to be leaking at the maximum design leakage rate.
Default 2 (LOCA)	Reactor coolant is postulated to be leaking at a rate fast enough to increase the temperature of the fuel cladding to the point where there is threshold damage to the fuel rods. In this case it is assumed that all of the gap activity (the gases contained between the fuel itself and the zircalloy cladding) is released into the coolant and then into the Containment. The Containment is then assumed to be leaking at the maximum design leak rate. In Default 2, LOCA, it is up to the Operations Superintendent or the Emergency Duty Officer to determine that there has been no fuel melting. If there is any uncertainty about fuel melting, Default 1 is assumed.
Default 3 (Gas Decay Tank Rupture)	If local area monitors in the vicinity of (Gas Decay the gas decay tanks indicate a Gas Decay Tank Rupture) Tank has ruptured, a Default 3 incident is assumed to have occurred.
Default 4 (Fuel Handling)	In this accident it is assumed that radio-activity is drawn into the Fuel Handling Building Ventilation System and subsequently released through the Plant Vent.
Default 5 (Steam Generator Tube Rupture)	Available instrumentation indicates that a steam generator tube has ruptured. Normally, the activity discharge can determined from the Plant Vent monitors. However, in this case it is assumed that the vent monitors and steam generator blow down monitors are inoperable or are not capable of quantifying the releases.

Once a determination of the type of accident has been made, Total Effective Dose Equivalent (TEDE) and thyroid committed doses are projected in accordance with Emergency Plan Implementing Procedures.

6.2 Defaults for Hope Creek Generating Station

Emergency Plan Procedures are developed to describe in detail how projected dose calculations are made if radiation monitors normally used for monitoring plant conditions are inoperable or off-scale. The procedures are developed for determining the type of accident, which is occurring and classifying it. These procedures contain methodology and guidance including defaults that are derived from the HCGS UFSAR, Section 15. The associated radiological assumptions are described in HCGS UFSAR Appendix 15 A.

Class	Conditions Associated with Accident Class
Default (1) LOCA - 1 hour Duration Default (2) LOCA - 24 Hour Duration	These events involve the postulation of a spectrum of piping breaks inside primary containment varying in size, type, and location. The break type includes steam and/or liquid process system lines. (HCGS, UFSAR, Section 15.6.5)
Default (3) Steam Line Break	It is postulated that a main steam line breaks downstream of the isolation valve. The plant is designed to immediately detect such an occurrence, initiate isolation of the broken line, and actuate the necessary protective features (HCGS, UFSAR, Section 15.6.4)
Default (4) Feed water Line Break	The postulated break of the feed water line representing the largest liquid line outside the Primary Containment provides the design basis for this event. The break is assumed to be complete and already past the outermost isolation valve. (HCGS, UFSAR, Section 15.6.6)
Default (5) Offgas Treatment	A failure of an active component of the gaseous radwaste treatment system is assumed to occur. This event results in System Failure the activity normally processed by the off gas system being released to the Turbine Building, and subsequently released through the ventilation system to the environment without treatment. (HCGS, UFSAR, Section 15.7.1)

Default (6) Control Rod Drop	The radiological consequences of a control rod drop accident (a design basis accident) are Postulated in the HCGS UFSAR Appendix 15 A, Section 15A. This postulated accident assumes cladding failure of several hundred fuel rods, fuel melting localized failure, and subsequent circumstances resulting in radiological releases. (HCGS, UFSAR, Section 15.4.9)
Default (7) Fuel Handling Accident	The fuel handling accident is assumed to occur as a consequence of a failure of the fuel assembly lifting mechanisms resulting in the dropping of a raised fuel assembly onto other fuel assemblies. A variety of events which qualify for the class of accidents termed "fuel handling accidents" were investigated. (HCGS, UFSAR, Section 15.7.4)
Default (8) Instrument Line failure	This event involves a postulated small break in a steam or liquid line inside or outside the Primary Containment but within the Reactor Building structure. It is assumed that a small instrument line breaks at a location where the break may not be able to be isolated and where immediate detection is not automatic or apparent.

7.0 Dose Assessment From Field Monitoring - Artificial Island

The Salem and Hope Creek Offsite Dose Calculation Manuals (ODCM's) summarize Environmental Radiological Monitoring. Field monitoring within the plume exposure EPZ takes place whenever the radiological emergency response organization is fully activated. Field teams take direction from the radiological support personnel in the TSC and/or EOF. Data is obtained and updated quarter hourly and hourly on the meteorological variables of wind direction, speed and vertical temperature change (Delta T). This data is used to direct the onsite and offsite survey teams. Each field monitoring team is capable of performing the necessary functions required to obtain reliable data. Communications are accomplished by the use of emergency radios and cellular phones by each team. Deployment times range from 30 to 60 minutes for the onsite and offsite emergency radiation survey team(s). Field monitoring is performed in accordance with Emergency Plan

Implementing Procedures. Procedures have been prepared which allow personnel to determine release rates from field data and then calculate doses at other locations.

Station survey instruments are able to detect radioiodine concentrations as low as 1.0E-07 uCi/cc provided that noble gases and background radiation (which can adversely affect the Minimum Detectable Activity (MDA) are minimized. In order to achieve this, silver zeolite cartridges, which can be placed in portable field samplers, are used. The silver zeolite cartridges have a better iodine to noble gas adsorption ratio than standard charcoal cartridges. Since high background can also adversely affect readings, survey team personnel are pre-directed to count the cartridges in low background areas.

Emergency Plan Implementing Procedures list equipment required for a field survey team. This equipment provides the means for directly measuring or relating measured field contamination levels to dose rates. The dose rate due to contamination and the plume is obtained directly from the dose rate meter.

8.0 Dose Assessment from Liquid Sample Activity Concentration

Since the Delaware River is not a source of potable water in the vicinity of the Station, the major critical pathways by which a population would receive a radiation exposure from liquid effluent releases are swimming and boating activities.

The radiation dose received by such activities is dependent upon three factors:

a. The isotopic mixture of the release;

b. The concentration of the nuclides at the point of interest;

and

c. The time period of exposure.

All three factors are highly variable, but certain assumptions can be made to calculate a conservative dose conversion factor. The isotopic mixture varies according to the operating history of the plant and on the status of the radwaste system at the time of the incident. The concentration of the nuclides is also dependent upon plant conditions but of equal importance is that this factor varies according to the hydrological mixing and dilution during transport of the liquid release to the site of interest. Based on predicted

surface temperature profile data, a dilution factor of 10 can be assumed for swimming and boating activities near Artificial Island.

In the event of a radioactive release to the Delaware River, water samples will be taken and counted. The total counts per minute determined would then be converted to a gross gamma concentration.

8.1 Water Immersion (Swimming)

The radiation dose from water immersion (swimming) depends upon the concentration of the nuclides present at the location of the immersion and the period of exposure. Dose rate conversion factors have been calculated on the assumption that the swimmer is completely submerged and surrounded on all sides by a large volume of water. This physical arrangement approximates 4 π geometry for gamma radiation and 2 π for beta radiation.

8.2 Normalized Conversion Factors for Water Immersion and Boating.

Based on a typical isotopic mixture, general dose equations can be formulated which incorporate a weighted average dose rate conversion factor, a gross isotopic concentration value, and the time period of exposure.

Based on sample analysis, exposure time, and the normalized conversion factors, dose can be calculated for any swimming or boating activities in the vicinity of Artificial Island. A comparison would then be made of these calculated doses with State Action Levels as indicated in the State Radiological Emergency Response Plan for Nuclear Power Plants.

9.0 Other Onsite Emergency Equipment- Assessment

Onsite instrumentation, which can be used to initiate emergency measures, is described in the implementing procedures of this plan.

9.1 Meteorological Monitoring

A meteorological program in accordance with the recommendation of NRC Regulatory Guide 1.23 "Onsite Meteorological Programs" and Section 2.3.3 of NUREG 75/087 (Rev. 1) has been established.

The primary meteorological monitoring system measures wind speed and direction at three elevations (300 ft., 150 ft., and 33 ft.). Temperature difference is measured between 300 ft.

and 33 ft. and between 150 ft. and 33 ft., in order to provide vertical lapse rates for air stability estimates. Calculated sigma theta values of the wind direction at the three elevations are also provided.

Backup meteorological data is provided by a backup tower located onsite approximately 500 ft. south of the primary meteorological tower. Backup meteorological data is provided through wind speed and wind direction sensors mounted on a ten-meter pole. In addition to the 15-minute averaged wind speed and wind direction, a computed sigma theta value is provided. The primary as well as the backup meteorological information is available in the Control Rooms, Salem and Hope Creek TSC, and the EOF.

The meteorological monitoring system is provided with a dedicated battery backup power supply. The system is calibrated quarterly using equipment traceable to an NBS Standard. The Meteorological Monitoring Program is reviewed annually to ensure that the requirements of 10CFR50.36a(a) (2) and 10CFR50 Appendix E are met. (A detailed description of the onsite meteorological measurements program is provided in Section 2.3.3 of the Hope Creek and Salem UFSARs.)

A system to provide alternate remote interrogation of the meteorological system is available by way of direct telephone dial-up capability.

The Emergency Plan Implementing Procedures provide for meteorological support from the closest NOAA Weather Station (National Weather Service-NWS). Information, including synoptic weather conditions, forecast, regional precipitation and severe weather alerts from this NWS station is available on a 24-hour-per-day basis. Monthly communication checks with this NWS station are made in accordance with Section 15.0 of this Plan. It has been determined that the data from this nearby NOAA weather station is representative of the combination of local and regional meteorology. Backup communication with this weather station uses the Delaware NAWAS.

9.2 Seismic Monitoring

A Control Room alarm is provided in the event of seismic activity associated with the Operation Basis Earthquake (OBE). Seismic monitoring is performed using triaxial accelographs (with a range of +1g and sensitivity of 0.01g) multi-channel recorders and response spectrum analyzers. Time history accelographs are placed in five (5) locations throughout the plant site. (A complete discussion of seismic instrumentation

is provided in Hope Creek UFSAR, Section 3.7.4. and Salem UFSAR, Section 3.7).

9.3 River Level Monitoring

River water levels at each service water pump sump, upstream of the intake structure, are indicated at the Control Room. This system includes two (2) level sensing elements, two (2) transmitting/recording channels, and a signal conditioner.

The geophysical instrumentation monitors the parameters required for evaluating action levels contained in the Event Classification Guide (ECG) and Emergency Plan Implementing Procedures.

9.4 Fire Detection

Both station Fire Protection Systems are designed in general accordance with the National Fire Protection Association's standards. Any fire initiates fire alarms and the protection systems as appropriate. An alarm is initiated by automatic sprinkler actuation, smoke detector actuation, heat sensor actuation or by manual action.

TABLE 10-1
SALEM GENERATING STATION RADIATION MONITORS
UNIT ONE

CHANNEL	DESCRIPTION OF MONITOR
R1A	CONTROL ROOM GENERAL AREA
R1B	CONTROL ROOM INTAKE DUCT
R2	LOW RANGE GENERAL AREA CTMT 130'
R3	CHEMISTRY LAB
R4	CHARGING PUMP GENERAL AREA
R5	SPNT FUEL POOL GEN AREA FUEL HANDING BLDG
R6A	PRIMARY SAMPLE LAB
R7	INCORE SEAL TABLE CTMT 100'
R9	NEW FUEL STORAGE FUEL HANDLING BLDG
R10A	PERSON HATCH GEN AREA CTMT 100'
R10B	PERSON HATCH GEN AREA CTMT 130'
R11A	CONTAINMENT PARTICULATE
R12A	CONTAINMENT NOBLE GAS
R12B	CONTAINMENT IODINE
R13A,B,C,D,&E	FAN COIL COOLING WATER
R13F&G	FAN COIL UNIT BACKGROUND
R15	CONDENSER AIR EJECTOR
R16	PLANT VENT EFFLUENT
R17A	#11 COMPONENT COOLING
R17B	#12 COMPONENT COOLING
R18	LIQUID RAD WASTE
R19A,B,C&D	STEAM GENERATOR BLOWDOWN
R20B	CHEMISTRY COUNT ROOM
R23	P.S. CONTROL POINT
R26	REACTOR COOLANT FILTER
R31A	LETDOWN HX FAILED FUEL (GROSS)
R32A	FUEL HANDLING CRANE
R34A	MECHANICAL PENETRATION GENERAL AREA
R36	EVAP & FDWTER PREHEAT CONDENSATE
R40	CONDENSATE FILTER
R41A	PLANT VENT LOW RANGE NOBLE GAS
R41B	PLANT VENT MID RANGE NOBLE GAS
R41C	PLANT VENT HIGH RANGE NOBLE GAS
R43	U/1 & 2 PLANT VENT GENERAL AREA
R44A	CONTAINMENT GENERAL AREA HIGH RANGE 130'
R44B	CONTAINMENT GENERAL AREA HIGH RANGE 100'
R45A	PLANT VENT NOBLE GAS BKGD SUBTRACT
R45B	PLANT VENT NOBLE GAS MEDIUM RANGE
R45C	PLANT VENT NOBLE GAS HIGH RANGE
R45D	PLANT VENT FILTER MONITOR
R46A,B,C&D	MAIN STEAM LINES
R46E	REDUNDANT FOR R46A,B,C&D
R47	ELECTRICAL PEN. GENERAL AREA HIGH RANGE
R51	TECHNICAL SUPPORT CENTER INDUCT

TABLE 10-1 (cont.)
SALEM GENERATING STATION RADIATION MONITORS
UNIT TWO

CHANNEL	DESCRIPTION OF MONITOR
R1A	CONTROL ROOM GENERAL AREA
R1B	CONTROL ROOM INTAKE DUCT
R2	LOW RANGE GENERAL AREA CTMT 130'
R4	CHARGING PUMP GENERAL AREA
R5	SPENT FUEL POOL GENERAL AREA
R7	INCORE SEAL TABLE CTMT 100'
R9	NEW FUEL STORAGE
R10A	PERSONNEL HATCH GENERAL AREA CTMT 100'
R10B	PERSONNEL HATCH GENERAL AREA CTMT 130'
R11A	CONTAINMENT PARTICULATE
R12A	CONTAINMENT NOBLE GAS
R12B	CONTAINMENT IODINE
R13A,B&C	FAN COIL COOLING WATER
R15	CONDENSER AIR EJECTOR
R16	PLANT VENT EFFLUENT
R17A&B	#21 & 22 COMPONENT COOLING
R18	LIQUID RAD WASTE
R19A,B,C&D	STEAM GENERATOR BLOWDOWN
R26	REACTOR COOLANT FILTER
R31	LETDOWN HX FAILED FUEL
R32A	FUEL HANDLING CRANE
R34	MECHANICAL PENETRATION GENERAL AREA
R36	EVAPORATOR PREHEAT CONDENSATE
R37	NON-RADIOACTIVE LIQUID WASTE BASIN
R40	CONDENSATE FILTER
R41A	PLANT VENT LOW RANGE NOBLE GAS
R41B	PLANT VENT MID RANGE NOBLE GAS
R41C	PLANT VENT HIGH RANGE NOBLE GAS
R44A	CONTAINMENT GENERAL AREA HIGH RANGE 130'
R44B	CONTAINMENT GENERAL AREA HIGH RANGE 100'
R45A	PLANT VENT NOBLE GAS BKGD SUBTRACT
R45B	PLANT VENT NOBLE GAS MEDIUM RANGE
R45C	PLANT VENT NOBLE GAS HIGH RANGE
R45D	PLANT VENT FILTER MONITOR
R46A,B,C&D	MAIN STEAM LINES
R46E	REDUNDANT FOR R46A,B,C&D
R47	ELECTRICAL PEN. GENERAL AREA HIGH RANGE
R52	PASS RM (LOCAL)
R53	N16 MAIN STEAMLINE MONITOR

TABLE 10-2

HOPE CREEK GENERATING STATION RADIATION MONITORS

CHANNEL	DESCRIPTION OF MONITOR
9RX500	RACS
9RX501	SACS A
9RX503	SACS B
9RX505	TBCW
9RX506	CTB MEAS. CONC.
9RX507	DLD RMS
9RX508	LIQ. RADWASTE
9RX509	MSL A
9RX510	MSL B
9RX511	MSL C
9RX512	MSL D
9RX513	HSCD
9RX514	HSCW
9RX516	HTV N/G LOW
9RX517	HTV N/G HIGH
9RX518	HTV EFF
9RX580	SPV EFF
9RX581	SPV N/G HIGH
9RX590	NPV EFF
9RX591	NPV N/G HIGH
9RX596	SPV N/G PIG
9RX597	NPV N/G PIG
9RX598	CTB CALC CONC
9RX599	CTB EFF
9RX600	NPV PART
9RX601	NPV IODINE
9RX602	NPV N/G LOW
9RX603	NPV N/G MID
9RX604	SPV PART
9RX605	SPV IODINE
9RX606	SPV N/G LOW
9RX607	SPV N/G MID
9RX610	FRVS N/G MID
9RX611	FRVS N/G HIGH
9RX612	NFS A
9RX613	NFS B
9RX614	RX. BLDG. VENT. EXH.
9RX615	TB. BLDG. EXH.
9RX616	RADW. EXH. SYS.
9RX617	GAS. RADW. AREA EXH.
9RX618	TB. BLDG. COMP. EXH.
9RX619	RADW. AREA EXH.
9RX620	TECH. SUP. CTR.
9RX621	OFFGAS A
9RX622	OFFGAS B

TABLE 10-2 (cont.)

HOPE CREEK GENERATING STATION RADIATION MONITORS

CHANNEL	DESCRIPTION OF MONITOR
9RX625	OFFGAS TREATED A
9RX626	OFFGAS TREATED B
9RX627	RFE A
9RX628	RFE B
9RX629	RFE C
9RX630	CRV C
9RX631	CRV C1
9RX632	RBE A
9RX633	RBE B
9RX634	RBE C
9RX635	DAPA A
9RX636	DAPA B
9RX637	CRV D
9RX638	CRV D1
9RX640	FRVS N/G LOW
9RX680	FRVS EFF
9RX698	OUTER TIP RM ARM
9RX699	INNER TIP RM ARM
9RX700	PERS. AIRL.
9RX701	MDT. EQPT. HATCH
9RX702	OPEN EQPT. HATCH 145'
9RX703	OPEN EQPT. HATCH 162'
9RX704	SAFEG. INST. RM.
9RX705	EQPT. AIRLOCK
9RX706	RCDSE
9RX707	SPENT FUEL SP
9RX708	RBSS
9RX709	RADW. DRUM SHIP AREA
9RX710	MAIN CR
9RX711	CHEM. LAB. SPL.
9RX712	AUX. HATCHWAY
9RX713	RESTR. MS. 1
9RX714	RESTR. MS. 2
9RX715	TECH. SUP. CTR. INLET.
9RX716	OG VIAL SAMP. STA.
9RX717	RADW SAMP. STA.
9RX720	FRVS LRP
9RX721	FRVS SKID
9RX722	LIQ. RADW. CR
9RX723	ORBSS
9RX724	OFFGAS CR
9RX720	FRVS LRP
9RX721	FRVS SKID
9RX722	LIQ. RADW. CR
9RX723	ORBSS
9RX724	OFFGAS CR

SECTION 10

SIGNATURE PAGE

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1.0 Onsite Protective Response

The onsite protective response consists of warning, notification, assembly, accountability, and protective actions.

1.1 Onsite Warning

The alarm systems and onsite communication system are presented in Section 7.0 of this Plan. These communications and alarm systems are used to notify site personnel of the emergency or, in the case of the alarm systems the specific area to be evacuated or actions to be taken.

1.2 Assembly and Accountability

The sheltering of personnel is performed only for the specific area affected, or as determined necessary by the Emergency Coordinator (EC), for emergencies classified as Unusual Events. However, the EC has the option of initiating accountability if he thinks it is beneficial.

For emergencies classified as an Alert, Site Area Emergency or General Emergency, assembly/evacuation of onsite personnel and personnel accountability (optional at Alert) are performed and the initial personnel accountability is completed thirty minutes after the accountability message has been announced over the station page. Any personnel not accounted for within thirty minutes are paged and then called at home prior to initiating search and rescue. This accountability includes all personnel (site personnel, visitors or contractor personnel) who remain within the Protected Area. Individuals are detained at accountability stations until the Operations Superintendent/Emergency Duty Officer (EDO) is assured that they can be released, sheltered, or evacuated. Evacuation of personnel (site personnel, contractor personnel or the general public) outside the Protected Area, but within the Owner Controlled area, is accomplished through notification by either a site siren system or by the security force.

The accountability system is based in the security computer that maintains normal logs of personnel entering and exiting onsite (the Protected Area) and utilizes the photobadge issued to each person able to access the site. Upon initiation of Assembly, onsite personnel report to their assigned accountability stations. It should be noted that when Assembly is initiated, nonessential station personnel and

contractors exit the Protected Area (conditions permitting) to reduce the number of personnel subject to the accountability process.

After accountability is initiated, personnel will pass their photobadge through dedicated accountability cardreaders installed at the various accountability stations. The security computer then generates a report for the security supervisors that indicated the names of unaccounted-for personnel. The security supervisor will inform the Operations Superintendent (OS)/Emergency Duty Officer (EDO) of the accountability results.

After it is determined which personnel have not been accounted for, actions are taken to locate the missing persons, including the use of search & rescue teams if appropriate.

1.3 Protective Actions

Once personnel accountability has been performed, specific instructions on appropriate protective actions to be taken by station personnel will be issued using a public address system. Warning of the public on public access areas of PSEG property is accomplished through the combined use of the owner controlled area siren system and Security Force Members in vehicles.

The protective action options of sheltering and evacuation are combined with a consideration of the necessity for keeping specific technical or management personnel at the station for implementation of this Plan. The evacuation routes and transportation for nonessential onsite personnel are part of the evacuation study for the entire area around Salem and Hope Creek Generating Stations which is provided as Emergency Plan Attachment 11.

Evacuations are performed utilizing the site evacuation procedures, which provides guidance to the Emergency Coordinator function (Operations Superintendent or Emergency Duty Officer) on actions required for site evacuation and guidance to the security force for their assistance in site evacuations.

A separate site warning system is utilized at Salem and Hope Creek Generating Stations. This system provides siren coverage of the habitable portions of the owner controlled area. A siren signal is provided to Nuclear Business Unit personnel in accordance with security procedures. Signs are in place which inform personnel in the owner controlled area of appropriate actions.

The access road to the station is the only route for evacuating the site. However, appropriate sheltering is available if circumstances preclude evacuation of personnel via the access road.

2.0 Personnel Monitoring and Decontamination

For emergencies classified as an Unusual Event or Alert, monitoring of personnel will be restricted to those who have potentially been exposed to or in contact with radioactive materials. The initial monitoring and decontamination will be performed onsite in the decontamination area at each control point or other suitable location within the controlled access areas of the station. Methods for personnel decontamination (skin) are described in Emergency Plan Implementing Procedures and in Table 12-2. If the skin cannot be decontaminated below the acceptable values, medical support personnel will be consulted in accordance with Section 13 of this plan and applicable Radiation Protection Department instructions.

For emergencies classified as a Site Area Emergency or General Emergency the same general criteria for monitoring and decontamination will be used as for the Unusual Event or Alert. Should an actual release of radioactive material have been made, the source, wind direction, and survey results will be used to determine if general monitoring of station personnel will be required. If general monitoring of personnel is determined to be required, the monitoring and decontamination will be performed in accordance with Emergency Plan Implementing Procedures. Personnel may be evacuated to the EOF, which serves as an offsite assembly area. The EOF has facilities for personnel monitoring and decontamination.

Individual respiratory protection, protective clothing and potassium iodine will be available for onsite emergency response personnel.

3.0 Offsite Protective Response

The States of New Jersey and Delaware are using similar basis for recommending protective actions within the Plume Exposure Pathway. PSEG Nuclear make recommendations to the States in case of a General Emergency. PSEG Nuclear uses basis similar to those established by the States to make recommendations. Recommended action levels consistent with those indicated in both State Plans (and adopted from EPA-400-R-92-001) are being used as a guidance in making a determination as to what protective actions, if any, should be recommended.

For projected TEDE + 4 Day Dose of 1 rem and Thyroid Commitment Dose Equivalent (CDE) of 5 rem (child or adult) the option exists to recommend seeking shelter or initiating evacuation (or a combination of two depending on distance and direction of plume). The decision will be based primarily on a comparison of the projected plume travel time, evacuation time estimates, ambient meteorology, anticipated duration of release, and degree of protection afforded by local residential units. A list of representative shielding factors provided by typical structures against direct exposure to the plume is provided in Table 11-1. If an evacuation can be completed prior to the plume passing over the affected population, then an evacuation recommendation may be made, while considering other environmental factors, in the case of a projected 1 rem TEDE + 4 Day Dose or 5 rem Thyroid CDE. A sheltering recommendation may be made, if a "puff" radiological release occurred and it was not expected that evacuation could be completed within the plume travel time.

3.1 Evacuation Time Estimate

The evacuation time estimate for the Plume Exposure Pathway EPZ is provided as Emergency Plan Attachment 11.

3.2 Population Distribution

The population distribution within ten miles of Salem and Hope Creek Generating Stations is provided in Emergency Preparedness Implementing Procedures.

TABLE 11-1

REPRESENTATIVE SHIELDING FACTORS FROM GAMMA CLOUD SOURCE

Structure Description	Shielding Factor [1]	Representative Range
Outside	1.0	--
Vehicles	1.0	--
Wood-frame house[2] (no basement)	0.9	--
Basement of wood house basement)	0.6	0.1 to 0.7[3]
Masonry House (no basement)	0.6	0.4 to 0.7[3]
Large office or industrial building	0.2	0.1 to 0.3[3,4]

NOTES:

(1) The ratio of the dose received inside the structure to the dose that would be received outside the structure.
(2) A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposed.
(3) This range is mainly due to different wall materials and different geometry.
(4) The shielding factor depends on where the personnel are located within the building (e.g., the basement or an inside room).

Source: SAND 77-1725 (Unlimited Release)

SECTION 11

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SECTION 12

RADIOLOGICAL EXPOSURE CONTROL

1.0 Onsite Exposure Guidelines

Site evacuation criteria, protective action recommendation guidance, emergency worker exposure limits, and decontamination guidance to be used by the emergency coordinator function, Radiation Protection Supervision, and radiation protection personnel during an emergency are provided in emergency plan implementing procedures.

The specific goal within the radiation protection program is the positive control of personnel exposure to radiation and radioactive material.

1.1 Onsite Emergency Radiation Protection Program

The radiation protection program provides the following emergency capabilities:

1) 24 hour-per-day dose determination recording and record retention capability;

2) Contamination control;

3) Onsite and offsite decontamination of site personnel;

4) Respiratory protection; and

5) Life saving dose risk assessment.

24-hour-per-day dose determination capability for doses received by emergency personnel, including the provisions for distribution of dosimeters and the maintenance of dose records will be implemented. If the nature of the incident is such that additional personnel will be arriving onsite, the dosimetry group will prepare additional thermoluminescent dosimeters (TLDs), pocket dosimeters, etc., and ensure the necessary dosimetry is available and ready for use. If it becomes necessary to evacuate during an emergency condition, necessary dosimetry equipment, both internal and external, may be relocated to lower dose rate areas in order to provide the means for exposure evaluation.

1.2 Contamination Control

Decontamination of vehicles is performed in accordance with the Emergency Plan Implementing Procedure for vehicle survey. Decontamination of personnel is performed as outlined in the Emergency Plan Implementing Procedure and/or Station Radiation Protection Procedures. This was developed using Table 12-2 as a guide. The limit of acceptable surface contamination levels (Table 12-1) are used as a guide for the release of equipment. Release of station personnel is performed utilizing normal station operational limits as incorporated into Emergency Plan Implementing Procedures. These values may be increased at the discretion of the Radiation Assessment Coordinator or the Emergency Duty Officer. Bottled drinking water and food supplies are shipped to the site from outside vendors. Onsite drinking facilities having the local ground water as their source would be considered contaminated until sampled. Access control to the controlled areas of the station is maintained. Personnel assigned to this area monitor personnel coming in and out of the controlled access areas.

Criteria for permitting return of areas and items to normal use are established. Restoration levels and personnel exposures do not exceed 10CFR20 limits. Disposal of decontamination waste is in accordance with routine Radiation Protection Procedures.

1.3 Decontamination of Site Personnel

Procedures for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination expected are established. In all cases, first aid efforts take precedence over decontamination efforts unless the contamination itself is life threatening. Relocated onsite personnel can be decontaminated at the control point of either station or at the Emergency Operations Facility. Extra clothing and decontaminants are housed in the main warehouse onsite.

1.4 Internal Exposure Control

The Radiation Protection Department is responsible for ensuring that internal and external radiation exposure at the worksite is kept as low as reasonable achievable (ALARA). Title 10CFR20.1201 sets limits on the sum of internal and external dose, which a nuclear worker may receive. Respiratory protection shall be used in a manner that keeps total dose (the sum of internal and external dose) ALARA.

To limit expected and potential respiratory contamination from radioactive dust, aerosols, or gases, engineering controls such as work procedures, setting local containments (like tents or glove bags), and ventilation or filtration measures may be recommended by the Radiation Protection Department.

In an emergency, there are situations in which prompt actions need to be taken before engineering controls can be set up and before airborne contamination levels can be measured or evaluated. In all of the above cases, personnel are required to wear respiratory protective devices to assure that inhalation of radioactive contaminates is held to a minimum.

1.5 Performance of Life Saving/Corrective Actions and Dose Risk Assessment

Procedures have been established, which address radiological exposure control. Any planned exposure greater than regulatory limits is considered an emergency exposure requiring authorization. Twenty five rem is established as the upper limit for performance of actions to save station equipment required to mitigate the emergency. The upper limit for life saving actions is 75 rem.

Life saving activities applies to the following:

1) Removal of injured persons;

2) Undertaking corrective actions;

3) Performing assessment actions;

4) Providing first aid;

5) Performing personnel decontamination;

6) Providing ambulance service; and

7) Providing medical treatment services.

Emergency exposure requires the approval of the Emergency Duty Officer (EDO). If the EDO is not available, the Operations Superintendent with the advice of the Shift Radiation Protection Technician makes the authorization decision. The Emergency Plan Implementing Procedure on emergency exposure authorization is used. It describes both oral and written exposure authorization methods to ensure timely reentry as required for emergency actions.

The following guidance for life saving and emergency mitigating actions is used.

1) Life Saving Actions

   a. Rescue personnel should be volunteers or professional rescue personnel (e.g., firemen who volunteer by choice of employment).

   b. Rescue personnel should be broadly familiar with the consequences of exposure.

   c. Declared pregnant women shall not take part in these actions.

   d. Other things being equal, volunteers above the age of 45 should be selected.

   e. Planned External Dose Equivalent (EDE) shall not exceed 75 rem.

   f. Hands and forearms may receive additional doses of up to 200 rem.

   g. Internal exposure shall be minimized by the use of the best available respiratory protection, and contamination controlled by the use of available protective clothing.

   h. Exposure under these conditions shall be limited to once in a lifetime.

   i. Persons receiving exposures, as indicated above, should avoid procreation for a few months.

2) Emergency Mitigating Actions

a. Persons performing the planned actions should be volunteers broadly familiar with exposure consequences.

b. Declared pregnant women shall not take part in these actions.

c. Planned EDE dose shall not exceed 25 rem.

TABLE 12-1

ACCEPTABLE SURFACE CONTAMINATION LEVELS [1]

LOOSE CONTAMINATION

$\leq$ 1000 dpm/100cm^2 Gross Beta/Gamma	$\leq$ 20 dpm/100cm^2 Gross Alpha

COMBINED (LOOSE AND FIXED) CONTAMINATION

$\leq$ 5000 dpm/100cm^2 Gross Beta/Gamma	$\leq$ 100 dpm/100cm^2 Gross Alpha

NOTES:

1. Reference - INPO 85-0047, Guidelines for Radiation Protection at Nuclear Power Stations.
2. Reference - NC.NA-AP.ZZ-0024(Q), Radiation Protection Program.

TABLE 12-2

PERSONNEL DECONTAMINATION METHODS

NOTE

This table is adapted from U.S. HEW, "Radiological Health Handbook", Washington, D.C., 1970.

*Begin with the first listed method and then proceed, step-by-step, to the more severe method as necessary.

Method	Surface	Technique
Mild soap & water	Skin & hair	Wash 2-3 min. Do not scrub with a brush.
Lava, soap, soft brush & water	Skin	Use light pressure with heavy lather. Use care not to scratch or erode the skin.
Tide or other detergent	Hair	Wash hair. Rinse thoroughly. Repeat.
Flushing	Eyes, ears, nose, & mouth	Roll back the eyelid flush with large amounts of water. Use Isotonic irrigants if available.
Flushing	Wounds	Wash wound with large amounts of water & spread edges to stimulate bleeding, if not profuse. If profuse, stop bleeding first, clean edges of wound, bandage, and if any contamination remains, it may be removed by normal cleaning methods as above.

SECTION 12

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1.0 Termination or De-escalation of an Emergency

Termination of an emergency classification is an available option and is based on no emergency actions levels in the ECG being applicable. Termination of the emergency with recovery is another options discussed in part 2.0 below.

De-escalation, (reduction of a classification level) is an available option and is based upon Emergency Action Levels in the Event Classification Guide. Upon deescalation from an emergency classification the Emergency Coordinator (EC) may modify the emergency response organization.

2.0 Initiation of Recovery Operations

The Emergency Coordinator (EC) determines if the emergency is under control prior to securing the emergency response and entering into recovery operations. Termination of the emergency and entry into recovery may be considered when the following guidelines are met.

1. Full time operations of Emergency Response Facilities may be curtailed.

2. Radiation levels in all areas are either stable or decreasing with time.

3. Releases of radioactive materials to the environment from the plant are within allowable federal limits.

4. Fire, flooding, or similar emergencies no longer present an emergency situation to plant operation.

5. The plant is in a safe status and further degradation of a safety system is not expected.

3.0 Recovery Operations

Notification is made to offsite agencies when it has been determined that an emergency has been terminated and recovery entered as defined above and in accordance with implementing procedures. Recovery Operations will be under the direction of a qualified Emergency Coordinator. Termination and entry into recovery operations of an alert or higher classification requires the concurrence of the VP - Operations, or in his

absence the President & Chief Nuclear Officer - PSEG Nuclear or designee. Recovery Operations consist of the following efforts:

1. An orderly evaluation of the causes and effects of the emergency.

2. Measures necessary to place the plant back into operation.

3. An analysis of exposure records maintained by onsite emergency workers during the emergency response.

4. The assembling of an appropriate Recovery Management Organization to implement Recovery Operations. This organization will be determined by the Emergency Coordinator and the Recovery Manager based on the cause and extent of the emergency.

5. Coordination of additional assistance to offsite organizations.

6. Reentry (defined in part 4 below)

The extent of these efforts will depend upon the nature of the incident and its effect upon plant systems.

The EC will notify all key emergency response managers/ supervisors and offsite state and local support agencies of the initiation of recovery actions through established communications methods. This will be performed in accordance with Emergency Plan Implementing Procedure on Recovery Operations.

All recovery operations that may have offsite consequences, i.e., controlled release of radioactive material or transport of significant amounts of radioactive wastes, will be coordinated with appropriate offsite agencies.

4.0 Reentry

Reentry (onsite) consist of planned and deliberate access to areas of the plant that were evacuated or controlled as limited access areas as the result of an emergency. The Radiological Assessment Coordinator (RAC) or Radiological Support Manager (RSM) determines what is needed to reenter affected areas. Reentry activities may occur prior to termination of the emergency, or they may be conducted as a part of recovery operations. Reentry does not include the initial corrective or protective actions taken to establish effective control of the emergency situation. The primary function of reentry is to perform comprehensive radiological surveys of the plant or to perform assessments of damaged plant equipment so that detailed recovery plans can be

established. The following areas are considered when planning reentry:

- Contamination and ALARA controls
- Dose Limits
- Back out Dose Limits and Rates
- Decontamination requirements
- Posting of radiological areas
- Site access

Offsite reentry is the responsibility of state and local authorities in accordance with their plans and procedures.

SECTION 14

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1.0 Exercises

An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency plans of the principal response organizations.

1.1 Exercise Schedule

Exercises required by NUREG-0654 are shown in Table 15-1.

The scenario is varied from year to year such that all major elements of the plans and preparedness organizations are tested within a six-year period. An exercise should start between 6:00 p.m. and 4:00 a.m., once every six years. Exercises are conducted under various weather conditions.

1.2 Exercise Scenario

Exercises are conducted in accordance with an exercise manual approved by the Manager - EP & IT, or designee, that includes, at a minimum, the following elements:

1) Exercise objectives
2) Date(s), time period, and place(s) for exercise and drill events and the briefings and critiques.
3) Participating agencies and locations
4) Guidelines for the conduct of the exercise
5) Assignments for Referees/Observers and arrangement for official observers for the federally observed biennial exercise.
6) Evaluation criteria
7) Narrative scenario summary and timeline
8) Initiating events
9) Test messages
10) Operational and radiological data
11) Field radiation monitoring data
12) Simulated events/actions

Official referees/observers are issued controlled copies of appropriate portions of an exercise manual in advance of an exercise. PSEG limits the scope and timing of this distribution to protect the confidentiality of the exercise scenario.

1.3 Exercise Evaluation

Exercise evaluation by federal observers/evaluators or drill referees/observers is based on the adequacy of the emergency response demonstrated for the exercise objectives. Following an exercise, a critique is scheduled to evaluate the ability of the participants to respond to an emergency in accordance with the plan and procedures and to identify any deficiencies in training, facilities, equipment, or procedures.

The biennial exercise critique consists of a review and analysis of comments from observers and participants with federal observers in attendance, to evaluate the performance and identify areas needing improvement.

The Manager - EP & IT reviews all deficiencies identified and assigns corrective actions. Exercise critiques are presented to the appropriate Station Operating Review Committee (SORC), which reviews identified deficiencies for safety significance. Corrective actions are tracked for timely resolution or escalated to higher levels of management for action.

An exercise shall test, as a minimum, the following response capabilities:

1) Ability of personnel to assess simulated plant conditions and take the appropriate actions.
2) Notification, communication, and coordination with the response organizations of the States of New Jersey and Delaware.
3) Transfer of emergency coordinator authority and responsibility.
4) Staffing of emergency facilities.
5) Ability to provide radiological assessment.
6) Ability to provide technical evaluation of plant conditions.
7) Ability to conduct and coordinate radiological surveys.
8) Ability to provide appropriate protective action recommendations.
9) Ability to provide appropriate emergency response and initiate recovery management (if scenario allows) from the Emergency Operations Facility (EOF).

2.0 Drills

A drill is a supervised instruction period aimed at developing and maintaining skills in a particular operation. Drills are a training tool to develop and maintain the emergency response organization.

2.1 Drill Schedule

Drills required by NUREG-0654 are shown in Table 15-1 and training may be conducted as a component of an exercise or an evaluation drill in the Emergency Preparedness Training Program shown in Table 16-2.

2.2 Communications Drills

2.2.1 Monthly Communications Drill:

The monthly communications drill consists of a test of the primary and/or secondary communications links between the Control Rooms, TSCs and EOF and the appropriate initial state and local government contact points and a callback verification check.

A communications drill to NRC Headquarters and the NRC Regional Office Operations Center from the Control Rooms, TSCs and EOF is completed monthly.

2.2.2 Quarterly Communications Drill:

The quarterly communications drill consists of a test of the primary and/or secondary communications links between the Control Rooms, TSCs, and EOF and the appropriate federal emergency response organizations and states within the ingestion pathway contact points and, where appropriate, a callback verification check.

2.2.3 Annual Communications Drill:

The annual communications drill (full fan-out check with New Jersey and Delaware) consists of a test of the communications equipment used for notifications shown in Figures 6-1, 6-2, and 6-3.

2.2.4 Annual Field Assessment Drill:

The annual field assessment team communications drill consists of a test of the primary and secondary communications equipment used for communication among the nuclear facility, the state and local emergency operation centers, and the field assessment teams.

3.0 Fire Drills

3.1 Fire Drill:

Fire drills are performed at predetermined intervals, not to exceed three months, in accordance with the Fire Protection Plan.

4.0 Medical Emergency Drills

4.1 Annual Medical Emergency Drill:

The annual medical emergency drill consists of appropriate treatment of the simulated contaminated person(s), use of appropriate contamination control measures, and the transportation to the local medical facility by the station ambulance. (The offsite portions of the medical drill may be performed as part of the required annual exercise.)

5.0 Radiological Monitoring Drills

5.1 Annual Radiological Monitoring Drill:

The annual radiological monitoring drill consists of onsite and offsite surveys (to include environmental samples) and assessment of simulated survey results by the appropriate members of the utility emergency response organization.

6.0 Radiation Protection Drills[1]

6.1 Annual Post-Accident Sampling System Drill:

The annual post-accident sampling system in-plant drill consists of obtaining containment atmosphere or reactor coolant samples with the PASS systems and performing appropriate analysis.

6.2 Semi-Annual Radiation Drill:

The semi-annual radiation drill demonstrates Radiation Protection personnel response to simulated elevated radiation levels in airborne and liquid samples and simulates direct reading of radiation measurements in the environment.

7.0 Other Drills

7.1 Accountability Drill:

The annual accountability drill demonstrates the ability of personnel to report to their accountability stations and the accounting of protected area personnel during a simulated emergency. Additionally, security force personnel ensure that the accessible areas of the exclusion zone are simulated to be cleared of contractor personnel, and/or members of the general public.

There are two (2) types of accountability drills that may be performed; full accountability drills or limited accountability drills. A full accountability drill involves participation of all protected area personnel and shall be conducted at least once every six (6) years. The decision to use a full accountability or a limited accountability drill in any given year will depend on station conditions. During the years that a limited accountability drill is conducted (in lieu of a full accountability drill), station personnel will be provided information that describes the actions required during assembly/accountability. A limited accountability drill involves pre-designated drill participants.

7.2 Drill Descriptions

The following training drills are conducted:

7.3 Team-training Drill

Supervised instruction in which personnel in various emergency response positions work together to accomplish a similar task and demonstrate the ability to perform their assigned functions as a unit.

7.4 Facility Drill

Supervised instruction in which all personnel who are required to perform their emergency response tasks at a facility (e.g., Operations Support Center, Technical Support Center, Emergency Operations Facility, Emergency News Center) demonstrate the ability to perform and integrate their assigned functions within the facility.

7.5 Site Drill

Supervised instruction in which the emergency response organization and emergency facilities are activated to demonstrate the ability to integrate the emergency response for the common goal of protecting the health and safety of the public in the event of an emergency at Salem or Hope Creek Generating Station.

7.6 Drill Scenario

Drills are performed in accordance with a drill manual which includes the basic elements required for the type of drill conducted.

7.7 Drill Evaluation

Drills are evaluated to determine the adequacy of the emergency response demonstrated to meet drill objectives and to identify areas needing improvement. The evaluation consists of a critique of the major elements of the drill by drill coaches and the participants.

Drills are considered part of emergency response training. Corrective actions for deficiencies identified during drills or exercises are taken in accordance with the NBU's Corrective Action Program or as defined in Section 16 of the Emergency Plan.

TABLE 15-1

SCHEDULE OF EXERCISES AND DRILLS

Exercise	Frequency
State of New Jersey/PSEG	Biennially [1, 2]
State of Delaware/PSEG	Biennially [1, 2]

[1] May be conducted as separate or coordinated exercise.
[2] Will consist of events classified as General Emergency.

Drill	Frequency
Communication - State of New Jersey	Monthly
Communication - Salem and Cumberland Counties, New Jersey	Monthly
Communication - State of Delaware (Including NOAA Weather at Wilmington Airport)	Monthly
Communication - New Castle and Kent Counties, Delaware	Monthly
Communication - Federal (NRC)	Monthly
Communication - Federal (DOE & USCG)	Quarterly
Communication - Ingestion Pathway States (Pennsylvania, Maryland)	Quarterly
Communication - Full fan-out check with New Jersey and Delaware	Annually
Communication - PSEG facilities and field assessment teams	Annually
Notification - Quarterly callout drill	Quarterly
Fire Drill	Not to exceed three months
Medical Emergency (Simulated Contaminated Personnel)	Annually
Radiological Monitoring	Annually

TABLE 15-1 (cont)

SCHEDULE OF EXERCISES AND DRILLS

Drill	Frequency
Radiation Protection (Health Physics Drill)	Semi-Annually
Post-Accident Sampling	Annually
Accountability (Full and/or Limited)	Annually

(A full accountability drill shall be conducted at least once every six (6) years)

SECTION 15

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