EMERGENCY PLAN

ENTERGY VERMONT YANKEE

VERNON, VERMONT

REVISION 54

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Effective Date 12/19/13

REVISION SUMMARY

DATE	REVISION	DESCRIPTION
04/28/04	39	Replaced Framatome ANS services and the DE&S Mutual Assistance Agreement with the Corporate Service Center from White Plains. Updated information about the NAS to the new NAS system that was installed. Added Mechanical Maintenance to the Repair & Corrective Actions section for the 60 min. response in Table 8-4. Removed the EOFC Asst. and Communications positions. Removed requirement for drills to include a PASS sample.
03/15/05	40	Removed references to satellite phones. Revised Figures 7.1 and 7.2. Updated Evacuation Time Estimate (Appendix F) based on study conducted in 2004. Updated Table 4.2 and Figures 4.3, 4.4 and 4.5 based on 2000 census data per UFSAR Rev. 19. Updated Section 4.2 for latest population figures per UFSAR Rev. 19. Joint News Center activation changed from SAE to Alert. Removed references to "typically filled by" titles and "designated alternates" due to change to four teams. Deleted Table 8.1. Changed alternate Joint News Center location from Marlborough, MA to Landmark College. Revised Figure 6.3 for new OSC Communication Center location. Revised Figure 6.4 for new EOF/RC Center Layout. Section 8.2.1 SRM responsibilities revised. Section 8.2.2 TSC Coordinator responsibilities revised. Security Coordinator position reports to off site command center instead of the TSC. Revised Figure 8.3. Removed requirement for TS Coordinator to appoint an OSC Coordinator due to four team assignments. Revised Section 9.0 to require activation of the Joint News Center at the Alert. Revised Table 9.1. Updated Appendix E with recent letters of agreement from DOE/REAC and INPO. Deleted letters of agreement with Duke Engineering & Services for old alternate joint news center and Yankee Rowe for lab sample analysis and decontamination services. Updated Appendix G with new procedures AP 3549 and OP 3550. Removed reference to JNC Guidelines which were replaced by OP 3550. Changed OP 3505 to AP 3505 and OP 3712 to AP 3712. Deleted Section 8.2.7 Radiological Coordinator. Section 8.2.6 revised Rad Assistant responsibilities. Revised Table 8.4 to remove reference to Radiological Coordinator. Revised Figure 8.2 to delete Radiological Coordinator. Revised Figure 8.5 to delete Radiological Coordinator and communicators. Replaced with Radio Operator and RP staff. Revised Figure 8.7 to reflect changes due to four team rotation.

DATE	REVISION	DESCRIPTION
01/18/06	41	Incorporated changes per NRC Bulletin 2005-02 (ECL definition changes, Security drills, Hostile Action definitions). Changed "Unusual Event" to "Notification of Unusual Event" to conform to industry standards. Changed title – Director of Public Affairs to Manager of Communications. Changed reference from Plant Operations Review Committee to On-Site Safety Review Committee. Letters of agreement reviewed annually in conjunction with annual review of the E-Plan. Updated respiratory protection locations per RP changes. Updated letters of agreement for States, DOE-REAC/TS and Vernon Fire Department. Added letters of agreement for States regarding Alert & Notification System (ANS). Added OP 3548 and OP 3551 to list of Implementing Procedures in Appendix G. Updated Appendix H for the implementation of the new siren system.
06/22/06	42	Corrected Hostile Force definition – "overtly" had been omitted from the last revision (WT-VTY-2006-00000 CA#00463). Revised thermal rated power per License Amendment #229, issued March 2, 2006 (CR-VTYLO-2006-0004 CA#23). Removed reference to gross electrical output. Per Regulatory Information Summary 2003-18, Supplement 2, issued December 12, 2005, removed the requirement for states to concur with changes to the Emergency Action Levels. Changed TLD (thermoluminescent device) references to DLR (dosimeter of legal record) per Radiation Protection change. Replaced the annual INPO letter of agreement with the latest version. Updated the general letters of agreement with Vermont and New Hampshire. Added memorandum of understanding for Alert & Notification System with Vermont and New Hampshire. Added new procedure, OP 3552, Activation and Operation of the Alternate Joint News Center.

DATE	REVISION	DESCRIPTION
10/10/07	43	Changed TLD (thermoluminescent device) references to DLR (dosimeter of legal record) per Radiation Protection change. Replaced the annual INPO letter with the latest version. Updated the general letters of agreement with Franklin Medical Center, Brattleboro Memorial Hospital, Rescue, Inc. Ambulance Service, Vernon Fire Department, Brattleboro Fire Department, Vermont Yankee Nuclear Power Corporation. Appendix G – added new procedures, AP 3553, Administration and Maintenance of the Alert and Notification System, and AP 3554, Emergency Plan Teams; deleted references to procedures OP 3524, OP 3525 and OP 3531 which were incorporated into other procedures; added EN-EP-605, Corporate Incident Response Team. Changed Joint News Center to Joint Information Center throughout. Changed Figure 6.1 to reflect new location of Massachusetts Region III EOC. Revised Figure 6.3 to remove reference to the medical office and update Control Point personnel contamination monitor label. Changed reference from Vermont Operational Quality Assurance Manual to Entergy Quality Assurance Manual. Removed references to the Duty On Call Officer. Removed requirement for Plant Certification for the TSC Coordinator. Changed references to "corporate—level" to reflect Entergy organization. Revised EOF Coordinator and Radiological Assistant responsibilities to reflect organizational changes. Changed "onsite assistance teams" to "repair and corrective action teams." Revised Figure 8.5 to indicate that the EOF Coordinator is not needed for activation of the EOF. Removed references that required the TSC Coordinator to respond at the Notification of Unusual Event level and revised the responsibility to direct and coordinate all emergency response efforts. Revised Table 9.1 to reflect changes in the emergency response organization structure. Removed respiratory protection from the equipment inventory for the EOF. Revised "Emergency Broadcast Stations" to "Emergency Alert System stations." Removed reference to the Engineering Support Group as a separate entity. The Engineering Support Group is part of the TSC. Fire Brigade Leader changed from Shift Technical Advisor to Field Support Supervisor on Table 8.4. Removed specific number of federal agencies available. Revised the reference to the TSC capacity. Revised the OSC Coordinator location to direct the OSC. Removed "designee" to the SRM responsibility to approve press releases. Removed switchboard from the EOF. Removed NID Assistant from the JIC. Revised Table 9.1 to reflect ERO structure. Added the use of State Reception Center for decontamination efforts.

DATE	REVISION	DESCRIPTION
02/06/08	44	Implementation of the Independent Spent Fuel Storage Installation (ISFSI). Include ISFSI Emergency Action Level (EAL) for Notification of Unusual Event. Include definitions for ISFSI and Confinement Boundary. Update sections, tables and figures for title changes due to fleet alignment. Facility activation procedures incorporated into facility operation procedures.
08/21/08	45	Implementation of the fleet standard Emergency Response Organization (ERO). Joint Information Center relocation.
03/12/09	46	Reference to Federal Radiological Emergency Response Plan (FRERP) changed to National Response Framework (NRF). Editorial changes. Rearrange OSC and EOF layouts. Annual Update of Letters of Agreement – no content change. Additional sirens added to Appendix H. Add FVY reference numbers to letters cited in Table 8.4 Note 1.
12/15/09	47	Revised Section 5.0 to indicate that the revised Emergency Action Levels are based on NUMARC/NESP-007 (NEI 99-01), "Methodology for Development of Emergency Action Levels", Rev. 5, dated February 2008. Revised 6.2.3, Meteorological Capability, to reflect the as-built elevations for the temperature instruments. Deleted reference to the UHF radio antennas being mounted on the primary meteorological tower in Section 7.3. Changed "Federal Radiological Emergency Response Plan" to "National Response Framework" on Figure 9.1. Revised paragraph 5 of Section 12.1.2, Communications Tests, to indicate the monthly NRC communications test is with the Headquarters Operations Officer rather than the NRC Region I Office. Replaced the AP 3125 EAL Chart with the revised EAL charts in Appendix A. Replaced AP 3505, Emergency Preparedness Exercises and Drills, with fleet procedures EN-EP-306, Drills and Exercises, and EN-EP-307, Threat Based Drills, in Appendix G. Corrected siren numbers on the Siren List in Appendix H. Added the siren drawing for the Bernardston sirens in Appendix H.
03/30/10	48	Revised Figure 4.1 to add the Vernon Substation.
10/21/10	49	Revised Table 8.4: Added STA (1) to Plant Operations & Assessment of Operational Aspects functional area section. This change is being instituted to clarify specific coverage detail. Deleted the verbiage that specifies who the fire brigade consists of (FSS, 3 AO, and 1 Security) from the Fire Fighting functional area section. Added an (*) with comment that "Position staffed in accordance with Technical Requirements Manual and administrative procedures". The change is being instituted to be consistent with the TRM and to simplify upkeep of the Emergency Plan document.

DATE	REVISION	DESCRIPTION
04/28/11	50	Updated figure 6.4 to reflect changes in the EOF facility arrangement. Updated section 6.2.6, 10.1.3, 10.3, Appendix B and Appendix D to reflect current capabilities for outside analytical assistance and laboratory facilities support. Updated letters of agreement for: State of Massachusetts, State of New Hampshire, State of Vermont, Vernon Fire Department, Brattleboro Fire Department, and Institute of Nuclear Power Operations. Updated memorandum of understanding for State of Massachusetts Alert & Notification System, State of New Hampshire Alert & Notification System, and State of Vermont Alert & Notification System.

5/24/12	51	**Section 3.2: Actions in an Emergency, Step 7** Step 7 was revised from "Use the plant pager system to notify appropriate personnel…" to "use the emergency notification system to notify appropriate personnel…"

Section 6.1.3: Emergency Operations Facility/Recovery Center
Added a statement to address ERO Augmentation at Alternate Facilities

Section 8.4.1, Local Service
An editorial change was made to this section to add Baystate to the name of Franklin Medical Center

Table 8.4, Minimum Staffing Requirements for the ENVY ERO
Table 8.4 has been updated to replace Security with the Fire Brigade for the functional area of "Rescue Operations & First Aid", Changed Rad Waste Operator from ACRO to CRO

Section 9.1 Emergency Condition Recognition and Classification
Added a statement to address Emergency Declaration Timeliness

Section 9.2.4 General Emergency Response, Step 1
This section was updated to refer to the Corporate Emergency Center located in Jackson MS for the EOF Manager to contact in a General Emergency for fleet support.

Figure 9.1, Notification Plan
Figure 9.1 notification plan has been updated to align with the implementation of Everbridge and OP 3540, (Control Room Actions During an Emergency) and show operations as the initiator of the notifications

Section 10.4.4, Use of Onsite Protective Equipment and Supplies
Editorial change to correct Iodine to Iodide.

Section 10.6, Protective Actions for Onsite Personnel
Added a statement for Protective Actions for Onsite Personnel

Section 12.1.2, Communication Tests
Section 12.1.2 has been updated to align with the Everbridge implementation at Vermont Yankee and revise the wording for the weekly communication test.

Appendix E – Letters of Agreement
Updated the following letters (18 is newly added)

- Letter 4, Baystate Franklin Medical Center
- Letter 5, National Weather Service (NOAA)
- Letter 6, Brattleboro Memorial Hospital
- Letter 7, Rescue Inc Ambulance Service
- Letter 10, Institute of Nuclear Power Operations
- Letter 11, Town of Vernon
- Letter 12, DOE
- Letter 13, DOE-REAC/TS
- Letter 14, Vermont Yankee Nuclear Power Corporation
- Letter 18, Landmark College

Appendix G – Index of Emergency Plan Implementing Procedures and Support Plans

- Emergency Plan Implementing Procedures
- Support Plans
- Corporate Support Procedures

12/20/12	52	Section 7.9 “Emergency Response Data System” Removed wording regarding activation within one hour of an alert and replaced it with a statement for maintaining a continuous connection Section 8.1 “Normal Plant Organization” Updated the on shift staffing to include one (1) FSS, five (5) AOs, and one (1) Utility employee per the Vermont Yankee Nuclear Power Station On-Shift Staffing Analysis Section 8.2.3 “Shift Manager” Updated the last sentence of the paragraph to state “The immediate responsibilities of the Shift Manager include performing or delegating performance of the following.” Table 8.4 “Minimum Staffing Requirements for the ENVY ERO” • Replaced SCRO with CRS in the Table and on note 4. Title change only. • Updated AOs from 3 to 5 • Added 1 FSS • Added FSS to offsite dose assessment • Note 1: Added a reference to the Vermont Yankee Nuclear Power Station On-Shift Staffing Analysis for composition of the 5 person fire brigade • Note 4: Added FSS for performing initial dose assessment Appendix A “Emergency Classification System and Emergency Action Levels” – Added a cross reference to AP 3125, “Emergency Plan Classification and Action Level Scheme” for EAL Charts and removed the image of the EAL Chart Appendix G “Index of Emergency Plan Implementing Procedures and Support Plans” • II. Support Plans – Added Vermont Yankee Nuclear Power Station On-Shift Staffing Analysis • Corporate Support Plans: Added procedure EN-EP-302 “Severe Weather Response” effective 11/5/12

9/17/13	53	Section 8.1, Normal Plant Organization • Updated AOs from 5 to 6 • Deleted Utility person Table 8.4, Minimum Staffing Requirements for the ENVY ERO • Plant Operations & Assessment of Operational Aspects – Updated AOs from 5 to 6 • Fire Fighting – Added the total number (5); Added ** to reference the note “May be provided by shift personnel assigned other functions” and added reference to note 1 regarding the Fire Brigade being staffed IAW TRM, Staffing Analysis and AP 0894. Figure 8.1 – Corrected the number on on shift AOs and added the Field Support Supervisor (FSS) Appendix E, Letters of Agreement • Updated INPO letter for 2012 • DOE – REAC/TS – Updated letter dated June 6, 2013. The letter content remains unchanged. • Deleted letter 14 “Vermont Yankee Nuclear Power Corporation” no longer valid as of 12/31/12 Appendix G, Index of Emergency Plan Implementing Procedures and Support Plans • Added Fleet Administrative Procedure references • Updated procedure references in accordance with the procedure upgrade project numbering scheme

12/19/13	54	Index • Added 7.1 InForm Notification System 3.2, Actions in an Emergency • Changed Nuclear Alert System to Emergency Notification System in step 5 for notifying the three states 6.2.6, Facilities and Equipment for Offsite Monitoring • Removed the reference to the James A. Fitzpatrick environmental laboratory 7.1, InForm Notification System • Added a description for the InForm Notification System 7.2, Nuclear Alert System • Changed the words “Is used” to “can be” used to describe the Nuclear Alert System Figure 7.1, Plant to State Notification Channels • Added a line for Inform Figure 7.2, Coordination Channels with States • Added a line for Inform Section 8.1, Normal Plant Organization • Removed the Field Support Supervisor from the Normal Plant Organization Table 8.4, Minimum Staffing Requirements for the ENVY ERO • Notification/Communication: changed Chem Tech to AO • Radiological Accident Assessment – Deleted Field Support Supervisor (FSS) and added Chem Tech. • Note 4 – Deleted FSS and added Chem Tech Figure 8.1, Normal On-Shift Emergency Organization • Revised to match shift staffing in section 8.1 and remove the Field Support Supervisor (FSS) Figure 9.1, Notification Plan • Changed NAS to Inform/NAS Appendix E, Letters of Agreement • Letters of Agreement have been removed from this document and will be maintained in the Emergency Plan Department files. A summary of the agreements has also been added. Appendix F, Evacuation Time Estimates • An evacuation time estimate summary has been removed from this document and the entire document is maintained separately and referenced in this appendix. Appendix G, Index of Emergency Plan Implementing Procedures and Support Plans • Updated procedure numbers to match the procedure upgrade project numbering • Added the Evacuation Time Estimate to Support Plans

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1.0 INTRODUCTION

In the event of an emergency at the Vermont Yankee Nuclear Power Station, officials from Vermont Yankee, local towns, the states of Vermont, New Hampshire and Massachusetts, as well as federal assistance resources, are mobilized to assess conditions and protect the health and safety of the public. This document outlines the emergency response actions that are taken by Vermont Yankee and the manner in which this response interfaces with offsite response actions.

This Emergency Plan is only a part of the overall response to an emergency at Vermont Yankee. Each community within about a 10-mile radius of the plant and the states (Massachusetts, New Hampshire, and Vermont) have developed emergency response plans to be implemented if the need arises. In addition, federal agencies have specified their nuclear power plant emergency response roles and capabilities in the National Response Framework (January 2008).

The objective of this document is to outline the overall response of the Company to an emergency at the site. If an abnormal situation develops, automatic initiation of plant safety systems takes place and plant operators take corrective action according to specific emergency operating procedures. The purpose of these emergency operating procedures is to describe corrective actions necessary to restore normal plant safety margins. The emergency operating procedures also lead to the activation of the Emergency Plan in accordance with a prescribed set of emergency implementing procedures. The Emergency Plan summarizes Vermont Yankee's emergency implementing procedures and thereby the overall response to an emergency at the site.

2.0 DEFINITIONS

Alert – Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

Assessment Actions – Those actions which are take to effectively define the emergency situation necessary for decisions on specific emergency measures.

Code Red – A Security related contingency requiring the activation of the Security Response Team. This contingency shall, as a minimum cause a Notification of Unusual Event to be announced.

Committed Dose Equivalent (CDE) – The dose equivalent to organs or tissues of reference (e.g., thyroid) that will be received from an intake of radioactive material by an individual during the 50 year period following the intake.

Confinement Boundary – The barrier(s) between areas containing radioactive substances and the environment.

Corrective Actions – Those emergency measures taken to ameliorate or terminate an emergency situation.

Emergency Action Levels – Specific instrument readings, system or event observation and/or radiological levels which initiate event classification, notification procedures, protective actions, and/or mobilization of the emergency response organization. These are specific threshold readings or observations indicating system failures or abnormalities.

Emergency Assistance Personnel – Vermont Yankee personnel who are assigned a role in the Emergency Response Organization.

Emergency Classification – Emergencies are classified into four categories, NOTIFICATION OF UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY and GENERAL EMERGENCY.

Emergency Implementing Procedure – Specific action taken by the plant staff to activate and implement this Emergency Plan.

Emergency Operations Centers – Areas designated by the state/local representatives as Emergency Plan assembly areas for their respective staffs.

Emergency Operating Procedures – The outline of specific corrective actions to be taken by plant operators in response to abnormal operating conditions.

Emergency Operations Facility – A center established to coordinate the deployment of emergency response personnel, to evaluate offsite accident conditions and to maintain communications with offsite authorities.

Emergency Planning Zone – The areas for which planning is recommended to assure that prompt and effective actions can be taken to protect the public in the event of an accident. The two zones are the 10-mile radius plume exposure pathway zone and the 50-mile radius ingestion pathway zone.

Emergency Response Organization – Organization comprised of Emergency Assistance Personnel who would respond and assist in a classified emergency situation.

Engineering Support Group – An engineering group established to provide emergency support for plant assessment and recovery operations.

Gai-Tronics – An intra-site station operation and public address system which consists of speakers and microphones located in areas vital to the operation of the station. The system has four channels which provide separate and independent page and intercommunication capabilities.

General Emergency – Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

Hostile Action – An act toward an NPP or its personnel that includes the use of violent force to destroy equipment, takes hostages, and/or intimidates the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities, (e.g., violent acts between individuals in the owner controlled area).

Hostile Force – One or more individuals who are engaged in a determined assault overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

Independent Spent Fuel Storage Installation (ISFSI) – A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

Ingestion Exposure Pathway – The pathway in which individuals receive a radiation dose due to internal deposition of radioactive materials from ingestion of contaminated water, foods, or milk.

Joint Information Center – A center dedicated to the news media for the purpose of disseminating and coordinating information concerning accident conditions. Activities conducted within this center will be the responsibility of the Company Spokesperson.

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

Operations Support Center – An emergency center established for available skilled emergency personnel (i.e., additional operations and support personnel). The Operations Support Center Manager directs activities within this center.

Plume Exposure Pathway – The pathway in which individuals receive a radiation dose due to: a) whole body external exposure due to gamma radiation from the plume and from deposited material; and b) inhalation exposure from the passing radioactive plume.

Projected Dose – This is the amount of radiation dose estimated at the onset of any accidental radiological release. It includes all the radiation dose the individual would receive for the duration of the release assuming that no protective measures were undertaken.

Protective Action – Those emergency measures taken to effectively mitigate the consequences of an accident by minimizing the radiological exposure that would likely occur if such actions were not undertaken.

Protective Action Guides – Projected radiological dose values to the public which warrant protective actions following an uncontrolled release of radioactive materials. Protective actions would be warranted provided the reduction in the individual dose is not offset by excessive risks to individual safety in implementing such actions.

Recovery Actions – Those actions taken after the emergency has been controlled in order to restore safe plant conditions.

Recovery Center – An area established within the Emergency Operations facility for the purpose of planning recovery actions. The Emergency Director directs the activities of this center.

Severe Accident Management – Process that management uses to evaluate and respond to an accident that has deteriorated to a condition where the EOPs are exited and the Severe Accident Guidelines are used.

Site – That property within the fenced boundary of Vermont Yankee which is owned by the Company.

Site Area Emergency – Events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public or HOSTILE

ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.

Technical Support Center – An in-plant center established in close proximity to the Control Room that has the capability to acquire plant parameters for post-accident evaluation by technical and recovery assistance personnel. The Emergency Plant Manager directs activities within this center.

Total Effective Dose Equivalent (TEDE) – The sum of the deep dose equivalent from external sources and the committed effective dose equivalent from internal exposures.

Unusual Event (Terminated) – A condition that warrants a Notification of Unusual Event declaration, but was immediately rectified, such that the condition no longer existed by the time of declaration. The event or condition did not affect personnel onsite or the public offsite, or result in radioactive releases requiring offsite monitoring.

3.0 SUMMARY OF EMERGENCY PLAN

3.1. Objectives

Safety systems at Vermont Yankee are designed to prevent and/or mitigate accidental radioactive releases. Accordingly, the probability for a release of radioactivity resulting in a public hazard is very small. As a precautionary measure, however, this Emergency Plan specifies response actions if the safety systems are degraded or fail.

The purpose of this Emergency Plan is to classify emergencies according to severity, to assign responsibilities, and to clearly outline the most effective actions to safeguard the public and plant personnel in the unlikely event of an incident at Vermont Yankee. Detailed emergency procedures at Vermont Yankee are followed by plant personnel to notify and activate the onsite and offsite emergency organizations. These procedures are summarized in this Emergency Plan.

The basic objectives of this plan are:

1) To establish a system for identification and classification of the emergency condition and initiation of response actions;

2) To establish an organization for the direction of activity within the plant to limit the consequences of the incident;

3) To establish an organization for control of onsite and offsite surveillance activities to assess the extent and significance of any uncontrolled release of radioactive material;

4) To identify facilities, equipment and supplies available for emergency use;

5) To establish an engineering support organization to aid the plant personnel in limiting the consequences of and recovery from an event;

6) To establish the basic elements of an emergency recovery program;

7) To specify a system for coordination with federal, state, and local authorities and agencies for offsite emergency response;

8) To develop a communications network between the plant and offsite authorities to provide prompt notification of emergency situations;

9) To develop a training and Emergency Plan exercise program to assure constant effectiveness of the plan; and

10) To keep the public informed in a timely manner to preclude misinformation and bolster confidence in the emergency response.

Emergencies at nuclear power plants are classified into the following four major categories (as set forth in Section 5.0): Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency. Depending on the emergency classification, different levels of plant and offsite response are required. Activation of emergency facilities takes place in accordance with the classification of emergency response.

3.2. Actions In An Emergency

If an emergency condition develops, the Shift Manager, or the senior licensed individual in the Control Room, assumes the responsibilities for initiating emergency actions to limit the consequences of the incident and to bring the plant into a stable condition. The individual must:

1) Recognize the emergency condition by observation of Emergency Action Levels;

2) Classify the accident in accordance with the emergency classification system;

3) Initiate emergency operating procedure(s) applicable to the event;

4) Activate the plant emergency alarm system;

5) Notify state authorities in Vermont, New Hampshire and Massachusetts using the Emergency Notification System;

6) Notify the NRC using the Emergency Notification System;

7) Use the emergency notification system to notify appropriate personnel as set forth in Figure 9.1 and Table 9.1;

8) Depending on the emergency classification, initiate the procedures which activate the Technical Support Center, the Emergency Operations Facility/Recovery Center, the Operations Support Center, and the Joint Information Center; and

9) Direct and coordinate all emergency response efforts until overall responsibility is assumed by the Emergency Director.

3.3. Emergency Response Facilities

The emergency response facilities, which are utilized by the emergency response organization, are described in Section 6.0. Depending on the emergency classification, different facilities are activated and utilized. Key site and offsite personnel are quickly dispatched to these facilities to perform accident assessments, implement corrective actions, analyze accident data, and provide public information support.

3.4. Mobilization

The mobilization scheme is based on the emergency notification system shown in Figure 9.1. Table 9.1 identifies the personnel notified. The notification system utilizes the plant public address system (Gai-Tronics), dedicated telephone lines, and radio pager devices (beepers) to notify and mobilize personnel. Key Vermont Yankee and support personnel carry pagers to expedite the mobilization process during off-hours. Depending upon the emergency classification, different levels of mobilization are implemented. The mobilization scheme ensures that specific technical disciplines identified by Table B-1 of NUREG-0654 can be augmented within appropriate time frames. Table 8.4 outlines the minimum staffing requirements for the Emergency Response Organization at Vermont Yankee. Table 9.1 summarizes the response to the four classes of emergencies described in Section 5.0.

3.5. State Government Notification and Response

Vermont Yankee's Emergency Plan interfaces with the state emergency response plans of Vermont, New Hampshire and Massachusetts. Local town governments, in coordination with the emergency management agencies of these states, have plans, which if the need arises, contain instructions to carry out specific protective measures dependent upon various emergency conditions.

Vermont Yankee is responsible for conveying specific accident information, radiological assessment information, and protective action recommendations to the State of Vermont, State of New Hampshire, and Commonwealth of Massachusetts. It is the responsibility of each respective state Department of Public Health to evaluate this information and make appropriate recommendation regarding public protective actions in accordance with their plans and procedures.

A cooperative arrangement exists among the Vermont, New Hampshire and Massachusetts State authorities and Vermont Yankee Nuclear Power Station concerning radiological emergency preparedness. Vermont Yankee's emergency classification system and notification messages are reviewed and approved by these states in accordance with the terms specified in the Letter of Agreement found in Appendix E. Each state is committed to dispatching representatives to the plant's Emergency Operations Facility/Recovery Center when conditions warrant. Vermont Yankee's Joint Information Center provides the opportunity for joint utility, state and federal press briefings to be held.

3.6. Federal Government Notification and Response

As soon as an event is classified into one of the four categories of emergencies, notification to the NRC is made using the Emergency Notification System. Once notified of an emergency, the NRC evaluates the situation and determines the appropriate NRC response. Depending on the severity of the accident and the emergency classification declared, the NRC activates their incident response operations in accordance with the NRC Incident Response Plan. The NRC notifies the Federal Emergency Management Agency (FEMA) and other appropriate federal agencies to activate the federal emergency response organization in accordance with the National Response Framework (NRF). The NRF makes available the resources and capabilities of federal agencies to support plant, state and local governments. Principal participants are the NRC, FEMA, Department of Energy (DOE), and Environmental Protection Agency (EPA).

3.7. Technical Support

Technical and manpower support are provided to the Vermont Yankee plant through support plans listed in Appendix G. Support beyond this level is arranged through the Institute of Nuclear Power Operations (INPO).

4.0 THE AREA

4.1. The Site

Vermont Yankee Nuclear Power Station is located on the west bank of the Connecticut River immediately upstream of the Vernon Hydrostation, in the town of Vernon, Vermont. The Vermont Yankee Nuclear Power Station is a boiling water reactor having a thermal rated power of 1912 MWt. The station, shown in Figure 4.1, is located on about 125 acres in Windham County, and is owned by Entergy, with the exception of a narrow strip of land between the Connecticut River and the Vermont Yankee property for which it has perpetual rights and easements from the owner, New England Power Company.

4.2. Area Characteristics, Land Use and Demography

The site, also shown in Figure 4.1, is bounded by the Connecticut River (Vernon Pond) on the east, by farm and pasture land mixed with wooded areas on the north and south, and by the town of Vernon on the west. Warwick and Northfield State Forests (approximately 8 miles southwest of the site), Green Mountain National Forest (approximately 18 miles southwest of the site) and the Pisgah Mountain Range (northeast of the site) limit the population density and land use within a 50-mile radius of the site. Most of the land around the site is undeveloped. Table 4.1 characterizes the land use within 25 miles of the plant. The developed land is used for agricultural, dairying, and for residential areas within small villages. The primary agricultural crop is silage corn, which is stored for year-round feed for milk cows.

The nearest house is 1,300 feet from the Reactor Building and is one of several west of the site. The Vernon Elementary School (approximate enrollment of 250 pupils) is about 1,500 feet from the Reactor Building. The nearest hospital, Brattleboro Memorial, is approximately five (5) miles north-northwest from the site. The nearest dairy farm is approximately 1/2-mile northwest of the site. Additional dairy farms are located within a 5-mile radius of the plant. The largest sports facility in the vicinity is the Hinsdale Raceway, located approximately three (3) miles from the site. For racing events, the average attendance is approximately 4,000. A nursing home is located 2 miles south of the plant. These areas have been noted since they have required special planning consideration by offsite authorities in the event of a radiological emergency at Vermont Yankee.

Figure 4.2 shows an overall perspective of the area within 50 miles of Vermont Yankee. The average population density within a 10-mile radius of Vermont Yankee for 2000 was estimated to be 126 people per square mile. Figures 4.3, 4.4, and 4.5 provide the 2000 population distribution within a 5-, 10-, and 50-mile radius of the Vermont Yankee Nuclear Power Station. Table 4.2 summarizes these data.

4.3. Emergency Planning Zones

The NRC/EPA Task Force Report on Emergency Planning, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light-Water Nuclear Power Plants" (NUREG-0396) established the size of planning zones for which predetermined emergency actions should be prepared. These planning zones were selected based upon the knowledge of the potential consequences, timing and release characteristics of a spectrum of accidents (including core melt scenarios), regardless of the low probability of occurrence. As a result, an Emergency Planning Zone concept was developed, both for short-term plume exposure and for the longer-term ingestion exposure pathways.

Emergency Planning Zones (EPZs) are defined as the areas for which planning is needed to assure that prompt and effective actions can be taken to protect the public in the event of an accident. The size of the Emergency Planning Zones represents the extent of detailed planning which should be performed to assure an adequate response. Dependent upon the severity of the accident, protective actions are generally limited to only portions of the designated EPZs, but as the need arises, actions are undertaken for the entire zones.

As a means of defining selected areas within the planning zones, Vermont Yankee divides the planning zones into sectors of 22 1/2 degrees centered on the 16 standard compass directions (see Figure 4.6). Each sector is identified by a letter ("I" and "O" are not used) and/or the standard compass direction. Distance from the plant is defined in terms of miles radially outward from the plant.

Vermont Yankee, for the purpose of radiological protection, is responsible for exercising direct control over the emergency activities within the exclusion area shown in Figure 4.1. Means of controlling access on the river is the responsibility of the State of New Hampshire.

In accordance with the recommended planning bases, Vermont Yankee has expanded its previous planning considerations by defining two Emergency Planning Zones. The plume exposure EPZ, shown in Figure 4.7, is an area designated by the jurisdictional boundaries of those communities which are within a radial distance of 10 miles from the plant site. The size of the zone is based on the following considerations: 1) projected doses estimated for most accidents would not exceed the EPA Protective Action Guides outside the zone; 2) detailed planning within this area would provide a substantial base for expansion of response efforts in the event that it is necessary; 3) planning within this area recognizes all jurisdictional restraints imposed by the zone designation. Table 4.3 lists the local communities that are affected by this designation, the wind direction which would potentially affect these communities if a release occurs, and the sector/distance identification representing each of these communities. As specified in the state plans, communities within the plume exposure EPZ are alerted if a major accident at Vermont Yankee occurs. Communities within this zone have their own local radiological response plans.

The ingestion exposure pathway Emergency Planning Zone, shown in Figure 4.8, is an area within a 50-mile radius from the plant site. The size of the zone is based on the fact that the downwind range within which significant contamination could occur would generally be limited to this distance because of wind shifts and travel periods. In addition, projected doses from contamination outside this zone would not exceed the Department of Health and Human Services' ingestion pathway Protective Action guides. Four states (Vermont, New Hampshire, Massachusetts, and New York) are responsible for coordinating and implementing protective actions within this area. Precautionary measures relative to livestock feeds, milk products, garden produce, and potable water supplies are implemented in this area to the extent dictated by the release conditions.

TABLE 4.1

TABLE OF LAND USE

(Square Miles)

Distance from Site

Land Use	0-10 Miles	10-25 Miles	1-25 Miles
Residential	30.2	79.2	109.4
Commercial and Industrial	1.3	7.7	9.0
Agricultural	25.9	143.8	169.7
Road	6.0	21.6	27.6
Public	7.2	78.3	85.5
Undeveloped	243.4	1318.4	1561.8
TOTAL	314.0	1649.0	1963.0

TABLE 4.2

2000 POPULATION DISTRIBUTION WITHIN THE 50-MILE
EPZ OF VERMONT YANKEE

POPULATION TOTALS BY ZONE

Ring Miles	Population	Cumulative Miles	Population
0-1	489	0-1	489
1-2	2496	0-2	2985
2-3	1937	0-3	4922
3-4	1556	0-4	6478
4-5	3441	0-5	9919
5-10	23954	0-10	33873
10-20	111005	0-20	144878
20-30	133847	0-30	278725
30-40	337525	0-40	616250
40-50	851123	0-50	1467373

POPULATION TOTALS BY SECTOR

Sector	Total Population 0-50 Miles	Sector	Total Population 0-50 Miles
A (N)	46204	J (S)	458553
B (NNE)	36424	K (SSW)	120057
C (NE)	45230	L (SW)	32609
D (ENE)	50939	M (WSW)	78287
E (E)	92389	N (W)	44288
F (ESE)	188701	P (WNW)	31855
G (SE)	141941	Q (NW)	17512
H (SSE)	60442	R (NNW)	21912

TABLE 4.3

VERMONT YANKEE

"PLUME EXPOSURE" EMERGENCY PLANNING ZONE (10 MILE) CONSIDERATIONS

COMMUNITIES INVOLVED	APPROPRIATE SECTOR IDENTIFICATION*	AFFECTED BY WINDS BLOWING FROM
1. Brattleboro, VT	P (7-10), R and Q (4-10)	ESE – S
2. Dummerston, VT	R and A (8-10)	SE – SSW
3. Guilford, VT	L (3-5), M, N and P (2-9), Q (3-6)	NNE – SSE
4. Halifax, VT	M (9-10), N and P (8-10)	ENE – SE
5. Vernon, VT	F (0-2), G and H (0-4), J (0-3), K and L (0-4), M, N, and P (0-3), Q and R (0-4)	ALL DIRECTIONS
1. Chesterfield, NH	A and B (5-10), C (6-10)	SSE – WSW
2. Hinsdale, NH	R, A, and B (0-6), C (0-4), D and E (0-3), F (1-4), G (2-5)	ALL DIRECTIONS
3. Richmond, NH	D, E, and F (9-10)	WSW – WNW
4. Swanzey, NH	C (8-10), D (9-10)	SSW – W
5. Winchester, NH	R (6-8), A and B (5-10), C (6-10)	S – NW
1. Bernardston, MA	J (3-9), K (3-10), L (3-8)	NNW – ENE
2. Colrain, MA	L and M (9-10)	NNE – E
3. Gill, MA	H and J (7-10)	NNW – NNE
4. Leyden, MA	K (7-10), L and M (5-10)	N – E
5. Northfield, MA	G (4-10), H (3-10), J (3-7)	WNW – NNE
6. Warwick, MA	F and G (6-10)	W – NNW
7. Greenfield, MA	J and K (8-10)	N – NE

*Numbers in parentheses represent approximate miles from plant.

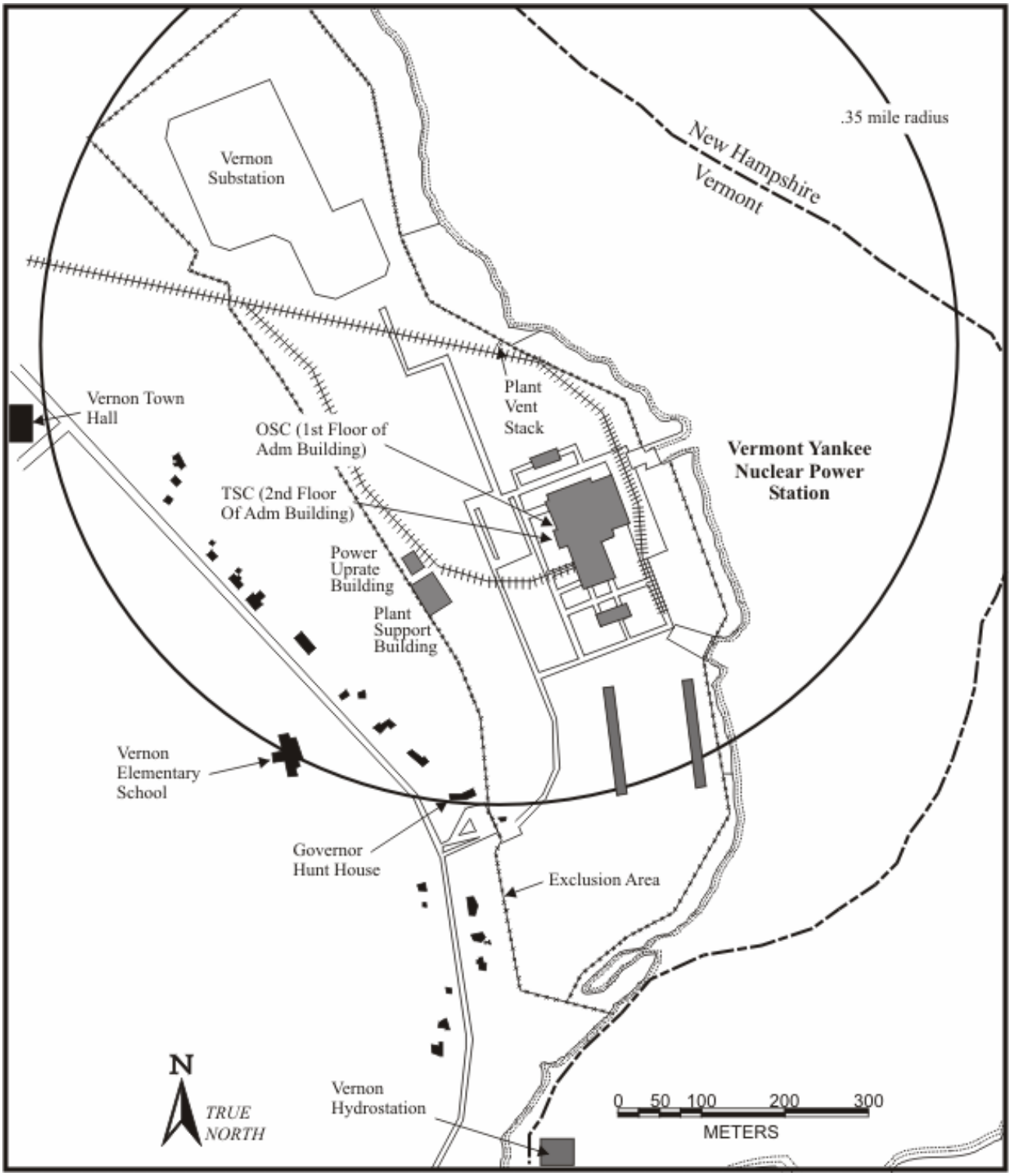


Figure 4.1

Vermont Yankee Site

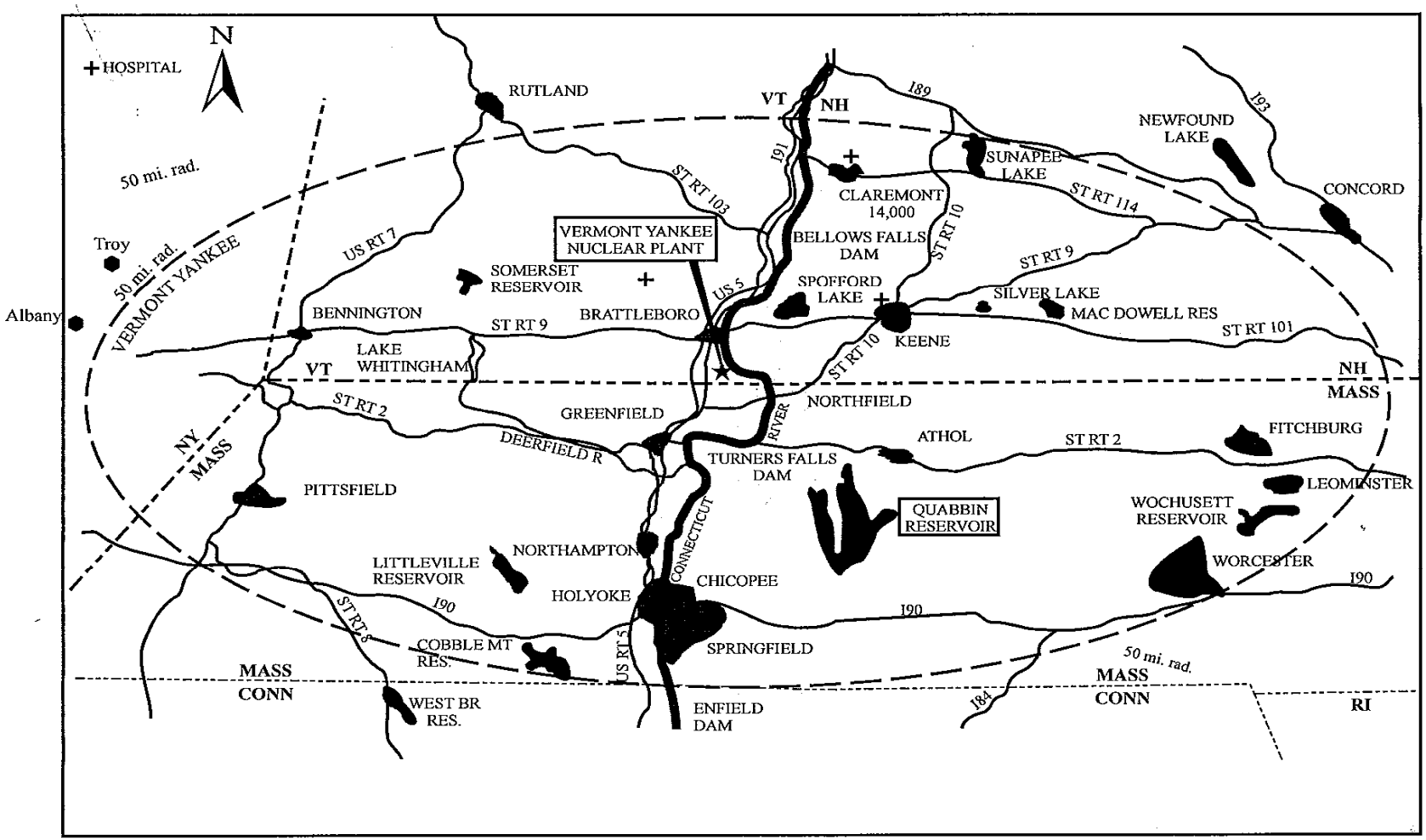


Figure 4.2

Population Center and Special Interest Areas Within the 50 Mile EPZ

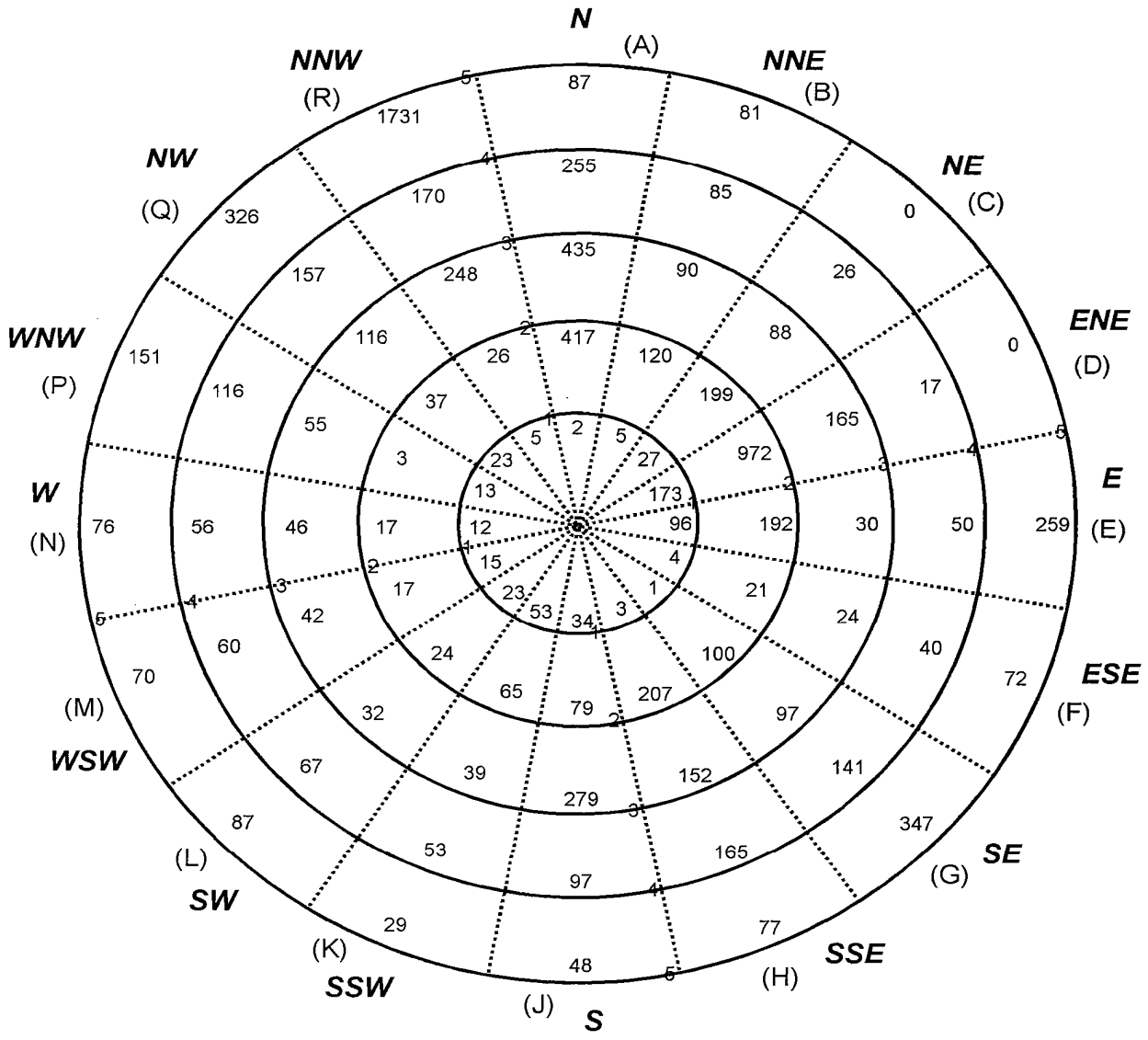


Figure 4.3

2000 Population Distribution
Within 0 – 5 Miles of Vermont Yankee

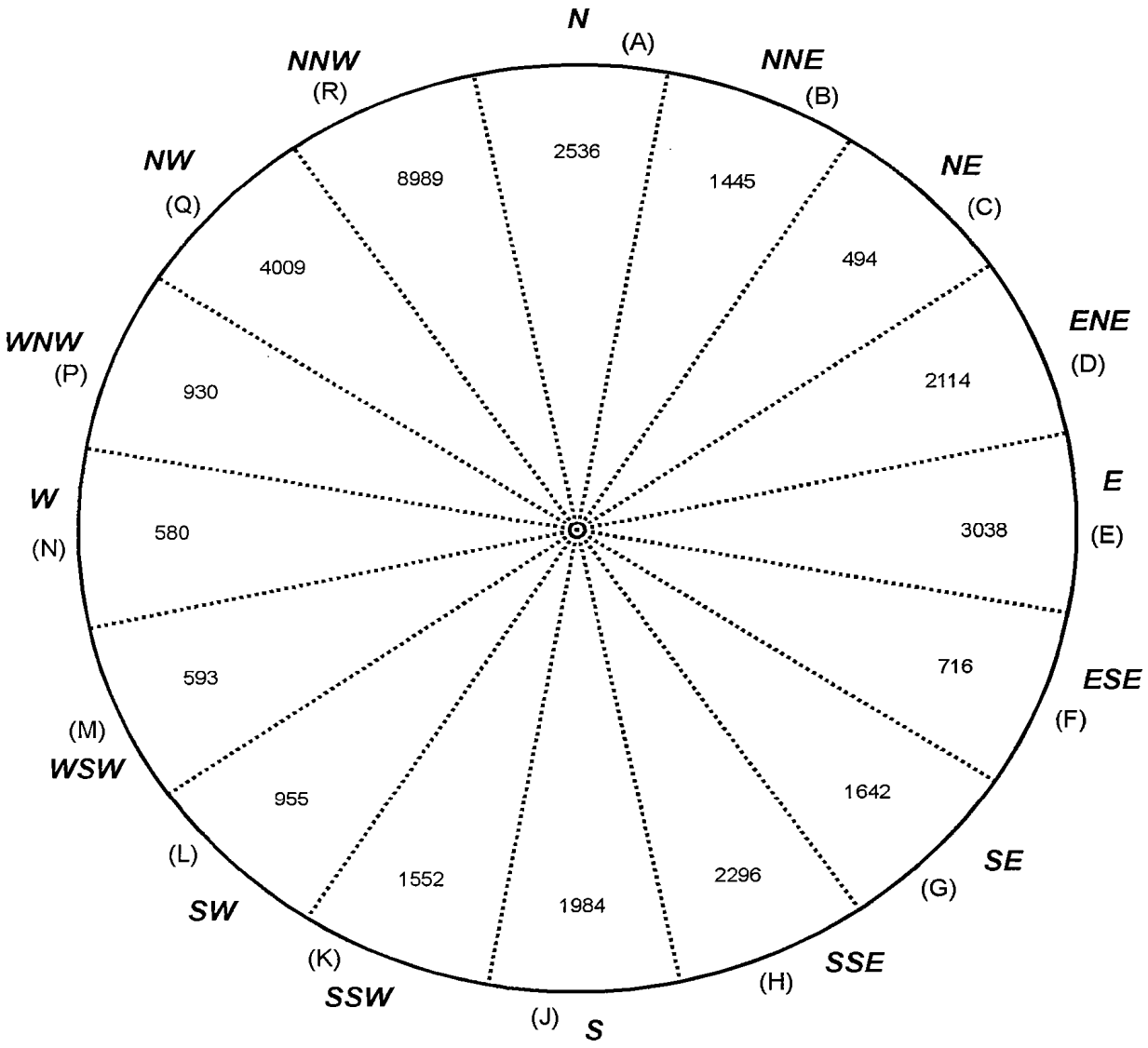


Figure 4.4

2000 Population Distribution
Within 0 – 10 Miles of Vermont Yankee

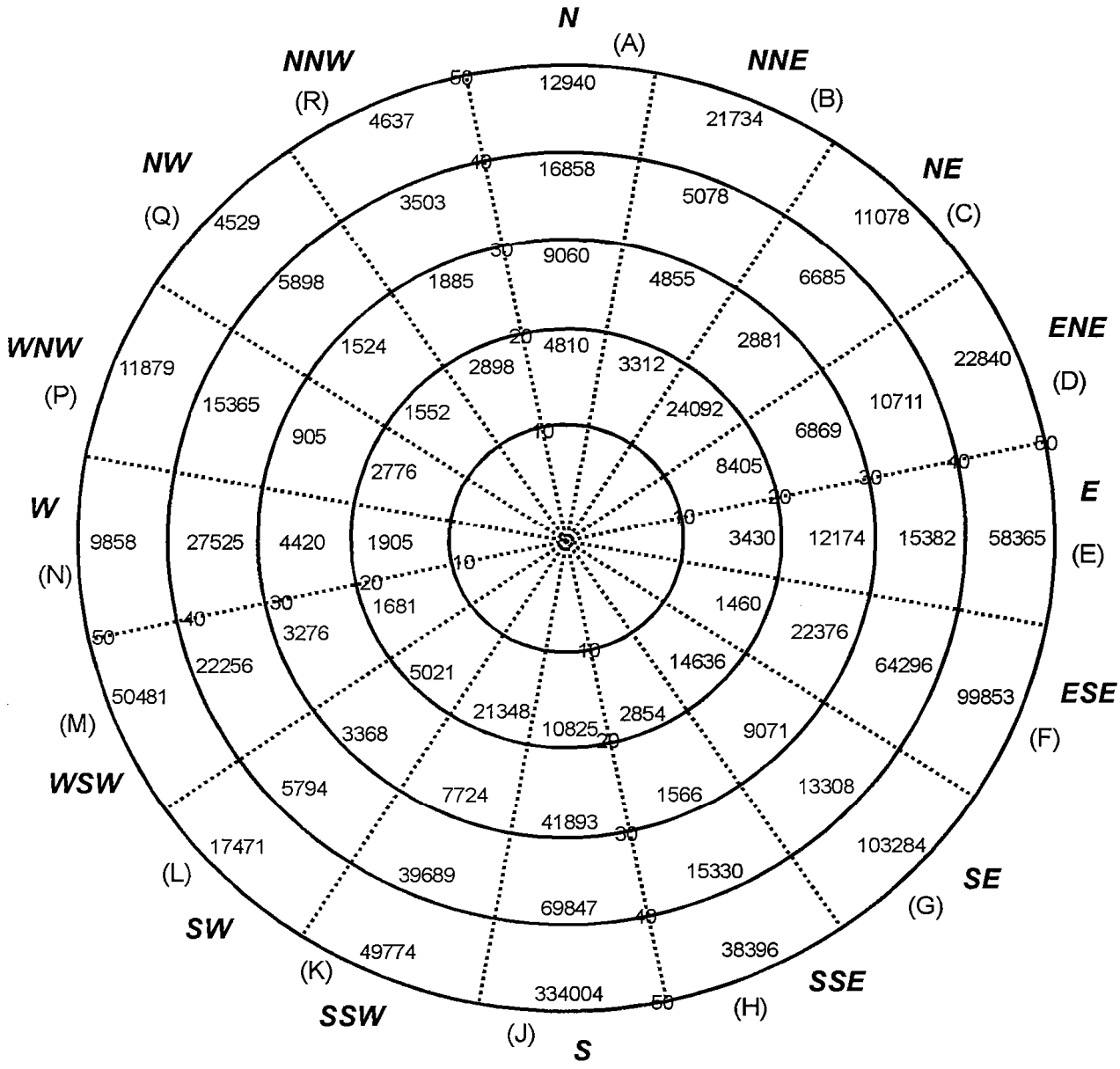
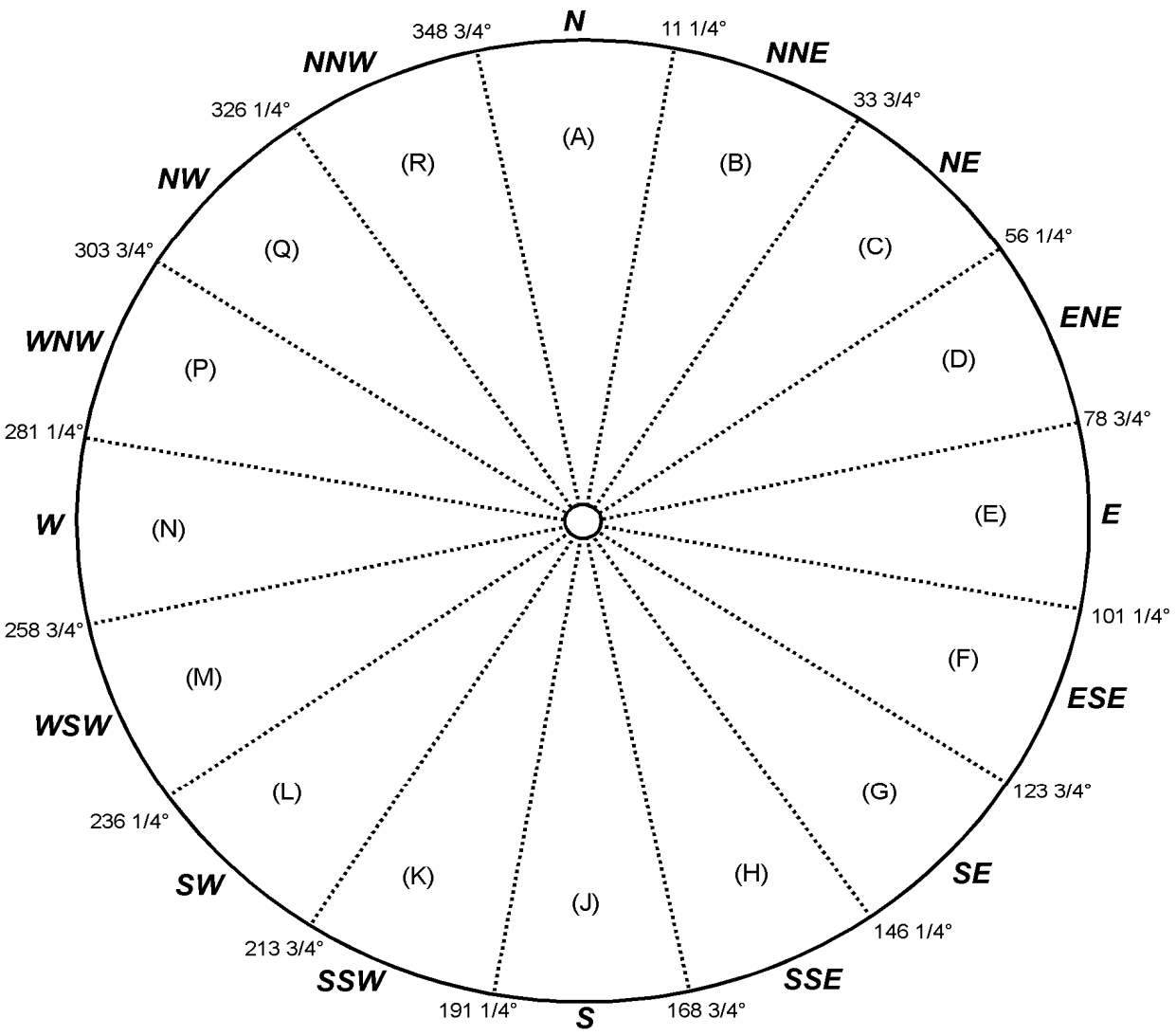


Figure 4.5

2000 Population Distribution
Within 10 – 50 Miles of Vermont Yankee



NOTE: Each sector is 22½° and is designated by either a letter ("i" and "O" not used) or a standard compass direction identification.

Figure 4.6

Sector Nomenclature for Vermont Yankee
Plume Exposure EPZ

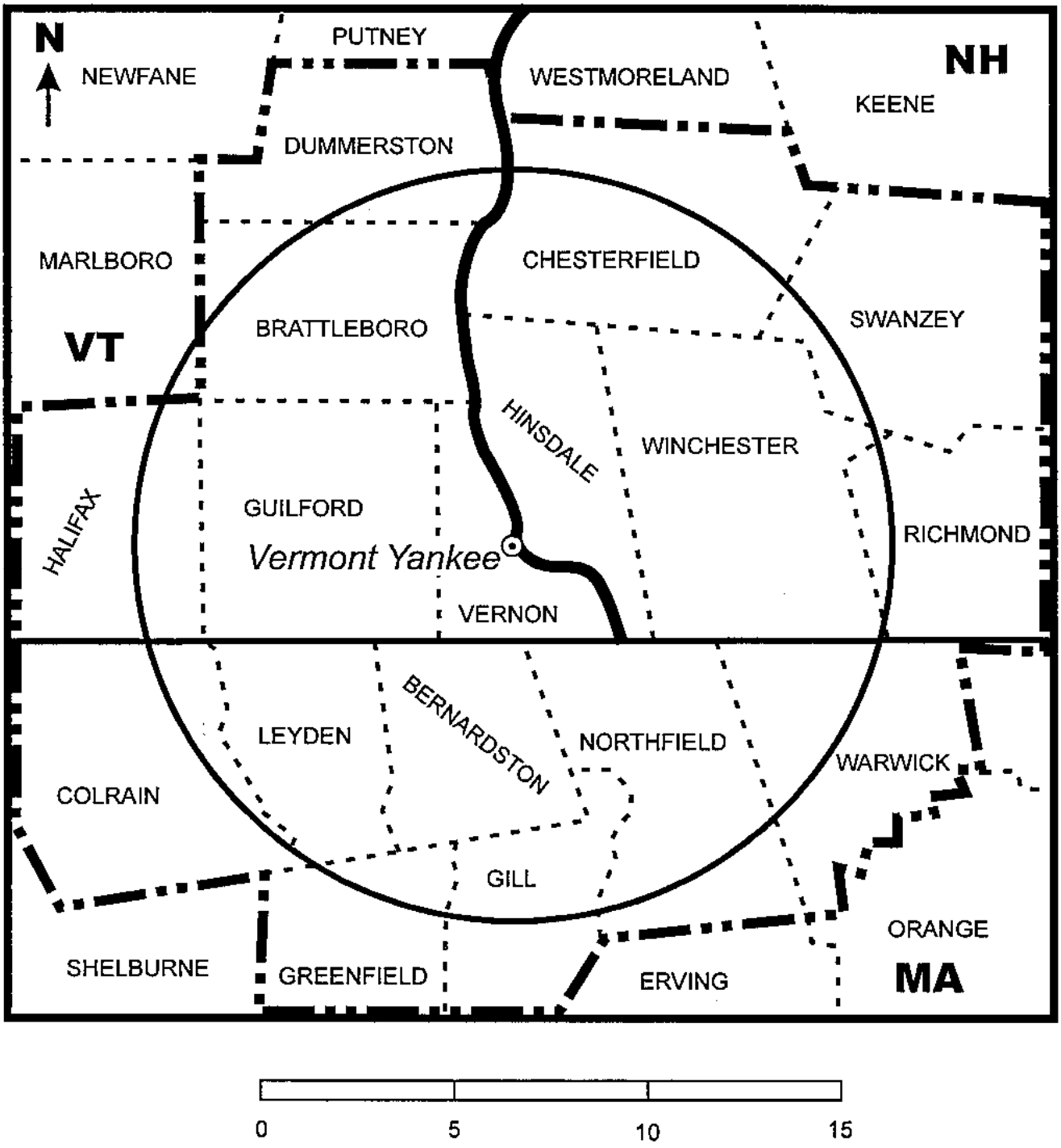


Figure 4.7
Vermont Yankee Plume Exposure Emergency Planning Zone

Only those portions of the communities that are within a 10-mile radius have been covered by the Public Notification System. All communities within this EPZ Boundary designation have developed an emergency plan.

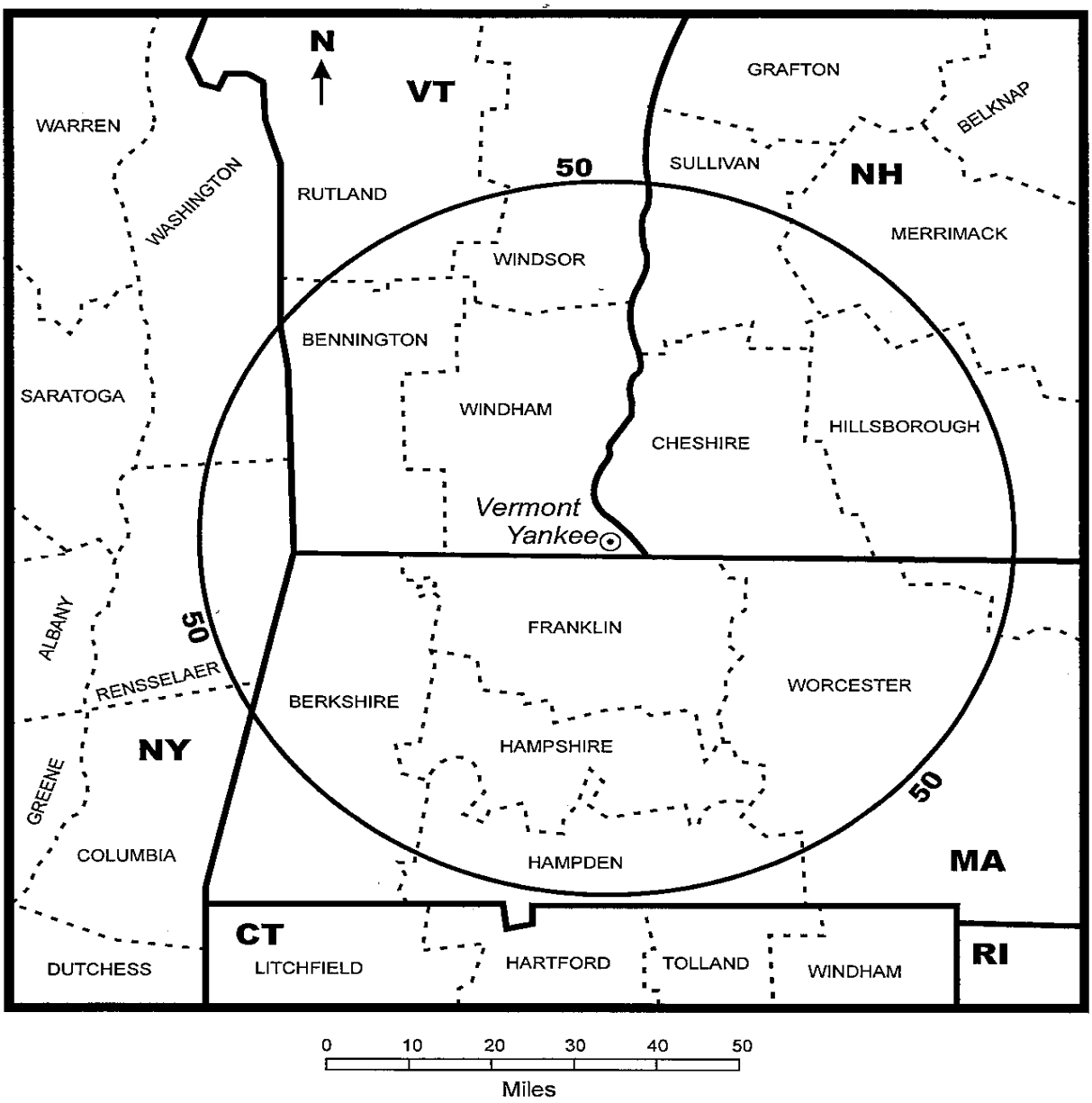


Figure 4.8

Vermont Yankee 50 Mile Ingestion Pathway
Emergency Planning Zone

5.0 EMERGENCY CLASSIFICATION SYSTEM

The wide spectrum of component or system failures, or other occurrences that could potentially reduce plant safety margins, needs to be categorized. For this reason, a classification system has been defined which categorizes incidents according to severity into the following four classes: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency.

The incidents leading to each of the four emergency classifications are further identified by certain measurable and observable indicators of plant conditions called Emergency Action Levels (EALs) listed in Appendix A. Emergency Action Levels defined in Appendix A aid the operator in recognizing the potential of an incident immediately and assure that the first step in the emergency response is carried out. The classification of the event may change as the conditions change.

The VY EALs and EAL bases were derived from example initiating conditions in NUMARC/NESP-007 (NEI 99-01), "Methodology for Development of Emergency Action Levels", Rev. 5, dated February 2008. The EALs and bases have been modified in accordance with Letter USNRC to VYNPS, "Vermont Yankee Nuclear Power Station – Safety Evaluation for Emergency Action Levels (TAC No. MD9157)", dated June 16, 2009.

5.1. Notification of Unusual Event

EVENTS ARE IN PROCESS OR HAVE OCCURRED WHICH INDICATE A POTENTIAL DEGRADATION OF THE LEVEL OF SAFETY OF THE PLANT OR INDICATE A SECURITY THREAT TO FACILITY PROTECTION HAS BEEN INITIATED. NO RELEASES OF RADIOACTIVE MATERIAL REQUIRING OFFSITE RESPONSE OR MONITORING ARE EXPECTED UNLESS FURTHER DEGRADATION OF SAFETY SYSTEMS OCCURS.

Notification of Unusual Event conditions do not cause serious damage to the plant and may not require a change in operational status. The purpose of the Notification of Unusual Event declaration is to: 1) ensure that the first step in any response later found to be necessary has been carried out; 2) bring the operating staff to a state of readiness; and 3) ensure that appropriate offsite notifications have been made in the event that additional support is required.

See Appendix A for a complete list of Emergency Action Levels corresponding to a Notification of Unusual Event.

5.1.1. Unusual Event (Terminated)

If a condition that warrants a Notification of Unusual Event declaration has occurred, and was immediately rectified such that the condition no longer existed by the time of declaration, this Notification of Unusual Event classification is referred to as an Unusual Event (Terminated).

The event or condition did not affect personnel onsite or the public offsite, or result in radioactive releases requiring offsite monitoring.

5.2. Alert

EVENTS ARE IN PROCESS OR HAVE OCCURRED WHICH INVOLVE AN ACTUAL OR POTENTIAL SUBSTANTIAL DEGRADATION OF THE LEVEL OF SAFETY OF THE PLANT OR A SECURITY EVENT THAT INVOLVES PROBABLE LIFE THREATENING RISK TO SITE PERSONNEL OR DAMAGE TO SITE EQUIPMENT BECAUSE OF HOSTILE ACTION. ANY RELEASES ARE EXPECTED TO BE LIMITED TO SMALL FRACTIONS OF THE EPA PROTECTIVE ACTION GUIDELINE EXPOSURE LEVELS.

Plant response and offsite notifications associated with this event classification assure that sufficient emergency response personnel, both onsite and offsite, are mobilized and respond to event conditions. Actual releases of radioactivity which exceed Technical Specification limits may be involved, thus radiation monitoring and dose projection may be an integral portion of the emergency response required. Plant emergency response facilities are activated at this classification.

See Appendix A for a complete list of Emergency Action Levels corresponding to an Alert.

5.3. Site Area Emergency

EVENTS ARE IN PROCESS OR HAVE OCCURRED WHICH INVOLVE AN ACTUAL OR LIKELY MAJOR FAILURES OF PLANT FUNCTIONS NEEDED FOR PROTECTION OF THE PUBLIC OR HOSTILE ACTION THAT RESULTS IN INTENTIONAL DAMAGE OR MALICIOUS ACTS; (1) TOWARD SITE PERSONNEL OR EQUIPMENT THAT COULD LEAD TO THE LIKELY FAILURE OF OR; (2) THAT PREVENT EFFECTIVE ACCESS TO EQUIPMENT NEEDED FOR THE PROTECTION OF THE PUBLIC. ANY RELEASES ARE NOT EXPECTED TO RESULT IN EXPOSURE LEVELS WHICH EXCEED EPA PROTECTIVE ACTION GUIDELINE EXPOSURE LEVELS BEYOND THE SITE BOUNDARY.

The events included in this category represent a potential for offsite releases which could impact the public to the extent that protective actions may be necessary. The purpose of the Site Area Emergency declaration is to: 1) ensure that all plant emergency response elements are mobilized; 2) ensure that monitoring teams have been dispatched, if needed; 3) ensure that in-plant protective measures have been taken; 4) provide for direct interface with offsite governmental response organizations; and 5) provide updates for the public through offsite officials.

See Appendix A for a complete list of Emergency Action Levels corresponding to Site Area Emergency.

5.4. General Emergency

EVENTS ARE IN PROCESS OR HAVE OCCURRED WHICH INVOLVE ACTUAL OR IMMINENT SUBSTANTIAL CORE DEGRADATION OR MELTING WITH POTENTIAL FOR LOSS OF CONTAINMENT INTEGRITY OR HOSTILE ACTION THAT RESULTS IN AN ACTUAL LOSS OF PHYSICAL CONTROL OF THE FACILITY. RELEASES CAN BE REASONABLY EXPECTED TO EXCEED EPA PROTECTIVE ACTION GUIDELINE EXPOSURE LEVELS OFFSITE FOR MORE THAN THE IMMEDIATE SITE AREA.

The purpose of the General Emergency declaration is to: 1) ensure that appropriate offsite officials are adequately advised as to the extent of plant degradation; 2) provide consultation with offsite authorities in establishing appropriate protective actions for the public; 3) provide updates for the public through offsite authorities; and 4) ensure that all emergency response organizations and resources are being applied to accident mitigation.

See Appendix A for a complete list of Emergency Action Levels corresponding to a General Emergency.

5.5. Emergency Classification System Review by State Authorities

The emergency classification system specified above, as well as the EALs presented in Appendix A, is reviewed with the state authorities of Vermont, New Hampshire, and Massachusetts.

6.0 EMERGENCY RESPONSE FACILITIES AND EQUIPMENT

Following the declaration of an emergency, the activities of the emergency response organization are coordinated in a number of emergency response facilities. Figure 4.1 shows the relative locations of Vermont Yankee's onsite emergency response facilities. Figure 6.1 represents the locations of the offsite support organizations' Emergency Operations Centers relative to Vermont Yankee. Descriptions of Vermont Yankee facilities and assessment capabilities are presented below.

6.1. Emergency Response Facilities

The emergency response organization is activated, in part or wholly, dependent upon the operating crew's recognition of Emergency Action Levels (EALs) which represent a particular emergency condition. Facility activation may be modified or suspended if the safety of personnel may be jeopardized by a security event or other event hazardous to personnel. Classification and subsequent declaration of the appropriate emergency condition by the Shift Manager transforms the Control Room complex into an emergency control center. Initially, the Control Room crew coordinates all phases of emergency response and corrective action required to restore the plant to a safe condition. The Control Room staff's attention focuses on regaining plant control as emergency response personnel report and are delegated emergency functions. The following describe each emergency response facility location.

6.1.1. Technical Support Center

A Technical Support Center (TSC) has been established to direct post-accident evaluation and assist in recovery operations of the plant. The TSC is located on the second floor of the Administration Building in close proximity to the Control Room and is radiologically habitable to the same degree as the Control Room for postulated accident conditions. This center is established under the supervision of the Emergency Plant Manager and staffed by members of the TSC organization shown in Figure 8.3. A portion of the TSC, as shown in Figure 6.2, is assigned for NRC Incident Response Team members who may be dispatched to the plant. The TSC has the capability to monitor various plant parameters needed to evaluate accident conditions by accessing the plant process computer and using the diagnostic capability that its staff offers. The TSC staff can access more computer capabilities through the support plans listed in Appendix G.

Upon activation, the TSC provides the main communication link between the plant, the Control Room, the NRC and the Emergency Operations Facility/Recovery Center. Details of this communications capability are described in Section 7.0. The plant print files are located within the TSC boundary, and contain pending and as-built system and equipment drawings, system flow diagrams, isometrics, cable/wiring diagrams, equipment outline drawings, UFSAR, Emergency Plan and plant procedures.

The TSC is activated by the Emergency Plant Manager when a plant condition exists which requires ongoing technical evaluation (i.e., Alert, Site Area or General Emergency conditions). The TSC may be activated by the Emergency Plant Manager under a Notification of Unusual Event if conditions warrant such an action. The TSC has the capability to assess radiological conditions. This assessment capability consists of monitoring for direct radiation and airborne particulates, and sampling and analysis for airborne radioiodine. Appendix B lists emergency equipment found in the TSC.

If staffing of the TSC is not possible due to a security event or other hazardous conditions, ERO personnel will be notified to report to an alternate location.

The TSC is deactivated by the Emergency Director or the Emergency Plant Manager, depending on the emergency class, when the plant conditions have stabilized such that continuous technical assessment is no longer required.

6.1.2. The Operations Support Center

The Operations Support Center (OSC), which is located on the first floor of the Administration Building, provides a general assembly area for Chemistry, Radiation Protection, Maintenance, Operations, and I&C Personnel (see Figure 6.3). It is staffed with sufficient in-plant personnel required to effect protective and corrective actions in support of the emergency situation. An Operations Support Center Manager directs the activities of this center. In-plant phone extensions and a page/intercom system provide communication capability at the OSC. Emergency equipment listed in Appendix B has been provided with additional back-up capability provided at the Radiation Protection control point. If conditions warrant evacuation of this center, the Emergency Operations Facility/Recovery Center assumes OSC functions. The OSC remains active and staffed until terminated by the Emergency Plant Manager.

If staffing of the OSC is not possible due to a security event or other hazardous conditions, ERO personnel will be notified to report to an alternate location.

6.1.3. Emergency Operations Facility/Recovery Center

The Emergency Operations Facility/Recovery Center (EOF/RC) is located at the Vermont Yankee Training Center on Old Ferry Road in Brattleboro, Vermont, approximately 8.75 miles from the plant site (See Figure 6.1). The EOF has a radiation protection factor of 5 and a ventilation system equipped with HEPA filters which can be isolated. The Commission has approved this as the primary facility with no backup up EOF necessary. (NVY 84-44, February 27, 1984) The EOF, with communication capabilities for contacting the Control Room and plant Security, is available to serve as a staging area for augmented emergency response staff if the site is under threat of or experiencing hostile action. The overall responsibility for the functions performed in the EOF/RC belongs to the Emergency Director.

The Emergency Director acts as the principal spokesperson for Vermont Yankee concerning all issues where an interface with offsite government authorities is required. The Radiological Assessment Coordinator is responsible for continuous evaluation of all licensee activities related to an emergency having, or potentially having, environmental radiological consequences. The EOF/RC has sufficient space and design to accommodate the emergency response organization and responding representatives from government and industry who are responsible for limiting offsite consequences (see Figure 6.4). The EOF/RC provides information needed by federal, state, and local authorities for implementation of their offsite Emergency Plans, and a centralized meeting location for key representatives from the agencies.

The EOF/RC maintains extensive communications capability with all emergency response facilities. Section 7.0 details the extent of this capability. Site access and control, dose assessment, sample analysis, decontamination, and recovery planning activities are directed from various locations within the EOF/RC. The EOF/RC serves as the primary evacuation, re-assembly, and off-duty augmentation personnel assembly point. Public information statements concerning the plant emergency status are transmitted from the EOF/RC to the Joint Information Center for release to the public.

The following copies of emergency planning documents are available in the EOF/RC:

- Site Emergency Plan and Implementing Procedures
- Area Maps
- State and Local Emergency Plans
- UFSAR

Emergency equipment and supplies are maintained at the EOF/RC, including equipment necessary to assess radiological habitability. This consists of monitoring for direct radiation and sampling and analysis for airborne radioparticulates and radioiodine. For a list of EOF/RC emergency equipment, see Appendix B.

6.1.4. Deleted

6.1.5. Joint Information Center

The Joint Information Center (JIC) provides a centralized location for conducting joint state, federal and Vermont Yankee emergency news briefings in a manner to avoid hampering ongoing emergency response proceedings. It is expected that state and federal public information personnel will operate from the JIC.

The initial designated location of the JIC is the Vermont Yankee Office Building located in Brattleboro, Vermont. If accident conditions (plume trajectory) jeopardize the habitability of this facility, the alternate JIC at Landmark College in Putney, Vermont would be utilized.

At the JIC, the Company Spokesperson coordinates the generation and issuance of press releases concerning plant emergency conditions to the media. Prior to their release to the media, the Emergency Director approves releases.

The JIC will be activated upon an emergency classification of an Alert or higher except as noted below.

Activation of the JIC is optional prior to an Alert and is dependent on the escalation of the event and/or public interest. Prior to the activation of the JIC, the Manager of Communications or designee would be coordinating press releases from his/her routine operations location.

6.1.6. Coordination of Radiological Data

Centralized coordination of the offsite radiological assessment effort with all organizations interested in and/or performing assessments is of importance to ensure that the data and its interpretation are reviewed by all parties. The number and type of organizations performing this effort vary with time and following accident declaration and offsite notification. Initially, plant emergency response personnel are the only organization performing this function and they are directed from, and their results evaluated, at the EOF/RC. State authorities join the EOF/RC monitoring and assessment activities. Federal response agencies would augment plant and state radiological assessment efforts upon their arrival.

Plant and state monitoring efforts are coordinated at the EOF/RC. All samples are screened for activity levels in the field. Positive results require additional analysis at the EOF/RC. Analysis is completed in two phases. Initially, the sample is evaluated for radioiodine concentration levels using gamma energy analyses instrumentation. Having completed this analysis, total isotopic determination of activity levels is conducted using a HPG_e or equivalent system. The EOF/RC sampling capability is greatly enhanced by coordinating sample transfer and analysis with the Environmental Laboratory.

When federal resources respond, a more suitable location than the EOF/RC may be needed. As stated by the Department of Energy (DOE), the agency charged with the lead of the federal offsite monitoring resources, this effort would be established at some location in the general vicinity of the plant site that was adequate for the equipment and manpower deployed. Arrangements will be made for such a location with DOE and the states when it is required. Wherever this function is located, the basic objective is to assure monitoring efforts from all organizations are coordinated.

6.2. Assessment Capability

The activation of the Emergency Plan and the continued assessment of accident conditions require extensive monitoring and assessment capabilities. The essential monitoring systems needed for recognition of abnormal events by the plant operators are incorporated in the Emergency Action Levels specified in Appendix A. This section briefly describes monitoring systems as well as other assessment capabilities.

6.2.1. Process Monitors

Plant process monitors capability includes indications provided from various monitors located throughout the plant systems. Parameters monitored include pressure, temperature, flow, and equipment operating status. Vermont Yankee has also augmented these monitoring systems with the instrumentation to detect inadequate core cooling.

The manner in which process monitors are used for accident recognition and classification is given in the detailed Emergency Action Level listings in Appendix A.

6.2.2. Radiological Monitors

A number of radiation monitors and monitoring systems are provided on process and effluent liquid and gaseous lines that serve directly or indirectly as discharge route for radioactive materials. These monitors, which include Control Room readout and alarm functions, exist in order that appropriate action can be initiated to limit fuel damage and/or contain radioactive material.

These monitors include:

1. Main steam line radiation monitoring system,
2. Air ejector off-gas radiation monitoring system,
3. Process and liquid effluent radiation monitors,
4. Containment atmosphere radiation monitoring system,
5. Reactor Building ventilation radiation monitoring system, and
6. Plant stack radiation monitoring system.

Specific details on these monitoring systems such as location, type, etc., are contained in the plant Updated Final Safety Analysis Report (UFSAR).

In addition to installed monitoring systems, Vermont Yankee has augmented onsite radiological assessment capability to include high-range containment and stack radiation monitoring; improved in-plant iodine detection capability; and arrangements for containment atmosphere and reactor water samples.

6.2.3. Meteorological Capability

Vermont Yankee maintains a 300-foot primary meteorological tower from which the following parameters are measured:

- Wind speed at the 35 and 297 foot levels,
- Wind direction at the 35 and 297 foot levels,
- Ambient temperature at the 33 foot level, and
- Vertical temperature difference between the 33 and 198-foot levels and the 33 and 295 foot levels.

In addition, precipitation and barometric pressure are measured on the ground.

Fifteen-minute averages of the meteorological data are automatically displayed in the Control Room and the EOF/RC. These meteorological data are used to calculate offsite dispersion parameters on a real-time basis at the EOF/RC during accident conditions.

Vermont Yankee also maintains onsite a 140 foot back-up meteorological tower from which the following parameters are measured:

- Wind speed at the 100 foot level,
- Wind direction at the 100 foot level, and
- Vertical temperature difference between the 33 – and 135-foot levels.

This tower serves as a back-up to the primary tower should it fail. The meteorological data from the back-up tower are displayed on video graphic recorders located in the Control Room.

In addition, Vermont Yankee has the capability to access additional meteorological information through offsite support services. This information can be forwarded to VY dose assessment personnel upon request.

6.2.4. Fire Detection Devices

Vermont Yankee has an extensive fire detection network which utilizes a combination of smoke detectors, thermal detectors, infrared detectors, ultraviolet detectors, and "rate of rise" detectors, as well as fire system status alarms as a means of providing plant operators with complete fire status information. This system is described in the Vermont Yankee Fire Protection and Appendix R Program.

These detection systems, in addition to providing alarm indications in the Control Room, activate automatic fire suppression systems in certain vital areas within the plant. Supplementing these systems are dry chemical and CO_2 extinguishers, standpipe systems, and a continuously available fire brigade.

6.2.5. Post-Accident Sampling

Post-accident sampling capability provides for emergency sample collection of containment atmosphere, plant stack halogen and particulate components, and primary coolant. Management implements radiological precautions to limit whole body exposure to 5 rem/individual for sampling and analyses conducted using these systems.

6.2.6. Facilities and Equipment for Offsite Monitoring

States Emergency Management and/or the system load dispatcher provides reports concerning natural occurrences or severe weather conditions that may affect the plant area. Offsite fire departments of Vernon and Brattleboro notify the plant of any fire which might have an impact on the plant. Local Law Enforcement Agencies notify Plant Security of any situation in the area which might have an impact on the plant.

In addition to offsite monitoring equipment at the EOF/RC, Vermont Yankee maintains an offsite environmental monitoring program. Radiological environmental monitoring stations for the site and surrounding area monitor the environment under normal and accident conditions. Radiological environmental monitoring stations have been established in accordance with Technical Specification (Technical Requirements Manual) requirements.

In addition to the analytical capabilities of the EOF, Vermont Yankee has access to outside analytical assistance and laboratory facilities from other non-affected Entergy nuclear sites, State and Federal agencies and other utilities through INPO. This support may include but is not limited to the following:

Massachusetts Department of Public Health (MDPH) through the implementation of the Nuclear Incident Advisory Team (NIAT) Handbook has laboratory analysis capability at the State Contracted laboratories and those laboratories listed in the New England Interstate Radiation Assistance Plan.

Other environmental monitoring and analysis support can be requested and arranged through INPO. The INPO Emergency Resources Manual includes the information necessary to locate and request specialized equipment and technical assistance in the area of offsite radiological monitoring. INPO member utilities and suppliers agree to provide assistance as outlined in the INPO Emergency Resources Manual.
The above facilities have the capability to perform laboratory analyses of various environmental samples (e.g., terrestrial, marine and air). It is also estimated that the analytical assistance and laboratory support will be able to respond within four (4) to eight (8) hours from initial notification.

Additional offsite monitoring equipment and capability can be provided by federal agencies in accordance with the Federal Radiological Emergency Response Plan. As discussed in Section 6.1.6, this additional capability is integrated into existing efforts.

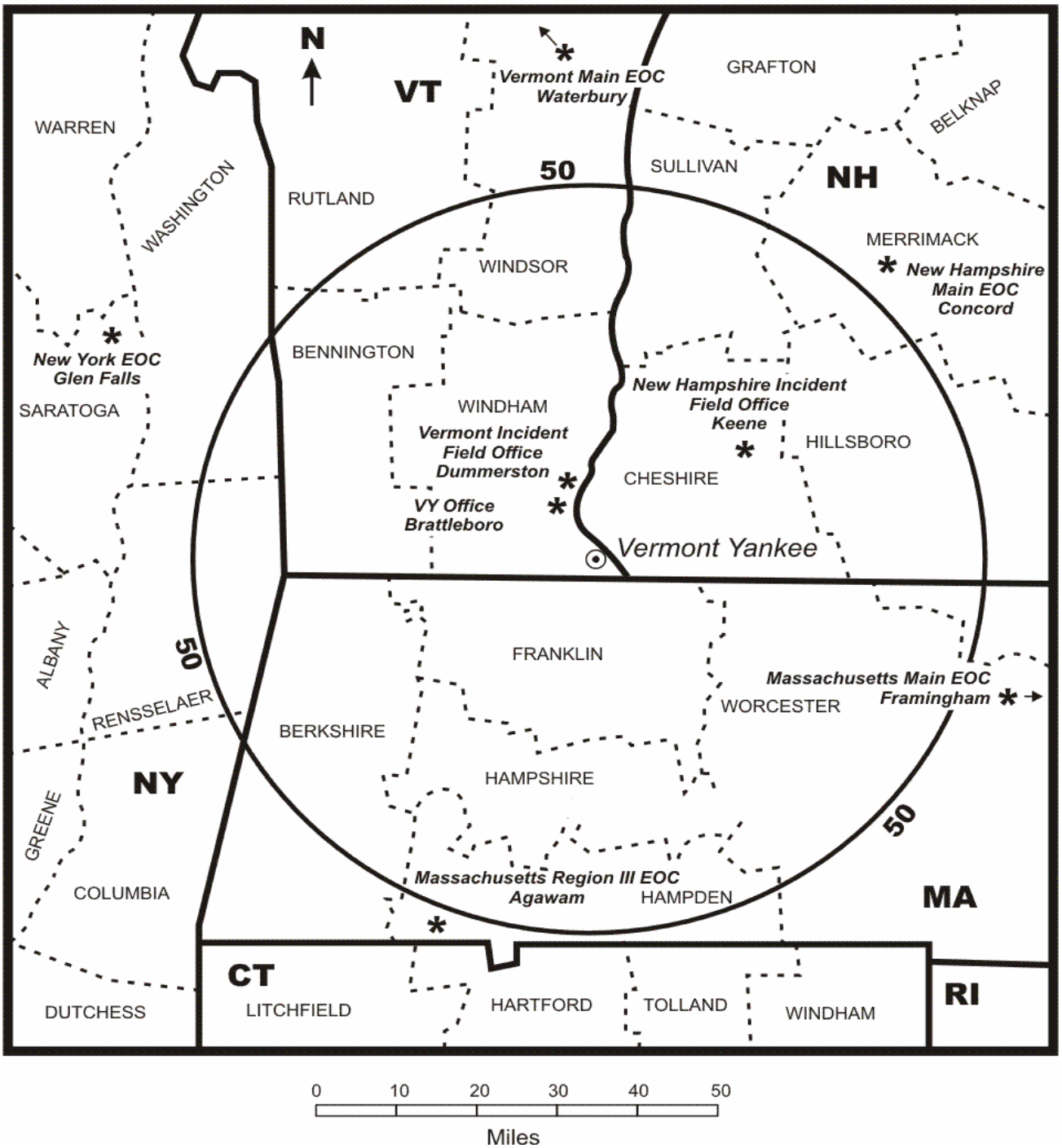
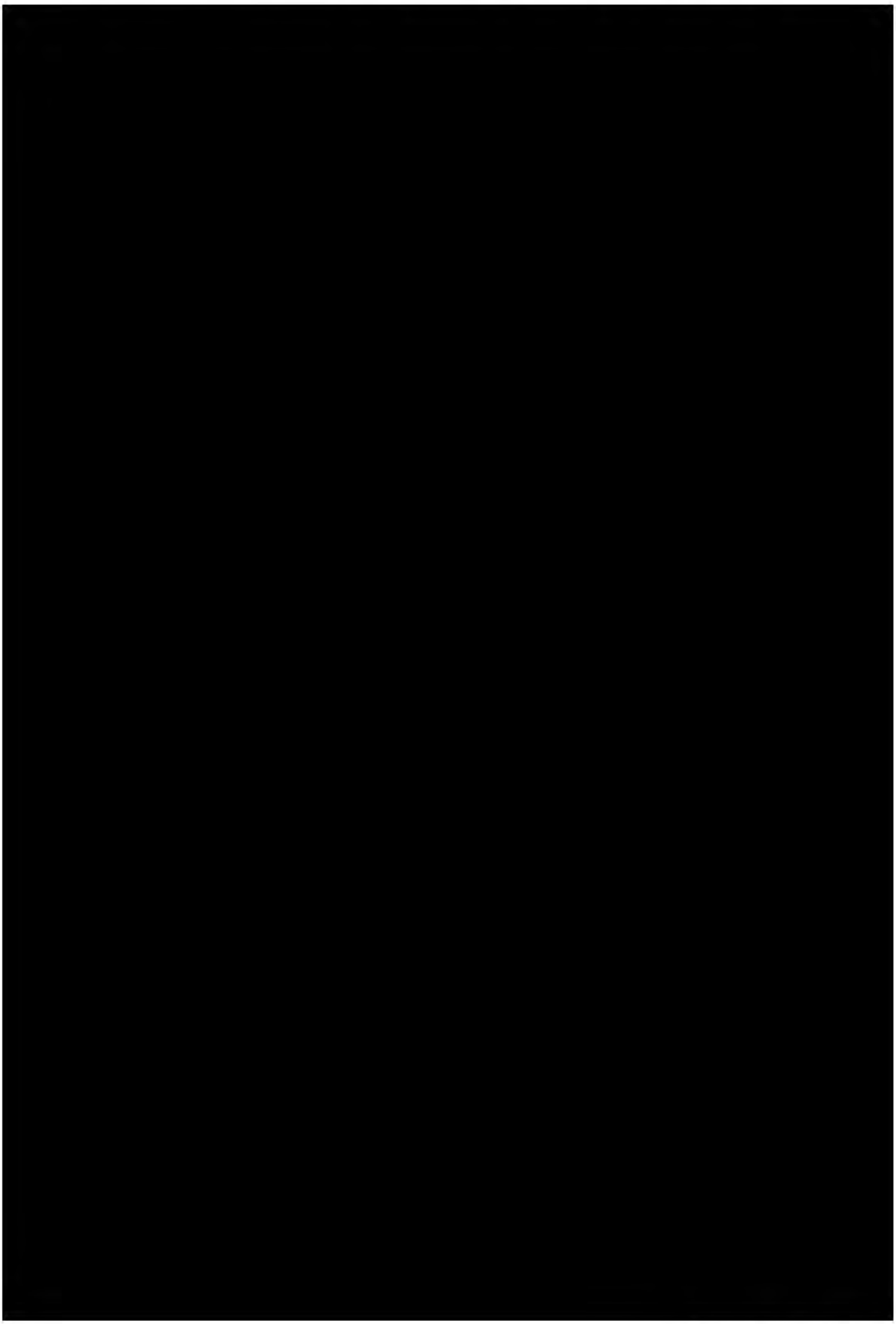
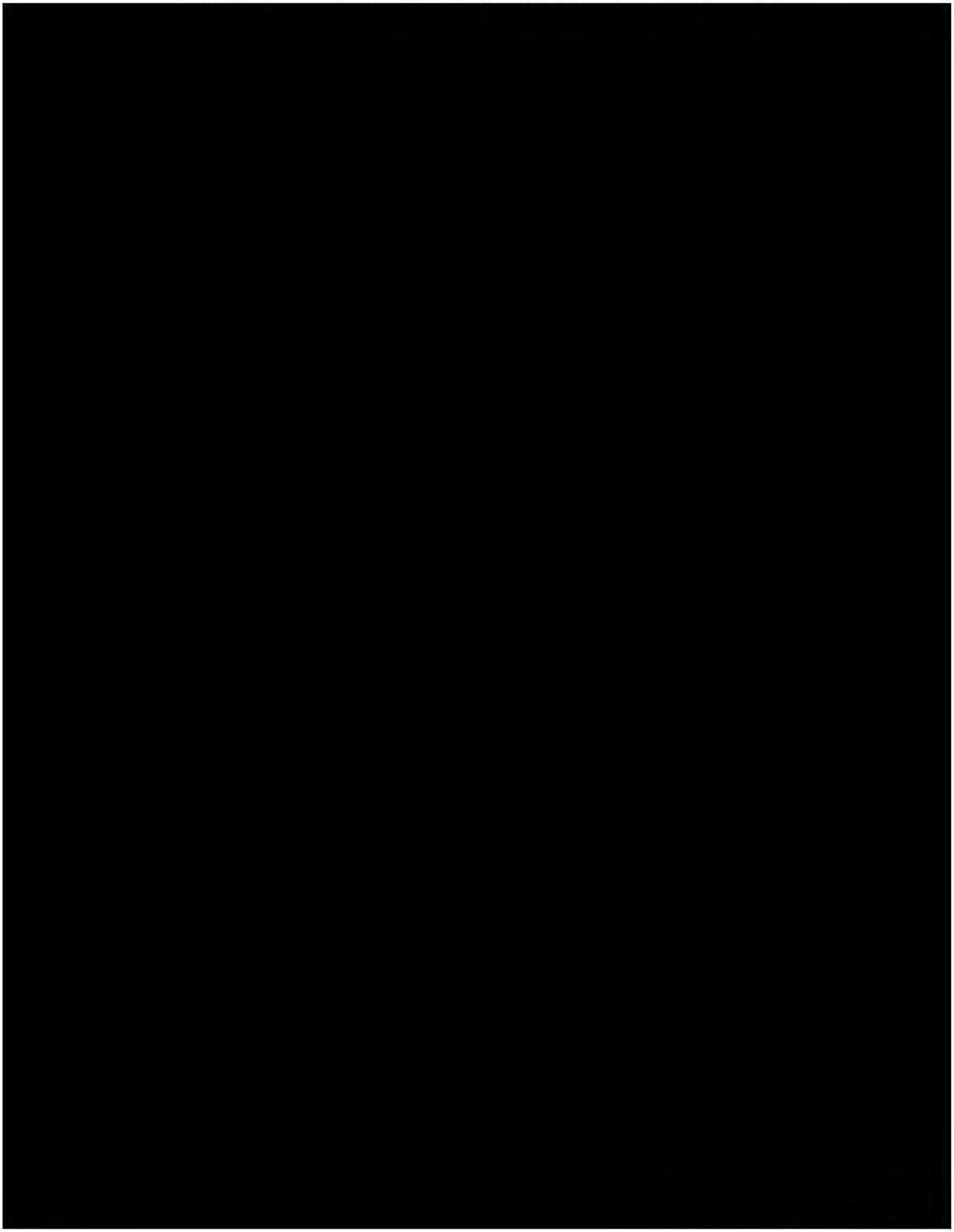


Figure 6.1

Location of State and Company Emergency Operating Centers around Vermont Yankee





7.0 COMMUNICATIONS

The plant staff has available various means of communication systems for effective communications and coordination with offsite and onsite response organizations and/or teams.

A summary of the communication systems is defined in the communication matrix provided in Table 7.1 and outlined below.

7.1. InForm Notification System

The InForm Notification System is located in the Control Room and the Emergency Operations Facility. InForm consists of source and destination computers that take advantage of the internet to send Emergency Notification Forms to the States of Vermont, New Hampshire and Massachusetts during a declared emergency.

This system is staffed on a 24-hour basis on both ends – the Control Room and the State Police dispatching points. The activation of the public notification system starts with this 24-hour State Police link. InForm performs self checks every 10 seconds.

Backup to the InForm Notification System is the Nuclear Alert System.

7.2. Nuclear Alert System

The Nuclear Alert System (NAS), originating in the Control Room, is a system of dedicated phone circuits independent of the normal land line phone system. The NAS can be used to notify the State Police of Vermont, Massachusetts, and New Hampshire of any emergency. This system is a secure (dedicated) communications arrangement and is installed for the primary purpose of initial notification of the States, via State Police, by the plant operators.

This system is staffed on a 24-hour basis on both ends – the Control Room and the State Police dispatching points. The activation of the public notification system starts with this 24-hour State police link. NAS is tested monthly between the plant and the State Police agencies.

The Nuclear Alert System also links the Control Room, the Emergency Operating Centers and Incident Field Offices of Massachusetts, New Hampshire, and Vermont, and the Emergency Operations Facility/Recovery Center (EOF/RC). This communication system incorporates all the principal emergency response centers into a single dedicated network. The Nuclear Alert System network is shown in Figure 7.1 (Control Room Link) and in Figure 7.2 (EOF/RC Link).

Backup to the NAS phone system is the commercial phone system.

7.3. Utility Microwave and Radio Systems

The Utility Microwave and Radio Systems are located in the Control Room. The Utility Microwave is a line-of-sight dedicated system used to notify system load dispatchers of emergency conditions at the plant. The telephone has buttons marked for each load dispatcher. By pushing one of the buttons on the telephone, it rings automatically at the selected location. In the event that communications fail with the NRC due to loss of the commercial telephone system, the load dispatchers are advised that Vermont Yankee will use the Utility Microwave System to provide updates of plant conditions to NRC Region I.

The Utility Radio Net is used as an alternate means of notifying load dispatchers. Load dispatchers have 24-hour manning capability at their organizations. The systems are tested once a week with both organizations.

7.4. Mobile UHF Radio System

The Mobile UHF Radio System is utilized as a primary means of communications for offsite monitoring teams and security personnel; it is the alternate means of communications between the EOF/RC, the Control Room, TSC, and onsite response teams. The System consists of 100-watt UHF repeaters with high gain antennas. These repeaters are activated by any of the six base radio stations located in the Control Room, Secondary Alarm System (SAS), TSC, Security Gate 1 and CAS, and the EOF/RC. Also, the portable units activate the repeater. In the event the repeater fails, a "talk around" feature allows continued communications between portable units. This system is tested daily through operational use of the system.

Security also has the capability to contact via radio the Windham County Sheriff Dispatcher and any Vermont State Police Patrol Vehicle(s) located in close proximity to the plant.

7.5. Plant Intercom System

The Intercom System (Gai-Tronics) is located in many areas throughout the plant, including the Control Room, Technical Support Center, Operations Support Center and Security Gates 1 and 2. This system consists of four channels and is utilized as a paging system during normal operations. During emergency situations, the system is used as the primary means for: (1) notifying plant personnel of the emergency, (2) coordinating the activities of onsite response teams with the Technical Support Center; (3) coordinating activities between Control Room and the Technical Support Center; (4) calling for any missing or unaccounted for personnel that may be in the plant; and (5) communicating between the plant emergency response facilities. This system is in continuous daily use.

7.6. NRC Telephone System

The NRC has utilized the Federal Telecommunications System (FTS) telephone network for its emergency telecommunications system. The FTS system provides a separate (public cannot access) government telephone network which avoid potential public telephone blockage which may occur in the event of a major emergency.

The Emergency Notification System (ENS) utilizes an FTS line which exists between the NRC Operations Office in Rockville, Maryland and the Control Room, with extensions in the Communications Room and the NRC Room (NRC Resident Inspector's Office) of the Technical Support Center. This line is tested daily by the NRC and has a 24-hour manning capability at both organizations.

The Emergency Notification System (ENS) also utilizes a separate FTS line between the NRC Operations Office in Rockville, Maryland and the EOF/RC.

The Health Physics Network (HPN) which utilizes separate FTS lines from the TSC and EOF/RC, allows Vermont Yankee to transmit health physics and environmental information to the NRC through the Operations Center in Rockville, Maryland in a radiological event.

7.7. Commercial Telephone System

The commercial telephone system is used as a primary and alternate means of communications for notification and coordination. For conditions involving telephone company equipment blockage in the local area, alternate external telephone line arrangements have been made available to the plant.

7.8. Emergency Power Supply for Communications

Currently there are several telephone and other emergency communication channels (Gai-Tronics, radio network, and microwave) located within the plant that are connected to an emergency or redundant power supply. All emergency communications (including all phones) located within the plant are connected to an emergency or redundant supply.

There are power fail phones located in the EOF/RC, TSC, and Control Room, which will automatically activate if power is lost to the internal telephone system.

7.9. Facsimile Transmission

High speed, quality facsimile equipment is located at the Technical Support Center (TSC), Operations Support Center (OSC), Emergency Operations/Recovery Center, Joint Information Center (JIC), and each respective state's Emergency Operation Center (EOC). This is used to transmit pertinent data and information concerning the emergency among these facilities.

7.10. Emergency Response Data System

The Emergency Response Data System (ERDS) is a direct real-time electronic transmission of the following types of parameters to the NRC to assist them in monitoring the status of an emergency:

- Core and coolant system data,
- Containment building data,
- Radioactivity release data, and
- Site meteorological data.

Vermont Yankee maintains a continuous ERDS connection with the NRC Operations Center.

TABLE 7.1

VERMONT YANKEE EMERGENCY COMMUNICATIONS MATRIX

	CALLING FROM				
CALLING TO	CR	TSC	OSC	EOF	JIC
Technical Support Center (TSC)	1, 4, 5, 7	-	-	-	-
Operations Support Center (OSC)	1,7	1,7	-	-	-
Emergency Operations Facility (EOF)	1, 2, 4	1, 4, 10	1	-	-
Joint Information Center (JIC)	1	1,10	1	1,10	-
Offsite and Site Boundary Monitors	1, 4	1, 4	1	1, 4	1
Nuclear Regulatory Commission	1, 5	1, 5, 6	1	1, 5, 6	1
State Police (VT, NH, MA)	1,2	1	1	1, 2	1
State EOCs (VT, NH, MA)	1, 2, 9	1	1	1, 2, 9, 10	1
Vermont Yankee Plant Security	1, 4, 7	1, 4, 7	1, 7	1, 4, 7	1
Vermont Yankee Emergency Response Personnel	1, 8	1, 8	1, 8	1, 8	1, 8

KEY

1 Commercial Telephone System
2 Nuclear Alert System
3 Utility Microwave
4 Mobile UHF Radio System
5 Emergency Notification System
6 Health Physics Network
7 Gai-Tronics
8 Personnel Pager System
9 Southwest Fire Radio
10 Facsimile Transmission

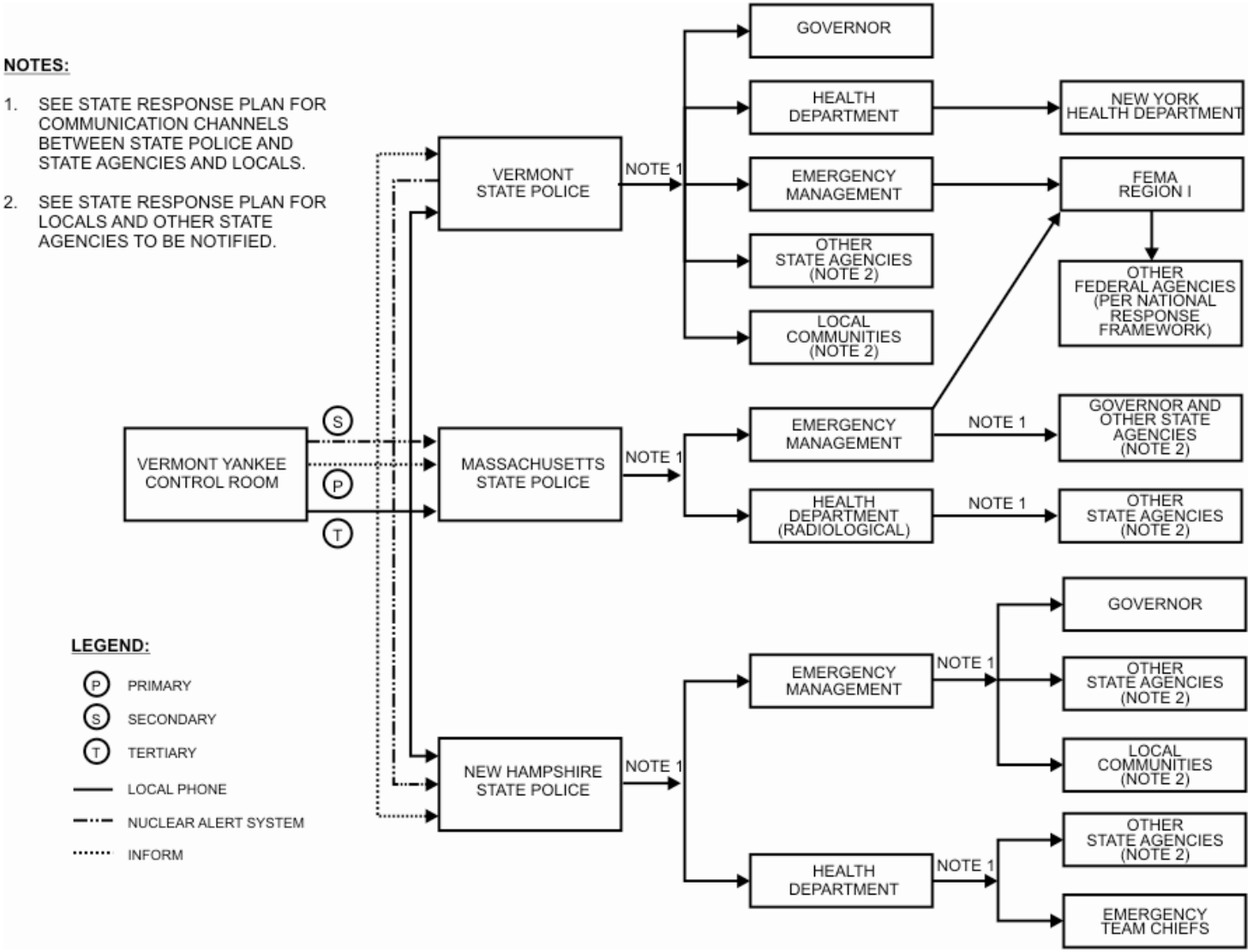


Figure 7.1

Plant to State Notification Channels

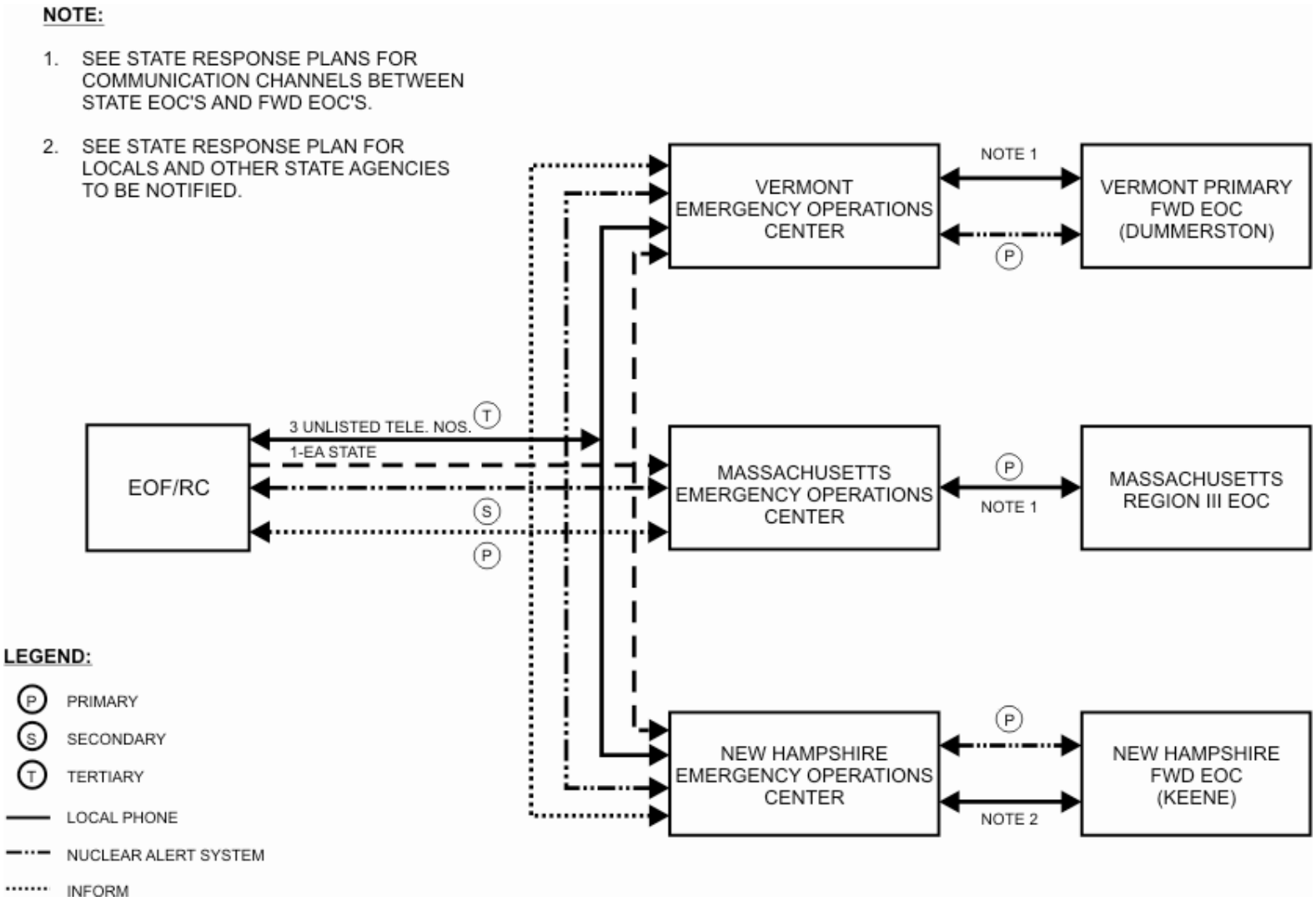


Figure 7.2

Coordination Channels with States

8.0 ORGANIZATION

This section describes how the normal plant and engineering support organization transform into an emergency response organization to effectively deal with any incident at Vermont Yankee.

8.1. Normal Plant Organization

Vermont Yankee's normal operation and management organization consist of the onsite facility organization supported by the engineering and management organizations located offsite. The relationship and content of these onsite and offsite organizations are specified in the plant Technical Specifications, Technical Requirements Manual or Entergy Quality Assurance Manual.

During normal operations, the minimum staff on duty at the plant during all shifts consists of one (1) Shift Manager, one (1) Control Room Supervisor, two (2) Control Room Operators, six (6) Auxiliary Operators, one (1) Shift Technical Advisor, one (1) Radiation Protection Technician, one (1) Chemistry Technician and security personnel as indicated in Figure 8.1. The responsibility for determining the status of the plant in an emergency is assigned to the Shift Manager or, in his absence from the Control Room, to the Control Room Supervisor who has the authority and responsibility to immediately initiate any emergency actions, including emergency classification and notification. Additional personnel are available on an on-call basis to respond to plant emergencies. Corrective action and repair, as outlined in Table 8.4, is performed by Operations staff on-shift until supplemented by additional ERO staff.

8.2. Emergency Response Organization

The Vermont Yankee emergency response organization is activated in part or in whole, depending upon the condition classification determined by the normal plant operations crew in the Control Room. Vermont Yankee's emergency response organization is divided into onsite and offsite elements. The Vermont Yankee Emergency Management Organization is shown in Figure 8.2. Staffing for the onsite emergency response facilities is shown in Figure 8.3 (Technical Support Center) and Figure 8.4 (Operations Support Center). Staffing for the off-site emergency response facilities is shown in Figure 8.5 (Emergency Operations Facility/Recovery Center). All or portions of these organizations are activated depending upon the emergency classification.

Elements of the emergency response plan are activated subsequent to an emergency declaration by the Shift Manager; designated company personnel are notified and will report to designated locations. The emergency response action of the personnel already present are performed on a priority basis depending on the emergency conditions and the immediate need which those conditions dictate as determined by the onshift operations crew. The specific priorities facing the emergency response forces in the various locations cannot be pre-established. They would be specific to the nature of the emergency and variable with time as it proceeds.

Plans and procedures have been put into place to ensure the timely activation of emergency response facilities. Although the response time will vary due to factors such as weather and traffic conditions, a goal of sixty (60) minutes for activation has been established for onsite emergency facilities including the EOF.

For this reason, the coordinators and managers in the emergency response facilities are charged with the responsibility of determining the priority of response functions when initially activated and assembled, and ensuring that the needed functions be performed on the basis of the priority determination. This process of prioritizing needs and addressing them accordingly is specified in the Emergency Plan's implementing procedures.

In emergency situations, the Shift Manager, Emergency Plant Manager, or OSC Manager can authorize actions, without following the complete work order process, if these actions prevent the following:

- Loss of important equipment,
- Personnel injury, or
- Plant trip.

The Emergency Plant Manager and OSC Manager are responsible for updating the Shift Manager when plant systems will be taken out and returned to service.

The titles of positions in the Vermont Yankee Emergency Management Organization are shown in Figure 8.2.

8.2.1. Emergency Director

The Emergency Director is a manager of Vermont Yankee who has the requisite authority, management ability, technical knowledge, and staff to manage the site emergency and recovery organization. The Emergency Director is responsible for the direction of the total emergency response and has the company authority to accomplish this responsibility.

The Emergency Director's principal responsibilities are to:

1. Assume overall responsibility, from the Shift Manager for the response actions necessary for control of the accident and protection of emergency personnel and the public;

2. Assume responsibility from the Shift Manager for offsite States' notification; (non-delegable)

3. Assume responsibility, from the Shift Manager for authorization of escalation, and de-escalation of the emergency;

4. Assume responsibility, from the Shift Manager for authorization and transmittal of offsite protective action recommendations; (non-delegable)

5. Manage all emergency elements required to restore the plant to a safe condition;

6. Coordinate accident information and assume the role of utility liaison with offsite governmental authorities;

7. Request and direct the use of outside support for recovery operations (e.g., equipment, manpower, services);

8. Resolve issues concerning operating license requirements with NRC representatives;

9. Approve public information releases; and

10. Perform or direct the emergency response organization manpower planning effort to assure the availability of sufficient staff to implement all necessary functions, should the emergency response efforts be over a prolonged period.

The Emergency Director or designated alternate is notified of all emergency conditions occurring at the plant. For Alert, Site Area Emergency and General Emergency conditions, the Emergency Director reports to the EOF/RC and directs the activities of the emergency response organizations throughout the emergency condition and until the recovery activities have been terminated.

8.2.2. Emergency Plant Manager

The Emergency Plant Manager has direct responsibility for the conduct of operations at the plant. During an emergency situation, the Emergency Plant Manager is responsible for the overall supervision and coordination of the onsite emergency response activities and directs the activities of the Technical Support Center until the accident is terminated. The Emergency Plant Manager's primary responsibilities are to:

1. Direct the onsite activities required to restore the plant to a safe condition;

2. Provide technical accident assessment and support to terminate the accident;

3. Analyze instrument and control problems, design and coordinate the installation of short-term modifications, and define emergency operation procedures during the modification period;

4. Analyze problems in the area of system operations, determine emergency procedures related to system operations and establish shift operations support, if applicable;

5. Develop guidance for plant shift operations concerning plant protection of the reactor core;

6. Oversee the accumulation, retention, retrieval and transmission of vital plant parameters required to analyze the accident progression and subsequent termination;

7. Provide assistance to the Shift Manager or Emergency Director on the escalation and de-escalation of the emergency classification as conditions warrant;

8. Initially direct the activities of onsite and offsite teams until EOF becomes operational.

A qualified manager assumes the role of Emergency Plant Manager under all emergency conditions. To assist the Emergency Plant Manager, the TSC is staffed by representatives from the following departments as depicted in Figure 8.3:

- Operations
- Maintenance
- Reactor Engineering
- Engineering
- Chemistry (in the OSC)
- Radiation Protection
- Security (stationed at the off site command post)

8.2.3. Shift Manager

The Shift Manager is the Duty Shift Manager. The alternate is the Control Room Supervisor of the assigned operating crew in the Control Room at the time of the emergency. The Shift Manager is responsible for initiating emergency actions to limit the consequences of the event and bring it under control. The immediate responsibilities of the Shift Manager include performing or delegating performance of the following:

1. Recognition of emergency conditions by observation of characteristic emergency action levels (EALs);

2. Classifications of accident conditions in accordance with the emergency classification system;

3. Implementation of emergency operating procedures applicable to the event condition;

4. Initiation of the appropriate emergency plan implementing procedure;

5. Prompt notification of Vermont, New Hampshire and Massachusetts State Police indicating the event classification;

6. Notification of the NRC indicating the event classification;

7. Initial offsite dose assessment activities; and

8. Offsite protective action recommendation and initial transmittal to State officials.

Subsequent responsibilities undertaken by the Shift Manager include:

1. Notification of appropriate plant and company management personnel of the emergency conditions;

2. Direction and coordination of all initial emergency response efforts until the support elements of the emergency response organization are activated; and

3. Limiting the consequences of the accident and restoring the plant to a safe condition.

As part of the plant notification system, the Shift Manager has selected plant management and department head personnel notified using a radio paging/telephone system. This is the mechanism for mobilizing plant support personnel and activating the remainder of the onsite emergency response organization.

8.2.4. EOF Manager

The EOF Manager is a designated staff member of Vermont Yankee management specifically trained to be responsible for the facility Emergency Plan with respect to operation of the EOF/RC. The EOF Manager's primary responsibilities are to:

1. Establish the Emergency Operations Facility when required;

2. Assess Emergency Operations Facility habitability via the Radiological Assessment Coordinator;

3. Prepare the Emergency Operations Facility for the arrival of offsite authorities and other support personnel.

A designated Vermont Yankee management staff member assumes the role of the Emergency Operations Facility Manager at an Alert or higher emergency classification. The EOF Manager is responsible for reporting to the Emergency Director.

8.2.5. Operations Support Center Manager

A member of the plant staff is assigned to coordinate the functions of the Operations Support Center. The responsibilities of the Operations Support Center Manager include:

1. Provide system valve alignment and equipment operation support to the Shift Manager;

2. Assist in coordinating recovery efforts as requested by the Emergency Plant Manager;

3. Provide Radiation Protection and Chemistry support for the in-plant emergency radiation protection and sampling activities;

4. Assign available personnel to the following emergency team function as necessary:

    a. Site Boundary Survey Monitoring Team

    b. Offsite Monitoring Teams

    c. Repair and Corrective Action/Rescue Team

5. Brief OSC teams on in-plant radiation protection controls.

The OSC Manager directs the OSC and maintains this facility until the termination of the event. The OSC Manager establishes a base of operations in the OSC, but may find it necessary to go to the TSC from time to time.

8.2.6. Radiological Assessment Coordinator

During emergency conditions, the Radiological Assessment Coordinator is responsible for the development of plans and procedures to assess and control radiological exposure in support of and consistent with the emergency response and recovery organization objectives. The primary emergency responsibilities of the Radiological Assessment Coordinator include:

1. Assess the onsite and offsite radiological conditions associated with any accidental releases.

2. Evaluate offsite doses based on radiation monitoring performed by monitoring personnel;

3. Provide support to the TSC to ensure onsite protective action recommendations (i.e., decontamination procedures, protective clothing, etc.) are being considered and carried out;

4. Continuously update the Emergency Director concerning dose assessment results and recommend offsite radiological protective actions to the Emergency Director;

5. Recommend administrative limits for radiological exposure control of emergency workers in keeping with those specified in Table 10.2 and maintain the necessary records; and

6. Review plans and schedules of tasks with appropriate managers and coordinator of the recovery organization concentrating on radiation protection procedures.

7. Establish the coordination of radiological analysis of offsite samples;

8. Receive and document all sample results;

9. Coordinate the assessment activities and resolve any discrepancies with offsite response and assistance organizations.

The immediate priority of the Radiological Assessment Coordinator and staff is radiological analysis of air samples taken by offsite monitoring teams. For the long-term, additional duties include the analysis of contamination levels in area vegetables, fruits, milk, or water, and soil samples. To accomplish this long-term requirement, the Radiological Assessment Coordinator works closely with the services provided by support organizations (e.g., Environmental Lab).

8.2.7. Administration and Logistics Coordinator

The Administration and Logistics Coordinator is authorized to provide administrative, logistic and communication services for the emergency organization at the site. Specifically, the responsibilities of the Administration and Logistics Coordinator include:

1. Function as an aid to the Emergency Director;

2. Acquire the resources required by all site emergency management disciplines;

3. Assist in arranging for near-site accommodations (i.e., housing, transportation, etc.) of incoming emergency response personnel;

4. Assist in arranging for food and potable water for personnel at all emergency response centers;

5. Maintain adequate contractual communication services for the site emergency organization; and

6. Initially be responsible for procurement using established emergency procurement procedures.

NOTE: Subsequently, normal Purchasing Department operations and procedures are used as directed by the Emergency Director.

The Administration and Logistics Coordinator establishes operations at the EOF/RC and assists the Emergency Director, as requested.

8.2.8. Security Coordinator

The Security Coordinator directs the security personnel in maintaining required security in support of the emergency operations. The functional responsibilities of the Security Coordinator include:

1. Establish security around the plant site and/or any other areas identified by the Shift Manager;

2. Call for required offsite police support, if necessary;

3. Manage site evacuation;

4. Provide initial accountability of personnel in the protected area; and

5. Maintain overall plant security in accordance with the Plant Security Plan.

The Security Coordinator interfaces with the Emergency Plant Manager for in-plant security actions. The Security Coordinator is stationed at the off-site command post.

8.2.9. Company Spokesperson

The Company Spokesperson is authorized to provide the public with information concerning the emergency. The emergency responsibilities of the Company Spokesperson include:

1. Establish a Joint Information Center when necessary;

2. Coordinate information at the Joint Information Center with counterparts from local, state and federal agencies and with other companies involved with the emergency; and

3. Present terminology concerning accident conditions in an easily understood and informative manner to the press.

During an emergency, the Company Spokesperson reports to the Emergency Director. The Manager of Communications or a designated alternate fills the position of the Company Spokesperson.

8.2.10. Decision Maker

During implementation of Severe Accident Management (SAM), the senior licensed individual in the TSC will assume the role of Decision Maker as defined in the SAM Guideline.

8.2.11. Engineering Support Group

The Engineering Support Group is an engineering group established to provide emergency support for plant assessment and recovery operations. This group is activated for an Alert, Site Area and General Emergency. The support group includes personnel from the various onsite engineering groups. In addition, the engineering support group may access offsite engineering resources through the support programs listed in Appendix G. This group resides in the Technical Support Center, and communicates with offsite technical support personnel. This group has access to the technical expertise to provide a variety of emergency functions, such as engineering analyses and plant system assessment in support of recovery efforts.

8.3. Recovery Organization

The emergency measures presented in this plan are actions designated to mitigate the consequences of the accident in a manner that affords the maximum protection to the public. Planning for the recovery mode of operations involves the development of general principles and an organizational capability that can be adapted to any emergency situation. The emergency response organization described in Section 8.1 and 8.2 provides the foundation for such a recovery organization.

The Emergency Director directs the recovery organization. As indicated in Figures 8.1 through 8.5, the organization relies on more than plant staff and/or resources to restore the plant to normal conditions. The expertise provided through the support plans is available to aid with the necessary corrective actions required to control and/or restore normal plant status. Various State and Federal support groups augment the recovery organization. The following is a brief summary of the recovery organization's responsibilities:

1. Maintain comprehensive radiological surveillance of the plant to assure continuous control and recognition of problems;

2. Control access to the area and exposures to workers;

3. Decontaminate affected areas and/or equipment;

4. Conduct clean-up and restoration activities;

5. Isolate and repair damaged systems;

6. Document all proceedings of the accident and review the effectiveness of the emergency organization in reducing public hazard and/or plant damage;

7. Provide offsite authorities with status report as to the operations capabilities of the plant;

8. Provide assistance to recovery actions undertaken by state/local authorities, if requested; and

9. Provide the public with information on the status of the recovery efforts (i.e., via press, TV/radio, etc.).

When plant conditions allow a transition from the emergency phase to the recovery phase, the Emergency Director conducts a plant emergency management meeting to discuss the recovery organization. The actions taken by this organization concerning termination of the emergency proceeds in accordance with a recovery plan developed specifically for the accident conditions.

8.4. Extensions of Vermont Yankee Emergency Organization

8.4.1. Local Service

Arrangements have been made for the extension of the emergency organization capability for handling emergencies to provide for:

1. Transportation of injured personnel using an ambulance service;

2. Treatment of radioactively contaminated and injured personnel at a local support hospital (Brattleboro Memorial and Baystate Franklin Medical Center) and other regional medical facilities as specified in the local support hospital plans; and

3. Fire support services by the Vernon and Brattleboro Fire Departments and the Tri-State and Southwestern Fire Mutual Aid Networks.

4. Law enforcement support services provided by local, county, state, and federal law enforcement authorities as appropriate and response capabilities are documented in the letters of agreement maintained by Security.

Evidence of agreements with participating local services is found in Appendix E, Vermont Yankee Fire Protection, Appendix R Program, and the Annual Law Enforcement Letters of Agreement (Safeguards Information) maintained by Security.

8.4.2. Federal Government Support

Resources of federal agencies appropriate to an emergency condition are made available in accordance with the National Response Framework. This plan and the resources behind it are activated through the plant notification of the NRC. Many resources are made available, as deemed necessary by the emergency condition, including a major effort under the leadership of the Department of Energy applied to the area of offsite radiological impact assessment. This effort can involve manpower and equipment for extensive plume measurement, including aerial monitoring and tracking, and sampling and analysis of ingestion pathway media.

8.4.3. Additional Support

Dependent upon the emergency condition and response needs, the Vermont Yankee emergency organization can be augmented by manpower and equipment support from the remainder of the Entergy Nuclear organization. This support capability is outlined in the Corporate Support procedure as referenced in Appendix G.

Should response support beyond this level be required, additional support from other nuclear industry organizations can be requested through interface with the Institute of Nuclear Power Operations (INPO). Informational notifications are provided to this organization whenever emergency conditions escalate to an Alert or greater emergency condition. The decision to request additional industry support is a responsibility of the Emergency Director. All industry support organizations reporting to the site are assigned by emergency management, located in the EOF/RC, who specifies their authorities, responsibilities and any limits on their actions. All responding parties are required to adhere to existing plant procedures while completing their assignments.

8.5. Coordination with State Government Authorities

Because of the location of the Vermont Yankee Plant, the planning and/or action responsibilities at the state level involves coordination of three states; Vermont, New Hampshire, and Massachusetts. Section 7.0 describes the extensive communications network between Vermont Yankee and these states as a means of promptly notifying appropriate authorities under accident conditions. Table 8.3 provides a summary of emergency plan areas and the associated plant, state and local responsibilities.

The Shift Manager initiates the coordination effort by notifying Vermont, New Hampshire and Massachusetts State Police, providing them with an established message format that describes the accident status. Based on the emergency class, the State emergency response personnel are alerted and/or mobilized. To ensure effective coordination of offsite emergency response actions, representatives of each state are assigned to report to the EOF/RC for first-hand emergency information and assessment. They are provided space in the EOF/RC as shown in Figure 6.4. The Emergency Director or designee issues periodic accident reports to the responding State Representative. Each state representative is responsible for transferring the content of these status reports to their respective State Emergency Operating Center (EOC). If additional technical expertise is required by state authorities at the state Emergency Operating Centers (EOCs), the Emergency Director can authorize dispatching of technical support staff to assist them in comprehension of any emergency communications.

Based upon the accident assessment, protective measures are recommended and implemented by each state according to actions and decisions prescribed by each state's Emergency Plan. The Vermont Health Department will notify the New York State Department of Public Health concerning all ingestion pathway considerations. Additional state support can be called upon from any or all other New England states through the agreement specified in the New England Compact on Radiological Health Protection.

TABLE 8.3
(Page 1 of 3)

A SUMMARY OF OFFSITE COORDINATION

EMERGENCY PLAN FUNCTION	PLANT RESPONSIBILITY	STATE RESPONSIBILITY	LOCAL RESPONSIBILITY
Protective Action Decision Making	The Shift Manager issues the initial protective action recommendation.	State Police receive the initial notification whereupon they activate the State fan-out notification process.	The State Directors of Emergency Management Agencies will notify either the local emergency management directors or the selectmen of the recommended action and advise.
	After the Emergency Director (ED) assumes overall responsibility, the ED will issue protective action recommendations to the appropriate State authorities (non-delegable).	In the State of Vermont, the Director of the Vermont Emergency Management Agency and the Director of the Division of Occupational Health and Radiological Health and Safety would activate. In the Commonwealth of Massachusetts, the Director of the Massachusetts Emergency Management Agency and the Director of the Radiation Control Branch of the Massachusetts Department of Public health would activate. In the State of New Hampshire, the Director of the New Hampshire Office of Emergency Management and the Division of Public Health Services would activate.	

TABLE 8.3 (Continued)
(Page 2 of 3)

A SUMMARY OF OFFSITE COORDINATION

EMERGENCY PLAN FUNCTION	PLANT RESPONSIBILITY	STATE RESPONSIBILITY	LOCAL RESPONSIBILITY
Protective Action Decision Making (continued)		Each State Health representative would call or report to the plant for the follow-up protective action recommendation issued by the Emergency Director. Each State Health representative will review all factors and issue a final recommendation to the Directors of State Emergency management Agencies, who, in turn, will initiate response actions to implement this recommendation. A coordination between the States will decide the time to implement the proposed actions, including activating the public alert and instructional methods (e.g., siren activation/NOA message, etc.)	
Coordination of Radiological Data	The Radiological Assessment Coordinator is responsible for compiling offsite monitoring results and for ensuring an effective deployment of monitoring personnel as well as coordinating information transfer.	Each State Health representative at the EOF/RC will request monitoring updates from the EOF Manager. In the State of Vermont, the Director of the Division of Occupational & Radiological Health & Safety will command this function at the State EOC.	Local communities rely on State capability for radiological evaluation.

TABLE 8.3 (Continued)
(Page 3 of 3)

A SUMMARY OF OFFSITE COORDINATION

EMERGENCY PLAN FUNCTION	PLANT RESPONSIBILITY	STATE RESPONSIBILITY	LOCAL RESPONSIBILITY
Coordination of Radiological Data (continued)	The Emergency Director will advise the State response personnel of results.	In the Commonwealth of Massachusetts, the Director of the Radiation Control Branch of the Massachusetts Department of Public Health will command this function at the State EOC. In the State of New Hampshire, the Director of the Division of Public Health Services will command this function at the State EOC.	
Plant Access Control	The Security Coordinator coordinates plant site security and offsite law enforcement support as necessary.	State Police would respond as directed by the Directors of the Emergency Management Agencies.	Local police would assist as directed by the State Police.
Evacuation Process	Shift Manager will sound evacuation alarm under Site Area or General Emergencies. OSC Manager will direct personnel to monitor all plant evacuees.	State Emergency management Agencies will coordinate the activation of the Public Notification System. Health and Human Services or Red Cross representative will coordinate the establishment of Reception Centers.	
Public Information Release	The Emergency Director issues final approval prior to release. The Public Information Liaison at the EOF/RC relays accident status reports to the Joint Information Center. The Company Spokesperson releases the information to the media.	State press personnel report to the Joint Information Center. State press personnel coordinate releases with the Company Spokesperson.	Media inquiries are referred to the Joint Information Center.

Table 8.4
(Page 1 of 2)
MINIMUM STAFFING REQUIREMENTS FOR THE ENVY ERO

FUNCTIONAL AREA	MAJOR TASKS	ENVY POSITION TITLE[1]	RESPONSE TIME
Plant Operations & Assessment of Operational Aspects		Shift Manager (1)	On Shift
		CRS (1)	On Shift
		CRO (2)	On Shift
		AO (6)	On Shift
		STA (1)	On Shift
Emergency Direction & Control (Emergency Coordinator)***		Shift Manager (1**)	On Shift
Notification / Communication****	Notify Licensee, State local and federal personnel & maintain communication	STA/ AO STA/Offsite Comm/ENS Comm/Chem.Tech (1) [3] STA/Offsite Comm/ENS Comm/Chem.Tech (2) [3]	On Shift 30 min. 60 min.
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Operations Facility (EOF) Director Offsite Dose assessment	EOF Emergency Director (1)	60 min.
		Shift Mgr/CRS/STA/Chem Tech RP Staff (1)[4]	On Shift 30 min.
	Off site surveys	Field monitoring teams (2) Field monitoring teams (2)	30 min. 60 min.
	Onsite (out of plant)	Shift RP tech (1) Field monitoring teams (1) [3] Field monitoring teams (1)	On Shift 30 min. 60 min.
	In plant surveys	Shift RP Tech (1) RP staff (1) RP staff (1)	On Shift 30 min. 60 min.
	Chemistry / Radiochemistry	Shift Chem. Tech (1) Chem staff (1)	On Shift 60 min.
Plant System Engineering	Shift Technical Advisor	STA (1)	On Shift
	Core/Thermal hydraulics	TSC RE (1) [3]	30 min.
	Electrical	TSC Manager / TSC Engineering staff (1)	60 min.
	Mechanical	TSC Manager / TSC Engineering staff (1)	60 min.
Repair & Corrective Actions	Mechanical Maintenance	Shift AO (1**)	On Shift
	Mechanical Maintenance	Maintenance (1)	60 min.
	Rad Waste operator	AO/CRO (1)	60 min.
	Electrical Maintenance / Instrumentation & Control Technician	Shift AO (1**) Maintenance (1) Maintenance (1)	On Shift 30 min. 60 min.
	Instrumentation & Control Technician	Maintenance (1)	30 min.

Table 8.4 (Continued)
(Page 2 of 2)
MINIMUM STAFFING REQUIREMENTS FOR THE ENVY ERO

FUNCTIONAL AREA	MAJOR TASKS	ENVY POSITION TITLE[1]	RESPONSE TIME
Protective Actions (In Plant)	Radiation protection, access control, HP coverage for repair, corrective actions, search & rescue, first aid & firefighting, personnel monitoring, dosimetry	Shift AO (2**) [2] RP (2) RP (2)	On Shift 30 min 60 min
Fire Fighting		Fire brigade* (5**) [1] Local support Local support	On Shift 30 min. 60 min.
Rescue Operations & First Aid		Fire brigade (2**) Local support Local support	On Shift 30 min. 60 min.
Site Access Control & Personnel Accountability	Security, communications, personnel accountability	Security Force	On Shift

NOTE: Response times are from NOTIFICATION of the event and are based on optimum travel conditions.

* Position staffed in accordance with Technical Requirements Manual and Administrative procedures.

** May be provided by shift personnel assigned other functions

*** Overall direction of facility response to be assumed by EOF director when all centers are fully staffed. Direction of minute to minute facility operations remains with senior manager in technical support center or control room.

**** May be performed by engineering aide to Shift Manager (STA for ENVY)

NOTES

1. AP 0894 specifies minimum shift staffing requirements. FB requires 5 persons per TRM and the Vermont Yankee Nuclear Power Station On-Shift Staffing Analysis. The staffing analysis is maintained as a controlled document and is effective 30 days after OSRC approval. STA and Chemistry Tech must be available within 10 minutes to the Control Room. VY letter to NRC dated 4/14/1981 (FVY 81-65) establishing position. VY letter to NRC 6/22/1982 (FVY 82-75) Supplement –NUREG 0737 Item III.A.1.2 on training of on-shift staff to support VY position for staffing. VY letter to NRC 4/14/1981 (FVY 81-65) TMI Action Plan Item III.A.1.2, goal for augmentation of staff. VY letter to NRC 6/15/82 (FVY 82-70) Results of Augmentation drills to support use of goals. Titles of ENVY ERO positions are shown.
2. All AOs use digital dosimeters with features for dose rate and total dose monitoring. AOs are trained to self-monitor in an emergency.
3. ENVY has designated pager holders who staff positions required to meet minimum staffing to activate TSC, OSC and EOF (see E Plan Figures 8.3 through 8.5). There are a minimum of 4 persons per position (4 teams who rotate duty). However, all persons on teams are expected to respond. In addition, all other ERO personnel not on pagers are notified by the emergency call-in notification system and are expected to respond.
4. The on-shift Shift Manager, CRS, STA, and Chem Tech have the capability to do initial dose assessment and PAR. The TSC and EOF radiation assessment staff relieves them of this function.

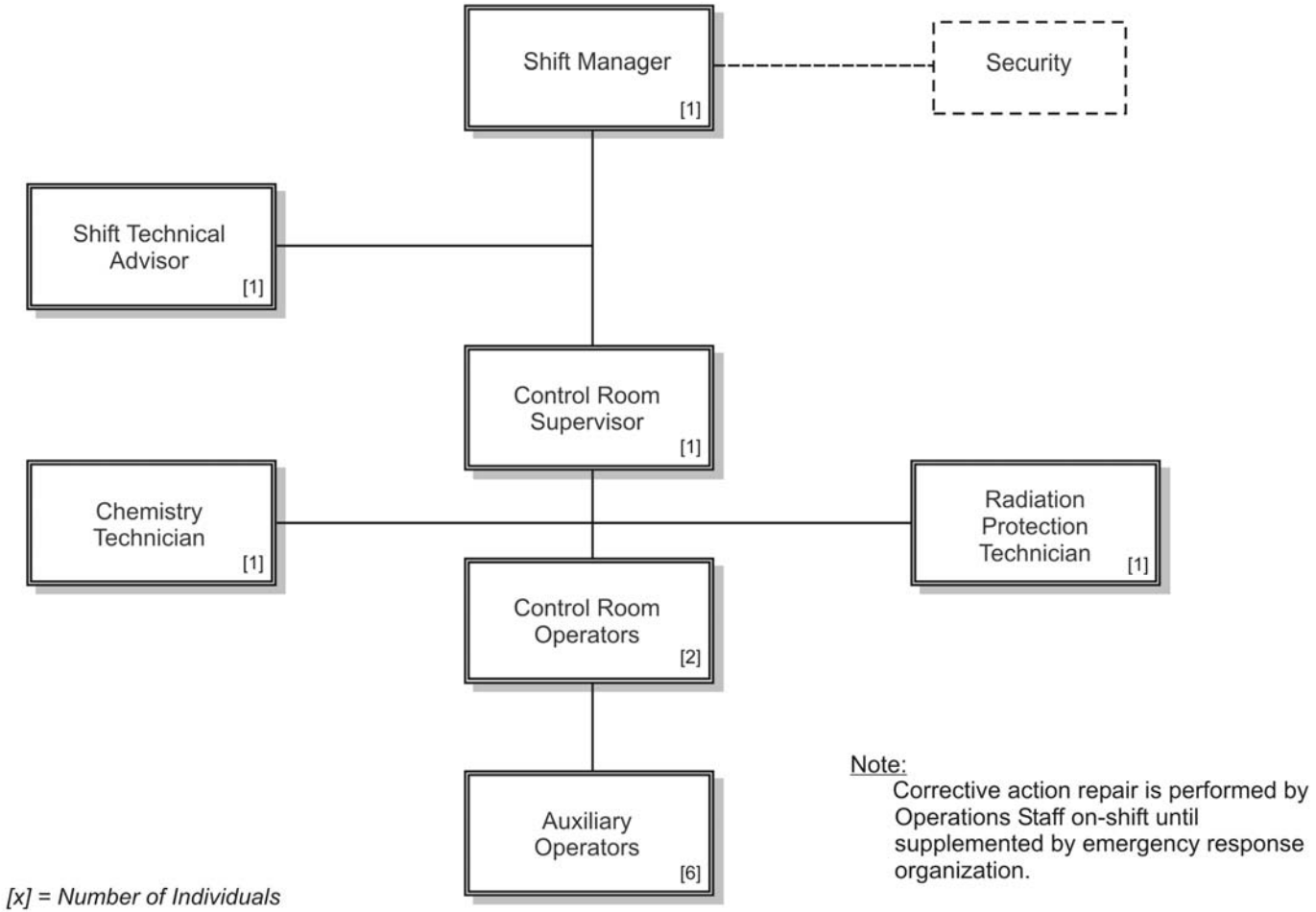


Figure 8.1

Normal On-shift Emergency Organization.

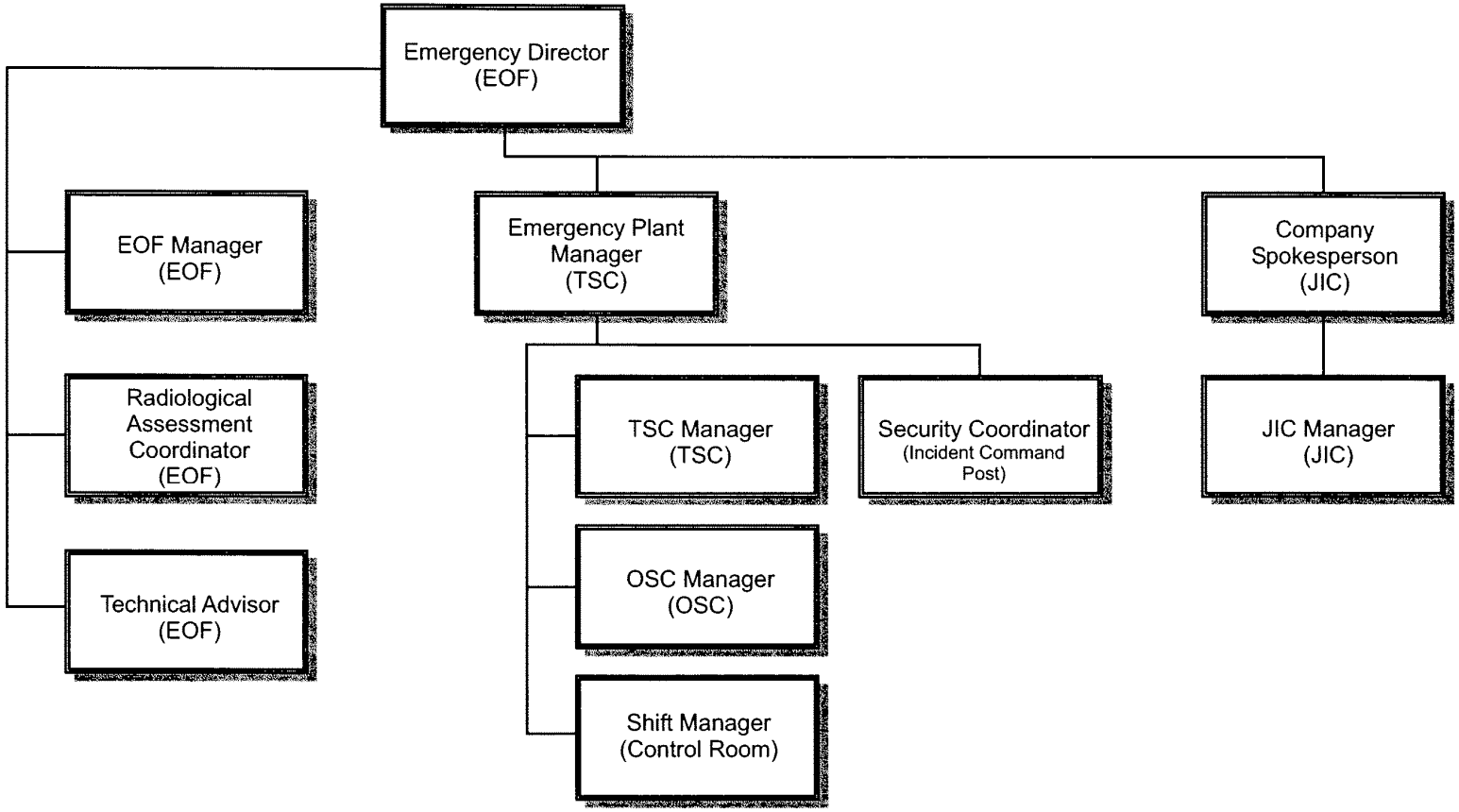


Figure 8.2

VY Emergency Management Organization

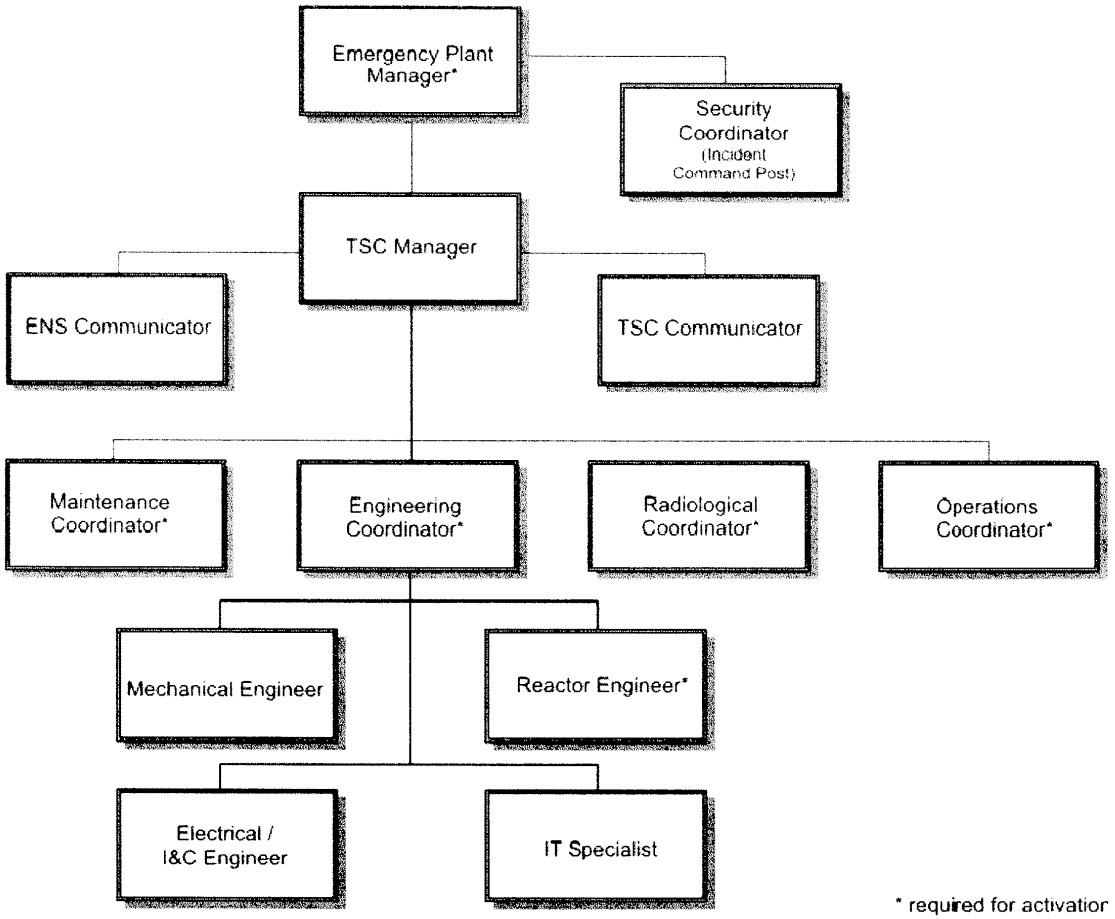
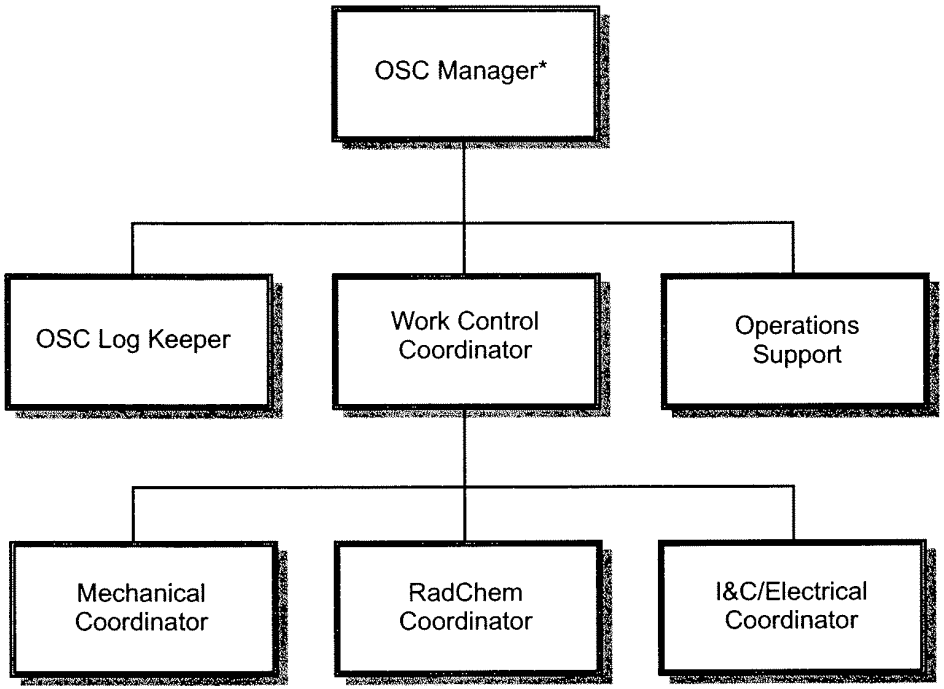


Figure 8.3

Technical Support Center Emergency Organization



* required for activation

Figure 8.4

Operations Support Center Emergency Organization

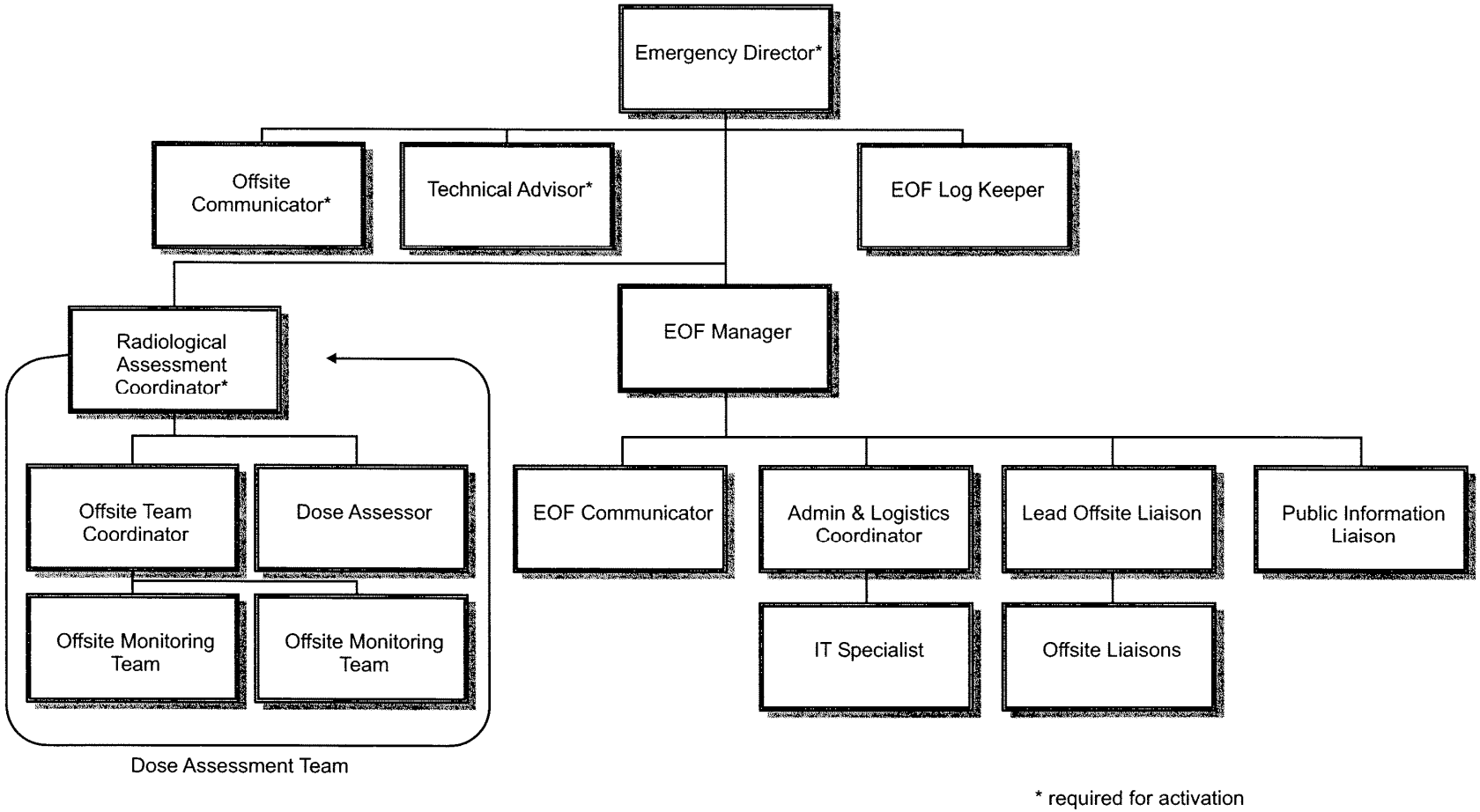


Figure 8.5

Emergency Operations Facility Organization

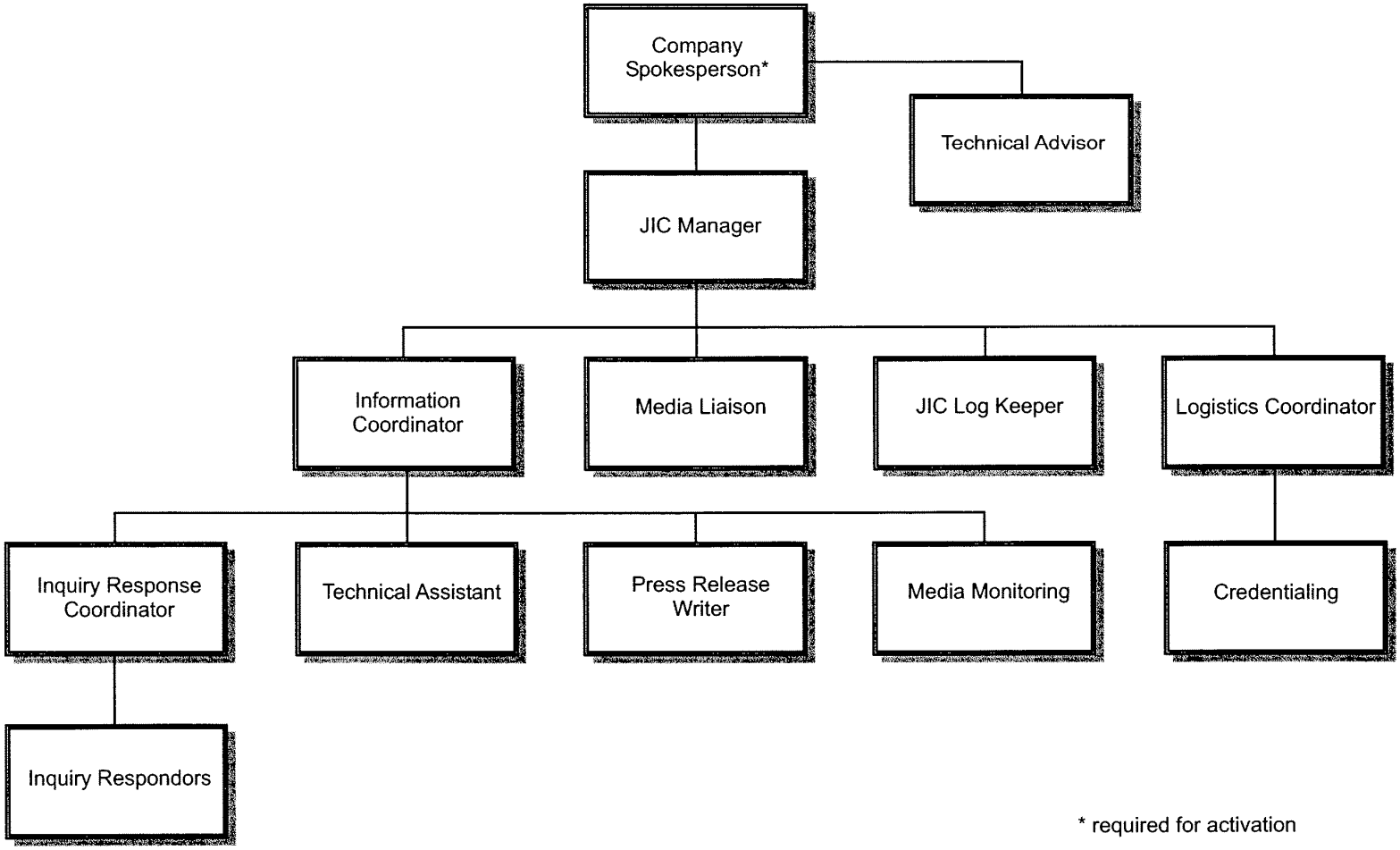


Figure 8.7

Joint Information Center Organization

9.0 EMERGENCY RESPONSE

9.1. Emergency Condition Recognition and Classification

Vermont Yankee maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and promptly declares the emergency condition as soon as possible following identification of the appropriate emergency classification level.

Section 5.0 presents the emergency classification system used for categorizing the wide spectrum of possible emergency conditions into one of four emergency classes. The process of condition recognition, immediate response to correct the condition, event classification, and initiation of the appropriate emergency implementing procedures are all critical responsibilities of the Shift Manager and the operations crew. This has been recognized in the design of both the emergency operating and emergency implementing procedures. The step between condition recognition and classification is handled as a procedural transition from the emergency operating procedure applicable to the event, to a specific emergency implementing procedure.

The specific transition procedure contains the listing of conditions that represents each of the four emergency categories and the detailed Emergency Action Levels (EALs) that allow the Shift Manager to determine the emergency classification. Once the emergency is classified, the applicable emergency implementing procedure is initiated. This is the trigger for the activation of the plant emergency response organization and the notification of offsite authorities for the activation of their emergency response. The activation of the plant emergency response organization brings to the assistance of the operations shift personnel all the various support elements described in this plan. How specific support elements are implemented, are detailed in the emergency implementing procedures. See Appendix G for a listing of these procedures.

9.2. Activation of the Emergency Organization

The Shift Manager activates the emergency organization if plant conditions reach predetermined Emergency Action Levels (Appendix A). Depending upon the specific action levels attained, the Shift Manager declares one of the following: Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency.

9.2.1. Notification of Unusual Event Response

Appendix A defines the conditions that require the declaration of a Notification of Unusual Event. Emergencies defined within this classification demand the mobilization of specific emergency response members and the initiation of precautionary and/or corrective actions which mitigate the consequences of the event. A Notification of Unusual Event does not activate the entire emergency response organization, but may require augmentation of on-shift resources to deal with the event. Offsite emergency organizations are notified for informational purposes, and aid from offsite fire, medical, and security organizations may be required depending on the nature of the event.

The response required as a result of this declaration of a Notification of Unusual Event varies according to the specified event, but a general summary of actions taken is described below:

1. The emergency condition is recognized and classified by the Shift Manager who instructs Control Room personnel to announce over the plant page system the emergency classification;

2. The on-duty operations shift and selected plant personnel respond as directed by the Shift Manager;

3. The Shift Technical Advisor reports to the Control Room and provides technical support as necessary;

4. Appropriate plant staff are directed to assume various emergency functions;

5. Control Room personnel notify the New Hampshire, Massachusetts and Vermont State Police. The State Police notify the appropriate state authorities;

6. The NRC is notified;

7. Other support is requested as necessary;

8. The Emergency Call-in Method is implemented as shown in the notification plan (Figure 9.1);

9. Additional personnel report to the plant as requested by the SM;

10. The Shift Manager directs the activities of emergency response personnel until overall responsibility is assumed by the Emergency Director;

11. If necessary, appropriate emergency medical, fire department, or law enforcement agencies are notified and requested to respond;

12. The TSC may be activated at the discretion of the Emergency Plant Manager;

13. The public information representative is notified and handles public information associated with the event; and

14. The Shift Manager terminates the Notification of Unusual Event status and closes out the event with a verbal summary to offsite authorities or escalates to higher level emergency classification.

9.2.1.1. Unusual Event (Terminated) Response

If a condition that warrants a Notification of Unusual Event declaration has occurred, and was immediately rectified such that the condition no longer existed by the time of declaration, this Notification of Unusual Event classification is referred to as an Unusual Event (Terminated).

The event or condition did not affect personnel onsite or the public offsite, or result in radioactive releases requiring offsite monitoring.

The response to this declaration of an Unusual Event (Terminated) is not as comprehensive as that for a Notification of Unusual Event. All the same notifications for a Notification of Unusual Event are made, and emergency response personnel reporting to the plant are based on specific requests of the SM.

9.2.2. Alert Response

An Alert requires actions to: 1) assure that sufficient emergency response personnel are mobilized to respond to the accident conditions at the site; and 2) that offsite emergency organizations are readily available to respond to the situation. Prompt notification is made to state officials and follow-up information is provided as needed to offsite emergency organizations. Unassigned personnel are evacuated from the site. In an Alert, the steps listed in the Notification of Unusual Event Response section (except for the termination process) and the following are performed:

1. The Alert emergency notification and response, as shown in Figure 9.1 and described in Table 9.1 are implemented;

2. The Technical Support Center, Operations Support Center, the Emergency Operations Facility/Recovery Center, and the Joint Information Center are activated by personnel as shown in Table 9.1;

3. If sufficient personnel are not available onsite, off-duty personnel are called in as specified in the emergency implementing procedures;

4. The Emergency Plant Manager reports to the Technical Support Center and directs in-plant emergency operations;

5. The EOF Manager establishes operations in the EOF/RC;

6. The Vermont, Massachusetts, and New Hampshire state emergency response personnel, having been notified through the state fan-out process, respond in accordance with their respective Radiological Emergency Response Plans;

7. The Emergency Director reports to the EOF/RC and assumes total responsibility for overall emergency response actions and recovery;
8. The Joint Information Center is established and timely public information is presented through coordination between the Emergency Director and offsite authorities;

9. Offsite authorities are provided periodic meteorological assessments and, if releases are occurring, projected dose estimates. (Note: If radiological releases are occurring, monitoring teams are dispatched.); and

10. The Emergency Director reaches agreement with offsite authorities concerning de-escalation or termination of the event, and closes out the event by verbal summary to offsite authorities. If an event is a reportable occurrence, a written summary is issued to these authorities in an appropriate time frame through distribution by the Emergency Plan Manager.

9.2.3. Site Area Emergency Response

In a Site Area Emergency, the steps listed in the Alert Response section and the following are performed:

1. All Vermont Yankee emergency response personnel are notified and report as described in Table 9.1;

2. The Engineering Support Group works in concert with the TSC to resolve engineering support and assist in coordinating equipment resources;

3. State emergency response personnel are dispatched to the EOF/RC as state/local emergency response organizations become fully mobilized;

4. Plant conditions are continually assessed and protective action recommendations to offsite authorities are made on the basis of this assessment and/or actual or projected offsite radiological impacts;

5. Termination actions are initiated in the same manner as that identified for an Alert. A closeout, de-escalation to recovery phase, or escalation of the emergency classification is made in coordination with offsite authorities.

9.2.4. General Emergency Response

All Emergency Centers are activated and all available resources are called upon in the event of a General Emergency. The plant promptly notifies offsite authorities and initiates all emergency response organization capabilities.

Offsite authorities fully activate their emergency response and implement appropriate protective measures based on meteorological information, actual or projected radiological dose conditions and/or conditions. The Emergency Director and the entire emergency response organization assemble plant status parameters and continually advise offsite authorities of the type of public protective action most appropriate to the situation based on plant conditions and offsite dose projections. This includes whether to shelter or evacuate the affected towns within the plume exposure emergency planning zone. In a General Emergency, the steps listed in the Site Area Emergency Response section and the following are performed:

1. The Emergency Director may request that the EOF Manager mobilize other personnel in support of Vermont Yankee through activation of the Corporate Emergency Center;

2. Other nuclear industry resources are alerted and requested to render appropriate assistance;

3. The full resources of the National Response Framework are activated; and

4. Dissemination of information and instructions associated with protective actions to the public is the principal focus of all response organizations. The plant fully participates in these efforts by providing detailed emergency condition information.

9.3. Emergency De-Escalation and Termination Criteria

Classification of an accident condition requires that the plant operation staff recognize that pre-established EALs associated with an emergency condition, as defined in Appendix A, have been reached or exceeded.

De-escalation criteria require (1) an extensive review of plant parameters and/or offsite radiological conditions in conjunction with the pre-established EALs; (2) review of plant and offsite conditions with offsite authorities; and (3) concurrence by offsite authorities as to the appropriate time frame required to implement de-escalation.

De-escalation from a Notification of Unusual Event to a recovery phase requires satisfying the following criteria:

1. Criticality controls are in effect;

2. The core is being adequately cooled;

3. The fission product release has been controlled;

4. Control has been established over containment pressure and temperature;

5. An adequate heat transfer path to an ultimate heat sink has been established;

6. Reactor coolant system pressure is under control; and/or

7. Notification of Unusual Event conditions have been reviewed, are under control, and are not expected to deteriorate further.

De-escalation from emergency classes greater than the Notification of Unusual Event level to a recovery phase requires satisfying all the criteria stated in Items 1 through 6 above and that the States of Vermont and New Hampshire, and the Commonwealth of Massachusetts reach agreement with the Emergency Director or designee that there is no longer a need for either consideration of further public protective action or surveillance related to public protective action.

When plant conditions allow de-escalation in the emergency class to a recovery phase, the Emergency Director directs the emergency response organization to perform certain response actions prior to implementing any change. These actions include:

1. Notification of all plant emergency management personnel of the pending change;

2. Notification of offsite authorities of the pending change;

3. Notification of corporate support services of the pending change;

4. Coordination of media releases concerning the transition; and

5. Announcement of the transition over the plant page system.

TABLE 9.1
(Page 1 of 2)
VERMONT YANKEE EMERGENCY RESPONSE

EMERGENCY CENTER	NOTIFICATION OF UNUSUAL EVENT	ALERT OR SITE AREA OR GENERAL EMERGENCY
Technical Support Center	Activation at the discretion of the Emergency Plant Manager	Emergency Plant Manager TSC Manager Maintenance Coordinator (Electrical/Mechanical/I&C) Radiological Coordinator Reactor Engineer Engineering Coordinator (Project, System, Design) Operations Coordinator Engineering Support Group
Operations Support Center	Not activated	OSC Manager Radiation Protection Staff Chemistry Staff Spare Licensed Operators Spare Auxiliary Operators Control Instrument Specialists Plant Mechanics

TABLE 9.1 (Continued)
(Page 2 of 2)
VERMONT YANKEE EMERGENCY RESPONSE

EMERGENCY CENTER	NOTIFICATION OF UNUSUAL EVENT	ALERT OR SITE AREA OR GENERAL EMERGENCY
Emergency Operations Facility/Recovery Center	Activation at the discretion of the Emergency Plant Manager	Emergency Director Offsite Communicator Technical Advisor EOF Manager Administration and Logistics Coordinator Radiological Assessment Coordinator Personnel & Equipment Monitor *Site/Offsite Monitoring Teams Public Information Liaison
Joint Information Center	Not Activated	Company Spokesperson VY Public Information Staff Nuclear Public Information Representatives Joint Information Center Staff

*****Deployed from OSC and report to Radiological Assessment Coordinator

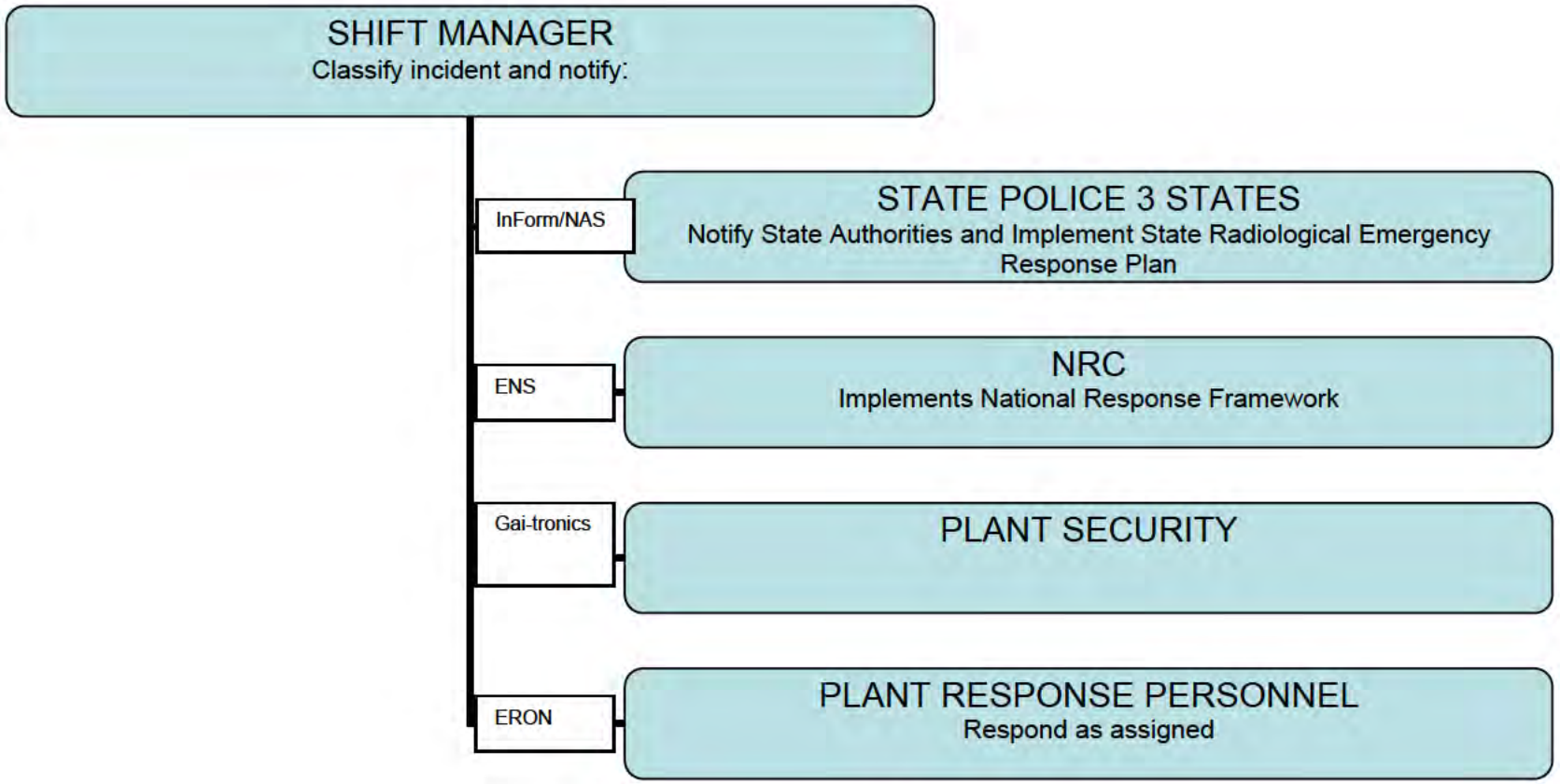


Figure 9.1

Notification Plan

10.0 RADIOLOGICAL ASSESSMENT AND PROTECTIVE MEASURES

10.1. Radiological Assessment

10.1.1. Initial Offsite Radiological Dose Projection Capability

Vermont Yankee has developed a method to quickly determine the projected offsite radiological conditions at various distances downwind of the plant site. During the initial stages of an emergency, the Shift Manager or designated individual is responsible to perform the initial evaluation of offsite radiological conditions. The initial evaluation of offsite radiological conditions is accomplished by utilizing the Offsite Dose Projection System (ODPS).

The ODPS utilizes a straight line Gaussian plume dispersion model programmed on the plant process computer. The program allows the user the option to select one of two release pathways (elevated or ground) and to utilize site-specific radiological and meteorological information to estimate the Total Effective Dose Equivalent and adult thyroid Committed Dose Equivalent (elevated release only) at a distance of 0.35 miles to 10 miles from the plant site.

10.1.2. Variable Trajectory Atmospheric Dispersion/Dose Projection Capability

Once the EOF/RC is activated, Vermont Yankee utilizes a plume tracking/dose projection system, which is capable of providing near real time offsite dose estimated for actual meteorological and radiological accident conditions. The system assumes a Gaussian, variable trajectory, plume segment transport model designed to handle the site-specific atmospheric dispersion characteristics associated with the Vermont Yankee Nuclear Power Station site. Both continuous and intermittent releases for either ground or stack release points can be evaluated. The effects of release height, building wake entrainment, momentum plume rise, precipitation and terrain height can be assessed in the evaluation. Plume trajectories are based on onsite meteorological tower information and topography of the Connecticut River Valley.

The model combines complex plume transport algorithms with the same dose assessment algorithms used by the model described in Section 10.1.1. The model is programmed on a personal computer. The program is designed to graphically display the calculated plume characteristics on a 10-mile Vermont Yankee EPZ site map while providing transcripts of all dispersion and dose calculations.

Additionally, the Offsite Dose Nomogram can be used to determine an activity release rate (μCi/sec) and a projected offsite whole body plume centerline dose rate (mR/hr) at 1/3 of a mile from the stack. These determinations are made by using Figure 10.1 with the following additional information:

1. Time after reactor shutdown;
2. The plant stack high range monitor response;
3. The plant stack flow rate at the time of the accident; and
4. Wind speed.

The assumptions incorporated in and the use of the nomograms contained in Figure 10.1 is discussed in Appendix C.

10.1.3. Evaluation of Offsite Air Samples

Vermont Yankee monitoring teams, after determining the location of the plume centerline (i.e., maximum radiation level) in the field, take air samples at various intervals downwind from the plant. These samples are analyzed for gross beta/gamma activity in the field and, if elevated levels are observed, they are returned to the Emergency Operations Facility where they are analyzed to determine radionuclide concentrations. These field results can be projected to other distances of interest.

Particular attention is given to observed iodine concentrations. Air samples are analyzed in a multi-step process. The first step involves field analysis of the sample which measures the gross radioactivity collected in the silver zeolite cartridge and filter paper using a pancake GM detector. If the silver zeolite sample analysis shows a net count rate greater than the background count rate, the sample is immediately delivered to the EOF/RC for analysis with greater sensitivity and accuracy (for I-131 specifically).

The projected thyroid dose is determined from the measured I-131 concentration by multiplying the estimate of the duration of exposure by the dose conversion factor for an adult member of the public. A nomogram has been developed specifically for this thyroid dose projection on the basis of airborne radioiodine measurements. It is shown in Figure 10.2.

In addition to the measurement and evaluation of offsite direct dose rates and air samples for radioiodine, the offsite radiological impact assessment includes the identification of principal radionuclides potentially released from the accident and significant exposure pathways.

This is accomplished through an emergency sampling program in which environmental samples of media (water, air, soil, etc., as appropriate) are collected and subjected to detailed radionuclide analysis. The necessary analysis can be performed as described in section 6.2.6.

10.2. Protective Action Recommendation Criteria

In the event a General Emergency has been declared, Vermont Yankee immediately recommends protective actions to state authorities based on plant conditions which include the status of core and containment conditions. At a minimum, the Shift Manager or Emergency Director, who is in charge of the emergency response activities, recommends that the general public be advised to seek shelter for the towns of Hinsdale, New Hampshire and Vernon, Vermont; and the towns located five miles downwind in the affected sectors.

If plant conditions indicate a severe reactor accident exists involving actual or projected substantial core damage, Vermont Yankee recommends to the appropriate state officials evacuation of the towns of Hinsdale, New Hampshire and Vernon, Vermont; and all towns located five miles downwind in the affected sectors.

With an emergency condition producing a radiological release or an inplant (i.e., containment) source term that could be subsequently released, one of the priorities of the responding emergency personnel is to implement the sampling and analysis of releases and/or source terms to identify if there is a radioiodine component. This sampling capability includes containment atmosphere, gas spaces in other plant systems, and the plant stack. Radioiodine identified at any of these points is quantified and evaluated in terms of actual or potential offsite impact.

Once actual source term, onsite and/or offsite field monitoring determinations have been made, the Vermont Yankee Emergency Director or designee provides projected offsite Total Effective Dose Equivalents (TEDEs) and thyroid Committed Dose Equivalents (CDEs) at various distances from the plant to the Departments of Public Health of Vermont, New Hampshire and Massachusetts. Based upon these results, the Emergency Director recommends protective actions in accordance with the criteria set forth in the EPA Protective Action Guides, Table 10.1.1. For environmental samples collected and analyzed by Vermont Yankee, the results of these samples are coordinated with the appropriate state agencies, and the state agencies implement the appropriate ingestion pathway protective actions in accordance with the FDA/HHS document Accidental Radioactive Contamination of Human Food and Animal Feeds, issued 8/13/98. Table 10.1.2 lists the Recommended Derived Intervention Level (DIL) for each radionuclide group.

10.3. Radiological Exposure Control

During a plant emergency, abnormally high levels of radiation and/or radioactivity may be encountered. These levels may range from slightly above those experienced during normal plant operation to life-endangering levels of several hundred rem in a short period of time. Under all emergency situations, immediate actions are required to regain control of the emergency or for life-saving purposes; steps should be taken to minimize personnel exposure from external and/or internal sources of radiation.

Table 10.2 specifies the guidelines on emergency dose limits for personnel providing emergency response duties which is consistent with the Environmental Protection Agency Emergency Worker Dose Limit Guides (EPA 400-R-92-001). The Shift Manager initially has the responsibility to authorize emergency dose commitments until relieved by the Emergency Plant Manager. This authorization is coordinated with the assistance of the Radiological Coordinator or Shift Chemistry and Radiation Protection Technicians as needed. Exposure to individuals providing emergency functions will be consistent with the limits specified in Table 10.2 with every attempt made to keep exposures ALARA.

The Radiological Coordinator is responsible for developing emergency radiological protection programs for plant staff support personnel. Emergency kits in each emergency center are provided with self-reading dosimeters (both high and low range). Each member reporting to the site will be provided a DLR badge. Dose records will be maintained at each center based upon the results of the self-reading dosimeters. This information is cross-referenced with the DLR badge data, as soon as they can be processed at the Emergency Operations Facility/Recovery Center. The capability exists for the emergency processing of DLRs on a 24-hour per day basis, if necessary, through a General Services Agreement with Landauer Inc. Emergency workers are instructed to read self indicating dosimeters frequently, and DLRs may be processed with increased periodicity.

10.4. Protective Measures

10.4.1. Site Personnel Accountability

The goal of the personnel accountability process is to account for personnel within 30 minutes of the emergency declaration of an Alert or higher. Accountability for a Notification of Unusual Event is at the discretion of the Emergency Plant Manager. Plant procedures require Security personnel at the gate to maintain a list of personnel entering or leaving the site during a site evacuation. Emergency Response Facility Managers are responsible for accounting for their staff as they report to their facility. Each facility maintains an organizational sign-in method which enhances this reporting process. All reports are provided to the Emergency Plant Manager in the Technical Support Center, who initiates search and rescue actions for any missing personnel. Plant security provides assistance for this accountability effort and aids in the control of personnel during extended emergency operations.

Accountability may be modified or suspended if the safety of personnel may be jeopardized by a Security event or other event hazardous to personnel.

10.4.2. Site Egress Control Methods

All visitors and contractors are evacuated from the plant under the Alert, Site Area or General Emergency conditions. At the Site Area or General Emergency all visitors and contractors are directed to report to the EOF/RC for monitoring. Emergency personnel assigned to the EOF/RC and other unassigned plant personnel, report immediately to the EOF/RC, and are monitored upon arrival at the facility. If a Code Red Security event has been declared, evacuation and accountability may put personnel at risk. In these security situations, evacuation and accountability may be suspended until directed by Security.

Plant evacuees are advised of area evacuation routes prior to being released. Appendix F provides evacuation time estimates for the plume exposure EPZ, and also details the major evacuation routes that could be used in the area. Access to the plant is not allowed unless personnel are specifically authorized.

10.4.3. Decontamination Capability

The in-plant decontamination facility is located in the Operations Support Center. Waste generated through the use of this system is collected and processed by the plant liquid radwaste system. Survey instrumentation for personnel "frisking" and sensitive body burden monitoring equipment are available in various plant locations.

Decontamination at the EOF/RC is provided by using washcloths, which are disposed of by placing them in a 55-gallon drum. If conditions warrant alternative means, the EOF/RC has emergency decontamination capability (decontamination shower with the waste draining in to a holding tank). After accident conditions have been terminated, the holding tank is sampled to ascertain whether abnormal radiological levels exist. Depending upon the activity present and the isotopic determination, plans will be developed to remove the waste for disposal. Contaminated personnel not required for EOF activation will be directed to State Reception Centers.

10.4.4. Use of Onsite Protective Equipment and Supplies

The plant supplies of personnel radiation protection equipment and gear are utilized to support the emergency response effort. Equipment such as respiratory protection gear, all types of protective clothing, and a supply of potassium Iodide is assigned to emergency response organization members in accordance with established plant radiation protection criteria. Radiation guideline action levels for a range of plant radiological conditions are shown in Table 10.3.

10.4.5. Fire Protection Equipment

The plant maintains sufficient respiratory equipment (i.e., Scott Air Pacs and spare air cylinders), to support emergency response personnel in the event of a fire. Additionally, Vermont Yankee maintains a letter of agreement with the Brattleboro Fire Department for recharging Scott Air Pac cylinders during an emergency.

10.5. Aid to Affected Personnel

10.5.1. Medical Treatment

In-plant medical supplies are provided in the Operations Support Center. Medical Response Team members are trained in accordance with station procedures.

Arrangements exist with the hospitals indicated in Section 8.4.1. Both hospitals participate in medical emergency drills. Figure 10.3 shows hospitals within the ingestion exposure EPZ of Vermont Yankee, which have the capability to handle radiation emergencies.

10.5.2. Medical Transportation

Arrangements exist with Rescue, Inc., to provide 24-hour ambulance service for emergency transportation of plant personnel for offsite treatment. The ambulance service is capable of radio communications with the hospital while en route with a patient. Normal telecommunication channels are used in notifying the ambulance service dispatch center. Rescue, Inc. personnel are provided with specific training by Vermont Yankee on the health physics considerations associated with radioactively contaminated personnel and site access control measures.

10.6. Protective Actions for Onsite Personnel

A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the reactor and perform the functions of the emergency plan.

TABLE 10.1.1

EPA PROTECTIVE ACTION GUIDELINES

Total Effective Dose Equivalent (TEDE)	Committed Dose Equivalent (CDE) to the Thyroid	Protective Action
≥1 rem	≥5 rem	EVACUATION (Sheltering may be preferred protective action if the following are present: • Severe weather, • Competing disasters, • Local physical factors which impede evacuation LOCAL/STATE OFFSITE OFFICIALS WILL DETERMINE THE SIGNIFICANCE OF THESE FACTORS TO THE PAR SUBSEQUENT TO THE ISSUANCE OF THE PAR BY VY.)

TABLE 10.1.2

RECOMMENDED DERIVED INTERVENTION LEVEL (DIL) OR CRITERION FOR EACH RADIONUCLIDE GROUP[(a)(b)]

All Components Of The Diet		
Radionuclide Group	(Bq/kg)	(pCi/kg)
Sr-90	160	4300
I-131	170	4600
Cs-134 + Cs-137	1200	32,000
Pu-238 + Pu-239 + Am-241	2	54
Ru-103 + Ru-106[I]	$\frac{C_3}{6800} + \frac{C_6}{450} < 1$	$\frac{C_3}{180{,}000} + \frac{C_6}{12{,}000} < 1$

Notes:

(a) The DIL for each radionuclide group (except for Ru-103 + Ru-106) is applied independently. Each DIL applies to the sum of the concentrations of the radionuclides in the group at the time of measurement.

(b) Applicable to foods as prepared for consumption. For dried or concentrated products such as powdered milk or concentrated juices, adjust by a factor appropriate to reconstitution, and assume the reconstitution water is not contaminated. For spices, which are consumed in very small quantities, use a dilution factor of 10.

(c) Due to the large difference in DILs for Ru-103 and Ru-106, the individual concentrations of Ru-103 and Ru-106 are divided by their respective DILs and then summed. The sum must be less than one. C3 and C6 are the concentrations, at the time of measurement, for Ru-103 and Ru-106, respectively.

(from Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies, Table 2, 8/13/98)

TABLE 10.2

EMERGENCY DOSE LIMITS[(a)]

(refer to Notes 1 and 2)

Dose Limit (refer to Note 3)	Work Activity	Condition
5 Rem Total Effective Dose Equivalent (TEDE)	All	Maintain ALARA and to extent practicable limit emergency workers to these limits
10 Rem TEDE	Protecting Valuable Property	Lower dose not practicable
25 Rem TEDE	Lifesaving or Protection of Large Population	Lower dose not practicable
75 Rem TEDE	Lifesaving or Protection of Large Population	Only on a voluntary basis to persons fully aware of the risks involved

NOTES:

1. For emergency dose limits the following considerations should be made:

   a. Declared pregnant women will not be allowed to participate.

   b. The use of volunteers for exposures during emergency actions is desirable. Older workers with low lifetime accumulated effective dose should be given priority.

   c. The individual(s) awareness of biological consequences that such as exposure can have, including the risks associated with exposure of a developing embryo/fetus for female workers.

   d. All practical protective measures to limit such an exposure.

   e. Concurrence of individual(s) involved (i.e., voluntary risk acceptance).

   f. The probability of success should be balanced against the expected exposure limit.

   g. The individual's familiarity with the task and speed that the individual can conduct the task.

2. After the emergency has been concluded, doses received by emergency workers are required to be accounted for in accordance with 10CFR Part 20 occupational dose limits.

3. Emergency dose limits for the lens of the eye and for any organ (including skin and extremities) are three and ten times the listed values, respectively.

[a] EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised 1991

TABLE 10.3

EMERGENCY CENTER HABITABILITY AND PROTECTIVE ACTION CRITERIA

1. A background dose rate of 50 mRem/hr will increase the frequency of radiation monitoring in the center and require an immediate evaluation of the accumulated TEDE at the affected center.

2. A reading of 1 Rem on the high-range or alarming dosimeter will initiate planning for possible evacuation to the alternate center.

    a) If the TSC has to be evacuated,

        1) The Emergency Plant Manager and immediate staff deemed necessary to deal with the emergency should relocate to the Control Room and continue their respective roles in the Emergency Response Organization.

        2) Remaining TSC staff should relocate to the EOF/RC in support of their respective disciplines or be otherwise reassigned by the Administration and Logistics Coordinator.

    b) If the OSC has to be evacuated, the TSC will determine an alternate area for relocation.

3. A reading of 4 Rem on the high-range or alarming dosimeter will initiate evaluation of the need for a phased evacuation.

4. If center personnel have been or may be exposed to elevated radioiodine air concentrations in excess of 500 millirem/hr (4.0×10^{-6} microcuries/cc), evaluate the need for administration of KI for center staff and relief shift personnel.

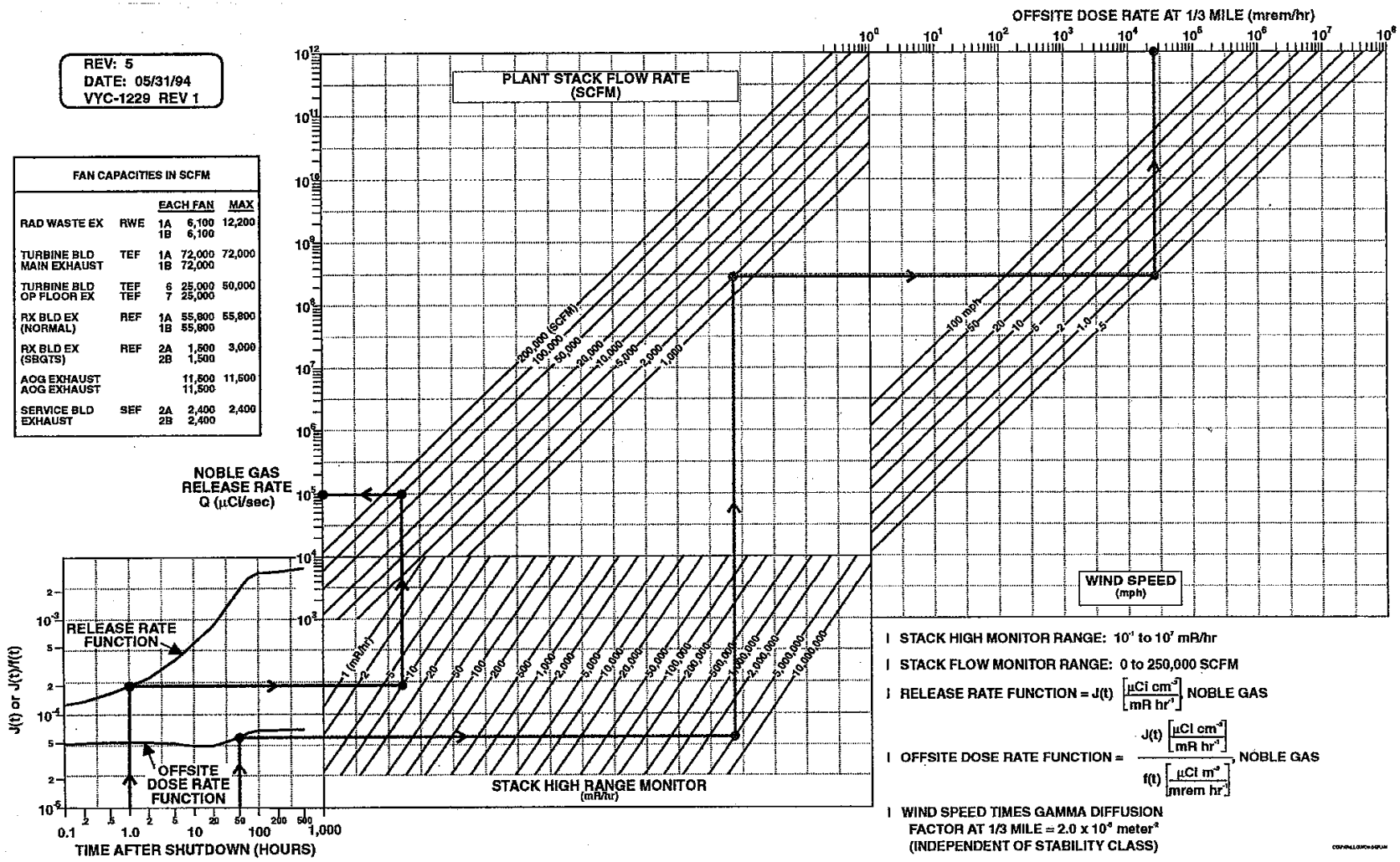


Figure 10.1
Vermont Yankee Emergency Dose Rate Nomogram

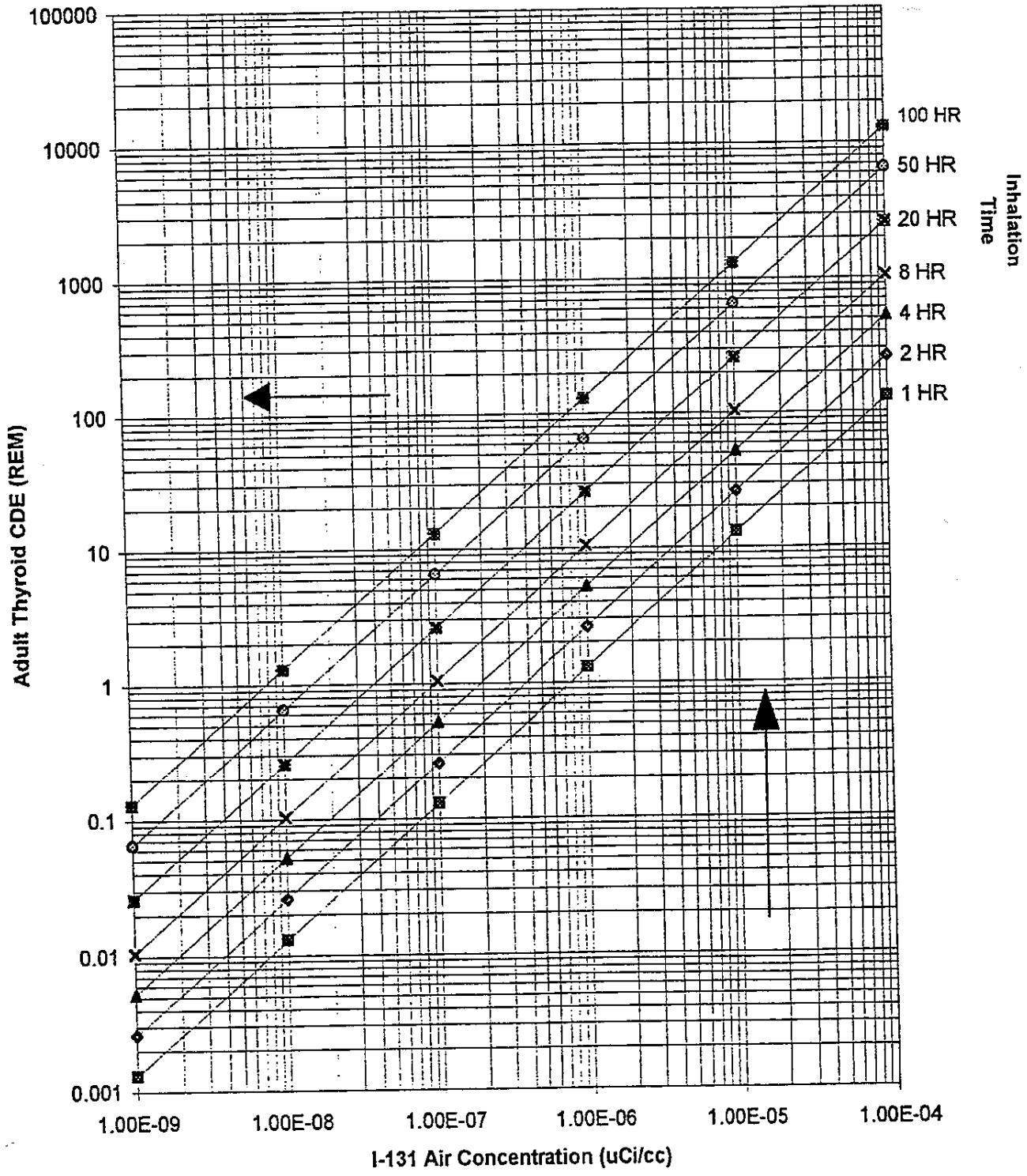
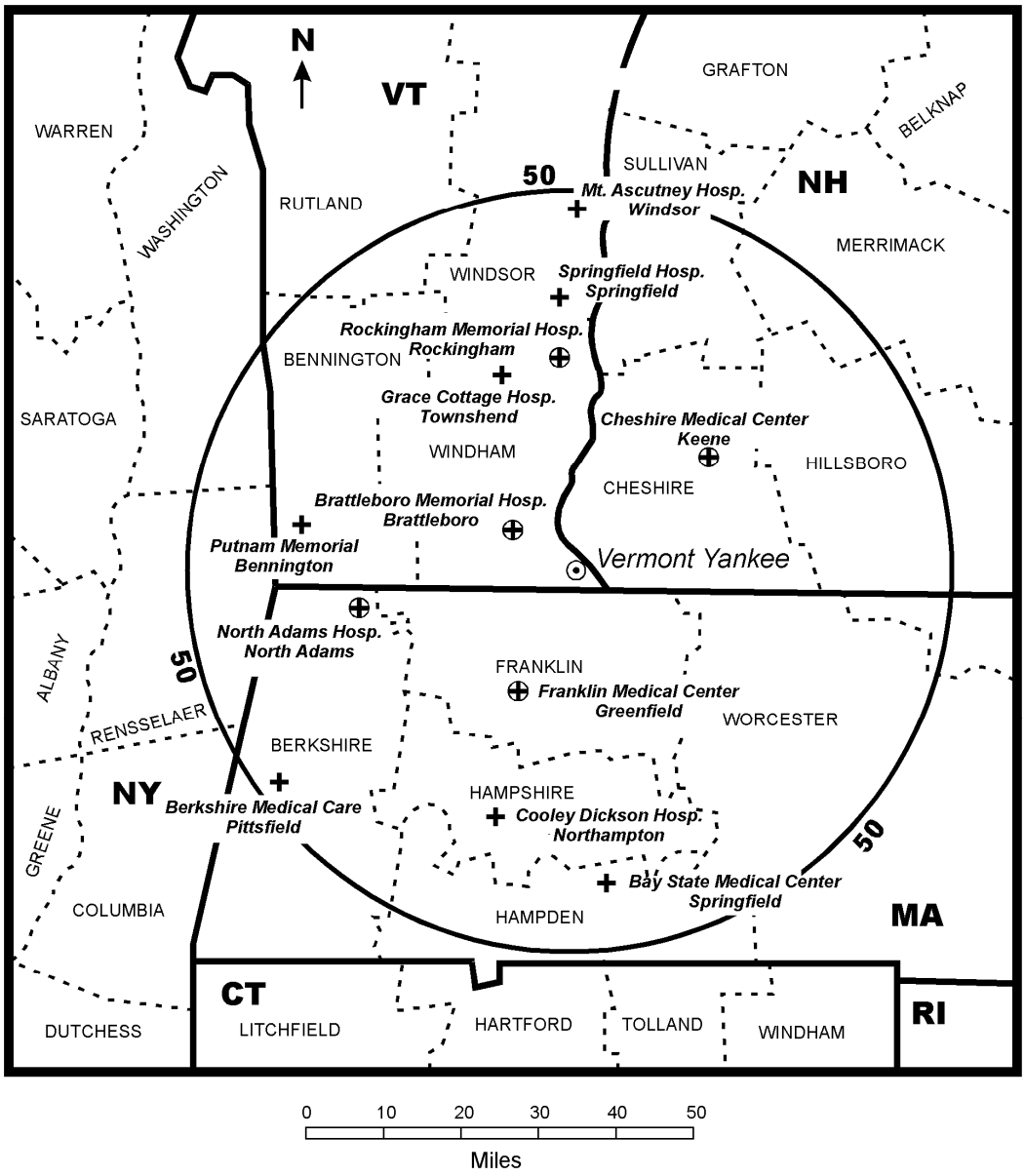


Figure 10.2

Field Sample Thyroid Dose Nomogram



⊕ *Hospital can handle contaminated patients.*

Figure 10.3

Medical Facilities within 50 Miles of Vermont Yankee Capable of Handling Emergency Medical Cases

11.0 EMERGENCY NOTIFICATION AND PUBLIC INFORMATION

11.1. Emergency Notification

The Shift Manager is responsible for the notification of the State Police of Vermont, New Hampshire, and Massachusetts. Notification is made within 15 minutes of emergency classification and is the initial link to offsite authorities for the activation of offsite emergency response plans, which includes emergency public notification if the emergency conditions warrant.

The format and contents of the initial message between the plant and State Police dispatchers are specified in notification procedures and have been established with the review and agreement of those state authorities responsible for state plans.

As soon as contacted via the notification procedure, the Department of Public Health of Vermont, Massachusetts and New Hampshire may call Vermont Yankee and request the following information:

1. Date, time and class of the emergency;

2. Type and quantity of release, height of release, and estimated duration/impact times;

3. Prevailing weather conditions (wind velocity, direction, temperature, atmospheric stability, form of precipitation, if any);

4. Actual or projected dose rates at .35 miles from the site, and projected dose rates at various distances from the plant;

5. Emergency response actions underway; and

6. Recommended protective actions.

These follow-up reports are provided on an as-needed basis until such time that the emergency condition has been terminated in agreement with the States of Vermont and New Hampshire, Commonwealth of Massachusetts, and Vermont Yankee plant management.

11.2. Public Notification

The prompt public notification methods in the Vermont Yankee area utilize, radio, television, sirens and weather alert receivers, police and fire department mobile loudhailers and sirens, and door-to-door notification should that be required. Details of this system are provided in Appendix H.

11.3. Public Information

Any emergency generates a continuous and intensive demand for up-to-date information. This is best accomplished if each organization involved is aware of what the others are saying. Consequently, Vermont Yankee has planned for the establishment of a Joint Information Center for the purpose of providing coordinated press releases during an accident.

For a Notification of Unusual Event, the Manager of Communications is notified of the incident by telephone or paging system. The Manager of Communications, or designated alternate, is responsible for writing any official statements or press releases concerning the incident. Prior to release, statements are approved by an officer of the company or designee. Information is released directly to the press pool and the "Status Phones" are updated with this information. In addition, the Manager of Communications notifies the appropriate departmental staff and the corporate public affairs office.

For an Alert, Site Area Emergency and a General emergency, the Joint Information Center is activated and fully staffed.

The Public Information Liaison and required staff report to the EOF/RC for coordinating the accident information between the plant and the Joint Information Center. The Joint Information Center is staffed and provides immediate accessibility to information files and resources for the Company Spokesperson (Manager of Communications, or designated alternate) and/or the Joint Information Center staff.

Regular press conferences are held at the Joint Information Center, directed by the Company Spokesperson in conjunction with appropriate state and federal organizations. Vermont Yankee can provide 24-hour coverage at the Joint Information Center to ensure timely updates and answers to questions from visiting media representatives.

As part of Vermont Yankee's full disclosure policy, Vermont Yankee has initiated a public inquiry phone for media and public use. Normally, a prerecorded message provides, on a daily basis, routine operating information, changes in plant operation, and other items of interest. During an emergency, the phone is used to relay and provide up-to-date status reports regarding the situation.

Joint Information Center personnel monitor local radio and television for erroneous information concerning accident conditions. When misinformation is recognized, corrective action is taken.

Communication is provided between the Joint Information Center and the EOF/RC and for state and federal agency use. Public information documentation covering the following areas of concern is available:

1. Educational information on radiation;

2. Educational information on the Vermont Yankee Nuclear Power Plant;

3. The emergency classification system and notification process; and

4. Planned protective actions to be implemented by state and local authorities.

Vermont Yankee assists the States of Vermont and New Hampshire and the Commonwealth of Massachusetts, to develop and ensure for dissemination on a yearly basis, brochures, calendars, and posters which provide the public with emergency planning arrangements.

The Vermont Yankee Communications Department conducts annual information programs to acquaint the news media with information concerning radiation, emergency public information procedures, the emergency classification system and a general review of plant characteristics. Local and state media are invited and encouraged to attend.

12.0 MAINTAINING EMERGENCY PREPAREDNESS

12.1. Drills and Exercises

An exercise tests the execution of the overall plant emergency preparedness and the integration of this preparedness with offsite authorities. A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular response function.

Emergency exercises and drills are conducted to test and evaluate the adequacy of emergency facilities, equipment, procedures, communication channels, actions of emergency response personnel, and coordination between offsite agencies and the facility.

A summary of exercises and drills and associated elements is outlined below.

12.1.1. Radiation Emergency Drills and Exercises

A full participation exercise shall be conducted every two years. At least one drill involving a combination of some of the principal functional areas of emergency response shall be conducted in the interval between biennial exercises. State and offsite agencies may participate in drills.

12.1.2. Communication Tests

To ensure that emergency communications between the facility and offsite emergency response organizations are operable, communications tests are conducted as outlined below. Items 2) and 3) below can be performed as part of an Emergency plan drill or exercise.

1. Communication channels with state governments within the plume exposure pathway are tested monthly;

2. Communications with state Emergency Operations Center (EOCs) are conducted annually;

3. Communications with assessment teams are conducted annually;

4. Communications among states within the ingestion pathway are tested monthly; and

5. Communications with the NRC Headquarters Operations Officer from the Control Room, TSC and EOF are tested monthly.

To ensure the reliability of the plant's call-in procedure, the following test/drill is performed as follows:

- Weekly functional test of the emergency notification system to test system performance, and

- Quarterly off-hours, unannounced communications drill, utilizing both the pager system and commercial telephone, to estimate emergency personnel response times.

12.1.3. Fire Drills

To test and evaluate the response and training of the plant's fire brigade, a number of fire drills are conducted annually.

To demonstrate the coordination between the plant's fire brigade and the Vernon Fire Department, the fire department is annually offered the opportunity to participate in an onsite fire drill.

12.1.4. Medical Drills

To evaluate the training of the facility's medical response team and offsite medical response (ambulance and hospital), a medical drill is conducted annually with a simulated contaminated injured individual. This drill can be performed as part of an Emergency Plan drill or exercise.

12.1.5. Radiological Monitoring Drills

Plant environs and radiological monitoring drills (onsite and offsite) are conducted annually. These drills include collection and analysis of airborne sample media, communications, record keeping, and interface with offsite monitoring efforts. This drill can be performed as part of an Emergency Plan drill or exercise. Radiological monitoring drills will include interface with State offsite monitoring efforts during the biennial exercise.

12.1.6. Health Physics Drills

Health Physics drills are conducted semi-annually involving response to, and analysis of, simulated elevated in-plant airborne and liquid samples and direct radiation measurements in the environment. A drill can be performed as part of an Emergency Plan drill or exercise.

12.1.7. Security Drills

The purpose of the Hostile Action-based drill is to maintain key skills, specifically the site-specific team skills necessary to mitigate security-based events. Hostile Action-based scenarios will be included in the drill and exercise program for exercise selection on a six-year frequency. Full implementation should include engagement of Offsite responders and FEMA. Scenarios should address EP response actions early in the event that include aspects such as initial classification, notification, PARs if appropriate, and protective measures on site. Various scenarios should be developed to address response to different threat modes, various initiators or response capabilities.

12.1.8. Scenarios

An Exercise/Drill Coordinator is responsible for an emergency plan drill or exercise. The Exercise/Drill Coordinator's responsibilities include developing the exercise/drill scenario, the accident time sequence, and the selection and training of the Controllers required to evaluate the effectiveness of the Vermont Yankee Emergency Preparedness Program.

A scenario is prepared by the Scenario Development Group for each exercise/drill to be conducted. The scenario varies year to year and is approved by Vermont Yankee Management. Within a six-year period, the scenario content is varied to test all the major elements of the Emergency Plan Program. For full participation exercises, the scenario simulates an emergency condition and sequence that calls for the mobilization of the offsite authorities; requires the recommendation of offsite protective actions; and allows for the evaluation of offsite plans and integration with the plant response.

The contents of the scenario include, but are not limited to, the following:

1. Basic objective(s);

2. Date, time period, place and participating organizations;

3. Simulation lists;

4. Time schedule of real and simulated initiating events;

5. A narrative summary describing the conduct of the exercise to include such items as simulated casualties, search and rescue of personnel, deployment of radiological monitoring teams, and public information affairs; and

6. List of Controllers.

The scenarios are designed to allow free play in exercising the decision-making process associated with such emergency response actions as exposure control, emergency classification and de-escalation, protective action recommendation, and the emergency manpower augmentation process.

Security based scenarios to test and evaluate security response capabilities will be conducted in accordance with security drills and exercise procedures and may be conducted during emergency plan drills or exercises.

Starting times and pre-notification for exercises are coordinated with and agreed upon by all participating organizations. The scenario package is submitted to the NRC in accordance with current regulatory guidance.

12.1.9. Evaluation of Exercises

To evaluate the performance of participating facility personnel and the adequacy of emergency facilities, equipment and procedures during an exercise, the Exercise Coordinator obtains qualified controllers which includes resources outside the facility to evaluate and critique the exercise.

When feasible, personnel designated as controllers are assigned to an Emergency Plan area germane to their area of expertise. Controllers are provided general instruction concerning their specific observation function. Each controller is requested to observe the implementation of the emergency plan element assigned to him or her, and then to record and report observed inadequacies.

A critique is conducted at the conclusion of the exercise with facility personnel as designated by the General Manager or a designated representative. After the critique, the controllers submit a written evaluation to the Exercise Coordinator in which the exercise performance is evaluated against the objectives. All comments and/or recommendations are documented. Controllers from State Emergency Management and Health Department agencies are encouraged to join the observation and critique process.

Weaknesses and/or deficiencies identified in an exercise critique are processed in accordance with the site corrective actions program.

12.1.10. Emergency Plan Audit

The Vermont Yankee Emergency Plan is independently audited as part of the Vermont Yankee In-plant Audit Program. The audit is conducted as part of the Entergy Quality Assurance Program in accordance with 10CFR50.54(t). All aspects of emergency preparedness, including exercise documentation, capabilities, procedures, and interfaces with state and local governments are audited.

12.2. Training

All non-essential plant personnel receive annual instruction, in accordance with "Emergency Plan Training," concerning their expected response action during an emergency. Those members of the plant staff who have been assigned (per the Emergency Assistance Personnel List) to the emergency response organization receive annual training which includes, but is not limited to, the following:

1. Familiarize individuals with Emergency Plan and implementing procedures, especially where emergency response tasks are not part of their normal duties;

2. Define an individual's responsibilities associated with their designated function;

3. Familiarize individuals in emergency exposure control measures and guidelines, particularly those associated with an individual's designated emergency functions; and

4. Provide sufficient technical insight to maintain emergency functions.

A portion of this training is provided by personnel's participation in unrehearsed drills or emergency exercises. During these drills and exercises, controllers check the performance of the personnel assigned, and provide critiques which could be incorporated in future training. Specific details of the training given on an annual basis are described in "Emergency Plan Training," and in the Emergency Plan Training Program Description.

12.3. Review and Updating of Plan and Procedures

The Emergency Plan is reviewed at least annually and the associated implementing procedures are reviewed at least biennially. All recommendations for changes to the Emergency Plan or associated implementing procedures are reviewed in accordance with 10CFR50.54(q). The Emergency Plan is submitted to Vermont Yankee's On-Site Safety Review Committee for approval. Written agreements with outside support organizations and government agencies are evaluated annually to determine if these agreements are still valid. If agreements are not valid, then they are renewed and updated. This agreement review is documented. Revisions to the Emergency Plan are made in accordance with current regulations and guidelines. Changes to the Plan are forwarded to organization and individuals with a responsibility for implementation of the Plan. Telephone number listings associated with the emergency notification process are updated quarterly.

12.4. Maintenance and Inventory of Emergency Equipment and Supplies

The emergency equipment maintained in the Control Room, Operations Support Center, Technical Support Center, and the Emergency Operations Facility are listed in a checklist in Emergency Equipment Readiness Check, that is used to check readiness.

Weekly, the Operations Department conducts a test of certain emergency communications equipment. At least quarterly in accordance with the emergency equipment inventory procedure, and subsequent to each usage, Radiation Protection Department, Chemistry Department, and other designated VY personnel are assigned to inventory and maintain the emergency kits and/or equipment. Rotation of survey instruments normally used in the plant with instruments in the Emergency Kits assures that emergency equipment is calibrated and fully operable. There are sufficient reserve instruments and equipment to replace those that are removed from emergency kits for calibration purposes. Appendix B contains a list of emergency equipment by location.

12.5. Responsibility for the Planning Effort

The Senior Site Executive has overall responsibility for implementation of the Emergency Plan at Vermont Yankee. The Emergency Planning Manager is responsible for emergency planning and the interface with local and state governments. The Emergency Planning Manager reports offsite to the Director, Emergency Programs. The duties of the Emergency Planning Manager include, but are not limited to, the following:

1. Revise and update the Emergency Plan;

2. Maintain the Emergency Plan implementing procedures so that they are updated and current with the Emergency Plan;

3. Schedule and ensure the conduct of emergency equipment inventories and calibration;

4. Represent the plant in state and local Emergency plan interfaces;

5. Represent the plant in NRC emergency planning appraisals and audits;

6. Interface with the Exercise Coordinator in preparing and coordinating Emergency Plan drills and exercise; and

7. Maintain drill and exercise documentation and coordinate implementation of corrective actions deemed necessary following drills and exercises.

APPENDIX A

EMERGENCY CLASSIFICATION SYSTEM

AND

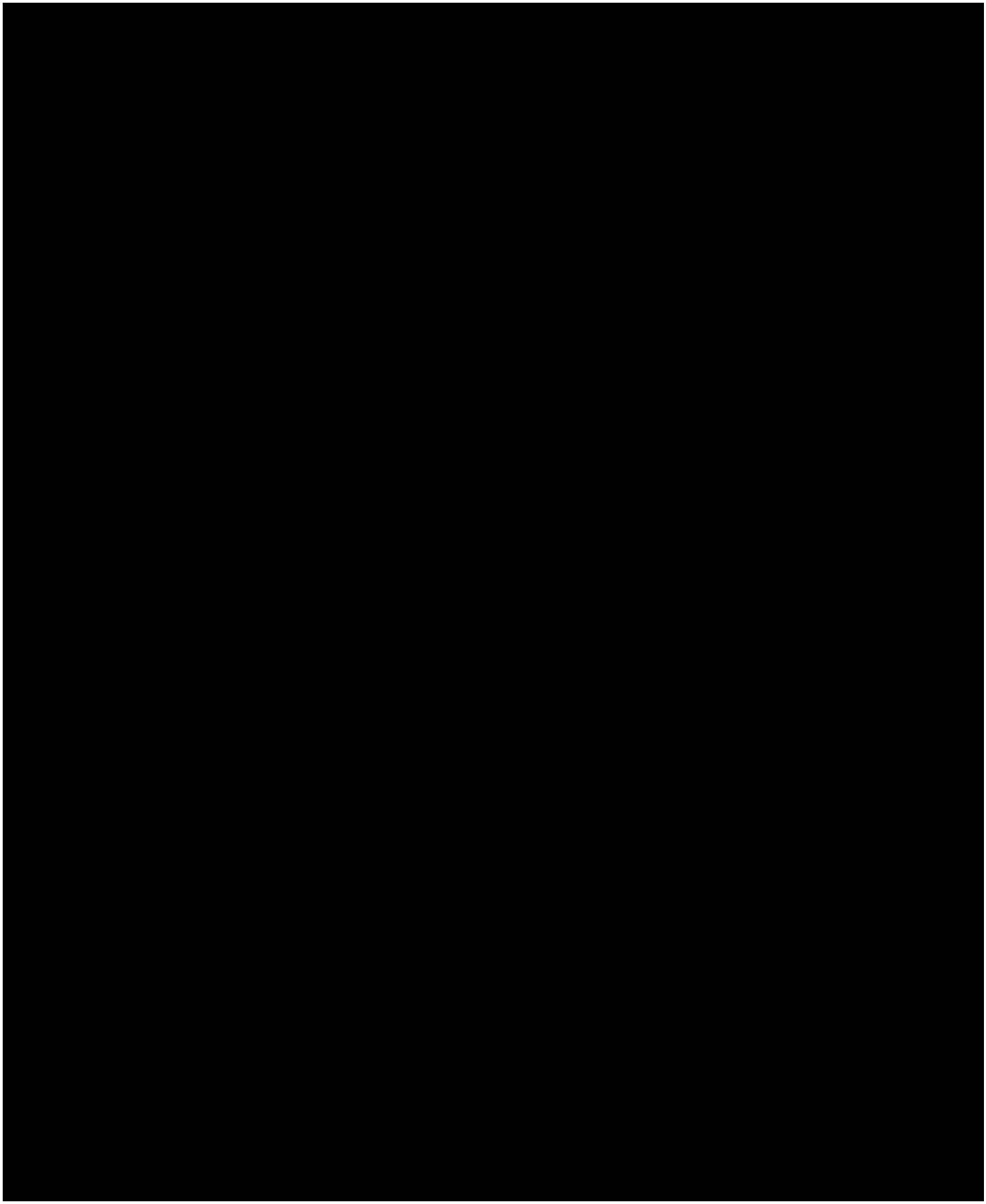
EMERGENCY ACTION LEVELS

[**NOTE:** Reference AP 3125, Emergency Plan Classification and Action Level Scheme for the most current revision of the EAL Charts.]

APPENDIX B

EMERGENCY EQUIPMENT

This Appendix contains a list of emergency equipment by location. Backup equipment is available at the Radiation Protection control point and associated areas located in the OSC. In addition, all the resources referenced in 6.2.6 and 10.3 are at the disposal of Vermont Yankee in an emergency.



APPENDIX C

INITIAL OFFSITE DOSE RATE ESTIMATION

Vermont Yankee has developed a method to quickly determine the release rate and the projected offsite dose rate at 1/3 mile from the site that could be associated with an accident condition that exceeds the range of the normal plant stack Radiation Monitoring System. This determination is made by using Figure 10.1 with the following input variables:

1. Time after reactor shutdown;
2. The plant stack high-range monitor response;
3. The plant stack flow rate at the time of the accident; and
4. Wind speed

The plant stack high range monitor consists of a Victoreen ion chamber located at the base of the stack (el. 264') and shielded by 1/2" of aluminum. A release rate function, J, has been determined at this location for a fuel melt mixture of fission product noble gases, as a function of time after reactor shutdown. This function, J, converts the monitor response to total activity concentration in the stack.

The activity release rate is determined from the nomogram, Figure 10.1, with the definition of the necessary input parameters. The projected offsite plume centerline dose rate at 1/3 mile from the stack can be determined from the nomogram once the following parameters are available: the response of the plant stack high range monitor, the plant stack flow rate, and the wind speed. The Offsite Dose Rate Function must be entered from the "time after shutdown" axis in order to obtain this result. The Offsite Dose Rate Conversion Function is the ratio of Parameter J to Parameter f at any time, t, where Parameter f is the effective dose conversion factor for the fission product noble gas mixture at time, t. Atmospheric stability is not required due to the fact that the gamma dose diffusion factor does not vary significantly at 1/3 mile for a stack release. The value chosen for the nomogram is conservative for all atmospheric stability classes.

The dose rate determined by the nomogram provides a conservative estimate of Total Effective Dose Equivalent (TEDE) for a stack release dominated by noble gases. Since the iodine to noble gas ratio for a stack release are both relatively low, the thyroid dose does not contribute significantly to the TEDE under these conditions.

In order to qualitatively define plume width, a transparent overlay has been prepared for a Vermont area base map. The transparency consists of three angles [one each for unstable (Pasquill A, B, C stability classes), neutral (Pasquill D stability), and stable (Pasquill E, F, G stability) conditions] drawn from the plant out to a distance of ten miles. Included within each angle are areas lateral to the plume centerline having radionuclide concentrations of at least 5% of the plume centerline value. Centering the stability-dependent angles over the appropriate downwind direction on the site area base map qualitatively defines the plume width. Using the appropriate sector/zone designation appropriate to the plume width, Vermont Yankee can provide the state authorities with an affected area.

APPENDIX D

ENVIRONMENTAL LABORATORY ANALYTICAL AND DOSIMETRY SERVICES

General

In the event of a radiological emergency at Vermont Yankee, Laboratory services (as described in 6.2.6) are available, on a 24-hour emergency call basis, to perform gamma isotopic analyses on samples taken by the plant's emergency monitoring teams. Portable gamma spectroscopy equipment can be deployed to the plant site to determine the presence and level of contamination in samples of various media in the event of an accidental release of radioactive material. In addition Entergy maintains a General Services Agreement with Landauer Inc. for 24 hour emergency personnel Dosimetry processing.

Portable Emergency Analysis Equipment

Portable analysis equipment including a shielded HPGe detector based gamma spectroscopy system complete with computerized spectral analysis capability may be deployed to assist in an emergency response. A report of plant-related nuclide concentrations, standard deviation, and Minimum Detectable Concentration (MDC) is forwarded to assessment personnel.

Following a request from Vermont Yankee for assistance in assessing an emergency condition, laboratory personnel will be dispatched to a designated location within approximately four (4) to eight (8) hours. Upon arrival, laboratory personnel will determine the presence and level of contamination in samples of various media (air cartridges, air filters, vegetation, water) collected by Plant Field Sampling Teams.

Emergency DLR Services

The capability exists for the emergency processing of DLRs on a 24-hour per day basis, if necessary, through a General Services Agreement with Landauer Inc. Emergency workers are instructed to read self indicating dosimeters frequently, and DLRs may be processed with increased periodicity.

Portable Body Burden Service

A WBC System is comprised of a portable shielded HPGe detector, interfaced to a PC-based ADCI/MCA and IBM compatible portable computer may be acquired from the other industry facilities. The analytical methodology provides a whole body scan and identifies activity content of the lung, GI, and thyroid.

A result report is generated for those plant-related nuclides found to be present at the 99% confidence level.

APPENDIX E

LETTERS OF AGREEMENT

Letters of agreement in effect between Vermont Yankee and the offsite authorities and organizations, which under earlier revisions resided in this appendix, have been removed. These documents are now maintained in the Emergency Planning Department files. Entergy Operations, Inc. maintains agreements and/or contracts with the following organizations in support of Vermont Yankee Emergency Response.

Letters of Agreement have been ascertained with offsite groups to provide on-site aid in the event of an emergency situation, including those resulting from hostile actions at Vermont Yankee.

Ambulance Service: Twenty-four (24) hour ambulance service is provided by Rescue Inc. Mutual aid backup from other ambulance services provides for additional emergency medical services, ambulances and EMS personnel. Onsite procedures contain instructions that cover the call for assistance and the handling of the ambulance service personnel. Radio communication exists between the ambulance and local hospitals.

Medical: Onsite procedures contain instructions, which cover the request for medical assistance and handling of patients.

Hospitals: Brattleboro Memorial Hospital and Baystate Franklin Medical Center have agreed to accept patients from Vermont Yankee who have been injured, contaminated or irradiated.

Fire: Offsite firefighting support is provided by the Vernon and Brattleboro Fire Departments, as resources permit, with mutual aid backup from other fire departments.

Law Enforcement: When notified that assistance is needed, Security will notify the Lead Local Law Enforcement Agency (LLEA). The handling of security matters, including those involving hostile action for Vermont Yankee is covered in the Vermont Yankee Security Plan and are classified as safeguards information.

Letters of Agreement

1. State of Massachusetts
2. State of New Hampshire
3. State of Vermont
4. Baystate Franklin Medical Center
5. National Weather Service (NOAA)
6 Brattleboro Memorial Hospital
7. Rescue, Inc. Ambulance Service
8. Vernon Fire Department
9. Brattleboro Fire Department
10. Institute of Nuclear Power Operations
11. Town of Vernon
12. Department of Energy
13. DOE - REAC/TS
14. Deleted
15. State of Massachusetts Alert & Notification System
16. State of New Hampshire Alert & Notification System
17. State of Vermont Alert & Notification System
18. Landmark College
19. Law Enforcement *****

***** All letters of agreement from Local Law Enforcement Authorities as required by the Physical Security Plan are classified as Safeguards Information and as such are maintained by Security.

APPENDIX F

EVACUATION TIME ESTIMATES

The Evacuation Time Estimate for Vermont Yankee Nuclear Power Station is maintained as a separate document. The Evacuation Time Estimate is provided to offsite agencies when it is updated.

APPENDIX G

INDEX OF EMERGENCY PLAN IMPLEMENTING PROCEDURES AND SUPPORT PLANS

I. EMERGENCY PLAN IMPLEMENTING PROCEDURES

AP 3125	Emergency Plan Classification and Action Level Scheme
EPOP-COMM-3504	Emergency Communications
EPOP-EQUIP-3506	Emergency Equipment Readiness Check
OP 3507	Emergency Radiation Exposure Control
OP 3508	Onsite Medical Emergency Procedure
OP 3509	Environmental Sample Collection during an Emergency
OP 3510	Offsite and Site Boundary Monitoring
EPOP-PAR-3511	Offsite Protective Action Recommendations
OP 3513	Evaluation of Offsite Radiological Conditions
AP 3532	Emergency Preparedness Organization
OP 3533	Post Accident Sampling of Reactor Coolant
OP 3534	Post Accident Sampling of Plant Stack Gaseous Releases
OP 3535	Post Accident Sampling and Analysis of Primary Containment
OP 3536	In-plant Air Sample Analysis with Abnormal Conditions
EPOP-CR-3540	Control Room Actions During an Emergency
EPOP-TSC-3542	Operation of the Technical Support Center
EPOP-OSC-3544	Operation of the Operations Support Center
EPOP-EOF-3546	Operation of the Emergency Operations Facility/Recovery Center
OP 3547	Security Actions During an Emergency
OP 3548	Emergency Termination and Recovery
AP 3549	Offsite Emergency Preparedness Support
EPOP-JIC-3550	Activation and Operation of the Joint Information Center
EPOP-3551	Operation of the Joint Information Center When the Alternate Joint Information Center is Activated
EPOP-3552	Activation and Operation of the Alternate Joint Information Center
AP 3553	Administration and Maintenance of the Alert and Notification System
AP 3554	Emergency Plan Teams
AP 3712	Emergency Plan Training
AP-10049	Equipment Important to Emergency Response
EPAP-INFORM-10076	InForm Notification System

II. SUPPORT PLANS*

The Vermont Yankee Severe Accident Management Program (PP 7019)

The Vermont Yankee Security Plan

Vermont Yankee Fire Protection and Safe Shutdown (SEP-FP-VTY-003)

The State of Vermont Radiological Emergency Response Plan

The State of New Hampshire Radiological Emergency Response Plan

The Commonwealth of Massachusetts Radiological Emergency Response Plan for Fixed-Site Nuclear Facilities

NRC Incident Response Plan (NUREG-0728)

National Response Framework (January 2008)

Procedure for Admission and Management of Radioactively Contaminated Patients at Brattleboro Memorial Hospital

Vermont Yankee Nuclear Power Station On-Shift Staffing Analysis

Evacuation Time Estimate

Corporate Support Procedures

EN-FAP-EP-009, Use of KI for the Emergency Response Organization

EN-FAP-EP-010, Severe Weather Response

EN-FAP-EP-012, Severe Weather Recovery

EN-EP-202, Equipment Important to Emergency Preparedness

EN-EP-301, Emergency Planning Assessment of Offsite Emergency Response Capability Following a Natural Disaster

EN-EP-305, Emergency Planning 10CFR50.54(q) Review Program

EN-EP-306, Drills and Exercises

EN-EP-307, Hostile Action Based Drills & Exercises

EN-EP-308, Emergency Planning Critiques

EN-EP-309, Fatigue Management for Hurricane Response Activities

EN-EP-310, Emergency Response Organization Notification System

EN-EP-311, Emergency Response Data System (ERDS) Activation via the Virtual Private Network (VPN)

EN-EP-401, Public Use of Emergency Preparedness Owner Controlled Area

EN-EP-601, Corporate Emergency Center Operations

EN-EP-606, Pandemic Flu Response

EN-EP-801, Emergency Response Organization

*** This list does not reference any of the emergency plan arrangements specified in Appendices D and E of this plan.**

APPENDIX H

PUBLIC NOTIFICATION SYSTEM

Vermont Yankee has completed the installation of the equipment necessary to meet the requirements outlined in NUREG-0654 for alerting the public within the Vermont Yankee EPZ. The equipment consists of 37 sirens and NWS Tone-Alert receivers. The attached town maps indicate the location of each siren.

When an emergency condition exists which requires the Public Notification System to be activated, the emergency Management Agencies of Massachusetts, New Hampshire, and Vermont coordinate the activation of the Public Notification System (sirens, mobile PA systems, weather alert receivers, emergency broadcasting stations, etc.). After the coordination, the respective states notify local response organizations to activate the system to alert the affected population. Coordination of the three states is very important prior to activation due to the overlap of the radio stations and sound devices outside a state into the other affected states. The responsibility for activating the prompt Public Notification System rests with the State and Local Governments.

In the event of an emergency situation, which requires rapid implementation of alerting the public, the respective state agencies (State Police and/or Emergency Management) immediately notify the Emergency Alert System (EAS) stations to provide advisory information to the public. Simultaneously, the states include the activation of the Public Notification System in their initial message to the local response organizations. Coordination <u>is not</u> conducted during a fast breaking event.

Emergency response organizations have a 24-hour capability of alerting and providing instructions to the public.

Each state has made provisions for issuing emergency instructions to the public. Descriptions of the information to be immediately issued and updates of the information are outlined in the respective State Emergency Response Plans.

Siren List

Map #	Siren Name	Siren Location
1	VV1	Vermont Yankee, Vernon, VT
2	VV2	Fire Station, Vernon, VT
3	VV3	Recreation Center, Vernon, VT
4	BV1	Municipal Center, Brattleboro, VT
5	BV2	Town Garage, Brattleboro, VT
6	BV3	West Fire Station, Brattleboro, VT
7	BV4	Putney Road, Brattleboro, VT
8	BV5	Williams Street, Brattleboro, VT
9	BV6	State Police, Route 9, Brattleboro, VT
10	HN1	Fire Station, Hinsdale, NH
11	HN2	Town Well, Hinsdale, NH
12	WN1	Swanzey Town Line, Route 10, Winchester, NH
13	WN2	Fiddle Hill Road, Winchester, NH
14	WN3	Fire Station, Winchester, NH
15	WN4	Town Well, Route 10, Winchester, NH
16	NM1	Route 10 North, Northfield, MA
17	NM2	Fire Station, Northfield, MA
18	NM3	Lucky Clapp Road, Northfield, MA
19	DM1	Town Garage, Bernardston, MA
20	CM1	Griswoldville, Colrain, MA
21	CM2	Aunt Sophie’s Peak, Colrain, MA
22	DM2	Hucklehill Road, Bernardston, MA
23	CM3	Greenfield and Leyden Roads, Colrain, MA
24	CN1	Fire Station Cupola, Chesterfield, NH
25	CN2	West Chesterfield Fire Station, Chesterfield, NH
26	CN3	Spofford Fire Station, Chesterfield, NH
27	CN4	Highway Garage, Chesterfield, NH
28	DV1	Highway Garage, Dummerston, VT
29	DV2	West Dummerston Fire Station, Dummerston, VT
30	DM3	Fire Station, Bernardston, MA
31	GM1	Northfield Mt, Hermon School, Gill , MA
32	LM1	Municipal Center, Leyden, MA
33	GV1	Front of School Corner, Guilford, VT
34	GV2	Stage Road, Guilford, VT
35	GV3	Sportsman’s Club on Cremery Road, Guilford, VT
36	HN3	Filter Plant, Route 63, Hinsdale, NH
37	RN1	Whipple Hill Road, Richmond, NH