



**Entergy Nuclear Operations, Inc.**

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BVY 15-039

June 18, 2015

10 CFR 50.90  
10 CFR 50.54(q)(4)

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

**SUBJECT:** Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme - Supplement 3 (TAC No. MF4279)  
Vermont Yankee Nuclear Power Station  
Docket No. 50-271  
License No. DPR-28

**REFERENCES:**

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme," BVY 14-033, dated June 12, 2014 (ML14168A302) (TAC No. MF4279)
2. Letter, USNRC to Entergy Nuclear Operations, Inc., "Vermont Yankee Nuclear Power Station – Request for Additional Information Regarding License Amendment Request for Permanently Defueled Emergency Plan Change (TAC No. MF4279)," NVY 14-075, dated October 20, 2014 (ML14281A233)
3. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme - Supplement 2 (TAC No. MF4279)," BVY 15-009, dated February 5, 2015 (ML15062A122)

Dear Sir or Madam:

By letter dated June 12, 2014 (Reference 1), Entergy Nuclear Operations, Inc. (ENO) requested an amendment to Renewed Facility Operating License Number DPR-28 for Vermont Yankee Nuclear Power Station (VY). The proposed amendment would revise the Site Emergency Plan (SEP) and Emergency Action Level (EAL) Scheme commensurate with the permanently defueled condition of the VY reactor vessel.

By letter dated October 20, 2014 (Reference 2), the NRC provided VY with specific questions in a Request for Additional Information (RAI) regarding the proposed changes to the SEP and EAL scheme. By letter dated February 5, 2015 (Reference 3), ENO provided responses to the RAI, including a commitment to provide the NRC with supplemental response to RAI-18, -23, -24, -29 and -32. Attachment 1 of this letter provides the supplemental response to the RAI. Attachment 2 of this letter provides the revised Permanently Defueled Emergency Plan with the proposed changes to reflect this supplemental RAI response.

A 445  
NRC

The conclusions of the no significant hazards consideration and the environmental considerations contained in Reference 1 are not affected by, and remain applicable to, this supplement.

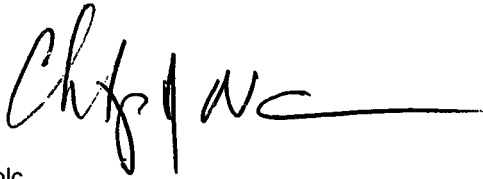
Should you have any questions concerning this letter or require additional information, please contact Mr. Philip Couture at 802-451-3193.

This letter contains no new regulatory commitments.

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

Executed on June 18, 2015.

Sincerely,



CJW/plc

- Attachments:
1. Supplemental Response to Request for Additional Information
  2. Permanently Defueled Emergency Plan, Revision 0
  3. EPOP-URI-10095, Dose Assessment Using the Unified RASCAL Interface, and EPOP-RAD-3513, Evaluation of Radiological Conditions
  4. Emergency Plan Training Procedure and the Emergency Plan Training Program Description
  5. Letters of Agreement

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Attachment 1

Vermont Yankee Nuclear Power Station

Supplemental Response to Request for Additional Information

**REQUEST FOR ADDITIONAL INFORMATION  
REGARDING AMENDMENT REQUEST FOR  
PERMANENTLY DEFUELED EMERGENCY PLAN CHANGE  
ENTERGY NUCLEAR OPERATIONS, INC.  
VERMONT YANKEE NUCLEAR POWER STATION  
DOCKET NOS. 50-271**

The following request for additional information (RAI) applies to Attachment 2, "Permanently Defueled Emergency Plan [PDEP]," of Entergy's submittal dated June 12, 2014, (Agencywide Documents Access and Management System (ADAMS) Accession Number No. ML 14168A302).

**VY-RAI-18**

Section 10.1.1, "Initial Radiological Dose Projection" of the PDEP provides that VY has developed a method to quickly determine the projected radiological conditions at the site boundary. Please provide further information on how this dose projection is performed using on-shift staffing identified in Table 8.1, and include a copy of the applicable implementing procedure.

**Supplemental Response**

Entergy Nuclear Operations, Inc. (ENO) has made the decision to modify existing Vermont Yankee (VY) procedures EPOP-URI-10095, "Dose Assessment Using the Unified RASCAL Interface," and EPOP-RAD-3513, "Evaluation of Radiological Conditions," rather than develop a new procedure that relies on a simplified manual method to provide dose assessment capability, as conceptually described in the response provided in the initial RAI response (Reference 1). The draft procedures, as revised, reflect VY's permanently defueled condition and the Permanently Defueled Emergency Plan (PDEP) submitted for NRC review and approval (Reference 2, as supplemented). The revised procedures will be implemented coincident with the approved PDEP.

During the initial stages of an emergency, the Shift Manager, or an individual designated by the Shift Manager, is responsible to perform the initial evaluation of radiological conditions. This activity is identified as a responsibility of the Shift Manager in Section 8.1.1 of the PDEP. As described in Section 8.1.1 of the PDEP, the only responsibilities the Emergency Director cannot delegate are the classification of an event; approval of notification (although the task of making notifications may be delegated) and authorization of radiation exposures in excess of 10 CFR Part 20 limits. The initial evaluation of radiological conditions can be performed by the Shift Manager or can be delegated to another individual, and can be performed individually or in series with emergency declaration and off-site notifications, without impacting the ability of the Shift Manager to maintain emergency direction and control.

The on-shift staffing includes a Radiation Protection Technician. The on-shift Radiation Protection Technician is capable of performing sampling and analysis, so as to not delay information potentially needed by the Shift Manager to determine if an emergency declaration is required. The on-shift Radiation Protection Technician can provide the status of in plant chemistry sample information to include isotopic breakdown of effluent release data (e.g., plant stack), and utilize the results of these samples to determine source term release rate information as needed. Furthermore, during movement and handling of spent fuel, site

procedures require that a Chemistry Technician be on-site or the radiation monitors listed in gaseous effluent EALs are in service, thereby providing additional capability to obtain information (e.g., sample analysis and effluent release rate) used to determine Emergency Action Level (EAL) applicability.

Additionally, Section 8.1.3 of the PDEP states that the Radiation Protection Technician is available to provide timely field survey results, if necessary.

Section 8.1 of EPOP-RAD-3513, as drafted to implement the PDEP, contains the methodology for performing an initial evaluation of radiological conditions. As described in the procedure, the initial evaluation of radiological consequences will be accomplished utilizing the Unified RASCAL Interface (URI) or an alternate dose projection methodology. Upon receiving an indication that a significant release of radioactivity is occurring, the Shift Manager, or designated plant staff, is responsible for initiating or assigning a qualified individual to use URI in accordance with EPOP-URI-10095 or perform dose projection utilizing the alternate dose projection methodologies described in Attachment 19 of EPOP-RAD-3513. For an actual ground release, this involves obtaining a whole body dose rate reading at the Site Boundary in the downwind direction of the release.

Attachment 2 of this letter provides the PDEP indicating the addition of EPOP-URI-10095 and EPOP-RAD-3513 as Emergency Plan Implementing Procedures in Appendix E of the PDEP. The drafted revisions of EPOP-URI-10095 and EPOP-RAD-3513 are provided as Attachment 3 of this letter.

### **VY-RAI-23**

**Section 11.1, "Emergency Notification" of the PDEP states, "The format and contents of the initial message between the plant and State authorities are specified in notification procedures and have been established with the review and agreement of responsible state authorities." Please provide documentation that this commitment has been reviewed with responsible state authorities to address the permanent shut down and defueled condition of facility. In addition, has the frequency and format/content of follow-up reports been discussed with responsible state authorities based on the requested change in notification time requirements and the permanently shut down and defueled condition of the facility?**

### **Supplemental Response**

ENO has developed the format and content of the initial and follow-up messages to be implemented coincident with the approved PDEP and provided the proposed Emergency Classification Form to responsible authorities with the States of Vermont and New Hampshire and the Commonwealth of Massachusetts for review and approval via email dated April 16, 2015. The Emergency Classification Form has been revised to:

- 1) Remove the Site Area and General Emergency classifications consistent with the Permanently Defueled Emergency Action Level scheme currently under review by the NRC;
- 2) Remove reference to the Emergency Operations Facility (EOF) and protective action recommendations; and

- 3) Reflect a notification time of within 60 minutes following declaration of an emergency as described in SECY-14-0125 (Reference 3) and approved by the Commission on March 2, 2015 (Reference 4).

VY will maintain the capability to communicate with the State emergency management agencies on a 24-hour per day basis and to convey specific emergency information using the existing InForm Notification System and the Nuclear Alert System (NAS) as a backup capability. Backup to the NAS phone system is the commercial phone system.

As indicated on the Emergency Classification Form, follow-up reports will be provided to responsible state authorities at approximately 30 minute intervals. Follow-up reports will be also provided to responsible state authorities when there has been a release or significant change in release rates and/or meteorological conditions; when there has been a significant change in plant conditions; or there is a change in emergency classification. The frequency of follow-up reports will remain consistent with the current practices agreed upon between VY and the States and VY has not proposed any changes to the frequency of these follow-up reports.

Decommissioning-related emergency plan submittals for VY have been discussed with offsite response organizations since ENO provided notification that it would permanently cease power operations at VY. These discussions have addressed future changes to onsite and offsite emergency preparedness throughout the decommissioning process. Documentation of review and agreement with the proposed Emergency Classification Form was provided via email by New Hampshire on April 23, 2015 and Massachusetts on May 14, 2015.

On April 16, 2015, ENO also provided Vermont with the proposed Emergency Classification Form and described the changes to the form previously detailed in this response. Although ENO has attempted to obtain Vermont's comments and concurrence on the Emergency Classification Form, on April 28, Vermont notified ENO that it will not provide any comments or its concurrence with the form until the pending NRC adjudicatory proceeding concerning the PDEP LAR (NRC Docket No. 50-271-LA-2) and Vermont's March 12, 2015 Petition for Reconsideration of Commission's Decision Approving ENO's Exemption Requests are resolved. On May 18, 2015, the Atomic Safety Licensing Board (ASLB) denied Vermont's petition for a hearing and terminated the adjudicatory proceeding (Reference 5). On June 12, 2015, Vermont filed an appeal of the ASLB's decision with the Commission.

#### **VY-RAI-24**

**Section 11.2, "Public Information" of the PDEP refers to the dissemination of information during an event at VY. Please explain how the following NUREG-0654/FEMA-REP-1 evaluation criteria are addressed under the Entergy Corporate Communication protocols:**

- **[G.4.a] Designated spokesperson, which should have access to all necessary information;**
- **[G.4.b] Arrangements for the timely exchange of information among designated company/agency spokespersons; and**
- **[G.4.c] Coordinated arrangements for dealing with rumors.**

**Additionally, please clarify how Entergy corporate communications protocols will continue to support the capability of Federal, State and local emergency response organizations to disseminate appropriate information regarding an emergency at VY.**

### Supplemental Response

The VY SAFSTOR Organization includes a Communications position that would serve as a designated spokesperson should an emergency be declared at VY. The spokesperson function would typically be performed by Communications personnel. However, the function could also be performed by plant or corporate management. The positional duties of the spokesperson include maintaining liaison with local media and coordinating with Federal, State and local emergency response organizations to disseminate appropriate information regarding an emergency at VY. In addition, as described in Section 11.2 of the PDEP, VY maintains a public inquiry phone for media and public use. During an emergency, a pre-recorded message will provide up to date status reports regarding the situation.

The Emergency Response Organization (ERO) notification system, described in Section 7.3 of the PDEP, is designed to notify the designated spokesperson of a declared emergency at VY. Upon receiving notification of an emergency declaration, the designated spokesperson will contact the Control Room and will receive a brief description of the event. As such, that person would have access to necessary information regarding the event. To address rumors, in addition to maintaining the pre-recorded message line discussed above, the designated spokesperson would monitor media activity and coordinate with management to address rumors and disseminate information to the public. VY will participate in news conferences as appropriate with Federal, State and local emergency response organizations conducted on site or at other locations, as necessary.

Attachment 2 of this letter provides the PDEP addressing Evaluation Criteria G.4.a, b and c (PDEP Section 11.2) with the proposed changes to reflect this supplemental response.

### VY-RAI-29

**Please provide copies of Emergency Plan Training Procedure AP 3712 and the Emergency Plan Training Program Description, as referenced in Section 12.2 of the PDEP, which describes specific details of the training given on an annual basis.**

### Supplemental Response

ENO has drafted revisions to AP 3712 (renumbered as EPAP-TRNG-3712) and the Emergency Plan Training Program Description (EPTPD) to reflect VY's permanently defueled condition and the proposed PDEP. EPAP-TRNG-3712 and the EPTPD address the ERO positions described in the PDEP and will be implemented coincident with implementation of the approved PDEP.

The drafts of EPAP-TRNG-3712 and the EPTPD are provided as Attachment 4 of this letter.

### VY-RAI-32

**Appendix D of the PDEP discusses various active and in-force letters of agreement with various offsite support organizations. Please provide copies for staff review of letters of agreement applicable to this proposed PDEP, which will be in-force upon VY's permanent cessation of operations.**

### Supplemental Response

Appendix D of the PDEP identifies the Letters of Agreement (LOAs) that will be in force upon

implementation of the PDEP. Since submittal of the initial response to the RAI (Reference 1), ENO has successfully obtained LOAs from the following organizations referenced in Appendix D:

- State of New Hampshire
- Commonwealth of Massachusetts
- Brattleboro Memorial Hospital
- Rescue, Inc. Ambulance Service
- Vernon Fire Department
- Brattleboro Fire Department
- Town of Vernon
- Department of Energy
- DOE – REAC/TS

Although ENO has attempted to negotiate a revised LOA with Vermont, Vermont has indicated that it is unwilling to discuss the terms of a revised LOA until the pending NRC adjudicatory proceeding concerning the PDEP LAR (NRC Docket No. 50-271-LA-2) and Vermont's March 12, 2015 Petition for Reconsideration of Commission's Decision Approving ENO's Exemption Requests are resolved. On May 18, 2015, the ASLB denied Vermont's petition for a hearing and terminated the adjudicatory proceeding (Reference 5). On June 12, 2015, Vermont filed an appeal of the ASLB's decision with the Commission.

#### Differences between Current LOA and Proposed LOA with State of Vermont

The content of VY's existing LOA with the State of Vermont has been revised to reflect VY's permanently defueled condition and the proposed PDEP. The proposed LOA has been revised to:

- 1) Remove the Site Area and General Emergency classifications consistent with the Permanently Defueled Emergency Action Level scheme currently under review by the NRC;
- 2) Remove reference to protective action recommendations; the Emergency Operations Facility (EOF) and Joint Information Center (JIC); the EOF Manager and the Lead Offsite Liaison because these facilities and Emergency Response Organization (ERO) positions will no longer exist upon implementation of the PDEP;
- 3) Reflect a notification time of as soon as possible, but no later than 60 minutes following declaration of an emergency as described in SECY-14-0125 (Reference 3) and approved by the Commission on March 2, 2015 (Reference 4);
- 4) A paragraph has been included in the proposed LOA stipulating that the agreement reflects VY's current obligations to the State under the current statutory, regulatory and NRC license requirements with which VY must comply and the NRC-approved Emergency Plan; and

- a. The paragraph stipulates that in the future, if VY and the State of Vermont are unable to negotiate a mutually-acceptable amended agreement if VY's obligations under the agreement exceed or differ from changed Legal Requirements, the State agrees that VY is only obligated to comply with the applicable Legal Requirements.
- 5) Remove the paragraphs describing the current agreement that the State of Vermont notify the National Weather Service office in Albany, New York to have them activate the tone alert radios in Massachusetts, New Hampshire and Vermont in the event of a real or simulated emergency, the current agreement to test this capability once per month and the current agreement that the State of Vermont notify the State of New York (ingestion pathway zone).

As described in Appendix D of the PDEP, LOAs with local law enforcement agencies (LLEAs), as required by the Physical Security Plan, are classified as Safeguards Information and are maintained by VY Security. These LOAs are not impacted by the proposed PDEP and are not included with this supplement.

With the exception of the LOAs with the State of Vermont and LLEAs, the signed LOAs identified in Appendix D of the PDEP, and listed above, are provided as Attachment 5 of this letter. The draft LOA provided to Vermont is also included in Attachment 5.

#### Additional Changes to the PDEP

In addition to the revisions to the proposed PDEP described in the preceding RAI responses, the following changes have been incorporated into the proposed PDEP included in Attachment 2 of this letter:

- 1) Section 12.1.1 of the proposed PDEP has been revised to indicate that, in addition to the State of Vermont, VY will offer the State of New Hampshire and the Commonwealth of Massachusetts the opportunity to participate in drills/exercises to the extent assistance would be expected during an emergency declaration; however, participation is not required.
- 2) Section 3.9 of the proposed PDEP has been revised to replace "Appendix G of PP 7019" with "AP-10090" and the reference to PP 7019 in Section II of Appendix E has been removed.

#### References

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme - Supplement 2 (TAC No. MF4279)," BVY 15-009, dated February 5, 2015 (ML15062A122)
2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme," BVY 14-033, dated June 12, 2014 (ML14168A302) (TAC No. MF4279)
3. Policy Issue, Request by Entergy Nuclear Operations, Inc. for Exemptions from Certain Emergency Planning Requirements, SECY-14-0125, dated November 14, 2014 (ML14227A711)

4. Staff Requirements Memorandum – SECY-14-0125 – Request by Entergy Nuclear Operations, Inc. for Exemptions from Certain Emergency Planning Requirements, dated March 2, 2015 (ML15061A516)
5. Atomic Safety and Licensing Board In the Matter of Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), Memorandum and Order (Denying Hearing Request), LBP-15-18, ASLBP No. 15-937-02-LA-BD01, dated May 18, 2015 (ML15138A270)

Attachment 2

Vermont Yankee Nuclear Power Station  
Permanently Defueled Emergency Plan  
Revision 0

PERMANENTLY DEFUELED EMERGENCY PLAN

ENTERGY VERMONT YANKEE

VERNON, VERMONT

REVISION 0

PREPARER:	<u>(later)</u>	
	Emergency Planning Manager (Print/Sign)	Date
REVIEWED:	<u></u>	
	On-Site Safety Review Committee (Print/Sign)	Date
APPROVED:	<u></u>	
	General Manager (Print/Sign)	Date
APPROVED:	<u></u>	
	Site Vice President (Print/Sign)	Date

Effective Date

# ENTERGY VERMONT YANKEE PERMANENTLY DEFUELED EMERGENCY PLAN

## REVISION SUMMARY

DATE	REVISION	DESCRIPTION
TBD	0	The analyses of the potential radiological impact of accidents while the plant is in a permanently defueled condition indicate that no design basis accident or reasonably conceivable beyond design basis accident will be expected to result in radioactive releases that exceed Environmental Protection Agency (EPA) Protective Action Guides (PAGs) beyond the site boundary. The slow progression rate of postulated event scenarios indicate sufficient time is available to initiate appropriate mitigating actions to protect the health and safety of the public. Therefore, the Permanently Defueled Emergency Plan adequately addresses the risk associated with VY's permanently defueled condition and continues to provide adequate protection for plant personnel and the public. Exemptions from the applicable portions of 10 CFR 50.47(b), Appendix E to 10 CFR Part 50 and 10 CFR 50.47(c)(2) were previously approved by the Nuclear Regulatory Commission (NRC).

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## **1.0 INTRODUCTION**

The Permanently Defueled Emergency Plan (PDEP) describes the station's plan for responding to emergencies that may arise at the Vermont Yankee Nuclear Power Station (VY) while in a permanently shutdown and defueled configuration. VY has provided certification to the Nuclear Regulatory Commission (NRC) required by 10 CFR 50.82(a)(1)(i) and (ii) that the station has permanently ceased operations and that all fuel has been permanently removed from the reactor vessel. In this configuration, all irradiated fuel is stored in the Independent Spent Fuel Storage Installation (ISFSI) and in the Spent Fuel Pool (SFP). In this condition, no reactor operations can take place and the station is prohibited from emplacement or retention of fuel in the reactor vessel. An analysis of the possible design basis events and consequences is presented in the evaluation of the Updated Final Safety Analysis Report (UFSAR) accident assessment. This PDEP adequately addresses the risks associated with VY's current conditions.

The analysis of the potential radiological impact of design basis accidents in a permanently defueled condition indicates that any releases beyond the Site boundary are below the Environmental Protection Agency (EPA) Protective Action Guide (PAG) exposure levels, as detailed in the EPA's "Protective Action Guide and Planning Guidance for Radiological Incidents," Draft for Interim Use and Public Comment dated March 2013 (PAG Manual). Exposure levels, which warrant pre-planned response measures, are limited to onsite areas. For this reason, radiological emergency planning is focused onsite.

### **1.1. Purpose**

The purpose of the PDEP is to assure an adequate level of preparedness by which to cope with a spectrum of emergencies that could be postulated to occur, including the means to minimize radiation exposure to plant personnel. This plan integrates the necessary elements to provide effective emergency response considering cooperation and coordination of organizations expected to respond to potential emergencies.

### **1.2. Scope**

The PDEP has been developed to respond to potential radiological emergencies at VY considering the permanently shutdown and defueled status. Because there are no postulated design basis accidents that would result in dose consequences that are large enough to require offsite emergency planning, the overall scope of this plan delineates the actions necessary to safeguard onsite personnel and minimize damage to property. If determined appropriate by government officials, protective actions may be implemented to protect the public using an all hazards approach to emergency planning.

The concepts presented in this plan address the applicable regulations stipulated in 10 CFR 50.47, "Emergency Plans" and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

Exemptions to selected portions of 10 CFR 50.47(b), 10 CFR 50.47(c)(2) and 10 CFR Part 50, Appendix E were previously approved by the NRC.

## 2.0 DEFINITIONS

**Alert** – Events are in progress 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 taken 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 an 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** – A pre-determined, site-specific, observable threshold for an Initiating Condition that, when met or exceeded, places the plant in a given emergency classification level.

**Emergency Classification** – One of a set of names or titles established by the US Nuclear Regulatory Commission for grouping off-normal events or conditions according to (1) potential effects or consequences, and 2) resulting onsite and offsite response actions. The emergency classification levels, in ascending order of severity, are: UNUSUAL EVENT and ALERT.

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

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

**Emergency Response Organization** – Organization comprised of assigned Vermont Yankee personnel who would respond and assist in a classified emergency situation.

**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

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system has four channels which provide separate and independent page and intercommunication capabilities.

**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).

**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.

**Initiating Condition** – An event or condition that aligns with the definition of one of the two emergency classification levels by virtue of the potential or actual effects or consequences.

**Notification of Unusual Event** – Events are in progress 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. Also referred to as an Unusual Event.

**Projected Dose** – 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.

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

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

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

### **3.0 SUMMARY OF EMERGENCY PLAN**

#### **3.1. Overview of Permanently Defueled Emergency Plan**

In the event of an emergency at the plant, actions are required to identify and assess the nature of the emergency and to bring it under control in a manner that protects the health and safety of plant personnel.

This plan describes the organization and responsibilities for implementing emergency measures. It describes interfaces with Federal, States of Vermont and New Hampshire, the Commonwealth of Massachusetts and local organizations which may be notified in the event of an emergency, and may provide assistance. Emergency services are provided by local public and private entities. Fire support services are provided by the Vernon and Brattleboro Fire Departments and Tri-State and Southwestern Fire Mutual Aid Networks. Law enforcement support services are provided by local, county, state, and federal law enforcement authorities, as appropriate. Ambulance service is provided by Rescue, Inc. Medical services are provided by Brattleboro Memorial Hospital.

Because there are no postulated design basis accidents that would result in off-site dose consequences that are large enough to require off-site emergency planning, emergencies are divided into two classifications: 1) Notification of Unusual Event (Unusual Event); and 2) Alert. This classification scheme has been discussed and agreed upon with responsible offsite organizations and is compatible with their respective emergency plans. According to the EPA PAG Manual, "Emergency Planning Zones (EPZs) are not necessary at those facilities where it is not possible for PAGs to be exceeded off-site." If determined appropriate by government officials, protective actions may be implemented to protect the public using an all hazards approach to emergency planning.

VY is responsible for planning and implementing emergency measures within the Site. This plan is provided to meet that responsibility. To carry out specific emergency measures discussed in this Plan, detailed emergency plan implementing procedures are established and maintained.

In addition to the description of activities and steps that can be implemented during an emergency, this Plan also provides a general description of the steps taken to recover from an emergency situation. It also describes the training, drills, planning, and coordination appropriate to maintain an adequate level of emergency preparedness.

#### **3.2. Objectives**

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 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/commonwealth, and local authorities and agencies for offsite support organizations;
- 8) To develop a communications network between the plant and offsite authorities to provide notification of emergency situations;
- 9) To develop a training and Emergency Plan exercise program to assure constant effectiveness of the plan.

### **3.3. Actions in an Emergency**

This Plan is activated by the Shift Manager upon identification of an emergency situation based upon Emergency Action Level (EAL) criteria. The emergency measures described in the subsequent sections and emergency plan implementing procedures are implemented in accordance with the classification and nature of the emergency at the direction of the Shift Manager. Regulatory authorities and offsite support organizations are notified in accordance with this Plan. The Shift Manager has authority and responsibility for control and mitigation of the emergency, including emergency response resources, coordination of radiological assessment activities, and recovery implementation.

If an emergency condition develops, the Shift Manager assumes the role of Emergency Director, including 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 EALs;
- 2) Classify the accident in accordance with the emergency classification system;
- 3) Initiate emergency procedure(s) applicable to the event;
- 4) Activate the plant emergency alarm system;

- 5) Notify authorities in Vermont, New Hampshire and Massachusetts using the InForm Notification System;
- 6) Notify the NRC using the Emergency Notification System (ENS);
- 7) Use the notification plan to notify appropriate personnel as set forth in Figure 9.1; and
- 8) Direct and coordinate all emergency response efforts until overall responsibility is assumed by the Emergency Director.

### **3.4. Emergency Response Facilities**

The emergency response facilities, which are utilized by the Emergency Response Organization (ERO), are described in Section 6.0. Key site personnel are dispatched to perform accident assessments, implement corrective actions, and analyze accident data.

### **3.5. Mobilization**

The mobilization scheme is based on the emergency notification system shown in Figure 9.1. The notification system utilizes the plant public address system (Gai-Tronics), dedicated telephone lines, and the ERO notification system to notify and mobilize plant personnel. The mobilization scheme ensures that specific technical disciplines can be augmented within appropriate time frames. On-site staff are informed of an emergency condition through the use of the plant public address system, office telephone and/or wireless devices capable of receiving telephone calls and text messages. In the event that personnel required to staff emergency positions are not on-site at the time an emergency is declared, they may be contacted by commercial telephone including land lines and/or wireless devices capable of receiving telephone calls and text messages. Mobilization of the ERO will be conducted under the direction of the Emergency Director, according to personnel assignments and telephone numbers maintained in various telephone directories. Section 8.2, Figure 8.1 and Table 8.1 outline the minimum staffing requirements for the ERO at VY.

### **3.6. State and Local Government Notification and Response**

VY's Emergency Plan interfaces with the emergency response plans of Vermont, New Hampshire and the Commonwealth of Massachusetts. Vernon, Vermont, in coordination with the emergency management agencies of Vermont, maintains the capability to communicate on a 24-hour per day basis.

VY conveys specific accident information to the States of Vermont and New Hampshire and the Commonwealth of Massachusetts using the InForm Notification System.

A cooperative arrangement exists among the Vermont and New Hampshire and the Commonwealth of Massachusetts authorities and VY concerning radiological emergency

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preparedness. VY's emergency classification system and notification messages are reviewed with these States/Commonwealth on an annual basis.

### **3.7. Federal Government Notification and Response**

Notification to the NRC is made using the ENS as soon as possible after State/Commonwealth notifications and within 60 minutes of event classification or change in classification. 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. If the emergency warrants, 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, as necessary to respond to the specific nature of the emergency. Principal participants are the NRC, FEMA, Department of Energy (DOE), and Environmental Protection Agency (EPA).

### **3.8. Technical Support**

In the event of an emergency that requires personnel and other support resources beyond those available within the VY organization, augmentation is available from other Entergy facilities and can be requested from various contractors. Additional technical and manpower support are provided to VY through support plans listed in Appendix E.

### **3.9. Mitigation of Consequences of Beyond Design Basis Events**

Strategies to mitigate a loss of SFP inventory and prevent a zirconium fire are contained within AP-10090, "Loss of Large Areas of the Plant Due to Fire or Explosion." AP-10049 describes the equipment, resources (such as water supplies), procedures and strategies in place for movement of any necessary portable equipment that will be relied upon for prevention of a zirconium fire in the SFP. These mitigative strategies were developed as a result of NRC Order on Mitigative Strategies (EA-02-026) and implement the requirements of License Condition 3.N, "Mitigation Strategy License Condition."

## **4.0 SITE DESCRIPTION**

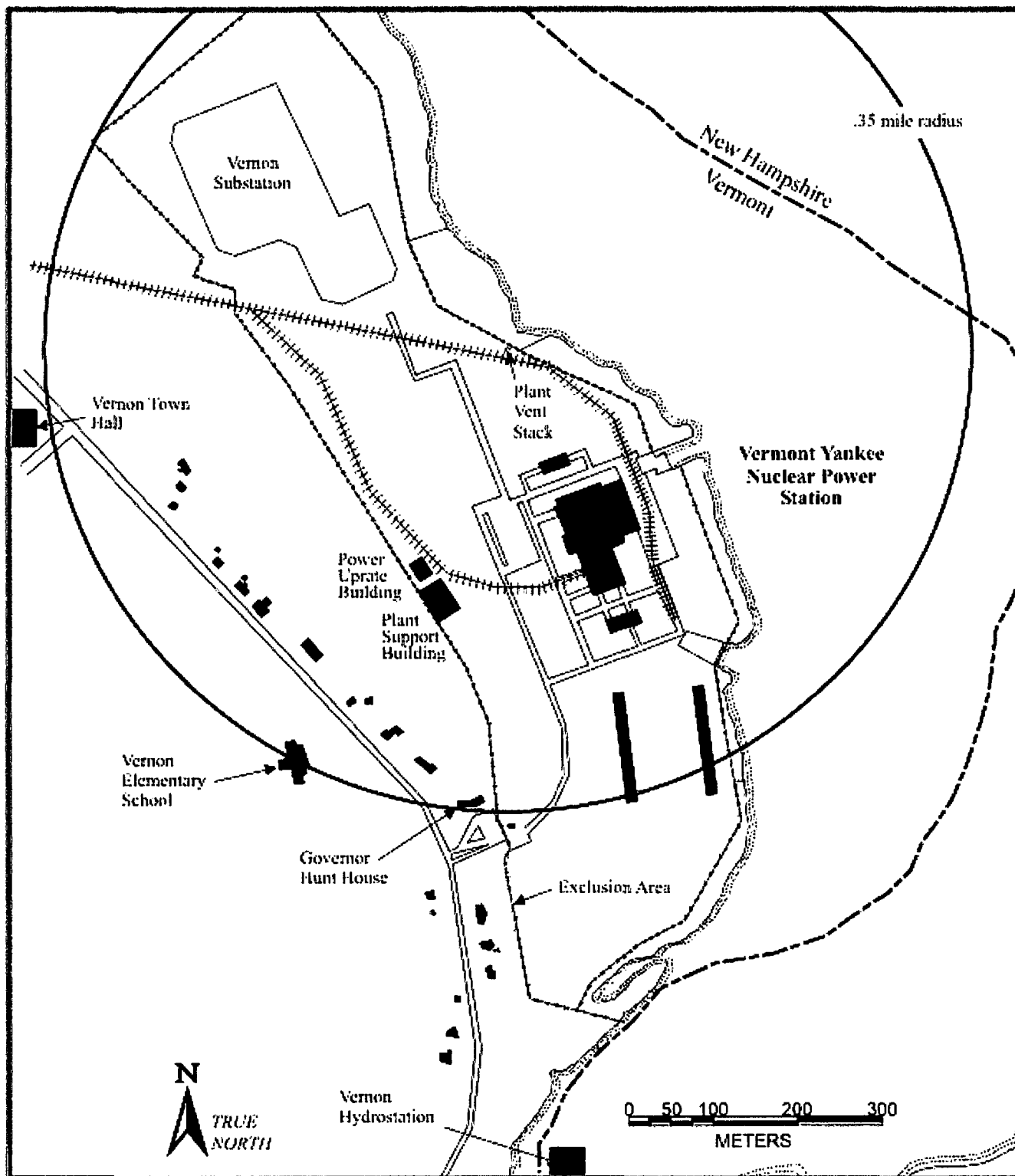
### **4.1. Facility Description**

VY is located on the west bank of the Connecticut River immediately upstream of the Vernon Hydrostation, in the town of Vernon, Vermont. VY consists of a permanently shutdown boiling water reactor having a thermal rated power of 1912 MWt. An ISFSI is located on the plant site. 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 VY property for which it has perpetual rights and easements from the owner, New England Power Company.

The 10 CFR Part 50 license for VY no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2).

### **4.2. Area Characteristics and Land Use**

The site 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. Most of the land around the site is undeveloped. The developed land is used for agriculture, dairying, and for residential areas within small villages. The nearest residence 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.



**Figure 4.1**

**Vermont Yankee Site**

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## 5.0 EMERGENCY CLASSIFICATION SYSTEM

The emergency classification system covers an entire spectrum of possible radiological and non-radiological emergencies at the VY. The emergency classification system categorizes accidents and emergency situations, according to severity, into two emergency classification levels: Unusual Event and Alert.

The incidents leading to each of the emergency classifications are further identified by certain measurable and observable indicators of plant conditions (EALs). EALs addressed 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. VY maintains the capability to assess, classify and declare an emergency condition in accordance with site procedures.

EALs and EAL bases were derived from NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors" Rev. 6, for classifying emergencies. Specifically, Appendix C of NEI 99-01, Rev. 6 contains a set of Initiating Conditions/ EALs for permanently defueled nuclear power plants that had previously operated under a 10 CFR Part 50 license and have permanently ceased operations. The classification system referenced in NEI 99-01, Rev. 6 has been endorsed by the NRC and provides a standard method for classifying emergencies.

### 5.1. Unusual Event

**EVENTS ARE IN PROGRESS 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.**

Unusual Event conditions do not cause serious damage to the plant. The purpose of the Unusual Event declaration is to: 1) provide for an increased awareness of abnormal conditions; 2) ensure that the first step in any response later found to be necessary has been carried out; 3) bring the ERO to a state of readiness; 4) provide for systematic handling of information and decision-making, and 5) augment on-shift personnel, if deemed necessary by the Emergency Director.

See Appendix A for a complete list of EALs corresponding to an Unusual Event.

### 5.2. Alert

**EVENTS ARE IN PROGRESS 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**

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**OR DAMAGE TO SITE EQUIPMENT BECAUSE OF HOSTILE ACTION.  
ANY RELEASES ARE EXPECTED TO BE LIMITED TO SMALL  
FRACTIONS OF THE EPA PAG EXPOSURE LEVELS.**

The purpose of the Alert declaration is to: 1) activate the Emergency Response Organization to perform event mitigation and radiation monitoring, if required, 2) provide the offsite authorities and the NRC with current information on plant status, and 3) ensure that all necessary resources are being applied to accident mitigation.

Plant responses associated with this event classification assure that sufficient emergency response personnel 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 required.

See Appendix A for a complete list of EALs corresponding to an Alert.

**5.3. Emergency Classification System Review by State Authorities**

The emergency classification system specified above and the EALs presented in Appendix A, are reviewed with the authorities of Vermont, New Hampshire and Massachusetts annually.

## **6.0 EMERGENCY RESPONSE FACILITIES AND EQUIPMENT**

Following the declaration of an emergency, the activities of the emergency response organization are coordinated in the Control Room. Descriptions of VY facilities and assessment capabilities are presented below.

### **6.1. Control Room**

The Control Room is where plant systems and equipment parameters are monitored. Control Room personnel assess plant conditions, evaluate the magnitude and potential consequences of abnormal conditions, initiate preventative, mitigating and corrective actions and perform notifications. The Control Room is the onsite center for emergency command and control.

The Control Room crew coordinates all phases of emergency response and corrective action required to restore the plant to a safe condition. Classification and subsequent declaration of the appropriate emergency condition by the Shift Manager results in activation of the ERO. The Control Room staff's attention focuses on mitigating the emergency as the ERO reports and is delegated emergency functions.

When activated, the ERO reports to the Emergency Director to assist the on-shift staff in the assessment, mitigation and response to an emergency and to support the dispatch of emergency teams. The composition of the ERO is addressed in Section 8.2.

ERO activation may be modified or suspended if the safety of personnel may be jeopardized by a security event or other event hazardous to personnel.

The Control Room contains communications equipment, emergency radiation monitoring equipment, emergency respiratory devices, and an emergency kit containing protective clothing and other supplies. The ERO has access to up-to-date technical documentation, including drawings, system information and procedures to enable mitigation planning and support of Control Room staff.

A general assembly area for emergency mitigation and radiation protection personnel is maintained.

### **6.2. Assessment Capability**

The activation of the Emergency Plan and the continued assessment of accident conditions require monitoring and assessment capabilities. VY maintains and operates on-site monitoring systems needed to provide data that is essential for initiating emergency measures and performing accident assessment, including dose assessment and assessing the magnitude of a release. This includes monitoring systems for plant processes, radiological conditions, meteorological conditions, and fire hazards. The essential monitoring systems needed are incorporated in the EALs specified in Appendix A. This section briefly describes monitoring systems as well as other assessment capabilities.

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### **6.2.1. Process Monitors**

Annunciator and computer alarms are provided for a variety of parameters including the SFP cooling system to indicate SFP level, temperature and pump status.

The manner in which process monitors are used for accident recognition and classification is given in the detailed EAL 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. The equipment 1) provides radiological surveillance capabilities; 2) warns personnel of a radiological release; 3) provides warning of certain plant malfunctions which might lead to a radiological release; and 4) prevents, or minimizes, the effects of an accidental release of radioactivity to the environment.

Plant instrumentation provide personnel in the Control Room with the following parameters necessary to perform dose assessment and determine the magnitude of a potential release:

- Gaseous and liquid effluent monitor readings
- Radiation levels
- SFP area radiation levels

Specific details on these monitoring systems such as location, type, etc., are contained in the UFSAR.

In addition to installed monitoring systems, VY has augmented onsite radiological assessment capability, including portable radiation and contamination monitoring instruments and sampling equipment.

### **6.2.3. Meteorological Capability**

The meteorological equipment at the site consists of wind-speed and direction transmitters, signal translators, and recorders. In addition, the temperature measurement consists of recorders and resistance temperature detectors (RTDs). RTDs are used to monitor ambient temperature and calculate differential temperature.

Meteorological data is displayed in the Control Room. These meteorological data is used to determine the projected radiological conditions in the event of an accidental release of radioactivity to the environment.

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

#### **6.2.4. Fire Detection and Suppression Equipment**

The fire protection system has been designed to detect and extinguish potential fires. The system is designed in accordance with the standards of the National Fire Protection Association (NFPA) and recommendations of the Nuclear Electric Insurance Limited (NEIL). Fire detectors are located throughout the plant with alarms and indicators in the Control Room. The fire protection system is described in the Vermont Yankee Fire Protection Program.

#### **6.2.5. Assessment Facilities and Equipment**

Vermont Emergency Management 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.

VY 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 requirements.

VY has access to outside analytical assistance and laboratory facilities from other non-affected Entergy nuclear sites, State and Federal agencies and other utilities. Environmental laboratory analytical and dosimetry services are described in Appendix C.

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.

## **7.0 COMMUNICATIONS**

Various modes of communication are available to plant staff to transmit information within VY and to various locations offsite during normal and emergency conditions.

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. 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 the Commonwealth of Massachusetts.

This system is staffed on a 24-hour basis on both ends – the Control Room and the State Police dispatching points. InForm performs self-checks at frequent intervals and has the ability to notify personnel of any problems identified during the self-check. InForm is tested monthly between the Control Room and the State/Commonwealth Police dispatching points.

Backup to the InForm Notification System is the Nuclear Alert System (NAS).

### **7.2. Nuclear Alert System**

The NAS can be used to notify the State/Commonwealth Police of Vermont, New Hampshire and Massachusetts of any emergency. This system is a secure (dedicated) communications arrangement.

This system is staffed on a 24-hour basis in the Control Room and by the State/Commonwealth Dispatching Points. The NAS is tested monthly between the plant and the State/Commonwealth agencies.

The NAS links the Control Room and the Vermont Emergency Operations Center.

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

### **7.3. ERO Notification System**

The ERO notification system is the primary means to activate the ERO upon declaration of an emergency, as directed by the Emergency Director. In the event that personnel required to staff emergency positions are not on-site at the time an emergency is declared, they may be contacted by commercial telephone including land lines and/or wireless devices capable of receiving telephone calls and text messages. Telephone numbers are maintained in various telephone directories. This system is tested as described in Section 12.1.2.

#### **7.4. Mobile UHF Radio System**

The Mobile UHF Radio System is utilized as a primary means of communications for security personnel; it is the alternate means of communications between the Control Room and onsite response teams. The System consists of UHF repeaters with high gain antennas. These repeaters are activated by base radio stations. 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 the primary local law enforcement agency patrol vehicle(s), as defined in the VY Physical Security Plan, that are located in close proximity to the plant via radio.

#### **7.5. Plant Intercom System**

The Intercom System (Gai-Tronics) is located in many areas throughout the plant, including the Control Room and Security Gates. This system consists of five channels and is utilized as a paging system and for communications with the refuel bridge. 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 Control Room; and (3) calling for any missing or unaccounted for personnel that may be in the plant. 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 avoids potential public telephone blockage which may occur in the event of a major emergency.

The ENS utilizes an FTS line which exists between the NRC Operations Office in Rockville, Maryland and the Control Room. Emergency notification, plant status information and radiological information are communicated via the ENS. The ENS is tested daily by the NRC and has a 24-hour manning capability at both organizations.

#### **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. This system is tested daily through operational use of the system.

### **7.8. Mutual Aid Radio**

The Mutual Aid Radio is a multi-channel radio that can be utilized to contact Southwest Mutual Aid; Rescue, Inc.; Brattleboro Memorial Hospital and the State EOCs in the event that all other offsite channels of communication fail. Periodic testing of this system is described in Section 12.1.2.

### **7.9. Emergency Power Supply for Communications**

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

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

**TABLE 7.1**

**VERMONT YANKEE EMERGENCY COMMUNICATIONS MATRIX**

	<u>CR</u>
Offsite and Site Boundary Monitors	1, 3
Nuclear Regulatory Commission	1, 4
State/Commonwealth Police (VT, NH, MA)	1, 2, 8
State/Commonwealth EOCs (VT, NH, MA)	1, 2, 7, 8
Vermont Yankee Plant Security	1, 3, 5
Vermont Yankee Emergency Response Personnel	1, 6

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**KEY**

1. Commercial Telephone System
2. NAS
3. Mobile UHF Radio System
4. ENS (FTS)
5. Gai-Tronics
6. ERO notification system
7. Mutual Aid Radio
8. InForm

## **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 VY.

### **8.1. Normal Plant Organization**

The personnel and resources of VY's normal plant 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 and the Vermont Yankee Nuclear Power Station Quality Assurance Program Manual.

The minimum staff required to conduct routine and immediate emergency mitigation is maintained at the station. During normal conditions, the minimum staff on duty at the plant during all shifts consists of one (1) Shift Manager, one (1) Non-Certified Operator, one (1) Radiation Protection Technician and security personnel as indicated in Figure 8.1 and Table 8.1. The responsibility for monitoring the status of the plant and approving all onsite activities is assigned to the Shift Manager. When an abnormal situation becomes apparent, the Shift Manager shall assume the position of Emergency Director once the emergency classification has been made. Additional personnel are available on an on-call basis to respond to plant emergencies.

#### **8.1.1. Shift Manager/Emergency Director**

The Shift Manager is at the station 24 hours a day and is the senior management position at the station during off-hours. The Shift Manager shall assume the position of Emergency Director once the emergency classification has been made.

This position is responsible for monitoring conditions and approving all onsite activities and 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 cannot delegate the following responsibilities:

1. Classification of event
2. Approval of emergency notification (although the task of making notifications may be delegated)
3. Authorization of radiation exposures in excess of 10 CFR Part 20 limits

Other responsibilities assumed by the Emergency Director include:

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1. Notification of the emergency classification to the NRC and States of Vermont, New Hampshire and the Commonwealth of Massachusetts
2. Management of available station resources
3. Initiation of mitigating actions
4. Initiation of corrective actions
5. Initiation of onsite protective actions
6. Decision to call for offsite police, fire or ambulance assistance
7. Augment the ERO staff as deemed necessary
8. Coordinate Security activities
9. Terminate the emergency condition when appropriate
10. Performance of initial Dose Assessment
11. Maintain a record of event activities

#### **8.1.2. Non-Certified Operator**

The Non-Certified Operator performs system and component manipulations. The organizational relationship to the Shift Manager/Emergency Director is the same during normal and abnormal situations.

#### **8.1.3. Radiation Protection Technician**

The Radiation Protection Technician is available to monitor personnel exposure, determine if radiological conditions preclude access to areas necessary to maintain SFP cooling, and to provide timely field survey results, if necessary.

#### **8.1.4. Security**

Security staffing is maintained in accordance with the Security Plan. The Security Force will report to the Emergency Director when implementing the PDEP.

During non-security events, Security will activate the station ERO callout system and perform accountability at the direction of the Emergency Director.

## **8.2. Emergency Response Organization**

The VY ERO is activated at an Alert classification. However, it can be activated in part or in whole at the discretion of the Emergency Director for an Unusual Event.

Plans and procedures are in place to ensure the timely activation of the ERO. The goal of the ERO is to augment the on-shift staff within 2 hours of an Alert classification. Due to the slow rate of the postulated event scenarios in the accident analysis and the ability of the on-shift staff to implement the Emergency Plan, the ERO augmentation goal of 2 hours is appropriate.

The minimum augmented staff consists of a Technical Coordinator and a Radiation Protection Coordinator. Augmented staff provides the technical expertise required to assist the Emergency Director. The on-shift staff is augmented by additional personnel that report as directed after receiving notification of an emergency requiring augmented staff. Designated members of the on-shift staff fulfill roles within the ERO appropriate with their training and experience. For example, Radiation Protection personnel would be expected to undertake radiation protection activities, Security personnel would undertake security activities, engineering personnel would focus on plant assessment, provide technical support and assist in recovery operations as designated by the Technical Coordinator, and Operations personnel would focus on plant operations.

The VY ERO is illustrated in Figure 8.1.

### **8.2.1. Technical Coordinator**

The Technical Coordinator reports to the Emergency Director. During an emergency, the responsibilities of the Technical Coordinator include:

1. Evaluate technical data pertinent to plant conditions
2. Augment the emergency staff as deemed necessary
3. Designate engineering support, as necessary, to evaluate plant conditions and provide technical support
4. Recommend mitigating and corrective actions
5. Direct search and rescue operations
6. Coordinate maintenance and equipment restoration
7. Establish and maintain communications as desired by the Emergency Director
8. Maintain a record of event activities

### **8.2.2. Radiation Protection Coordinator**

The Radiation Protection Coordinator reports to the Emergency Director. During an emergency, the responsibilities of the Radiation Protection Coordinator include:

1. Monitor personnel accumulated dose
2. Advise the Emergency Director concerning Radiological EALs
3. Augment the emergency staff as deemed necessary
4. Direct radiological monitoring and analysis
5. Dose Assessment
6. Establish and maintain communications as desired by the Emergency Director
7. Maintain a record of event activities

### **8.2.3. Extensions of the Vermont Yankee Emergency Response Organization**

#### **8.2.3.1. Local Services**

Arrangements have been made for the extension of the ERO's capability to address emergencies. The following arrangements are in place through letters of agreement for ambulance services, treatment of contaminated and injured patients, fire support services, and law enforcement response as requested by the station:

1. Transportation of injured personnel using an ambulance service;
2. Treatment of radioactively contaminated and injured personnel at a local support hospital (Brattleboro Memorial) 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 addressed in Appendix E; the Vermont Yankee Fire Protection Program; and the Annual Law Enforcement Letters of Agreement (Safeguards Information) maintained by Security.

#### **8.2.3.2. 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.

#### **8.2.3.3. Additional Support**

Dependent upon the emergency condition and response needs, the VY ERO 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 referenced in Appendix E.

#### **8.2.4. 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 plant personnel. 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. Upon termination of an emergency and transition into the recovery phase, the Emergency Director assembles the recovery organization to address the specific emergency circumstances of the terminated event.

The Emergency Director directs the recovery organization and is responsible for:

1. Ensuring VY is maintained in a safe condition;
2. Managing onsite recovery activities during the initial recovery phase;
3. Keeping corporate support apprised of VY activities and requirements.

The remainder of the recovery organization consists of the normal plant and emergency organizations described in Sections 8.1 and 8.2, as necessary, to provide the radiological and technical expertise required to assist the Emergency Director restore the plant to normal conditions.

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 exposure 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.

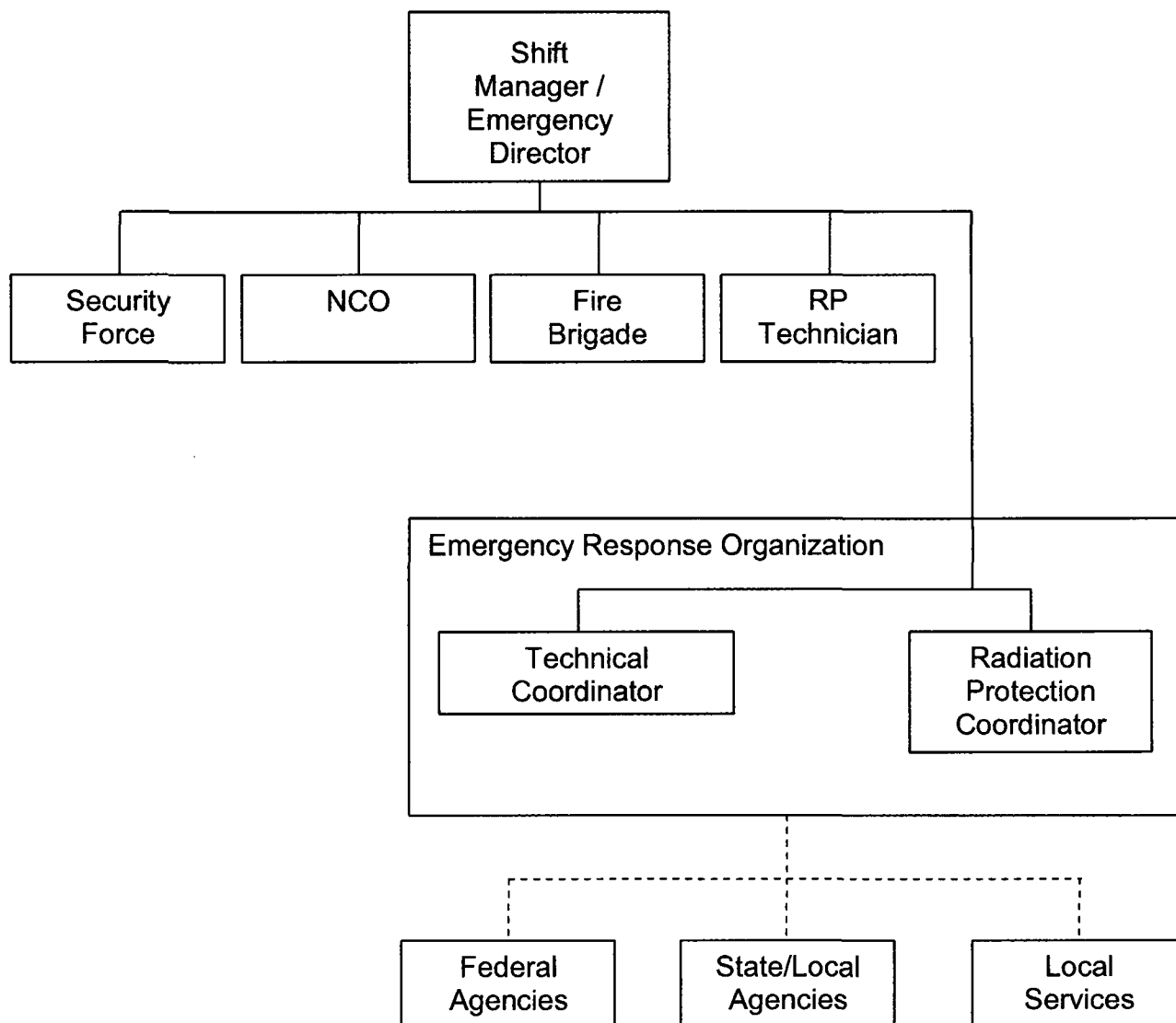
The organization relies on plant staff and/or resources to restore the plant to normal conditions. The expertise provided through the support plans is available to aid with the necessary corrective actions required to control and/or restore normal plant status.

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.

### **8.3. Coordination with State Government Authorities**

Section 7.0 describes the communications network between VY and the States of Vermont, New Hampshire and the Commonwealth of Massachusetts as a means of promptly notifying appropriate authorities under accident conditions.

The Shift Manager initiates notification of Vermont, New Hampshire and Massachusetts authorities, providing them with applicable information utilizing an established message format that describes the accident status and response actions underway. The Emergency Director, or designee, issues periodic reports to State/Commonwealth authorities.



**Figure 8.1**

**Normal On-Shift and Emergency Response Organization**

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**Table 8.1**

**Minimum On-Shift and ERO Staffing Requirements**

MAJOR FUNCTIONAL AREA	MAJOR TASKS	LOCATION	VY EMERGENCY POSITION, TITLE, OR EXPERTISE	ON-SHIFT	VY AUGMENTED STAFF CAPABILITY FOR RESPONSE IN 2 HOURS
Plant Operations and assessment of Operational Aspects / Fire Brigade	Plant Equipment	Control Room	Non-Certified Operator*	1	-
Emergency Direction and Control	Emergency Director	Control Room	Shift Manager*	1	-
Notification/Communication	Notify Licensee, State, local and Federal personnel and maintain communications	Control Room			-
Radiological Accident Assessment and Support of Operational Accident Assessment	Onsite Dose Assessment and Monitoring	As Directed by the Emergency Director	Radiation Protection Coordinator	-	1 (may augment the ERO with Radiation Monitoring Personnel as deemed necessary)
Protective Actions (In-Plant)	In-Plant Surveys Radiation Protection a. Access Control b. HP Coverage for Repair, Corrective Actions, Search and Rescue, First Aid, and Firefighting c. Personnel Monitoring d. Dosimetry	On-Scene	Radiation Protection Technician*	1	-
Plant Condition Evaluation, Repair, and Corrective Action	Technical Support	As Directed by the Emergency Director	Technical Coordinator	-	1 (may augment the ERO with technical support and emergency repair personnel as deemed necessary)
	Repair, Mitigation, and Corrective Action				
	Develop strategies for search and rescue and firefighting				
Firefighting	Firefighting	On-Scene	Fire Brigade	Per the Fire Protection Plan	-
Fire Team Leader Rescue Operations/ First Aid	Fire Fighting Rescue and First Aid	On- Scene	Fire Brigade	Per the Fire Protection Plan	-
Site Access Control and Accountability	Security, Firefighting, Communications, and Personnel Accountability	Per the Physical Security Plan	Security Personnel	Per the Physical Security Plan	-

\* On-Shift personnel required to direct or perform site-specific mitigation strategies required for a catastrophic loss of SFP inventory

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## **9.0 EMERGENCY RESPONSE**

### **9.1. Emergency Condition Recognition and Classification**

VY maintains the capability to assess, classify, and declare an emergency condition, in accordance with plant procedures, within 30 minutes after the availability of indications to plant operators that an emergency action level threshold has been reached.

Section 5.0 presents the emergency classification system used for categorizing the wide spectrum of possible emergency conditions into one of two emergency classes. The process of condition recognition, immediate response to correct the condition, event classification, and initiation of the appropriate emergency implementing procedures are critical responsibilities of the Shift Manager and the on-shift crew.

Site procedures contain the listing of conditions that represents each of the two emergency categories and the detailed EALs that allow the Shift Manager to determine the emergency classification. Once the emergency is classified, the applicable emergency implementing procedure is initiated, the ERO is activated and the notification of offsite authorities is initiated. The activation of the ERO brings to the assistance of the on-shift personnel the various support elements described in this plan. Specific support elements are implemented as detailed in the emergency implementing procedures. See Appendix E for a listing of these procedures.

### **9.2. Activation of the Emergency Response Organization**

Classification of an accident condition requires that the plant staff recognize that pre-established EALs associated with an emergency condition, as defined in Appendix A, have been reached or exceeded. Depending upon the specific action levels attained, the Shift Manager declares one of the following: Unusual Event or Alert. The Shift Manager activates the ERO if plant conditions reach predetermined EALs.

#### **9.2.1. Unusual Event Response**

Appendix A defines the conditions that require the declaration of an Unusual Event. An Unusual Event does not activate the ERO, but may require augmentation of on-shift resources to address 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 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 the emergency classification over the plant page system;

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2. The on-duty and selected plant personnel respond as directed by the Shift Manager and assume assigned functions;
3. Control Room personnel notify the Vermont, New Hampshire and Massachusetts authorities;
4. The NRC is notified;
5. Other support is requested as necessary;
6. The Emergency Call-in Method is implemented as shown in the notification plan (Figure 9.1);
7. Additional personnel report to the plant as requested by the Shift Manager;
8. The Shift Manager/Emergency Director directs the activities of emergency response personnel;
9. If necessary, appropriate emergency medical, fire department, or law enforcement agencies are notified and requested to respond;
10. The public information representative is notified and handles public information associated with the event; and
11. The Shift Manager/Emergency Director terminates the Unusual Event status and closes out the event with a verbal summary to offsite authorities or escalates to higher level emergency classification.

The Unusual Event status will be maintained until an escalation in emergency class occurs or the event is terminated. Offsite authorities will be informed of the change in the emergency status and the necessary documentation will be completed as specified in site procedures.

#### **9.2.2. Alert Response**

An Alert requires actions to assure that sufficient emergency response personnel are mobilized to respond to the accident conditions at the site. Notification is made to State/Commonwealth officials and follow-up information is provided as needed to offsite emergency organizations. In an Alert, the steps listed in the Unusual Event Response section (except for the termination process) and the following are performed:

1. ERO report to the Emergency Director;
2. The Emergency Director/Shift Manager directs the evacuation of all visitors and unnecessary contractors from the plant;

3. If sufficient personnel are not available onsite, off-duty personnel are called in as specified in the emergency implementing procedures;
4. The Emergency Director assumes total responsibility for overall emergency response actions and recovery;
5. 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 Director.

The Alert status shall be maintained until termination of the event or de-escalation in emergency class occurs. The plant may enter recovery operation without de-escalating from a declared Alert. Off-site authorities will be informed of the change in the emergency status and the necessary documentation shall be completed as specified in site procedures.

### **9.3. Emergency Termination Criteria**

An extensive review of plant parameters including SFP parameters and process and radiation monitoring systems, in conjunction with the pre-established EALs is required to terminate an emergency.

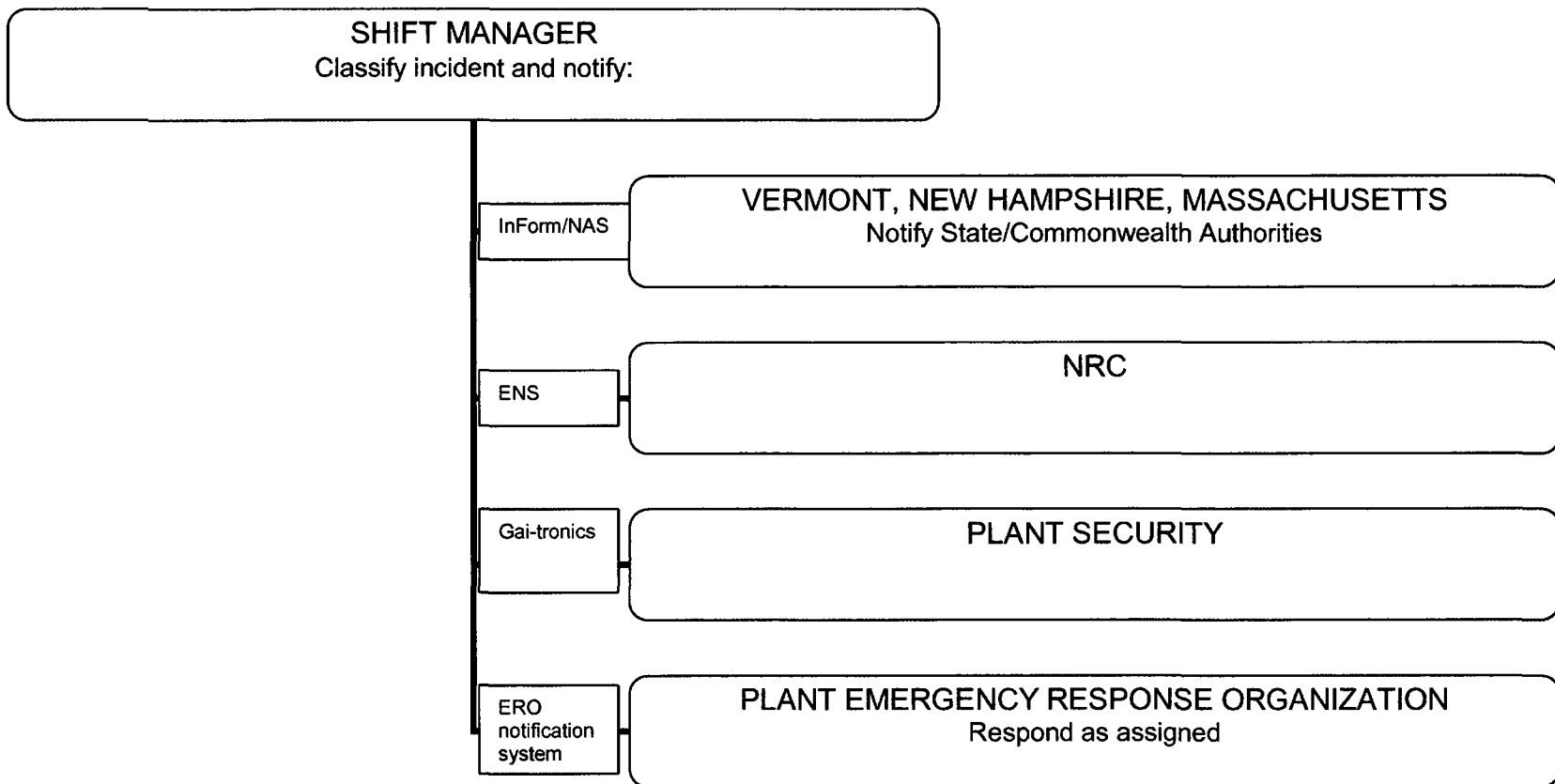
When plant conditions allow de-escalation in the emergency class, the Emergency Director directs the emergency response organization to perform certain response actions prior to implementing any change. These actions include:

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.

Termination of an emergency status is the responsibility of the Emergency Director. The decision will be based on the following considerations:

1. Conditions no longer meet an EAL and it appears unlikely that conditions will deteriorate;

2. Plant releases of radioactive materials to the environment are under control (within Technical Specifications);
3. In-Plant radiation levels are stable or decreasing, and are acceptable given plant conditions;
4. Operability and integrity of power supplies, electrical equipment and plant instrumentation including radiation monitoring equipment is acceptable;
5. All required notifications have been made;
6. Radiological and plant conditions permit resumption of normal occupational exposure limits to continue mitigation/repair activities.



**Figure 9.1**  
**Notification Plan**

## **10.0 RADIOLOGICAL ASSESSMENT AND PROTECTIVE MEASURES**

### **10.1. Radiological Assessment**

#### **10.1.1. Initial Radiological Dose Projection**

VY has developed a method to quickly determine the projected radiological conditions at the Site boundary. During the initial stages of an emergency, the Shift Manager or designated individual is responsible to perform the initial evaluation of radiological conditions. The initial evaluation is accomplished in accordance with site procedures.

### **10.2. Radiological Exposure Control**

During a plant emergency, abnormally high levels of radiation and/or radioactivity may be encountered by plant personnel. All reasonable measures shall be taken to control the radiation exposure to emergency response personnel providing rescue, first aid, decontamination, emergency transportation, medical treatment services, or corrective or assessment actions within applicable limits specified in 10 CFR Part 20.

Table 10.1 specifies the guidelines on emergency dose limits for personnel providing emergency response duties consistent with Table 2-2, "Response Worker Guidelines," provided in the EPA PAG Manual. The Shift Manager/Emergency Director has the responsibility to authorize emergency dose commitments in excess of 10 CFR Part 20 limits. This authorization is coordinated with the assistance of the Radiation Protection Coordinator. Exposure to individuals providing emergency functions will be consistent with the limits specified in Table 10.1 with every attempt made to keep exposures As Low As Reasonably Achievable (ALARA).

The Radiation Protection Coordinator is responsible for developing emergency radiological protection programs for ERO and augmented personnel. Emergency kits are provided with self-reading dosimeters. Each member reporting to the site will be provided a Dosimeter of Legal Record (DLR). Dose records will be maintained based upon the results of the self-reading dosimeters. This information is cross-referenced with the DLR data. The capability exists for the emergency processing of DLRs on a 24-hour per day basis. Emergency workers are instructed to read self-reading dosimeters frequently, and DLRs may be processed with increased periodicity.

### **10.3. Protective Measures**

#### **10.3.1. Site Personnel Accountability**

The goal of the personnel accountability process is to account for personnel within 60 minutes of an Alert declaration. Accountability for an Unusual Event is at the discretion of the Emergency Director. Plant procedures require Security personnel to maintain a list of personnel entering or leaving the site during a site evacuation. In accordance with site procedures, following announcement of an emergency classification, plant personnel are

responsible for reporting to designated areas and aiding Security in the accountability process.

The Emergency Director, Technical Coordinator and Radiation Protection Coordinator are responsible for accounting for their staff. An organizational sign-in method which enhances this reporting process is maintained. All reports are provided to the Emergency Director, 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. If personnel are not accounted for, the Control Room is notified and announcements are made using the plant page system. If personnel are still unaccounted for following Control Room announcements, Security will initiate sweeps to locate the missing individuals.

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

#### **10.3.2. Site Egress Control Methods**

All visitors and unnecessary contractors are evacuated from the plant upon an Alert declaration. All personnel are monitored for radioactive contamination prior to leaving the site. Portable radiation survey meters are available to frisk personnel for suspected contamination. 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 evacuation procedures prior to being released.

#### **10.3.3. Contamination Control and Decontamination Capability**

During emergency conditions, VY maintains normal plant decontamination and contamination control measures as closely as possible. However, these measures may be modified by the Emergency Director should conditions warrant.

VY maintains contamination control measures to address area access control, drinking water and food supplies, and the return of areas and items to normal use.

- a. Contaminated areas are isolated as restricted areas with appropriate radiological protection and access control. Personnel leaving contaminated areas are monitored to ensure both themselves and their clothing are not contaminated. Supplies, instruments, and equipment that are in contaminated areas or have been brought into contaminated areas will be monitored prior to removal. Items found to be contaminated, will be decontaminated using normal plant decontamination techniques and facilities or may be disposed of as radioactive waste.

- b. Should the potential exist for contamination of on-site food or drinking water supplies that renders these supplies non-consumable, VY will make arrangements for transport of non-contaminated off-site supplies.
- c. VY permits areas and items to be returned to normal use following conduct of appropriate surveys and verification that contamination levels have returned to acceptable levels.

VY maintains an in-plant decontamination facility. 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 is performed under the direction of the Radiation Protection Coordinator.

#### **10.3.4. 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 and protective clothing is assigned to emergency response organization members and plant response personnel in accordance with established plant radiation protection criteria.

#### **10.3.5. Fire Fighting**

Strategies have been developed for firefighting and fire protection in specific critical areas of the plant. The Fire Protection Program describes the fire protection organization and individual responsibilities.

### **10.4. Aid to Affected Personnel**

#### **10.4.1. Medical Treatment**

In-plant medical supplies are provided on-site. Initial on-site medical treatment is provided by on-site personnel.

Arrangements exist with Brattleboro Memorial Hospital as indicated in Section 8.2.3.1. The agreement includes a commitment by the hospital to accept and treat plant personnel with routine industrial injuries as well as injuries complicated by radioactive contamination or radiation exposure. The hospital maintains the capability and facilities to provide decontamination. The hospital participates in medical emergency drills.

#### **10.4.2. 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 VY on the health physics considerations associated with radioactively contaminated personnel and site access control measures.

#### **10.5. Protective Actions for Onsite Personnel**

A range of protective actions to protect onsite personnel are provided in Sections 10.2 through 10.4 of this plan to ensure the continued ability to perform the functions of the emergency plan.

**TABLE 10.1**  
**EMERGENCY DOSE LIMITS**  
(refer to Note 1)

Guideline	Activity	Condition
5 rem	All occupational exposures	All reasonably achievable actions have been taken to minimize dose.
10 rem <sup>(a)</sup>	Protecting Valuable Property necessary for public welfare	Exceeding 5 rem unavoidable and all appropriate actions taken to reduce dose. Monitoring available to project or measure dose.
25 rem <sup>(b)</sup>	Lifesaving or Protection of Large Population	Exceeding 5 rem unavoidable and all appropriate actions taken to reduce dose. Monitoring available to project or measure dose.

**NOTES:**

1. Reference for this table is Table 2-2 of the EPA PAG Manual.
- (a) For potential doses > 5 rem, medical monitoring programs should be considered.
- (b) In the case of a very large incident, consider the need to raise the property and lifesaving Response Worker Guideline to prevent further loss.

## **11.0 EMERGENCY NOTIFICATION AND PUBLIC INFORMATION**

### **11.1. Emergency Notification**

The Shift Manager is responsible for the notification of an emergency declaration to the States of Vermont and New Hampshire and the Commonwealth of Massachusetts. Notification is made within 60 minutes of emergency declaration or change in classification. Due to the slow rate of the postulated event scenarios in the accident analysis and the absence of immediate actions necessary to protect the public health and safety, the notification time of 60 minutes is appropriate.

The format and contents of the initial message between the plant and State/Commonwealth authorities are specified in notification procedures and have been established with the review and agreement of responsible state authorities.

The Department of Public Health of Vermont, New Hampshire and Massachusetts may request the following information from VY:

1. Date and time of the incident;
2. Emergency classification;
3. Status of the facility;
4. Whether a release has occurred, is occurring, or is anticipated to occur;
5. Actual or projected dose rates at the Site boundary;

Follow-up reports are provided as additional information describing the emergency situation becomes available and on an as-needed basis until such time that the emergency condition has been terminated.

### **11.2. Public Information**

Any emergency generates a continuous and intensive demand for up-to-date information. The spokesperson function would typically be performed by Communications personnel. Communication personnel will be notified of an emergency declaration via the ERO notification system and would serve as a spokesperson. However, the function could also be performed by plant or corporate management. Upon receiving notification of an emergency declaration, the spokesperson contacts the Control Room and receives a brief description of the event.

The spokesperson monitors media activity and coordinates with senior management to address rumors and disseminate information to the public. The spokesperson will participate in news conferences as appropriate with Federal, State and local emergency response organizations conducted on site or at other locations, as necessary. The

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spokesperson is available for media inquiries and the positional duties include maintaining liaison with local media and coordinating with Federal, State and local emergency response organizations to disseminate appropriate information regarding an emergency at VY. Federal, State and local emergency response organizations maintain the capability to disseminate appropriate information regarding an emergency at VY.

As part of its normal corporate structure, Entergy maintains a corporate public affairs office that can be called upon to provide additional resources, as necessary

VY maintains a public inquiry phone for media and public use. During an emergency, a pre-recorded message will provide up-to-date status reports regarding the situation.

## **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. 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 organizations and the facility.

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

#### **12.1.1. Radiation Emergency Exercises and Drills**

Biennial exercises shall be conducted to test the timing and content of implementing procedures and methods; to test emergency equipment and communication networks; and to ensure that emergency personnel are familiar with their duties. VY offers the following organizations the opportunity to participate to the extent assistance would be expected during an emergency declaration; however, participation is not required:

1. State of Vermont
2. State of New Hampshire
3. Commonwealth of Massachusetts
4. Brattleboro Memorial Hospital
5. Brattleboro Fire Department
6. Law Enforcement
7. Rescue, Inc. Ambulance Service
8. Town of Vernon
9. Vernon Fire Department

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.

Communication checks with offsite agencies, fire drills, medical drills, radiological monitoring drills and health physics drills are performed as indicated in the following sections.

#### **12.1.2. Communication Tests**

To ensure that emergency communications systems described in Section 7.0 of this plan are operable, communications tests are conducted as outlined below.

1. Communication channels with the state governments of Vermont, New Hampshire and the Commonwealth of Massachusetts, is tested monthly. These communications tests will include the aspect of understanding the content of messages.
2. The ENS is tested as described in subsection 7.6 of this plan.
3. The following communication systems, as detailed in Section 7.0 of this plan, are used on a frequent basis, therefore periodic testing of these systems is not necessary:
  - Mobile UHF Radio System
  - Plant Intercom System (Gai-Tronics)
  - Commercial Telephone System

To ensure the reliability of the plant's call-in procedure, a semi-annual functional test of the ERO notification system is performed to test system performance. This can be performed separately or during the Augmentation Capability Drill described in Section 12.1.3.

#### **12.1.3. Augmentation Capability Drills**

Semi-annual, off hours, unannounced, communications drill, utilizing both the ERO notification system and commercial telephone, to estimate emergency personnel response times. No actual travel is required. Participants provide an estimation of the time it would take to report to their designated ERO position. This drill shall serve to demonstrate the capability to augment the on shift staff after declaration of an emergency.

#### **12.1.4. Fire Drills**

To test and evaluate the response and training of the plant's fire brigade, fire drills are conducted in accordance with the Vermont Yankee Fire Protection Program.

To demonstrate the coordination between the plant's fire brigade and the Brattleboro and Vernon Fire Departments, the fire departments are annually offered the opportunity to participate in an onsite fire drill.

#### **12.1.5. Medical Drills**

To evaluate the training of the facility's medical response and offsite medical response (Rescue, Inc. Ambulance Service and Brattleboro Memorial 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.

#### **12.1.6. Radiological Monitoring Drills**

Plant environs and radiological monitoring drills are conducted annually. These drills include monitoring of accessible areas within the plant and include collection and analysis of airborne sample media, communications, and record keeping performed by members of the emergency team. This drill can be performed as part of an Emergency Plan drill or exercise.

#### **12.1.7. 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.

#### **12.1.8. Security Drills**

The purpose of the security drill is to maintain key skills, specifically the site-specific team skills necessary to mitigate security-based events. Security drills are conducted in accordance with the Vermont Yankee Physical Security Plan.

#### **12.1.9. 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 VY 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 an eight-year period, the scenario content is varied to test all the major elements of the Emergency Preparedness Program.

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 drill or 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, and the ERO and additional staff 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.

#### **12.1.10. 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. 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.

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

#### **12.1.11. Emergency Plan Audit**

The VY Emergency Plan is independently audited as part of the Vermont Yankee In-plant Audit Program. The audit is conducted as part of the Vermont Yankee Nuclear Power

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Station Quality Assurance Program Manual in accordance with 10 CFR 50.54(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 to the ERO 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 drills or 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.

Training is offered annually to offsite response organizations that may be requested to provide assistance in the event of an emergency at VY (e.g., law enforcement, fire-fighting, rescue, medical services, transport of injured, etc.). The training shall be structured to meet the needs of that organization with respect to the nature of their support. Topics such as event notification, site access procedures, basic radiation protection and interface activities between the offsite organization and VY are included in the training.

## **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 10 CFR 50.54(q). The Emergency Plan is submitted to VY's On-Site Safety Review Committee for approval.

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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 Emergency Plan are forwarded to organizations and individuals with a responsibility for implementation of the Plan.

Telephone number listings associated with the emergency notification process are verified quarterly.

#### **12.4. Maintenance and Inventory of Emergency Equipment and Supplies**

The emergency equipment maintained in the Control Room is contained in a checklist in Emergency Equipment Readiness Check.

Designated personnel conduct a weekly test of certain emergency communications equipment. At least quarterly in accordance with the emergency equipment inventory procedure, and subsequent to each usage, 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 VY. The Emergency Planning Manager is responsible for emergency planning and the interface with offsite authorities and organizations. 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 offsite 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 exercises; and

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

The Emergency Planning Manager is responsible for maintaining an adequate knowledge of regulations, planning techniques and the latest applications of emergency equipment and supplies. Training for this position includes, but is not limited to:

1. Training courses specific or related to emergency preparedness;
2. Observation of, or participation in, drills and/or exercises at other decommissioned nuclear power plants;
3. Participation in industry review and evaluation programs;
4. Participation in regional or national emergency preparedness seminars, conferences, committees, workshops or forums.

**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. In addition, the resources referenced in subsections 6.2.5 and 10.2 of this Plan are at the disposal of Vermont Yankee in an emergency.

**APPENDIX B (Continued)****EMERGENCY EQUIPMENT INVENTORY**

<b>EQUIPMENT</b>	<b>LOCATION</b>	
	<b>MAIN CONTROL ROOM</b>	<b>INNER GATE HOUSE</b>
Respiratory Protection	•	
Radiation Monitoring	•	•
Dosimetry	•	•
Sampling	•	
Communications	•	•
Dose Assessment	•	
Area Maps	•	
Emergency References	•	
Protective Clothing	•	
Decontamination Barrel	•	
Administrative Support	•	
Status Boards	•	
Stack Sampling	•	
Sampling Cartridges	•	•
Portable Lead Shielding	•	
Emergency Centers & Emergency Room Keys	•	•
Station Sampling Cartridges	•	
Environmental Station Keys	•	

(A more detailed listing of emergency equipment is provided in EPOP-EQUIP-3506, "Emergency Equipment Readiness Check")

## APPENDIX B (Continued)

### EMERGENCY EQUIPMENT INVENTORY

LOCATION	
<b>EQUIPMENT</b>	Provided by other non-affected Entergy nuclear sites, as needed
Gamma Spectroscopy	•
High Pressure Ion Chamber	•
Mobile Processing DLR Unit	•
Personnel & Environmental DLR	•

## **APPENDIX C**

### **ENVIRONMENTAL LABORATORY ANALYTICAL AND DOSIMETRY SERVICES**

## **APPENDIX C (Continued)**

### **General**

In the event of a radiological emergency at Vermont Yankee, laboratory services (as described in 6.2.5) 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.

### **Portable Emergency Analysis Equipment**

Portable analysis equipment 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).

### **Emergency DLR Services**

The capability exists for the emergency processing of DLRs on a 24-hour per day basis. Emergency workers are instructed to read self-reading dosimeters frequently, and DLRs may be processed with increased periodicity.

### **Portable Body Burden Service**

A WBC System is comprised of a portable 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 D**  
**LETTERS OF AGREEMENT**

## APPENDIX D (Continued)

Letters of agreement in effect between Vermont Yankee and the offsite authorities are 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 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 has 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, is addressed in the Vermont Yankee Physical Security Plan and are classified as safeguards information.

## **APPENDIX D (Continued)**

### **Letters of Agreement**

1. State of Vermont
2. State of New Hampshire
3. Commonwealth of Massachusetts
4. Brattleboro Memorial Hospital
5. Rescue, Inc. Ambulance Service
6. Vernon Fire Department
7. Brattleboro Fire Department
8. Town of Vernon
9. Department of Energy
10. DOE - REAC/TS
11. 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 E**

### **INDEX OF EMERGENCY PLAN IMPLEMENTING PROCEDURES AND SUPPORT PLANS**

## **APPENDIX E (Continued)**

### **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	Site Boundary Monitoring
EPOP-RAD-3513	Evaluation of Radiological Conditions
EPOP-URI-10095	Dose Assessment using the Unified Rascal Interface
AP 3532	Emergency Preparedness Organization
OP 3536	In-plant Air Sample Analysis with Abnormal Conditions
EPOP-CR-3540	Control Room Actions During an Emergency
OP 3547	Security Actions During an Emergency
OP 3548	Emergency Termination and Recovery
AP 3554	Emergency Plan Teams
EPAP-TRNG- 3712	Emergency Plan Training
AP-10049	Equipment Important to Emergency Response
EPAP-INFORM-10076	InForm Notification System
EN-EP-303	Severe Weather Recovery
EN-EP-305	Emergency Planning 10 CFR 50.54(q) Review Program
EN-EP-306	Drills and 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-401	Public Use of Emergency Preparedness Owner Controlled Area
EN-EP-606	Pandemic Flu Response

## APPENDIX E (Continued)

### II. SUPPORT PLANS\*

The Vermont Yankee Physical Security Plan

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

NRC Incident Response Plan (NUREG-0728)

National Response Framework (January 2008)

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

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

## **APPENDIX F**

### **CROSS-REFERENCE BETWEEN THE PDEP, NUREG-0654/FEMA-REP-1, the 10 CFR 50.47(b) PLANNING STANDARDS, AND APPENDIX E.IV PLANNING REQUIREMENTS**

## APPENDIX F (Continued)

### CROSS-REFERENCE BETWEEN THE PDEP, NUREG-0654/FEMA-REP-1, the 10 CFR 50.47(b) PLANNING STANDARDS, AND APPENDIX E.IV PLANNING REQUIREMENTS

NUREG-0654, Section II Evaluation Criteria	Planning Standard (10 CFR 50.47)**	Planning Requirement (Appendix E.IV)**	VY PDEP Section
A	(b)(1)	A.1, 2, 4, 7	7.0 8.0 8.1.1 Figure 8.1
B	(b)(2)	A.1, 2, 4, 9; C.1	8.0 8.1 8.1.1 8.2 8.3 Table 8.1 10.4 Appendix D
C	(b)(3)	A.6, 7	3.7 8.1.1 8.2.3 Appendix C Appendix D
D	(b)(4)	B.1, 2; C.1, 2	5.0 Appendix A
E	(b)(5)	A.6, 7; C.1, 2; D.1, 3; E	8.3 9.0 9.2 Table 9.1 11.1 Appendix D Appendix E
F	(b)(6)	C.1; D.1, 3; E	7.0 Table 7.1 9.2 Figure 9.1 12.1.2
G	(b)(7)	A.7; D.2	11.2

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# APPENDIX F (Continued)

NUREG-0654, Section II Evaluation Criteria	Planning Standard (10 CFR 50.47)**	Planning Requirement (Appendix E.IV)**	VY PDEP Section
H	(b)(8)	E; G	6.1 6.2 8.2 9.2 12.4 Appendix B
I	(b)(9)	A.4; B.1; C.2; E	6.2.5 10.0 Appendix A
J	(b)(10)	C.1; E; I	10.3
K	(b)(11)	E	10.2 10.3 10.4
L	(b)(12)	A.6, 7; E	Table 8.1 10.2 10.4
M	(b)(13)	H	8.2.4
N	(b)(14)	E9; F	12.1
O	(b)(15)	F	Table 8.1 10.4 12.0
P	(b)(16)	G	Table of Contents 12.0 Appendix E

\*\*as exempted

Attachment 3

Vermont Yankee Nuclear Power Station

EPOP-URI-10095, Dose Assessment Using the Unified RASCAL Interface, and  
EPOP-RAD-3513, Evaluation of Radiological Conditions

# VERMONT YANKEE NUCLEAR POWER STATION

## EMERGENCY PREPAREDNESS OPERATING PROCEDURE

**EPOP-URI-10095**

**REVISION PENDING**

### **DOSE ASSESSMENT USING THE UNIFIED RASCAL INTERFACE**

USE CLASSIFICATION: **REFERENCE**

CATEGORY: **TECHNICAL**

RESPONSIBLE PROCEDURE OWNER: **Manager, Emergency Preparedness**

#### **REQUIRED REVIEWS**

V-EN-LI-100 review not required  
10CFR50.54q

DRN No.	Temp Change Eff. Date	Affected Pages	TC Removal Date	TC Removal Initials

Effective Date: \_\_\_\_\_ **PENDING**

Other Special Controls: **NONE**

LAST FULL REVISION DATE: **02/05/15**

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## **1.0 PURPOSE**

This procedure provides the methods and instructions for performing dose assessment using the Unified RASCAL Interface (URI) by the On-Shift and Emergency Response Organization (ERO) and may also be used by offsite officials who use URI for Dose Assessment.

## **2.0 REFERENCES**

### **2.1. Performance References**

2.1.1. None

### **2.2. Developmental References**

2.2.1. 10CFR50.47(b), Emergency Plans

2.2.2. 10CFR50, Appendix E.IV.F, Emergency Planning and Preparedness for Production and Utilization Facilities

2.2.3. NUREG 0654/FEMA-REP-1, Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (and Supplements)

2.2.4. Emergency Dose Calculation Manual - Unified RASCAL Interface User's Guide.

2.2.5. Response Technical Manual RTM-Volume 1, Rev 5

2.2.6. NUREG 1228 Source Term Estimation During Incident Response to Severe Nuclear Power Plant Accidents October 1988

### 3.0 DEFINITIONS

- 3.1. Committed Dose Equivalent (CDE): The dose to some specific organ or tissue of reference (T) that will be received from an intake of radioactive material by an individual during the 50 year period following the intake.
- 3.2. Committed Effective Dose Equivalent (CEDE): The sum of the products of the Committed Dose Equivalents for each of the body organs or tissues that are irradiated multiplied by the weighting factors ( $W_T$ ) applicable to each of those organs or tissues ( $H_{E,50} = \sum W_T H_{T,50}$ ).
- 3.3. Deep Dose Equivalent (DDE): The external whole body exposure dose equivalent at a tissue depth of 1 cm (1000 mg.cm<sup>2</sup>).
- 3.4. Total Effective Dose Equivalent (TEDE): The sum of the deep dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).
- 3.5. Lower Limit of Detection (LLD): The smallest amount of sample activity which will yield a net count for which there is confidence at a predetermined level that activity is present. For a five percent probability of concluding falsely that activity is present, the LLD is approximately equal to 4.65 times the standard deviation of the background counts (assuming large numbers of counts where Gaussian statistics can be used [ANSI 1989, Pasternack and Harley 1971, U.S. DOE 1990]).

### 4.0 RESPONSIBILITIES

- 4.1. The Manager - Emergency Planning, is responsible for:
  - 4.1.1. Ensuring that, as part of initial and requalification training, individuals are provided with information on the purpose and use of the URI software and appropriate cautions associated with its use.

## 5.0 PROCEDURE

### 5.1. PRECAUTIONS AND LIMITATIONS

- 5.1.1. The user or their supervisor should have some knowledge of Meteorology and Dose Assessment in order to assess the validity of dose assessment results.

### 5.2. OVERVIEW

- 5.2.1. URI shall be used only when an emergency has been declared or events require the calculation of radiological doses due to an actual or potential release of radioactive materials.
- 5.2.2. URI can only calculate doses for a single release pathway at one time. IF releases are occurring via multiple release pathways THEN individual dose assessments will need to be run for each release and added together using the summation process within URI.
- 5.2.3. URI contains many reports and operations that can be useful when running or evaluating dose assessment data. These functions may not be explicitly named within the body of this procedure but are described in separate attachments or forms or are described in the URI User Guide. These are listed in the References section of the procedure.

### 5.3. START UP

- 5.3.1. **OPEN** the URI application by clicking on the Windows Start button, typing URI in the "Search programs and files" box, and clicking on URI-Vermont Yankee. The program is located in the Nuclear Emergency Response (ESM) folder under Nuclear Corporate Applications (ESM).
- 5.3.2. IF the program fails to start or displays an error message, THEN either go to another computer or see Attachment 1 for further instructions.
- 5.3.3. IF dose assessments are being run during a drill or exercise, THEN it is recommended that the 'Print "This is a Drill" on all reports!' option be checked. This will automatically indicate that the data is for a drill on all printed or viewed reports.
- 5.3.4. **SELECT** Rapid Assessment (typically used by the Control Room for initial assessments) from the File menu or toolbar (Lightning Bolt icon) (section 5.4).  
OR  
**SELECT** Detailed Assessment (typically used for more detailed assessments) from the File menu or toolbar (Cloud icon) (Section 5.5).
- 5.3.5. IF assessment data is already available for a concurrent run from a different source, **SELECT** Sum Assessment Results from the file menu or toolbar (blue Sigma icon) (Section 5.6).

#### 5.4. RAPID DOSE ASSESSMENT

##### 5.4.1. **DETERMINE** the Source Term as follows:

- A. **SELECT** Damaged Spent Fuel Assembly.
- B. **ENSURE** that the "Last Irradiated" checkbox is checked.
- C. **ENTER** the date and time as December 29, 2014, 13:04.

**NOTE**

Only ONE on-site meteorological tower may be selected for any single assessment

##### 5.4.2. **SET** the meteorological data as follows:

- A. **SELECT** the applicable meteorological tower by checking the corresponding checkbox in the "Use" column of the Meteorological Data table. IF multiple towers are present, THEN SELECT the tower that best represents the release point height.
- B. IF the meteorological data is available from the plant computer system, THEN
  1. **ENTER** the Wind Speed in the appropriate units.
  2. **ENTER** the Wind Direction that the wind is coming FROM.
  3. **ENTER** the  $\Delta T$  or the Stability Class directly.
- C. IF the meteorological data is not available from the plant computer system, THEN SEE Attachment 2 for further instructions for determining Wind Speed, Wind Direction and Stability Class.
- D. **SELECT** the precipitation status that best represents the current precipitation. IF precipitation is unknown, THEN SELECT "None" from the dropdown list. The following can be used as guidance:
  - None – No rain or snow.
  - Light Rain – Drizzle, < 0.1 inches / hour.
  - Moderate Rain – Heavy Drizzle, 0.1 to 0.3 inches / hour.
  - Heavy Rain – > 0.3 inches / hour.
  - Light Snow – Visibility > 0.63 miles.
  - Moderate Snow – Visibility 0.31 to 0.63 miles.
  - Heavy Snow – Visibility < 0.31 miles.

- 5.4.3. **ENTER** the estimated Release Duration
- 5.4.4. **SELECT** the Release Point Pathway that best represents the release in progress. Additional detail for each pathway, including available effluent monitors, is available by hovering the mouse over each pathway description.
- 5.4.5. **DETERMINE** if the effluent monitors are available. In some cases effluent monitors may not be available even if they are associated with a release pathway due to plant conditions, such as a loss of power, incorrect sample flow, or detector failure.
  - A. IF effluent monitors are available for the selected pathway, THEN **SELECT** Yes. This is the preferred method for performing dose assessments.
- 5.4.6. IF multiple monitors or multiple lists of monitors are presented THEN **SELECT** the appropriate monitor
- 5.4.7. **ENTER** the monitor reading for the selected monitor.
- 5.4.8. **ENTER** the stack flow rate in the units requested. Release point flow rates may not be available from the Plant Data System.
- 5.4.9. IF effluent monitors are NOT available for the selected pathway, THEN **SELECT** No.
- 5.4.10. **SELECT** Unmonitored Dropped Spent Fuel Assembly.

**NOTE**

If any errors are present there will be a message on the Process Assessment button and the assessment will not continue until the errors are corrected.

- 5.4.11. **PRESS** the "Process Assessment" button to run the dose assessment.
- 5.4.12. **SELECT** Print or Print Preview from the Menu or Toolbar to view or print the dose assessment results.

**NOTE**

The following step will only work if the Summation Form is already open.

- 5.4.13. IF summation of multiple pathway results is needed, **SELECT** the Transfer Result to the Summation Page icon at the upper left to pass the current result to the Summation form.
- 5.4.14. **PROVIDE** the dose projection to the Emergency Director for comparison to the Emergency Action Levels.
- 5.5. ERO "DETAILED" DOSE ASSESSMENT
  - 5.5.1. **SELECT** Detailed Assessment from the File menu or toolbar (Cloud
  - 5.5.2. **SELECT** Spent Fuel Accident.
    - A. IF the spent fuel release is unmonitored and other alternate source

term estimates are unavailable, THEN **SELECT** Un-Monitored Spent Fuel Accident with No other method applicable. The unmonitored spent fuel methodology of dose assessment will automatically be selected. There are no user inputs for this method. The unmonitored spent fuel method uses pool condition, process reduction factor, fuel damage condition and release duration to determine a gross release rate that is not connected to any plant measurement.

5.5.3. **ENTER** the Site Meteorological Tower data as follows:

**NOTE**

Only ONE on-site meteorological tower may be used at one time.

- A. **SELECT** the applicable Site meteorological tower to be used in the assessment by checking the corresponding checkbox in the "Use" column of the Meteorological Data table.

1. IF multiple Site Towers are present, THEN SELECT the tower that best represents the release point height.
  - B. IF the meteorological data is available from the plant computer system THEN:
    1. **ENTER** the Wind Speed in the appropriate units.
    2. **ENTER** the Wind Direction that the wind is coming FROM.
    3. **ENTER** the  $\Delta T$  or the Stability Class directly.
  - C. IF the meteorological data is not available from the plant computer system, THEN SEE Attachment 2 for further instructions for determining Wind Speed, Wind Direction and Stability Class.
  - D. **SELECT** the precipitation status that best represents the current precipitation. IF precipitation is unknown, THEN SELECT "None" from the dropdown list. The following can be used as guidance:
    - None – No rain or snow.
    - Light Rain – Drizzle, < 0.1 inches / hour.
    - Moderate Rain – Heavy Drizzle, 0.1 to 0.3 inches / hour.
    - Heavy Rain – > 0.3 inches / hour.
    - Light Snow – Visibility > 0.63 miles.
    - Moderate Snow – Visibility 0.31 to 0.63 miles.
    - Heavy Snow – Visibility < 0.31 miles.
- 5.5.4. **ENTER** the optional Off-Site meteorological tower data as applicable.
- A. **SELECT** the applicable tower(s).
  - B. **ENTER** the Wind Speed in the appropriate units.
  - C. **ENTER** the Wind Direction that the wind is coming FROM.
  - D. **ENTER** the Stability Class Directly.
  - E. **IF** a stability class is not provided, THEN ENTER the same stability class that was used for the selected On-Site tower.
  - F. **SELECT** the precipitation status that best represents the current precipitation around the Off-Site tower site using the same criteria as described for the On-Site tower.
- 5.5.5. **DETERMINE** the Source Term as follows:
- A. **ENSURE** that the "Last Irradiated" checkbox is checked.
  - B. **ENTER** the date and time as December 29, 2014 13:04.

5.5.6. **ENTER** the estimated Release Duration or accept the default

**NOTE**

Additional detail for each pathway, including available effluent monitors and methodologies, is available by hovering the mouse over each pathway button to the right of the form.

5.5.7. **OPEN** the Pathways form (double click on yellow pathway bar or single click on small yellow button with three dots bottom center) to determine the release point Pathway as follows:

A. **SELECT** the pathway that best represents the release in progress.

**NOTE**

Depending on the selected pathway, reduction processes will be enabled or disabled. IF disabled, THEN they are not included in the pathway reduction factor calculation.

5.5.8. **DETERMINE** the correct process reduction settings and Spent Fuel Pool condition using the description in Attachment 11.

5.5.9. **DETERMINE** the methodology to be used for the dose assessment.

- Monitored Release – Uses installed effluent monitors. Go to Step [10].
- Release Point Sample – Uses actual effluent sample results in  $\mu\text{Ci/cc}$ . Go to Step [11].
- Field Survey – Back calculates based on field survey and sample results. Go to Step [12].

- Unmonitored Spent Fuel – Tab is automatically selected when the Un-Monitored Spent Fuel Accident with No other method available check box is selected. There are no user inputs on the Tab frame. The Unmonitored spent fuel method uses pool condition, process reduction factor, fuel damage condition and release duration to determine a gross release rate that is not scaled to any plant measurement.

5.5.10. For a Monitored Release

- A. **SELECT** the most appropriate effluent monitor.
- B. **ENTER** the monitor reading for the selected monitor.

**NOTE**

Depending on the pathway selected and the associated selected monitor additional flow rate data may be required.

- C. **ENTER** the stack flow rate in the units requested. Release point flow rates may not be available from the Plant Data System.

**NOTE**

Use the 10 mile assessment for information within 10 miles.

- D. IF all errors have been resolved, THEN **PRESS** the 10 Miles button on the Process Assessment frame to run the dose assessment.
- E. **GO** To "Dose Assessment Results" Step 13 below.

5.5.11. For a Release Point Sample:

- A. **ENTER** the release point flow rate in cfm.
- B. **ENTER** the release concentrations in  $\mu\text{Ci/cc}$  for each corresponding isotope.

**NOTE**

Use the 10 mile assessment for information within 10 miles.

- C. IF all errors have been resolved, THEN **PRESS** the 10 Miles button on the Process Assessment frame to run the dose assessment.
- D. **GO** to "Dose Assessment Results" Step 13 below.

5.5.12. For Field Survey results

- A. **ENTER** the downwind distance in miles the sample was taken. The program assumes the sample was taken at or close to the plume centerline.
- ENTER** the closed window exposure rate in mR/hr.
- B. **ENTER** Field Survey air sample results.
1. IF a field Survey air sample is available, THEN USE the air sample calculator tool in URI to calculate a field team sample result as described in Attachment 4.
    - a. The Air Sample Calculator provides a button to transfer the air sample result to the field team assessment form.

**NOTE**

Leave the I-131 concentration value BLANK, as entering zero will cause the Iodine and particulate source term to be set at zero.

2. **LEAVE BLANK** the I-131 concentration value.
  3. **ENTER** the time the field team survey data was taken.
- C. IF all errors have been resolved, THEN PRESS the 10 Miles button on the Process Assessment frame to run the dose assessment.
- D. **GO** to "Dose Assessment Results", Step 13 below.

**NOTE**

Use the 10 mile assessment for information within 10 miles.

5.5.13. Dose Assessment Results

A. To print or preview the dose assessment results, **SELECT** one of the options from the toolbar on the assessment method tab. The following reports are available:

1. Dose Assessment Report - This report contains assessment results and release information. It may be:
  - Previewed from the print preview toolbar button (page and magnifying glass icon).
  - Printed to the default printer from the print toolbar button (printer icon).
  - Printed to a Microsoft XPS document file from the print toolbar button (printer icon). (The file can be attached to e-mail for distribution and viewed via Microsoft's Internet Explorer.)
2. Receptor Point Report – This report contains calculated values for the predetermined receptor points. It may be:
  - Previewed from the print preview toolbar button.
  - Printed to the default printer from the print toolbar button.
  - Printed to a Microsoft XPS document file from the print toolbar button. (The file can be attached to e-mail for distribution and viewed via Microsoft's Internet Explorer.)
3. Area Graphic – Provides a graphic of the sectors / areas for this dose assessment only (globe icon). This graphic is printed on the dose assessment report.
4. Results may be viewed or printed on a map. From the Detailed Assessment main menu or toolbar, **SELECT** View => View Receptor Point Locations or select the world icon at the upper left.
  - a. **SELECT** the 2, 5 or 10 mile map to view for 10 mile assessment.
  - b. **SELECT** the footprint results for TEDE Dose.
  - c. **SELECT** a map Zoom Level.
  - d. **SELECT** the Display Options:
    - RASCAL Sector Results – Draws sectors on the map which represents the close in doses to ~ 2.25 miles (10 mile assessment). RASCAL sectors are 10° each, split into 8 distance segments. Sector 1 starts at 5°

and arcs in a clockwise direction.

- RASCAL Puff Results – Draws the 41 x 41 grids on the map which represents the doses beyond 2.25 miles (10 mile assessment). Column 1 is on the left with row 1 on the bottom.
- Sectors – Displays the classic 16, 22.5° sectors.
- Mile Circles – Displays the 2, 5 and 10 mile distances for 10 mile assessment.
- Receptor Points – Displays the preset points of interest. Additional information can be obtained by double clicking each point as needed.
- Show Balloon – Displays an information balloon when the mouse is dragged across the map.

- e. **SELECT** Print Current View to print the contents of the map displayed in the window to the default printer.
- f. **SELECT** Print View to XPS to print the contents of the map displayed in the window to a Microsoft XPS document file. The file can be attached to e-mail for distribution and viewed via Microsoft's Internet Explorer.

5.5.14. **PROVIDE** the dose projection to the Emergency Director or Radiation Protection Coordinator for comparison to the Emergency Action Levels.

5.5.15. IF summation of multiple pathway results is needed, **SELECT** the Transfer Result to the Summation Page icon at the upper left to pass the current result to the Summation form.

## 5.6. CONCURRENT ASSESSMENT SUMMATION

- 5.6.1. **SELECT** Sum Assessment from the File menu or toolbar (blue Sigma icon).

### **NOTES**

- Summed assessments should be concurrent – within minutes of each other or ongoing and overlapping.
- Results to be summed may be transferred directly from the Rapid or Detailed forms using the Transfer Results to the Summation Page button.
- Up to five concurrent assessments may be summed.

- 5.6.2. **DETERMINE** the summation as follows:

- A. **SELECT** the existing assessment results to sum.
- B. **ENTER** (type or drag-and-drop) the file names in the file name grid.
- C. **ENABLE OR DISABLE** summation of individual entered files by selecting the "Include" checkbox on each line.

- 5.6.3. Dose Assessment Results

- A. To print or preview the dose assessment results, **SELECT** one of the options from the toolbar on the assessment summation tab. The following reports are available.
  1. Dose Assessment Report - This report contains assessment results and release information. It may be:
    - Previewed from the print preview toolbar button (page and magnifying glass icon)
    - Printed to the default printer from the print toolbar button (printer icon)
    - Printed to a Microsoft XPS document file from the print toolbar button (printer icon) (The file can be attached to e-mail for distribution and viewed via Microsoft's Internet Explorer.)
  2. Area Graphic – Provides a graphic of the sectors / areas that exceed the Protective Action Guideline values for this dose assessment only (globe icon). This graphic is printed on the dose assessment report.

3. Results may be viewed or printed on a map. From the Detailed Assessment main menu or toolbar, **SELECT** View => View Receptor Point Locations OR **SELECT** the world icon at the upper left.
  - a. **SELECT** the 2, 5 or 10 mile map to view for 10 mile assessment.
  - b. **SELECT** the footprint results for TEDE Dose.
  - c. **SELECT** a map Zoom Level.
  - d. **SELECT** the Display Options.
    - RASCAL Sector Results – Draws sectors on the map which represents the close in doses to ~ 2.25 miles (10 mile assessment). RASCAL sectors are 10° each, split into 8 distance segments. Sector 1 starts at 5° and arcs in a clockwise direction.
    - RASCAL Puff Results – Draws the 41 x 41 grids on the map which represents the doses beyond 2.25 miles (10 mile assessment). Column 1 is on the left with row 1 on the bottom.
    - Sectors – Displays the classic 16, 22.5° sectors.
    - Mile Circles – Displays the 2, 5 and 10 mile distances for 10 mile assessment.
    - Receptor Points – Displays the preset points of interest. Additional information can be obtained by double clicking each point as needed.
    - Show Balloon – Displays an information balloon when the mouse is dragged across the map.
  - e. **SELECT** Print Current View to print the contents of the map displayed in the window to the default printer.
  - f. **SELECT** Print View to XPS to print the contents of the map displayed in the window to a Microsoft XPS document file. The file can be attached to e-mail for distribution and viewed via Microsoft's Internet Explorer.

- 5.6.4. **PROVIDE** the dose projection to the Emergency Director or Radiation Protection Coordinator for comparison to the Emergency Action Levels and the current Protective Action Recommendation.
- 5.6.5. Results of the Summation may be saved to a file which may be used for import to other systems. **SELECT** the Export Summed Results to XML icon or from the Export menu to save the results.

## 6.0 RECORDS

- 6.1. The completed procedure is considered a Quality Record and shall be retained per V-EN-AD-103.
- 6.2. The following Attachments are considered Quality Records upon completion and shall be retained per V-EN-AD-103:
  - 6.2.1. ATTACHMENT 3 - PRE-CALCULATED FLOW POINT RATES

## 7.0 REVISION SUMMARY

Rev. No.

CHANGE AND REASON FOR CHANGE

PENDING This procedure has been developed to implement the Permanently Defueled Emergency Plan (PDEP).

## **8.0 ATTACHMENTS**

ATTACHMENT 1 - URI COMPUTER PROGRAM LOADING INSTRUCTIONS  
ATTACHMENT 2 - ALTERNATE METEOROLOGY METHODOLOGIES  
ATTACHMENT 3 - PRE-CALCULATED FLOW POINT RATES  
ATTACHMENT 4 - AIR SAMPLE CALCULATION  
ATTACHMENT 5 - CONVERSION CALCULATIONS  
ATTACHMENT 6 - DISTANCE AND BEARING  
ATTACHMENT 7 - TIME TO THRESHOLD  
ATTACHMENT 9 - DETAILED SOURCE TERM DATA  
ATTACHMENT 10 - PROCESS REDUCTION FACTOR DETERMINATIONS FOR BOILING  
WATER REACTORS  
ATTACHMENT 11 - SPENT FUEL POOL STATUS SELECTION

## **ATTACHMENT 1 - URI COMPUTER PROGRAM LOADING INSTRUCTIONS**

In the event the URI computer program does not run from the Windows Start Menu when initiated, the following instructions are provided to allow for the loading of the program. Loading of the program should be performed by IT personnel when they are available. If IT is not available the user should attempt to go to another computer that has the URI software loaded and attempt to run it from there before attempting to load the software on another computer.

[1] Instructions for loading the URI program

- a. **OPEN** Windows Explorer, **THEN** locate C:\URI-VTY\URI Vrmty Rev 2.exe and double click on it to launch the program.
- b. **IF** that does not successfully launch the program, **LOCATE** the URI program disks in the Control Room.
- c. **IF** the following files do not already exist on the target computer in the Windows operating system "C:\system32" folder **THEN** **COPY** them into the C:\system32 folder **OR** **ENSURE** they are in the URI program folder.

DFORMD.DLL

DFORRT.DLL

These DLL's do not need to be registered for URI to run.

- d. **LOCATE** the site URI program on the disk.
- e. **COPY** the contents of the applicable URI program folder to a corresponding folder on the target computer. **IF** the folder already exists **THEN** it is recommended that the entire folder be replaced with the folder on the disk.
- f. **ATTEMPT** to start the program by double clicking the URI executable file on the target computer.
- g. An assessment must be run to ensure all the files are in place to complete the calculation and printing can be performed. It is recommended that this be performed by someone who does not have administrative rights to the computer.
- h. **IF** the program is being installed by IT, **THEN** all common shortcuts to the program should be verified as time permits.

**ATTACHMENT 2 - ALTERNATE METEOROLOGY METHODOLOGIES**

- [1] **IF** the site meteorological data is unavailable from the plant computer system **THEN** the following data will need to be obtained from another source:
- Wind Speed – **MAKE SURE** the supplied speeds are in the same units as those used by the selected meteorological tower.
  - Wind Direction FROM – **IF** wind directions are supplied as compass points (N, NNE, NE, etc.) **THEN** they can be converted directly by double clicking the corresponding cell in the table and selecting the direction.
  - Stability Class or Delta T – **MAKE SURE** the supplied Delta T values are in the same units as those required.
- [2] **OBTAIN** the data in the following preferred order:
- Control Room Meteorological Instruments.
  - National Weather Service via the NWS web site.
  - Broadcasted data such as alert radio systems, broadcast radio or television stations or transcribed automated data from local airports. **SEE** Table Attachment 2-1 for determination of Stability Class.
  - Direct Observation Estimate at the site. **SEE** Table Attachment 2-1 for determination of Stability Class.

<b>Table Attachment 2-1</b>							
<b>Stability Class Determination using Observations</b>							
<b>Surface Wind Speed (mph)</b>	<b>Daytime Solar Radiation</b>				<b>Nighttime Conditions</b>		
	<b>For moderate cloud cover move one column to the right</b>			Heavy Overcast Rain	Thin overcast (>1/2 cloud cover)	< 3/8 cloud cover	Heavy Overcast Rain
	<b>Summer Clear Sky</b>	<b>Spring/Fall Clear Sky</b>	<b>Winter Clear Sky</b>				
<b>&lt; 9.0</b>	A	A-B	B	D	F	G	D
<b>9.0</b>	A-B	B	C	D	E	F	D
<b>to 13.5</b>	B	B-C	C	D	D	E	D
<b>&gt; 13.5</b>	C	C-D	D	D	D	D	D

**ATTACHMENT 3 - PRE-CALCULATED FLOW POINT RATES**

Predetermined flow rates for some release pathways and points that are not displayed on the Plant Data System are listed below.

Site	Point Description	Flow Rate

**This IS a Quality Record.**

**ATTACHMENT 4 - AIR SAMPLE CALCULATION**

- [1] From the Detailed Assessment Form menu, **SELECT** Calculations => Air Sample Calculations.

**NOTE**

Some of the options available on the form may not be active due to the particular air sampling and counting processes used at the individual sites. If not active proceed to the next step.

- [2] **SELECT** the Particulate Filter counting equipment.
- [3] IF a particulate filter is not available THEN **SELECT** "None".
- [4] IF the field team used a Count Rate Meter to count the particulate filter, THEN:
- a. **SELECT** the specific meter used.
  - b. **ENTER** the count rate meter Background Count Rate in CPM.
  - c. **ENTER** the particulate filter gross Count Rate in CPM.
- [5] IF the field team used a Counter (scaler) to count the particulate filter, THEN:
- a. **SELECT** the specific meter used.
  - b. **ENTER** the Background Count Time in minutes.
  - c. **ENTER** the Background counts.
  - d. **ENTER** the Filter Count Time in minutes.
  - e. **ENTER** the particulate filter gross counts.
- [6] IF the field team used an Exposure Rate Meter to count the particulate filter, THEN:
- a. **SELECT** the specific meter used.
  - b. **ENTER** the Exposure rate meter Background in mR/hr.
  - c. **ENTER** the particulate filter gross reading in mR/hr.
- [7] IF the sample was returned with a flow rate and a sample collection time, THEN:
- a. **SELECT** "Utilize Flow Rate and Sample Collection Times".
  - b. **SELECT** the appropriate flow rate, CFM or LPM.
  - c. **ENTER** the sample flow rate.
  - d. **ENTER** the sample collection time in minutes.
- [8] IF the sample was returned with a total flow, THEN:
- a. **SELECT** "Enter Total Flow".
  - b. **SELECT** the appropriate volume units, Cubic Feet or Liters.
  - c. **ENTER** the total sample flow.
- [9] Once all errors have been resolved, particulate filter results in  $\mu\text{Ci/cc}$  will be calculated along with a Lower Limit of Detection (LLD)

- a. IF the net sample results are below the calculated LLD, THEN the LLD in the corresponding units will be displayed.
- b. **PRESS** Print to print the sample results report.
- c. **PRESS** Cancel to exit and close the form.

### **ATTACHMENT 5 - CONVERSION CALCULATIONS**

- [1] URI provides methods to perform conversion calculations to recalculate data obtained from other non-standard sources to units usable within URI. Conversion calculations exist to convert:
- Concentrations and flow rates to release rates
  - Distances
  - Velocities
  - Volumes
- [2] From the Detailed Assessment form menu, **SELECT** Calculations => Conversion Calculations.
- a. **ENTER** the value(s) into the appropriate textboxes.
  - b. **SELECT** the units to match the entered value(s).
  - c. **SELECT** the units to convert to.

### **ATTACHMENT 6 - DISTANCE AND BEARING**

- [1] URI provides methods to determine distance and bearing from any two points given a latitude and longitude of each. These can be either predetermined fixed points or any two points consisting of a latitude and longitude. This can be useful if field teams return survey result locations in geographic coordinates.
- [2] From the Detailed Assessment form menu, **SELECT** Calculations => Distances and Bearings.
- [3] **SELECT** the data format to use for inputting coordinates.
- [4] **SELECT** the method which best meets the data supplied.
  - a. Point to Point – Determines the distance and bearing based strictly on predetermined receptor points. The user cannot enter or modify any point locations.
    - 1) **SELECT** the Point A Receptor Point of interest.
    - 2) **SELECT** the Point B Receptor Point of interest.
    - 3) The Distance and Bearing will be calculated from Point A to Point B.
  - b. Point to Any Lat/Lon – Determines the distance and bearing based on a predetermined receptor point and any entered Latitude and Longitude.
    - 1) **SELECT** the Point A Receptor Point of interest.
    - 2) **ENTER** the Point B Latitude and Longitude. Latitudes north of the equator are POSITIVE values. Longitudes west of the Prime Meridian are NEGATIVE values.
    - 3) The Distance and Bearing will be calculated from Point A to Point B.
  - c. Any Lat/Lon to Any Lat/Lon – Determines the distance and bearing based on any entered Latitude and Longitude.
    - 1) **ENTER** the Point A Latitude and Longitude. Latitudes north of the equator are POSITIVE values. Longitudes west of the Prime Meridian are NEGATIVE values.
    - 2) **ENTER** the Point B Latitude and Longitude. Latitudes north of the equator are POSITIVE values. Longitudes west of the Prime Meridian are NEGATIVE values.
    - 3) The Distance and Bearing will be calculated from Point A to Point B.

**ATTACHMENT 7 - TIME TO THRESHOLD**

- [1] URI provides a time to threshold report that calculates when the threshold will be exceeded at each of the predetermined RASCAL reporting distances. The report uses the highest dose calculated for each distance divided by the release duration to obtain a rate. This rate is then used to calculate the number of hours and minutes until each of the thresholds is exceeded. This report:
- a. Does not account for any subsequent decay of deposited radionuclides over the displayed time frame.
  - b. Reported times do not account for previously released doses or deposition due to previous releases.
  - c. Thresholds are reported for the Unusual Event and Alert classifications.
  - d. IF no threshold value was set by the administrator for a classification, THEN N/A is reported.
  - e. IF a calculated time to threshold exceeds 100 hours, THEN >100:00 is displayed.
- [2] **SELECT** the Print button to print the report to the default printer.

### **ATTACHMENT 9 - DETAILED SOURCE TERM DATA**

- [1] Though each URI printed dose assessment report provides a calculated release rate, additional source term data is available that might be useful to external entities performing dose assessments using other assessment programs. This report contains a complete listing of the isotopes of interest, isotopic half-life, process reduction factor effects and available fractions.
- a. From the Detailed Assessment form menu, **SELECT** Calculations => Source Term Data.
  - b. The calculated source term data will be displayed.

**ATTACHMENT 10 - PROCESS REDUCTION FACTOR DETERMINATIONS FOR  
BOILING WATER REACTORS**

[1] **DETERMINE** the Holdup Times as follows:

- a. Reactor Building / Secondary Containment
  - 1) IF the release is not through a normal ventilation pathway, such as a blowout panel or hole in the side of the building, THEN SELECT < 2 hours.
  - 2) IF the release is through a normal ventilation pathway, THEN SELECT < 2 hours.
  - 3) **DETERMINE** filter status as follows:
    - a) IF the filter is not applicable to the actual release pathway, THEN SELECT Not Working.
    - b) IF the filter is working or the status of the filter cannot be determined, THEN SELECT Working.
    - c) IF the filter is not working, THEN SELECT Not Working.

**ATTACHMENT 11 - SPENT FUEL POOL STATUS SELECTION**

- [1] **DETERMINE** the spent fuel status as follows:
- a. IF the spent fuel pool is normally cooled and the incident involves cooled fuel under water, THEN SELECT 'Under water'.
  - b. IF the spent fuel pool is draining, fuel is overheating, the pool may be boiling, but there is still some heat removal and the fuel is not yet on fire, THEN SELECT 'Partially Covered'.
  - c. IF the pool is essentially dry, THEN SELECT 'Dry'.
  - d. IF dry cask incident, THEN SELECT Dry Cask.

# VERMONT YANKEE NUCLEAR POWER STATION

## EMERGENCY PREPAREDNESS OPERATING PROCEDURE

**EPOP-RAD-3513**

**REVISION PENDING**

### **EVALUATION OF RADIOLOGICAL CONDITIONS**

USE CLASSIFICATION: **REFERENCE**

CATEGORY: **TECHNICAL**

RESPONSIBLE PROCEDURE OWNER: **Manager, Emergency Preparedness**

#### **REQUIRED REVIEWS**

EN-LI-100  
10CFR50.54q

DRN No.	Temp Change Eff. Date	Affected Pages	TC Removal Date	TC Removal Initials

Effective Date: 02/05/15

Other Special Controls: **NONE**

LAST FULL REVISION DATE: **PENDING**

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**1.0 PURPOSE**

To specify the methodology utilized to evaluate the consequences of an airborne radiological release to the environment.

**2.0 DISCUSSION**

2.1. This procedure consists of two sections as follows:

Section	Title	Responsibility	Methods
8.1	Initial Evaluation	CONTROL ROOM Shift Manager	Unified RASCAL Interface or Attachment 19
8.2	Subsequent Evaluation	CONTROL ROOM Radiation Protection Coordinator	Unified RASCAL Interface or Attachment 19

- 2.2. The initial evaluation of radiological conditions will be accomplished by utilizing the Unified RASCAL Interface (URI) or alternate dose projection methodologies (refer to Attachment 19 of this procedure).
- 2.3. Following the initial evaluation and upon activation of the ERO, a subsequent method to further evaluate and refine the initial dose projections will be performed by appropriate personnel located in the Control Room. The Unified RASCAL Interface (URI) and Site Boundary monitoring information will be utilized to perform subsequent evaluation of radiological conditions (refer to Section 8.2 of this procedure).

### **3.0 REFERENCES**

#### **3.1. Performance References**

- 3.1.1. Unified RASCAL Interface Requirements Specification Vermont Yankee Nuclear Power Station site Annex Version 2
- 3.1.2. VY Meteorology System Manual
- 3.1.3. EPOP-URI-10095, Dose Assessment Using the Unified RASCAL Interface
- 3.1.4. CHOP-STAK-2611, Stack Effluent Sampling and Analysis
- 3.1.5. EPOP-OSMT-3510, Site Boundary Monitoring
- 3.1.6. EPOP-CR-3540, Control Room Actions During an Emergency

#### **3.2. Developmental References**

- 3.2.1. 10CFR50, Appendix E
- 3.2.2. Report 0051, RM 14/HP 210 Efficiency I-131 (E Plan Air Sampling) VYDPF 0530.02
- 3.2.3. Vermont Yankee Nuclear Power Station Permanently Defueled Emergency Plan
- 3.2.4. EN-AD-103, Document Control and Records Management Programs
- 3.2.5. AP 3125, Emergency Plan Classification and Action Level Scheme

### **4.0 REQUIREMENTS**

#### **4.1. Technical Specification Requirements**

- 4.1.1. None

#### **4.2. Commitments & Obligations**

- 4.2.1. None

#### **4.3. Internal Commitments**

- 4.3.1. EPEX86RP1
- 4.3.2. EPEX8803CPE1
- 4.3.3. INS9007CPE3

## **5.0 DEFINITIONS**

### **5.1. Elevated release**

An elevated radiological release is any release discharged from the plant stack.

### **5.2. Ground release**

A radiological ground release is any release that is not discharged from the plant stack.

## **6.0 RESPONSIBILITIES**

- 6.1. The Shift Manager assumes the role of Emergency Director and is responsible for performing, or delegating performance of, the initial dose calculations within this procedure until relieved by the Radiation Protection Coordinator in the Control Room.
- 6.2. During the initial stages of an emergency where an actual release of radioactivity has occurred, the Shift Manager will be responsible to perform, or delegate the performance of, the initial evaluation of radiological conditions.
- 6.3. The Radiation Protection Coordinator is responsible for performing the subsequent dose calculations and evaluations within this procedure.
- 6.4. In situations involving a potential radiological release, the Radiation Protection Coordinator is responsible to perform the initial dose calculations if an actual release occurs.

## **7.0 PRECAUTIONS AND LIMITATIONS**

### **7.1. Precautions**

- 7.1.1. Since significant changes in meteorological, plant radiological, and plant status conditions can occur, frequent checks on conditions are important.
- 7.1.2. Meteorological data obtained from Met Data History 1 and 2 on ERFIS or PDS are data averaged over 15 minute intervals, presented over the past six hours. A separate screen, METEOROLOGICAL DATA, represents instantaneous readings at the designated time.
- 7.1.3. Comparison between dose projection methods and monitoring measurements should be reviewed carefully. The user should realize that dose projection methods use meteorological conditions that reflect a 15 minute average condition. However, wide variation in wind speed and direction can occur during that time interval which real time monitoring measurements would reflect.
- 7.1.4. Accurate reported locations of monitoring team data are necessary, given the significance of this data in the evaluation of radiological conditions.
- 7.1.5. For stability classes E, F and G, because of the valley affect, URI will predict a plume trajectory that is significantly different than the prevailing downwind direction. Also, for the stability classes E, F and G, and with a variable wind direction from the NE or SW, URI can predict the plume trajectory to reverse direction up and down the river valley

- 7.1.6. It is prudent to verify the plume trajectory using Site Boundary Monitoring team readings. Do not be totally reliant on the URI predictions of the plume trajectory.

## **8.0 PREREQUISITES**

### **8.1. Initial Evaluation**

- 8.1.1. Immediate action by the Shift Manager or Designated Plant Staff Member.
- A. Upon receiving an indication that a significant release of radioactivity is occurring, initiate or assign a qualified individual to use URI in accordance with Procedure EPOP-URI-10095 or perform the appropriate calculations in Attachment 19 of this procedure to evaluate radiological conditions.
  - B. Review the URI print preview, URI printout, or Attachment 19 results.
  - C. For an actual ground release, dispatch a monitoring team to obtain a whole body dose rate reading at the fence line in the downwind direction of the release in accordance with EPOP-OSMT-3510, and record the whole body dose rate results on Attachment 16, Team Status Log, Section A.
- 8.1.2. Subsequent Actions
- A. If significant changes occur in meteorological or radiological conditions, repeat applicable steps in Section 8.1.1 to re-evaluate radiological conditions.
  - B. Upon arrival of the ERO, provide applicable dose assessment results and data to the Radiation Protection Coordinator if necessary or required.

### **8.2. Subsequent Evaluation**

- 8.2.1. Actions by the Radiation Protection Coordinator or Designated Qualified Individual
- A. If a release has started before arrival of the ERO, determine the status of actions performed in Section 8.1 of this procedure.

**NOTES**

Attachment 6 and Attachment 7 provide methods to acquire radiological (source term) and meteorological data, respectively.

- B. Obtain information on radiological (source term) and meteorological data to evaluate radiological conditions to include the following information
  - 1. Time and date that the fuel was last irradiated
  - 2. Time and date of start of any release(s)
  - 3. Type of any release(s)
  - 4. Duration of release(s)
  - 5. Stack High Range Monitor reading, stack flow rate, and site boundary dose rate (Use instantaneous readings)
  - 6. Quarter hour meteorological data from the beginning of any release(s)
  - 7. Latest estimated projected doses and number of hours and minutes until the thresholds will be exceeded based on the current release rate and meteorological conditions.
  - 8. In plant chemistry sample information (if available) to include plant stack sample results)
  - 9. In plant area rad monitor readings
- C. Based on plant conditions as well as information obtained from radiological and meteorological data, coordinate dose assessment and calculations by using one or more of the following methods:
  - 1. URI Refer to EPOP-URI-10095
  - 2. Site Boundary Data Monitoring Results Refer to Attachment 2
- D. Review dose assessment calculation results and dose calculation parameters/assumptions utilized.
- E. As dose projection information becomes available, perform the following actions:
  - 1. As time permits, **VERIFY** the URI prediction of the plume trajectory with Site Boundary Monitoring team data. This is especially important for stability classes E, F and G.
  - 2. IF dose assessment exceeds 10 mRem TEDE THEN ADVISE the Emergency Director to review AP 3125 to determine if radiological dose EALs have been reached or exceeded.
  - 3. **FORWARD** applicable information on the URI printout, ERFIS, PDS or Attachment 14, Dose Assessment Status Form as necessary.
  - 4. **POST** appropriate dose assessment information on status boards.
  - 5. **MAINTAIN** a file of printouts and completed input data forms.

- F. **CONTACT** on-shift Radiation Protection Technician for status of in plant chemistry sample information to include isotopic breakdown of effluent release data (e.g., plant stack), and utilize the results of these samples to determine source term release rate information as needed.
- G. Periodically brief the Technical Coordinator and Emergency Director on dose assessment results and pertinent changes.
- H. Brief the Emergency Director periodically on the status of plant conditions, meteorological changes, plant radiological effluent conditions and dose assessment results.
- I. As new or additional information becomes available, ensure that status boards and forms are updated and the updated information is forwarded to the Technical Coordinator and Emergency Director.
- J. Continue to update and evaluate dose projections as required.

### 8.3. Final Conditions

- 8.3.1. Turn in all data log sheets, calculations, and printouts to the Emergency Planning Manager for proper filing in accordance with EN AD 103.

## 9.0 PROCEDURE

- 9.1. **PERFORM** the duties in the specified attachments.

## 10.0 RECORDS

- 10.1. All Attachments and other records generated during an actual emergency shall be considered quality records and maintained in accordance with EN-AD-103.

**11.0 REVISION SUMMARY**

- 11.1. This procedure has been developed to implement the Permanently Defueled Emergency Plan (PDEP).

**12.0 ATTACHMENTS**

ATTACHMENT 2 - SITE BOUNDARY DATA MONITORING

ATTACHMENT 6 - MANUAL SOURCE TERM DATA ACQUISITION

ATTACHMENT 7 - MANUAL METEOROLOGICAL DATA ACQUISITION

ATTACHMENT 10 - VY PRIMARY AND BACKUP TOWERS  $\Delta T$ /STABILITY CRITERIA

ATTACHMENT 14 - DOSE ASSESSMENT STATUS FORM

ATTACHMENT 15 - ISOTOPIC ANALYSIS

ATTACHMENT 16 - TEAM STATUS LOG

ATTACHMENT 18 - DOSES AT SELECTED LOCATIONS

ATTACHMENT 19 - ALTERNATE DOSE PROJECTION METHODOLOGIES

**ATTACHMENT 2 - SITE BOUNDARY DATA MONITORING**

1. Receipt and Logging of Site Boundary Data Information

- a. As monitoring teams report air sample and dose rate information, the Radiation Protection Coordinator will record this information on Attachment 16 and forward to the Emergency Director.
- b. The Radiation Protection Coordinator will use the following equation or the Air Sample Calculations feature of URI to calculate air concentration:

$$\text{Conc} \left( \frac{\mu\text{Ci}}{\text{cc}} \right) = \frac{C \times CF}{E \times V \times T}$$

Where:

C	=	Net cpm from air sample
CF	=	Conversion Factor ( $4.5 \times 10^{-10}$ $\mu\text{Ci-L/dpm-cc}$ for flow rate in LPM <u>OR</u> $1.6 \times 10^{-11}$ $\mu\text{Ci-ft}^3/\text{dpm-cc}$ for flow rate in CFM)
E	=	Efficiency (0.1 for Frisker)
V	=	Flow rate of sample in LPM or CFM
T	=	Sample collection time in minutes.

**RECORD** results on Attachment 16.

- c. **PROCEED** to the Air Sample Calculations feature of URI AND **RECORD** results on Attachment 16.
- d. **ENSURE** that Site Boundary monitoring information on dose rates are recorded on Attachment 18.

### **ATTACHMENT 6 - MANUAL SOURCE TERM DATA ACQUISITION**

To determine the source term data for dose assessment, **PERFORM** the following steps **AND RECORD** applicable data on Attachment 14 (refer to ERFIS, PDS, etc.):

1. **RECORD** the time and date of reactor shutdown as December 29, 2014.
2. **DETERMINE AND RECORD** the type of release(s) (i.e., stack, ground, or combination).
3. **DETERMINE AND RECORD** the time and date of the identified release(s).
4. **DETERMINE AND RECORD** the release duration of the identified release(s).

#### **NOTE**

Unless a more definitive number is available for release, a value of 8 hours duration will be used.

5. **OBTAIN AND RECORD** release pathway monitoring data as delineated below:
  - a. FOR ELEVATED RELEASE (stack)

#### **NOTE**

The stack high range monitor is a Victoreen ion chamber which measures the radiation in the base of the stack. The monitor has a readout in the Control Room on CRP 9-2 with a range from 0.1 mR/hr to  $1 \times 10^7$  mR/hr.

#### **CAUTION**

Use instantaneous reading, not the 15 minute average.

- 1) Stack High Range Monitoring Reading (mR/hr) from one of the following:
  - a) Control Room Panel (RM 17-155 on CRP 9-2), or
  - b) METEOROLOGICAL PARAMETERS display on ERFIS or PDS monitor (depress "ODPS" key, then select METEOROLOGICAL DATA poke box).
- 2) Stack Flow Rate (scfm) from one of the following:
  - a) Control Room panel (FI-108-22 on CRP 9-2), or
  - b) Local readout in the stack monitoring room, or
  - c) ERFIS or PDS Data Point C198 (15 minute average), or
  - d) METEOROLOGICAL PARAMETERS display on ERFIS or PDS monitor (depress "METEOROLOGICAL PARAMETERS" key, then select METEOROLOGICAL DATA poke box), or
  - e) CHOP-STAK-2611, Section entitled, " Stack Flow Rate Determination".

b. FOR GROUND RELEASE

- 1) Site boundary whole body dose rate (mR/hr) at the fence line downwind location.

6. IF available, **OBTAIN AND UTILIZE** stack sample analysis or Site Boundary data. **RECORD** isotopic information on Attachment 15 and Site Boundary data on Attachment 16.

## **ATTACHMENT 7 - MANUAL METEOROLOGICAL DATA ACQUISITION**

To determine the meteorological data for dose assessment, **OBTAIN AND RECORD** applicable information as delineated below:

### **NOTES**

- FOR ELEVATED RELEASE (stack), ensure that upper meteorological values are obtained and utilized.
- FOR GROUND RELEASE, ensure that the lower meteorological values are obtained and utilized.

### **CAUTION**

Use 15 minute average met data, not the instantaneous data.

1. **ACCESS** the METEOROLOGICAL HISTORY 1 display on ERFIS or PDS by depressing the METEOROLOGICAL HISTORY 1 – (MH1) poke box.
2. IF the primary meteorological tower instrumentation is not functioning, but ERFIS or PDS is operable, THEN **OBTAIN** meteorological data from the secondary tower. **ACCESS** MET DATA HISTORY 2 display on the ERFIS or PDS monitor by depressing the "METEOROLOGICAL PARAMETERS" key and then selecting the MH2 poke box.
3. IF the primary meteorological tower instrumentation is functioning, but the MET DATA HISTORY 1 display on the ERFIS or PDS monitor is not available, THEN **DETERMINE** the required meteorological data from the video graphic recorders in the Relay House.
4. IF the primary meteorological tower instrumentation is not functioning, and the MET DATA HISTORY 1 and MET DATA HISTORY 2 displays on the ERFIS or PDS monitor are not available, THEN **OBTAIN** readouts of wind speed, wind direction, and one value of delta T from the secondary (backup) tower from CRP 9-48.
5. IF primary and secondary meteorological tower instrumentation is not available, THEN **CONSULT** Albany National Weather Service Station (Tel. No.'s 518-435-9574 [Primary] or 800-833-9880 [Backup], AND **ASK** for "Public Forecaster") regarding meteorological observations.
6. Stability Class can be determined from one of the following:
  - a. IF a delta T value was obtained from either the primary or back up tower, THEN **USE** the appropriate section of Attachment 10, or **INPUT** the delta T in InForm or the Meteorological data section of the URI software.
  - b. IF a delta T value is not available from either the primary or back up tower, THEN a generalized determination of atmospheric stability may be made by referring to Attachment 2 of EPOP-URI-10095.

7. **OBTAIN** hourly weather forecast data.
  - a. **LOG** into a network.
  - b. **OPEN** internet explorer AND TYPE www.weather.com in the address bar.
  - c. In the search box, **TYPE** Vernon, VT.
  - d. **SCROLL** down beneath the map AND CLICK on the Hourly tab.
  - e. **PRINT** this page or record data for the next four hours.
  - f. **REPEAT** Steps a. through e. every hour.

**ATTACHMENT 10 - VY PRIMARY AND BACKUP TOWERS  $\Delta T$ /STABILITY CRITERIA**

**PRIMARY TOWER  $\Delta T$  ( $^{\circ}\text{F}$ )**

Ground Release	Elevated Release	Stability Class	Stability Category
$\Delta T \leq -1.72$	$\Delta T \leq -2.74$	A	Extremely Unstable
$-1.71 \leq \Delta T \leq -1.54$	$-2.73 \leq \Delta T \leq -2.45$	B	Moderately Unstable
$-1.53 \leq \Delta T \leq -1.36$	$-2.44 \leq \Delta T \leq -2.16$	C	Slightly Unstable
$-1.35 \leq \Delta T \leq -0.46$	$-2.15 \leq \Delta T \leq -0.72$	D	Neutral
$-0.45 \leq \Delta T \leq +1.35$	$-0.71 \leq \Delta T \leq +2.15$	E	Slightly Stable
$+1.36 \leq \Delta T \leq +3.62$	$+2.16 \leq \Delta T \leq +5.74$	F	Moderately Stable
$+3.63 \leq \Delta T$	$+5.75 \leq \Delta T$	G	Extremely Stable

**BACKUP TOWER (33 ft. – 135 ft)  $\Delta T$  ( $^{\circ}\text{F}$ )**

RANGE	CLASS	LOWER $\Delta T^*$	UPPER $\Delta T^*$
$\Delta T \leq -1.07$	A	-2.0	-3.0
$-1.06 \leq \Delta T \leq -0.96$	B	-1.6	-2.5
$-0.95 \leq \Delta T \leq -0.84$	C	-1.4	-2.2
$-0.83 \leq \Delta T \leq -0.28$	D	-1.0	-1.0
$-0.27 \leq \Delta T \leq +0.83$	E	+1.0	+1.0
$+0.84 \leq \Delta T \leq +2.23$	F	+2.0	+3.0
$+2.24 \leq \Delta T$	G	+4.0	+6.0

\* Input this number into missing delta temperature field to obtain appropriate stability class.

**ATTACHMENT 14 - DOSE ASSESSMENT STATUS FORM**

Time of Shutdown: \_\_\_\_\_ Form Prepared By: \_\_\_\_\_

**RELEASE INFORMATION** Date: \_\_\_\_\_ Time: \_\_\_\_\_

Stack: \_\_\_\_\_ Ground: \_\_\_\_\_ Combination: \_\_\_\_\_

Release Started At: \_\_\_\_\_ hr Anticipated: \_\_\_\_\_ hr

Estimated Release Duration: \_\_\_\_\_ hrs f

**CLASSIFICATION**

☐ Notification of Unusual Event ☐ Alert

**METEOROLOGICAL/STACK/DATA AT:** Date: \_\_\_\_\_ Time: \_\_\_\_\_

PARAMETER (15 Min. Ave.)	UNITS	UPPER (for Stack Release)	LOWER (for Ground Release)
Wind Speed	mph		
Wind Direction	deg		
Delta T (ΔT)	deg (F)		
Stability Class			
Precipitation	=in/15 min.		
Stack High Range (use instantaneous)	mR/hr		
Stack Flow (use instantaneous)	scfm		
Site Boundary Dose Rate (measured)	mR/hr	At Sector _____	
Sample Analysis Performed?	<input type="checkbox"/> YES (Attach 15) <input type="checkbox"/> NO		
Weather Forecast:			

**CALCULATED DOSE OR DOSE ASSESSMENT RESULTS ATTACHED**

		ELEVATED		GROUND		COMBINATION	
DISTANCE	PLUME ARRIVAL TIME	TEDE (R)		TEDE (R)		TEDE (R)	
At 0.35 Mile							
At 2 Mile							
At 5 Mile							
At 10 Mile							

Reviewed By: \_\_\_\_\_

Radiation Protection Coordinator (Print/Sign)

Distribution:

- Radiation Protection Coordinator to Technical Coordinator
- Technical Coordinator to Emergency Director
- Emergency Director to NRC

**This IS a Quality Record.**

**ATTACHMENT 15 - ISOTOPIC ANALYSIS**

**A. SAMPLE DESCRIPTION**

Sample Location: \_\_\_\_\_

Sample Time: \_\_\_\_\_

Sample Date: \_\_\_\_\_

**B. DOSE ASSESSMENT RESULTS**

Dose Projections Attached? ☐ YES ☐ NO

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

Performed By: \_\_\_\_\_  
(Print/Sign)

Reviewed By: \_\_\_\_\_  
(Print/Sign)

Distribution:

- Radiation Protection Coordinator to Technical Coordinator
- Technical Coordinator to Emergency Director
- Emergency Director to NRC

**This IS a Quality Record.**

**ATTACHMENT 16 - TEAM STATUS LOG**

Info current at: Time \_\_\_\_\_ Date \_\_\_\_\_ Sample Location: \_\_\_\_\_  
Team: ☐ Site Boundary ☐ Green ☐ Blue

**A. WHOLE BODY DOSE RATE RESULTS**

1. Dose Rate Meter Reading:
  - a. Waist Height \_\_\_\_\_ mR/hr.
  - b. 2" Above Ground \_\_\_\_\_ mR/hr
2. To ensure that the Radiation Protection Coordinator receives the whole body dose rate results expeditiously, **FORWARD** whole body dose rate results to the Control Room before an air sample is taken.

**B. AIR SAMPLE RESULTS**

1. Air Sample "Time ON" \_\_\_\_\_
2. RadEye Background Level as a frisker (cpm) \_\_\_\_\_
3. Air Sample Gross Count Rate (cpm) \_\_\_\_\_
4. Air Sample "NET cpm" \_\_\_\_\_

**FMT AIR SAMPLE CALCULATIONS** (Use the following equation)

$$\text{Conc } (\mu\text{Ci/cc}) = \frac{C \times CF}{E \times V \times T}$$

Where: C = Net cpm from air sample  
CF = Conversion Factor ( $4.5 \times 10^{-10}$   $\mu\text{Ci-L/dpm-cc}$  for flow rate in LPM OR  $1.6 \times 10^{-11}$   $\mu\text{Ci ft}^3/\text{dpm-cc}$  for flow rate in CFM)  
E = Efficiency (0.1 for Frisker)  
V = Flow rate of sample in LPM or CFM  
T = Sample collection time in minutes

Performed By: \_\_\_\_\_  
(Print/Sign)

Performed By: \_\_\_\_\_  
(Print/Sign)

Copies distributed to: Radiation Protection Coordinator

**This IS a Quality Record.**

**ATTACHMENT 18 - DOSES AT SELECTED LOCATIONS**

Date	Time	Sample Location	Gamma Dose Rate (mR/hr)		Sample Storage Location	Initials

**This IS a Quality Record.**

**ATTACHMENT 19 - ALTERNATE DOSE PROJECTION METHODOLOGIES**

1. **OBTAIN** the necessary dose projection information for stack and ground release as follows:

a. IF a stack release is occurring: **THEN HAVE** RP use measured site boundary dose rates

1) **OBTAIN AND RECORD** input data as follows:

a) Upper Wind Direction \_\_\_\_\_°

(Use 15 min avg data from MET DATA HISTORY 1  
or use alternate methods on Attachment 7)

b) **ASSUME** Stability Class is as follows: A (Unstable)

c) **OBTAIN AND RECORD** below the Whole Body  
Dose Rate (waist height reading) from the Site  
Boundary Team, or Attachment 16, Team Status  
Log, Section A.

Whole Body Dose Rate: \_\_\_\_\_mR/hr

2) **CALCULATE** the Ground Site Boundary Dose (R) **AND RECORD** below  
as follows:

$$\text{Dose (R)} = \frac{\text{Site Boundary Whole Body Dose Rate in mR/hr}}{1000 \frac{\text{mR}}{\text{R}}} \times \text{Release Duration in Hours}$$

Stack Site Boundary Dose (TEDE): \_\_\_\_\_R

b. IF a ground release is occurring: **THEN USE** the measured site boundary dose rates

1) **OBTAIN AND RECORD** input data as follows:

a) Lower Wind Direction \_\_\_\_\_°

(Use 15 min avg data from MET DATA HISTORY 1  
or use alternate methods on Attachment 7)

B) **ASSUME** Stability Class is as follows: A (Unstable)

**This IS a Quality Record.**

- c) **OBTAIN AND RECORD** below the Whole Body Dose Rate (waist height reading) from the Site Boundary Team, or Attachment 16, Team Status Log, Section A.

Whole Body Dose Rate: \_\_\_\_\_ mR/hr

**NOTE**

Unless a more definitive number is available for the release duration, a value of 8 hours will be used.

- 2) Calculate the Ground Site Boundary Dose (R) and record below as follows:

$$\text{Dose (R)} = \frac{\text{Site Boundary Whole Body Dose Rate in mR/hr}}{1000 \frac{\text{mR}}{\text{R}}} \times \text{Release Duration in Hours}$$

Ground Site Boundary Dose (TEDE): \_\_\_\_\_ R

2. **USE** the applicable meteorological data (wind direction and stability class) and Site Boundary Dose results from above to do the following:

- 1) **IF** dose assessment exceeds 10 mRem TEDE, **THEN ADVISE** the Emergency Director to review AP 3125 to determine if radiological dose EALs have been reached or exceeded.

**FORWARD** results to the Emergency Director.

**This IS a Quality Record.**

Attachment 4

Vermont Yankee Nuclear Power Station

Emergency Plan Training Procedure and the  
Emergency Plan Training Program Description

# VERMONT YANKEE NUCLEAR POWER STATION

## EMERGENCY PLAN ADMINISTRATIVE PROCEDURE

EPAP-TRNG-3712

REVISION PENDING

### EMERGENCY PLAN TRAINING

USE CLASSIFICATION: **REFERENCE**

CATEGORY: **ADMINISTRATIVE**

RESPONSIBLE PROCEDURE OWNER: **Manager Emergency Preparedness**

### REQUIRED REVIEWS

EN-LI-100 review not required  
10CFR50.54(q)

DRN No.	Temp Change Eff. Date	Affected Pages	TC Removal Date	TC Removal Initials

Effective Date: \_\_\_\_\_ **PENDING**

Other Special Controls: **NONE**

LAST FULL REVISION DATE: **02/05/15**

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## **1.0 PURPOSE**

To specify the Emergency Plan training and qualification requirements for personnel assigned to the Emergency Response Organization (ERO) and to outline the training offered to off-site emergency response organizations.

## **2.0 REFERENCES**

### **2.1. Performance References**

- 2.1.1. Emergency Plan Training Program Description (EPTPD)
- 2.1.2. Fire Brigade Training Program Description
- 2.1.3. EN-AD-103, Document Control and Records Management Programs
- 2.1.4. EN-TQ-201, Systematic Approach to Training Process
- 2.1.5. V-EN-EP-306, Drills and Exercises
- 2.1.6. V-EN-EP-307, Threat Based Drills
- 2.1.7. V-EN-EP-308, Emergency Planning Critiques
- 2.1.8. OP 3020, Fire Emergency Response Procedure
- 2.1.9. SPAD-LLEA-08103, Local Law Enforcement Agency Integrated Response Plan
- 2.1.10. SAFSTOR TDD 1.0, SAFSTOR Systematic Approach to Training

### **2.2. Developmental References**

- 2.2.1. Vermont Yankee Nuclear Power Station Permanently Defueled Emergency Plan
- 2.2.2. Vermont Yankee Implementing Procedures to the Permanently Defueled Emergency Plan

## **3.0 REQUIREMENTS**

### **3.1. Technical Specification Requirements**

- 3.1.1. None

### **3.2. Commitments & Obligations**

- 3.2.1. 10CFR50 App. E

### 3.3. Internal Commitments

- 3.3.1. IFI932401
- 3.3.2. INS8707CPE2
- 3.3.3. MOO ID 8714
- 3.3.4. SSCA 0539
- 3.3.5. SSCA 0618
- 3.3.6. SSCA 0983

### 4.0 RESPONSIBILITIES

- 4.1. Emergency Planning Manager has the overall responsibility to ensure all training is completed in accordance with Emergency Plan Training Program Description and is responsible for coordinating the training of the local medical support personnel, local law enforcement personnel, state and local government personnel, and personnel from the Vernon and Brattleboro fire departments. The Training Superintendent will, upon request, assist in this effort (Section 5.6 of this procedure) (SSCA 0539 and SSCA 0618). (SSCA0983, IFI932401).
  - 4.1.1. Emergency Planning Manager is also responsible for administering and coordinating the EP training program for sites and corporate groups as assigned in accordance with SAFSTOR TDD 1.0, SAFSTOR Systematic Approach to Training (MOO ID 8714):
    - A. Maintain the Emergency Assistance Personnel List (EAPL). Personnel are assigned to a specific ERO position through the Emergency Assistance Personnel List.
    - B. On a quarterly basis, publish an updated EAPL.
    - C. Verify ERO qualifications on an annual basis and compile list of ERO members requiring training.
- 4.2. Emergency Response Organization members are responsible for attending ERO training when scheduled, maintaining ERO position qualification and notifying EP Manager immediately for failure of Initial and/or Continued Training CBT.

## 5.0 PROCEDURE

- 5.1. Vermont Yankee staff (Emergency Response Organization and non-essential) and supporting contractors annually receive a general overview training module covering the Permanently Defueled Emergency Plan (Emergency Plan) and the Implementing Procedures to the Emergency Plan.
- 5.2. Additionally, some personnel receive Emergency Response Organization (ERO) position specific training to qualify them for their respective assignments during an Emergency.
  - 5.2.1. These position specific training modules and assignments to them are specified by the Emergency Planning Training Program Description (EPTPD) in accordance with SAFSTOR TDD 1.0, SAFSTOR Systematic Approach to Training.
  - 5.2.2. Where applicable, coordination of training for ERO tasks contained in an accredited training program is the responsibility of the training group for that program.
  - 5.2.3. The Emergency Assistance Personnel List (EAPL) identifies qualified individuals assigned to ERO positions.
- 5.3. The Emergency Planning Manager, in conjunction with the Training Superintendent, evaluates changes to the Emergency Plan and the Implementing Procedures to the Emergency Plan to determine if the change or changes require additional training (MOO ID 8714). Similarly, the Emergency Planning Manager and the Training Superintendent, review and approve applicable Emergency Plan training materials for use. (INS8707CPE2)
- 5.4. Critiques are held following all drills and exercises. A formal management debrief is held following all graded exercises. Identified weaknesses and/or deficiencies requiring further corrective action are forwarded to the Emergency Planning Manager for resolution in accordance with V-EN-EP-308. (MOO ID 8914)
- 5.5. Removal of ERO Qualifications for an individual will be done in accordance with SAFSTOR TDD 1.0, SAFSTOR Systematic Approach to Training and will include:
  - 5.5.1. Remove from EAPL.
  - 5.5.2. Notify individual, supervisor/manager and Emergency Planning Manager.
  - 5.5.3. Establish coverage for individual if training/participation cannot be completed immediately and prior to individual's on-call duty week.
- 5.6. Emergency Plan training will be provided for the following groups:
  - 5.6.1. EMERGENCY RESPONSE ORGANIZATION TRAINING
    - A. Emergency Response Organization training is required for initial qualification and annual (calendar year) refresher/continuing training

- B. The initial position specific emergency response training and the continuing training is defined in the EPTPD for all but the following personnel.
  - 1. First Aid Team - First Aid Team training requirements are specified in AP 0840.
  - 2. Fire Brigade - Fire Brigade Training requirements are specified in the Fire Brigade Training Program Description.

5.6.2. SPECIAL EMERGENCY RESPONSE TRAINING GROUPS

- A. Local Medical Support Personnel - Selected local Medical Support Personnel are offered annual training in the following areas:
  - 1. Basic radiation protection,
  - 2. Personnel and equipment decontamination,
  - 3. Use of radiation instruments,
  - 4. Establishing radiation and contamination control areas,
  - 5. Biological sampling, and,
  - 6. Plant access and reporting requirements.
- B. State and Local Governments - Annually (defined as per calendar year), selected state and local emergency response personnel will be offered training in the following areas:
  - 1. Emergency classification system and EALs,
  - 2. These state and local officials will be requested to participate in the biennial emergency exercise (SSCA 0539 and SSCA 0618).
- C. Local Fire Department (Ref. OP 3020)
  - 1. The Vernon fire department shall annually be trained in the following areas:
    - a. Plant layout and fire hazards,
    - b. Basic radiation protection needed for firefighting,
    - c. Fire protection system orientation, and,
    - d. Plant access and reporting requirements.
  - 2. The Brattleboro Fire Department is annually offered training in the above mentioned areas.

D. Local Law Enforcement Agency (Ref. SPAD-LLEA-08103) - Selected local law enforcement personnel are offered annual training in the following areas:

1. Emergency classification system and EALs,
2. Basic radiation protection,
3. Plant access and reporting requirements, and,
4. Plant layout.

5.7. All training attendance, except training for Special Emergency Response Training groups, will be documented in accordance with SAFSTOR TDD 1.0, SAFSTOR Systematic Approach to Training.

5.8. All documentation, except training for Special Emergency Response Training groups, will be retained in accordance with EN-AD-103.

## **6.0 RECORDS**

6.1. All logs, completed forms and other records generated during an actual emergency shall be considered quality records and maintained in accordance with EN-AD-103.

## **7.0 REVISION SUMMARY**

7.1. This procedure has been developed to implement the Permanently Defueled Emergency Plan (PDEP).

## **8.0 ATTACHMENTS**

8.1. None

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## I. INTRODUCTION

The purpose of the Emergency Plan Training Program is to ensure the Vermont Yankee staff and selected support contractors, who are part of the Vermont Yankee Emergency Response Organization (ERO), are appropriately trained and qualified for their position specific emergency response duties. The following definitions are used in this document.

### A. Definitions

1. Annual – For the purposes of this procedure, annual is defined as that period between January 1 and December 31 of each year.
2. Computer Based Training (CBT/Digital Training) – Training provided to ERO personnel through the use of computer interaction. CBT courses may be provided to students either remotely or in a classroom setting.
3. Classroom Training – A training session conducted in a classroom or in an ERF. The instructor presents the training module.
4. Drill – Performance enhancing experiences that reasonably simulate the interactions between appropriate centers and/or individuals that would be expected to occur during emergencies. Drills are an ERO training activity and may be used for initial training and/or continuing training purposes. (10CFR50 Appendix E, F.2.b)
5. Emergency Assistance Personnel List (EAPL) – A list of personnel who are assigned to various positions in the Emergency Response Organization.
6. Emergency Response Facility (ERF) – Facility (Control Room) set up in accordance with the site emergency plan and with specific emergency response missions.
7. Emergency Response Organization (ERO) – Personnel who are assigned and trained to respond to emergency events and perform duties as outlined in site emergency plans.

8. Exemptions/Waivers – Emergency Preparedness Training/Qualification credit given to students/instructors implemented in accordance with SAFSTOR TDD 1.0.
9. Exercise – An activity aimed at testing the integrated capability and a major portion of the basic elements of the Emergency Plan and Response Organizations. An exercise involves a major portion of the Emergency Response Organization and is evaluated by the NRC. (10CFR50, Appendix E, F.2.b)
10. Mini drill – A drill conducted to train a specific function/position.
11. Pre-job Briefing – A briefing conducted prior to starting a job. The briefing should include the following as applicable: description of job assignments (duties), purpose, pre-requisites, equipment, procedures, forms, interfaces, reporting, exposure limits, dosimeters, protective clothing, respirators, lessons from previous jobs and safety. Check understanding of job and ensure staff is qualified to do the job.
12. Tabletop – A specialized training session conducted for an emergency response facility or group. Tabletops are seminar style meetings in a facility to discuss objectives and expectations of ERO personnel. These sessions are designed to emphasize team building and correct previously identified weaknesses.
13. Walkthrough – A training activity designed to develop and maintain an individual's knowledge of their assigned ERO duties. The walkthrough is normally conducted in an emergency response facility (Facility Walkthrough) and includes discussion or demonstration of the appropriate facility activation, staffing, layout, equipment and organizational responsibilities for the individual's assigned ERO position.

## II. PREREQUISITES

- A. Individuals selected for an ERO position using the ERO position selection criteria as provided in Appendix A.

## III. PROGRAM STRUCTURE

- A. Length of Program

The overview portion of the program is self-paced, and is taught in initial employee training normally presented through Computer Based Training (CBT).

Position specific job training consists of training Emergency Response

Organization (ERO) members to the specific training module defined for their respective positions and is specified in Appendix A.

B. Program Content

The Emergency Plan training is divided into three major phases.

- Emergency Plan Overview Training (Pre-requisite)
- Initial Training Program (Appendix A)
- Continuing Training Program (Appendix A)

1. Emergency Plan Overview Training

- a. Is provided as part of facility walkthroughs and initial position specific training.
- b. Instructions concerning the following will be given to all personnel concerning;

Signals and alarms  
Evacuation routes and procedures  
Response during an emergency  
Response on observing an unusual occurrence  
Emergency Classification Levels  
Public Relations

## 2. Initial Training Program (Appendix A)

- a. Qualifies an ERO member in their specific ERO assignment
- b. The Initial Training Program requirements are contained in Appendix A. The actual course may vary based on:
  - (1) Qualifications of trainees (waivers in accordance with SAFSTOR TDD 1.0)
  - (2) Previous position assignments
- c. In instances where a person's normal job assignment qualifies them for the ERO position, no additional position specific training is necessary. A facility walk through for the individual's assigned facility shall be conducted prior to assignment, as noted in Appendix A
- d. Scheduling for initial training is normally coordinated by the EP Manager.
- e. Evaluations are normally given to ensure adequate understanding and retention of material covered in the classroom, and/or other specific qualifying activities.

Individuals who fail to pass an Initial Training element must be remediated and a re-evaluation must be conducted.
- f. Initial ERO training supplements the training received by personnel through their departmental training.

## 3. Continuing Training Program (Appendix A)

- a. Prior to taking ERO Continuing Training, ERO personnel must have completed Initial Training.
- b. Continuing Training is required on a periodic basis as described by Appendix A. Continuing Training is designed to maintain and enhance job specific skills and knowledge.

- c. Most topics for Continuing Training are selected as follows:
- (1) Emergent training needs as identified by the Manager Emergency Planning.
  - (2) Topics requiring additional training based on drill, exercise, and real event follow-up commitments, industry experiences, revised regulations, revised procedures or changes to the ERF. These items may include repeat portions of the Initial Training Program, or specifically developed training material as warranted.
  - (3) Material on "Lessons Learned" from Drills/Exercises shall be compiled and disseminated to all members of the ERO, typically during the last quarter of the year.
- d. ERO personnel must complete required Continuing Training to remain qualified.
- e. ERO Continuing Training Program as provided in Appendix A may be conducted to include all or portions of the following types of training:
- Classroom Training
  - Computer Managed Instruction/Computer Based Training (CMIS/CBT)
  - Tabletop
  - Walkthrough
  - Mini-drill
  - Participation in an Exercise or drill
- f. Scheduling for continuing training is normally coordinated by the EP Manager.
- g. Evaluations are normally given to ensure adequate understanding and retention of material covered in the classroom, and/or other specific qualifying activities.

- (1) Individuals who fail to pass continuing training should be remediated the same working day. Remediation will include remedial training and re-evaluation or re-examination. If remediation is not accomplished within the same working day, the failure must be reported to Emergency Planning Manager as soon as possible and the person shall be removed from the ERO until successfully remediated.
  - (2) All second failures on the same topic must complete Initial Training Program Requirements prior to being reassigned to the ERO.
  - (3) Conditions of Disqualification – Individuals that are removed from the ERO shall not perform during emergencies and exercises in assigned ERO positions until the required qualifications are completed. They may perform in assigned ERO positions during drills or other practical training activities.
- h. Reinstatement of disqualified ERO Members – When remedial training is successfully completed the member will be reinstated in their former ERO position.
- i. The goal of the Continuing Training Program is for ERO members to participate in a drill or an exercise on an annual basis per Appendix A. Participation in a drill or exercise as a controller, for the individual's ERO position, can provide credit for drill participation. Individuals, who have been unable to participate in a drill or exercise, may satisfy this requirement through participation in evaluated tabletops and/or mini-drills.

**DETAILS:**

1. Each ERO position may have prerequisite training, experience or qualification that an individual should meet, unless exempted by the EP Manager, prior to assignment to the ERO position.
2. Initial ERO training provides the necessary instruction to ERO personnel as it relates to their assigned ERO position. This instruction will familiarize the employee with locations, processes, equipment and procedures used when responding in an emergency.
3. Where applicable, coordination of training for ERO tasks contained in other training programs is the responsibility of the training group for that program.
4. Initial training should be completed as soon as possible with the expectation that all training is completed within 6 months.
5. Plant Access Training (PAT) is required for all ERO members except those excluded by site policies and procedures.
6. SAF-VCBT-EPLAN-SEC - ERO Security Events/B.5.b training must be provided on an annual basis to all ERO members. (NRC commitment LO-WTVTY-2006-0001 CA296)

**7. TRAINING FOR OFFSITE RESPONSE ORGANIZATIONS**

- a. Site specific emergency response training will be offered annually to offsite emergency organizations identified in the Vermont Yankee Permanently Defueled Emergency Plan that may be called upon to provide assistance in the event of an emergency.
- b. A radiological orientation training program is made available annually to local services personnel identified in the Vermont Yankee Permanently Defueled Emergency Plan and who are not expected to respond to the site; e.g., local emergency management services, local law enforcement personnel.
- c. Emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.

**NOTES:**

PROGRAM COURSE SUMMARY		
ERO POSITION TITLE	CURRICULUM	FREQ.
EMERGENCY DIRECTOR (SHIFT MANAGER/CERTIFIED FUEL HANDLER)	TO BE DETERMINED	
Sub-curriculum:	F-TECH-GET-PAT	I and R1
	F-TECH-GET-RWT	I and R1
	V-OPS-SAFS-CFH	I
Site Specific Items:	SAFOPS00900, VY Emergency Plan	I and R1
	SAF-VCBT-EP-DOSEASSESS, Dose Assessment	I and R1
	SAF-VYRR-EP-PROCEDURES	I
	SAF-VLP-OPS-B5B-TRA, SAG AP-10090 (B.5.b) Walkthrough	I and R1
	SAFOPS01624, SAG (Or Equivalent – To Be Determined), Severe Accident Guidelines	I and R3
	SAF-VCBT-EP-NOTIFY, Event Notification	I
	SAF-EPL14076, ERO Notification System Training for the Control Room	I and R1
	SAF-EPL14002, Control Room Communicator	I and R1
	SAF-VCBT-EPLAN-SEC, ERO Security Events	I and R1
	SAF-EPL##### (To Be Determined), Drill/Exercise/Tabletop Participation –Emergency Director	I and R1
	SAF-VCBT-EP-RESP Entergy Nuclear Emergency Response Organization (ERO) Responsibilities	I and R1
	SAF-VCBT-EP-CLASSIFY, Classify	I
	SAF-VCBT-EP-ERORoles, ERO Overview Roles & Responsibilities	I
	SAF-VCBT-EP-MEDICAL, Emergency Medical Response	I and R1
	SAF-VCBT-EP-ICSNIMS, National Incident Management System (NIMS)	I
	SAF-VCBT-EP-ORIENT, EP Orientation Training	I
	SAF-VCBT-EP-ONSITEPA, Onsite Protective Actions	I and R2
	SAF-VCBT-EP-RECOVERY, Termination & Recovery	I
	SAF-VCBT-EP-MANAGE, Management of Emergencies	I and R2
	SAF-VCBT-EP-RADEXP, Radiological Exposure Control	I and R1
	SAF-VCBT-EP-SECURITYEVENT, Security Events	I and R1

PROGRAM COURSE SUMMARY		
ERO POSITION TITLE	CURRICULUM	FREQ.
TECHNICAL COORDINATOR	TO BE DETERMINED	
Sub-curriculum:	F-TECH-GET-PAT	I and R1
	F-TECH-GET-RWT	I and R1
Site Specific Items:	SAFOPS00900, VY Emergency Plan	I and R1
	SAF-VCBT-EP-DOSEASSESS, Dose Assessment	I and R1
	SAF-VYRR-EP-PROCEDURES	I
	SAFOPS01624, SAG (Or Equivalent – To Be Determined)	I and R3
	SAF-VCBT-EP-NOTIFY, Event Notification	I
	SAF-VCBT-EPLAN-SEC, ERO Security Events	I and R1
	SAF-EPL##### (To Be Determined), Drill/Exercise/Tabletop Participation – Technical Coordinator	I and R1
	SAF-VCBT-EP-RESP, Entergy Nuclear Emergency Response Organization (ERO) Responsibilities	I and R1
	SAF-VCBT-EP-CLASSIFY, Classify	I
	SAF-VCBT-EP-ORIENT, EP Orientation Training	I
	SAF-VCBT-EP-ERORoles, ERO Overview Roles & Responsibilities	I
	SAF-VCBT-EP-ONSITEPA, Onsite Protective Actions	I and R2

ERO POSITION TITLE	CURRICULUM	FREQ.
<b>RADIATION PROTECTION COORDINATOR</b>	<b>TO BE DETERMINED</b>	
Sub-curriculum:	<b>F-TECH-GET-PAT</b>	I and R1
	<b>F-TECH-GET-RWT</b>	I and R1
Site Specific Items:	<b>SAFOPS00900, VY Emergency Plan</b>	I and R1
	<b>SAF-VYRR-EP-PROCEDURES</b>	I
	<b>SAF-VCBT-EP-NOTIFY, Event Notification</b>	I
	<b>SAF-VCBT-EPLAN-SEC, ERO Security Events</b>	I and R1
	<b>SAF-EPL##### (To Be Determined), Drill/Exercise/Tabletop Participation – Radiation Protection Coordinator</b>	I and R1
	<b>SAF-VCBT-EP-CLASSIFY, Classify</b>	I
	<b>SAF-VCBT-EP-ORIENT, EP Orientation Training</b>	I
	<b>SAF-VCBT-EP-EROROLES, ERO Overview Roles &amp; Responsibilities</b>	I
	<b>SAF-VCBT-EP-ONSITEPA, Onsite Protective Actions</b>	I and R2
	<b>SAF-VCBT-EP-RECOVERY, Termination &amp; Recovery</b>	I
	<b>SAF-VCBT-EP-DOSEASSESS, Dose Assessment</b>	I and R1
	<b>SAF-VCBT-EP-RADEXP, Radiological Exposure Control</b>	I and R1
	<b>SAF-VCBT-EP-MEDICAL, Emergency Medical Response</b>	I and R1
	<b>SAF-VCBT-EP-RESP, Entergy Nuclear Emergency Response Organization (ERO) Responsibilities</b>	I and R1

OTHER TRAINING PROGRAMS:		
POSITION TITLE	CURRICULUM	FREQ.
<b>RADIATION PROTECTION TECHNICIAN</b>	<b>TO BE DETERMINED</b>	
Sub-curricula	F-TECH-GET-PAT	I and R1
	F-TECH-GET-RWT	I and R1
Site Specific Items:	SAF-EPL-14-029, Emergency Plan Overview / Dose Projection	I and R1
	SAF-VQC-RP-ERSAMPLE, PERFORM POTENTIAL RAD ENVIRONMENTAL RELEASE SAMPLES	I and R1
	SAF-VLP-EP-#### (To Be Determined), Initial Training Site Boundary Monitoring Teams	I
	SAF-VCBT-EPLAN-SEC, ERO Security Events	I and R1
	SAF-VCBT-EP-ORIENT, EP Orientation Training	I
	SAF-VCBT-EP-ERORoles, ERO Overview Roles & Responsibilities	I
	SAF-VCBT-EP-MEDICAL, Emergency Medical Response	I
	SAF-VCBT-EP-RADEXP, Radiological Exposure Controls	I and R1
	SAF-VCBT-EP-RESP, Entergy Nuclear Emergency Response Organization (ERO) Responsibilities	I and R1
<b>NON-CERTIFIED OPERATOR</b>	<b>TO BE DETERMINED</b>	
Sub-curriculum:	F-TECH-GET-PAT	I and R1
	F-TECH-GET-RWT	I and R1
	V-OPS-SAFS-NCO	I
Site Specific Items:	SAF-VCBT-EP-ORIENT, EP Orientation Training	I
	SAF-VCBT-EP-ERORoles, ERO Overview Roles & Responsibilities	I
	SAF-VCBT-EP-SECURITYEVENT, Security Events	I
	SAF-VCBT-EP-ICSNIMS, National Incident Management System (NIMS)	I
	SAF-VLP-OPS-B5B-TRA, SAG AP-10090 (B.5.b) Walkthrough	I and R1
	SAFOPS01624, SAG (Or Equivalent – To Be Determined) Severe Accident Guidelines	I and R1
	SAF-VCBT-EPLAN-SEC, ERO Security Events	I and R1
	SAF-VCBT-EP-RESP, Entergy Nuclear Emergency Response Organization (ERO) Responsibilities	I and R1

MISC TRAINING			
POSITION	PERSONNEL	DESCRIPTION	FREQ.
Exercise or Drill Controller/Evaluator	Preferred Incumbent of an ERO position evaluates that position	FCBT-EP-CONEVAL, Emergency Planning Controller and Evaluator	I and R1
Emergency Planning Department Training	Emergency Planning Department Personnel & Contractors as determined by Emergency Planning Manager	V-FAM-EP-JFG1	I
		V-RR-EP-JFG	R1
OFF-SITE TRAINING			
Security Support	Contracted Security	Emergency Planning to ensure that security team is briefed prior to assuming security duties	I
On Site Responding Ambulance	Rescue Inc. EMT	Per Emergency Plan (Letter of Agreement)	R1**
On Site Responding Fire Department	Vernon Town FD Brattleboro FD	Per Emergency Plan (Letter of Agreement)	R1**
Hospital: BMH	ER physicians and nurses, Nuclear Medicine & Radiology, Facilities, Security and Engineering Staff	VT - Per Emergency Plan (Letter of Agreement)	R1**
Local Law Enforcement Agencies	Local Law Enforcement Agencies		R1

**PROCESS FOR THE COMPLETION OF THE QUALIFICATION CARDS**

1. The Emergency Planning Department Qualification Card and Continuing Training Card details the qualification requirements which are provided in Appendix A of the SAFSTOR ETPD.
2. The individual student will sign and date the Qualification card/Continuing Training card next to his/her name and sign and date all of the qualification requirements.
3. The Emergency Planning Manager, or designee, will certify the qualification card by signature and date.
4. The approved qualification card will be returned to the Training Superintendent. The Training Superintendent will ensure that all requirements are met and the information is recorded into the Learning Management System (LMS).
5. The original of the qualification card will be stored in the Electronic Data Management System (EDMS).

EMERGENCY PLANNING

QUALIFICATION CARD

V-FAM-EP-JFG1

STUDENT NAME

STUDENT SIGNATURE

Title	Student Signature / Date
V-EN-EP-305 Attachment 9.3 Emergency Planning 10CFR50.54(q) Training Documentation (Attach completed V-EN-EP-305, Attachment 9.3)	
Review of E-Plan Fleet Procedures	
Review of FEMA EP Regulations & REP. 10, 14, 15	

V-FAM-EP-JFG1, Emergency Plan Manager review and signature

RETURN QUALIFICATION CARD TO TRAINING SUPERINTENDENT

Entered into LMS

Signature:

Date:

**EMERGENCY PLANNING  
CONTINUING TRAINING**

STUDENT NAME \_\_\_\_\_

STUDENT SIGNATURE \_\_\_\_\_

<b><u>Title</u></b>	<b><u>Student Signature / Date</u></b>
Review VY Emergency Plan Changes	_____/_____
Review VY Emergency Plan Implementing Procedure Changes	_____/_____
Review New NRC Emergency Planning RIS	_____/_____
Review Emergency Plan Fleet Procedure Changes	_____/_____
Review Operating Experience applicable to E-Plan	_____/_____
Review NEI Emergency Planning Document Changes	_____/_____

V-RR-EP-JFGXX (where XX is the current year), Emergency Plan Manager review and signature	_____/_____
--	-------------

**RETURN CONTINUING TRAINING CARD TO TRAINING SUPERINTENDENT**

Entered into LMS    Signature: \_\_\_\_\_    Date: \_\_\_\_\_

## **APPENDIX Z**

### **E-PLAN COMMON DOCUMENT & PROCEDURE REVIEW RECORD**

#### **Purpose**

The purpose of the E-Plan Common Document & Procedure Review Record Form is to serve as an administrative tool to document the review of common documents & procedures determined to be essential to the successful performance of Emergency Response Organization (ERO) job functions.

The intent of this review is not for the student to become an expert on the documentation being reviewed. The expectation is that the student will become familiar with the responsibilities and processes as they apply to their ERO position.

#### **Responsibilities**

##### **A. Student**

1. The Student is responsible for reviewing all applicable documents and procedures as outlined in the E-Plan Common Document & Procedure Review Record Form.
2. It is the Student's responsibility to ensure that their individual E-Plan Common Document & Procedure Review Record Form is updated as the specific document and procedure reviews are completed.
3. Once all applicable documents and procedures have been reviewed, the Student will sign the E-Plan Common Document & Procedure Review Record Form.
4. When all procedures have been documented as reviewed, the Student will route the E-Plan Common Document & Procedure Review Record Form to the Cognizant Department Supervisor for review.

**APPENDIX Z**  
**E-PLAN COMMON DOCUMENT & PROCEDURE REVIEW RECORD**

**B. Cognizant Department Supervisor**

1. Overall responsibility for the Student's review of the E-Plan Common Document & Procedure Review Record Form lies with the Cognizant Department Supervisor.
2. It is the Cognizant Department Supervisor's responsibility to use whatever oversight as necessary to ensure that Student has completed the document and procedure reviews required by this appendix within the allotted time frame.
3. Upon satisfactory completion of the document and procedure reviews, the Cognizant Department Supervisor will sign the completed E-Plan Common Document & Procedure Review Record Form.
  - a. Make a copy of the completed document for their records.
  - b. Forward the original to the Training Superintendent.

**C. Emergency Planning Manager**

1. Will ensure that an E-Plan Common Document & Procedure Review Record Form is initiated and provided to an ERO member when selected for their ERO position.
2. Upon receipt of the completed E-Plan Common Document & Procedure Review Record Form, the Training Superintendent will enter item code SAF-VYRR-EP-PROCEDURES into the Learning Management System.

**Applicability**

Initiation of an Appendix Z for new ERO members must be accomplished when the ERO member is selected for an ERO position and must be completed by ERO member prior to being assigned to the EAPL / Duty Roster.

**APPENDIX Z**  
**E-PLAN COMMON DOCUMENT & PROCEDURE REVIEW RECORD**

<hr/> <b>Student Name</b>		<hr/> <b>Student ID login</b>	
<b>Common Emergency Planning Documents/Procedures</b>			
<b>Document / Procedure ID</b>	<b>Document/Procedure Title</b>	<b>Student Initials</b>	<b>Date Completed</b>
V-EN-PL-108	Emergency Management Policy		
V-EN-PL-147	Personnel Expectations Related to Emergency Response to Entergy Nuclear Sites		
V-EN-EP-308	Emergency Planning Critiques		
V-EN-EP-310	Emergency Response Organization Notification		
V-EN-EP-801	Emergency Response Organization		
AP 3554	Emergency Plan Teams		
VY EPLAN	Vermont Yankee Permanently Defueled Emergency Plan		

**APPENDIX Z**  
**E-PLAN COMMON DOCUMENT & PROCEDURE REVIEW RECORD**

**ERO Position Specific Documents/Procedures**

<b>Document/ Procedure ID</b>	<b>Document/Procedure Title</b>	<b>Student Initials</b>	<b>Date Completed</b>

**Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**APPENDIX Z**  
**E-PLAN COMMON DOCUMENT & PROCEDURE REVIEW RECORD**

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**Student Concurrence**

*I have reviewed all documents and procedures indicated on this appendix.*

---

**Signature**

**Date**

---

**Cognizant Department Supervisor's Review**

*I have reviewed the progress of this student and concur that all documents have been reviewed to my satisfaction.*

---

**Signature**

**Date**

---

**Training Superintendent Validation**

*The Common Document and Procedure review has been completed by the student. This student is qualified to receive an activity code of SAF-VYRR-EP-PROCEDURES, and it has been entered in the Learning Management System.*

---

**Signature**

**Date**

---

Attachment 5

Vermont Yankee Nuclear Power Station

Letters of Agreement

**LETTER OF AGREEMENT  
BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND THE STATE OF  
VERMONT**

**I. PURPOSE**

The purpose of this Letter of Agreement is to establish conditions regarding emergency planning notification and emergency response activities should an event at the plant require Emergency Plan activation, which include those events resulting from hostile actions. This LOA will take effect when the Permanently Defueled Emergency Plan (PDEP) is implemented.

**II. DEFINITIONS**

Control Room – Control Room is the location where VY personnel assess plant conditions, evaluate the magnitude and potential consequences of abnormal conditions, initiate preventative, mitigating and corrective actions and perform notifications. The Control Room is the onsite center for emergency command and control.

InForm – A communication system for initial notification to the State of an incident at the Licensee.

Emergency Director – A member of the Vermont Yankee Emergency Response Organization (ERO) who is responsible for initiating emergency actions to limit the consequences of the incident and to bring the plant into a stable condition and planning recovery actions.

State – The State of Vermont.

Licensee – Vermont Yankee Nuclear Power Station located in Vernon, Vermont.

Nuclear Alert System (NAS) – A communication system available for notification to the State of an incident at the Licensee and the back up means of communication between the State and Licensee for exchange of information during the period of the incident. The State also uses the NAS to coordinate protective actions and other issues during drills, exercises, and actual incidents.

### III. AGREEMENT

The State and Licensee agree to the following:

Initial Notification:

- A. It is the Licensee's duty and obligation to notify the State Warning Point(s) (SWPs) as soon as possible but no later than 60 minutes after the event has been classified as either an Unusual Event or Alert. The initial notification shall be made, as specified in the Licensee and State plans, by the Licensee using the InForm Notification System. The Nuclear Alert System (NAS) and commercial telephone communications will be used as the back-up means. Subsequent additional information will be provided to the State via updates made by the Licensee using the InForm Notification System, NAS or commercial telephone communications until such time that the emergency condition has been terminated. (More expedient notifications will be made for Initial Notification of selected security events as determined by the Licensee).
- B. The Licensee will notify the State Warning Point(s) as soon as possible but no later than 60 minutes after an Unusual Event emergency condition has been observed but immediately terminated. Notification shall be made, as specified in the Licensee and State plans, using the systems identified in Item III.A above.
- C. The Licensee agrees to notify the SWPs and/or State Emergency Operations Center (EOC) as soon as possible but no later than 60 minutes after a decision has been reached by the Licensee on a change in classification.
- D. The State agrees that the Licensee may terminate an Unusual Event emergency without obtaining State concurrence. However, it is the Licensee's obligation to notify the State Warning Point(s) when it terminates the Unusual Event.
- E. De-escalation from an Alert to the recovery phase or termination of the emergency will not be made without the concurrence of responsible State officials.
- F. The State agrees to inform the Licensee of any protective actions it chooses to implement.
- G. The Licensee and State agree to exchange and coordinate in the maintenance, updating, and exercise of both Licensee and State Emergency Plan and Emergency Procedure changes that pertain to those

## LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

elements of interface prior to implementing the change. The Licensee and State will discuss and coordinate the effective date of these changes so as not to render either Emergency Plan ineffective or unworkable.

- H. The Licensee and the State agree to exchange in a timely manner all information known and available for emergency decision making, regarding plant conditions, plant radiological releases, off-site radiological impact and other plant technical data.
- I. The Vermont Yankee Emergency Director will be the point of contact for State representatives. Responsibilities of the State and Licensee personnel will be as outlined in their respective Emergency Plans.
- J. To maintain public confidence and to avoid public apprehension, information regarding an emergency declaration shall be released to the public as soon as possible and in a coordinated manner through the state Public Information Officer (PIO).
- K. The State Health Department recognizes that the Licensee uses an acceptable dose assessment methodology.
- L. In the event of a radiological emergency requiring offsite response or monitoring, the Licensee agrees to make an Environmental Laboratory (E-Lab) available to the State as close as reasonably possible to the plant for radiochemical processing of all types of environmental media sampled.
- M. An Alert shall be deemed to have terminated when, in the agreement of both the State and Licensee, there is no longer a need for either consideration of protective action or surveillance related to off-site protective action. Close out of the emergency classification shall be as outlined in respective Emergency Plans.
- N. The Licensee shall notify the State as soon as possible but no later than 60 minutes of any plant event that does not constitute an emergency classification but is significant enough to have the Licensee notify the NRC or issue a news release. This includes issues involving Law Enforcement, EMS or Fire Department resources.
- O. This agreement may be amended by subsequent agreement between the State and the Licensee.
- P. This agreement reflects the Licensee's current obligations to the State under the current statutory, regulatory, and NRC license requirements with which the Licensee must comply ("Legal Requirements"), as well as the current NRC-approved VY Emergency Plan. In the event there is (1) a change to the Licensee's Legal Requirements; or (2) a revision to the VY

## LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

Emergency Plan, the State and Licensee agree to engage in good faith negotiations to amend or terminate this agreement, as appropriate, to reflect the changed Legal Requirements and/or revisions to the VY Emergency Plan. If the State and Licensee are unable to negotiate a mutually-acceptable amended agreement, to the extent that the Licensee's obligations under this agreement exceed or differ from the changed Legal Requirements, the State agrees that the Licensee is only obligated to comply with the applicable Legal Requirements.

- Q. This agreement shall be effective upon implementation of the Permanently Defueled Emergency Plan. This agreement shall remain in effect until and unless it is renegotiated or replaced in accordance with paragraph III P.
- R. It is agreed that the Memorandum of Understanding (MOU) Between Vermont Yankee Nuclear Power Station (VYNPS) and the States of Vermont, Massachusetts and New Hampshire Regarding the Alert and Notification System (ANS) will no longer be in effect with the implementation of the Permanently Defueled Emergency Plan.
- S. It is agreed that the Agreement for the Operation of a NOAA Weather Radio Transmitter By Vermont Yankee Nuclear Power Station, Vernon, VT will no longer be in effect with the implementation of the Permanently Defueled Emergency Plan.

LETTER OF AGREEMENT FOR THE PERMENANTLY DEFUELED EMERGENCY PLAN

**LETTER OF AGREEMENT  
BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND THE STATE OF  
VERMONT**

---

DIRECTOR

Vermont Division of Emergency Management and Homeland Security

DATE

---

VERMONT YANKEE NUCLEAR POWER STATION

DATE

**LETTER OF AGREEMENT  
BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND THE STATE OF NEW HAMPSHIRE**

**I. PURPOSE**

The purpose of this Letter of Agreement is to establish conditions regarding emergency planning notification and emergency response activities should an event at the plant require Emergency Plan activation, which include those events resulting from hostile actions.

**II. DEFINITIONS**

Control Room – Control Room is the location where VY personnel assess plant conditions, evaluate the magnitude and potential consequences of abnormal conditions, initiate preventative, mitigating and corrective actions and perform notifications. The Control Room is the onsite center for emergency command and control.

InForm – A communication system for initial notification to the State of an incident at the Licensee.

Emergency Director – A member of the Vermont Yankee Emergency Response Organization (ERO) who is responsible for initiating emergency actions to limit the consequences of the incident and to bring the plant into a stable condition and planning recovery actions.

State – The State of New Hampshire.

Licensee – Vermont Yankee Nuclear Power Station located in Vernon, Vermont.

Nuclear Alert System (NAS) – A communication system available for notification to the State of an incident at the Licensee and the backup means of communication between the State and Licensee for exchange of information during the period of the incident. The State also uses the NAS to coordinate protective actions and other issues during drills, exercises, and actual incidents.

### III. AGREEMENT

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Initial Notification:

- A. It is the Licensee's duty and obligation to notify the State Warning Point(s) (SWPs) as soon as possible but no later than 60 minutes after the event has been classified as either an Unusual Event or Alert. The initial notification shall be made, as specified in the Licensee and State plans, by the Licensee using the InForm Notification System. The Nuclear Alert System (NAS) and commercial telephone communications will be used as the backup means. Subsequent additional information will be provided to the State via updates made by the Licensee using the InForm Notification System, NAS or commercial telephone communications until such time that the emergency condition has been terminated. (More expedient notifications will be made for Initial Notification of selected security events as determined by the Licensee).
- B. The Licensee will notify the State Warning Point(s) as soon as possible but no later than 60 minutes after an Unusual Event emergency condition has been observed but immediately terminated. Notification shall be made, as specified in the Licensee and State plans, using the systems identified in Item III.A above.
- C. The Licensee agrees to notify the SWPs and/or State Emergency Operations Center (EOC) as soon as possible but no later than 60 minutes after a decision has been reached by the Licensee on a change in classification.
- D. The State agrees that the Licensee may terminate an Unusual Event emergency without obtaining State concurrence. However, it is the Licensee's obligation to notify the State Warning Point(s) when it terminates the Unusual Event.
- E. De-escalation from an Alert to the recovery phase or termination of the emergency will not be made without the concurrence of responsible State officials.
- F. The State agrees to inform the Licensee of any protective actions it chooses to implement.
- G. The Licensee and State agree to exchange and coordinate in the maintenance, updating, and exercise of both Licensee and State Emergency Plan and Emergency Procedure changes that pertain to those

elements of interface prior to implementing the change. The Licensee and State will discuss and coordinate the effective date of these changes so as not to render either Emergency Plan ineffective or unworkable.

- H. The Licensee and the State agree to exchange all information known and available for emergency decision making, regarding plant conditions, plant radiological releases, off-site radiological impact and other plant technical data.
- I. The Vermont Yankee Emergency Director will be the point of contact for State representatives. Responsibilities of the State and Licensee personnel will be as outlined in their respective Emergency Plans.
- J. To maintain public confidence and to avoid public apprehension, information regarding an emergency declaration shall be released to the public as soon as possible and in a coordinated manner through the state Public Information Officer (PIO).
- K. The State Health Department recognizes that the Licensee uses an acceptable dose assessment methodology.
- L. In the event of a radiological emergency requiring offsite response or monitoring, the Licensee agrees to make an Environmental Laboratory (E-Lab) available to the State as close as reasonably possible to the plant for radiochemical processing of all types of environmental media sampled.
- M. An Alert shall be deemed to have terminated when, in the agreement of both the State and Licensee, there is no longer a need for either consideration of protective action or surveillance related to off-site protective action. Close out of the emergency classification shall be as outlined in respective Emergency Plans.
- N. The Licensee shall notify the State as soon as possible but no later than 60 minutes of any plant event that does not constitute an emergency classification but is significant enough to have the Licensee notify the NRC or issue a news release. This includes issues involving Law Enforcement, EMS or Fire Department resources.
- O. This agreement may be amended by subsequent agreement between the State and the Licensee.
- P. This agreement reflects the Licensee's current obligations to the State under the current statutory, regulatory, and NRC license requirements with which the Licensee must comply ("Legal Requirements"), as well as the current NRC-approved VY Emergency Plan. In the event there is (1) a change to the Licensee's Legal Requirements; or (2) a revision to the VY

Emergency Plan, the State and Licensee agree to engage in good faith negotiations to amend or terminate this agreement, as appropriate, to reflect the changed Legal Requirements and/or revisions to the VY Emergency Plan. If the State and Licensee are unable to negotiate a mutually-acceptable amended agreement, to the extent that the Licensee's obligations under this agreement exceed or differ from the changed Legal Requirements, the State agrees that the Licensee is only obligated to comply with the applicable Legal Requirements.

- Q. This agreement shall be effective upon implementation of the Permanently Defueled Emergency Plan.
- R. It is agreed that the Memorandum of Understanding (MOU) Between Vermont Yankee Nuclear Power Station (VYNPS) and the States of Vermont, Massachusetts and New Hampshire Regarding the Alert and Notification System (ANS) will no longer be in effect with the implementation of the Permanently Defueled Emergency Plan.
- S. It is agreed that the Agreement for the Operation of a NOAA Weather Radio Transmitter by Vermont Yankee Nuclear Power Station, Vernon, VT will no longer be in effect with the implementation of the Permanently Defueled Emergency Plan.

LETTER OF AGREEMENT  
BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND THE STATE OF NEW HAMPSHIRE



\_\_\_\_\_  
DIRECTOR

New Hampshire Division of Homeland Security and Emergency Management  
(NH HSEM)

4/7/2015  
\_\_\_\_\_  
DATE

Cheryl W.  
\_\_\_\_\_  
VERMONT YANKEE NUCLEAR POWER STATION

6/11/15  
\_\_\_\_\_  
DATE

**LETTER OF AGREEMENT  
BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND THE COMMONWEALTH OF  
MASSACHUSETTS**

**I. PURPOSE**

The purpose of this Letter of Agreement is to establish conditions regarding emergency planning notification and emergency response activities should an event at the plant require Emergency Plan activation, which include those events resulting from hostile actions. This LOA will take effect when the Permanently Defueled Emergency Plan (PDEP) is implemented.

**II. DEFINITIONS**

Control Room – Control Room is the location where VY personnel assess plant conditions, evaluate the magnitude and potential consequences of abnormal conditions, initiate preventative, mitigating and corrective actions and perform notifications. The Control Room is the onsite center for emergency command and control.

InForm – A communication system for initial notification to the State of an incident at the Licensee.

Emergency Director – A member of the Vermont Yankee Emergency Response Organization (ERO) who is responsible for initiating emergency actions to limit the consequences of the incident and to bring the plant into a stable condition and planning recovery actions.

State – The Commonwealth of Massachusetts.

Licensee – Vermont Yankee Nuclear Power Station located in Vernon, Vermont.

Nuclear Alert System (NAS) – A communication system available for notification to the State of an incident at the Licensee and the backup means of communication between the State and Licensee for exchange of information during the period of the incident. The State also uses the NAS to coordinate protective actions and other issues during drills, exercises, and actual incidents.

### III. AGREEMENT

The State and Licensee agree to the following:

Initial Notification:

- A. It is the Licensee's duty and obligation to notify the State Warning Point(s) (SWPs) as soon as possible but no later than 60 minutes after the event has been classified as either an Unusual Event or Alert. The initial notification shall be made, as specified in the Licensee and State plans, by the Licensee using the InForm Notification System. The Nuclear Alert System (NAS) and commercial telephone communications will be used as the back-up means. Subsequent additional information will be provided to the State via updates made by the Licensee using the InForm Notification System, NAS or commercial telephone communications until such time that the emergency condition has been terminated. (More expedient notifications will be made for Initial Notification of selected security events as determined by the Licensee).
- B. The Licensee will notify the State Warning Point(s) as soon as possible but no later than 60 minutes after an Unusual Event emergency condition has been observed but immediately terminated. Notification shall be made, as specified in the Licensee and State plans, using the systems identified in Item III.A above.
- C. The Licensee agrees to notify the SWPs and/or State Emergency Operations Center (EOC) as soon as possible but no later than 60 minutes after a decision has been reached by the Licensee on a change in classification.
- D. The State agrees that the Licensee may terminate an Unusual Event emergency without obtaining State concurrence. However, it is the Licensee's obligation to notify the State Warning Point(s) when it terminates the Unusual Event.
- E. De-escalation from an Alert to the recovery phase or termination of the emergency will not be made without the concurrence of responsible State officials.
- F. The State agrees to inform the Licensee of any protective actions it chooses to implement.
- G. The Licensee and State agree to exchange and coordinate in the maintenance, updating, and exercise of both Licensee and State Emergency Plan and Emergency Procedure changes that pertain to those

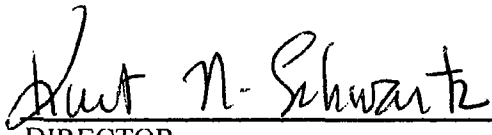
elements of interface prior to implementing the change. The Licensee and State will discuss and coordinate the effective date of these changes so as not to render either Emergency Plan ineffective or unworkable.

- H. The Licensee and the State agree to exchange in a timely manner all information known and available for emergency decision making, regarding plant conditions, plant radiological releases, off-site radiological impact and other plant technical data.
- I. The Vermont Yankee Emergency Director will be the point of contact for State representatives. Responsibilities of the State and Licensee personnel will be as outlined in their respective Emergency Plans.
- J. To maintain public confidence and to avoid public apprehension, information regarding an emergency declaration shall be released to the public as soon as possible and in a coordinated manner through the state Public Information Officer (PIO).
- K. Vermont Yankee will use a dose assessment methodology acceptable to the Department of Public Health Radiation Control Program.
- L. In the event of a radiological emergency requiring offsite response or monitoring, the Licensee agrees to make an Environmental Laboratory (E-Lab) available to the State as close as reasonably possible to the plant for radiochemical processing of all types of environmental media sampled.
- M. An Alert shall be deemed to have terminated when, in the agreement of both the State and Licensee, there is no longer a need for either consideration of protective action or surveillance related to off-site protective action. Close out of the emergency classification shall be as outlined in respective Emergency Plans.
- N. The Licensee shall notify the State as soon as possible but no later than 60 minutes of any plant event that does not constitute an emergency classification but is significant enough to have the Licensee notify the NRC or issue a news release. This includes issues involving Law Enforcement, EMS or Fire Department resources.
- O. This agreement may be amended by subsequent agreement between the State and the Licensee.
- P. This agreement reflects the Licensee's current obligations to the State under the current statutory, regulatory, and NRC license requirements with which the Licensee must comply ("Legal Requirements"), as well as the current NRC-approved VY Emergency Plan. In the event there is (1) a change to the Licensee's Legal Requirements; or (2) a revision to the VY

Emergency Plan, the State and Licensee agree to engage in good faith negotiations to amend or terminate this agreement, as appropriate, to reflect the changed Legal Requirements and/or revisions to the VY Emergency Plan. If the State and Licensee are unable to negotiate a mutually-acceptable amended agreement, to the extent that the Licensee's obligations under this agreement exceed or differ from the changed Legal Requirements, the State agrees that the Licensee is only obligated to comply with the applicable Legal Requirements.

- Q. This agreement shall be effective upon implementation of the Permanently Defueled Emergency Plan. This agreement shall remain in effect until and unless it is renegotiated or replaced in accordance with paragraph III P.
- R. It is agreed that the Memorandum of Understanding (MOU) Between Vermont Yankee Nuclear Power Station (VYNPS) and the States of Vermont, Massachusetts and New Hampshire Regarding the Alert and Notification System (ANS) will no longer be in effect with the implementation of the Permanently Defueled Emergency Plan.
- S. It is agreed that the Agreement for the Operation of a NOAA Weather Radio Transmitter by Vermont Yankee Nuclear Power Station, Vernon, VT will no longer be in effect with the implementation of the Permanently Defueled Emergency Plan.

LETTER OF AGREEMENT  
BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND THE COMMONWEALTH OF  
MASSACHUSETTS

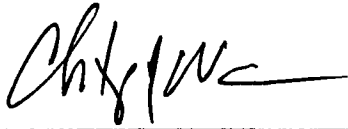


DIRECTOR

Massachusetts Emergency Management Agency  
(MEMA)

6-6-15

DATE



6/11/15

VERMONT YANKEE NUCLEAR POWER STATION

DATE

# LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

LETTER OF AGREEMENT BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND  
BRATTLEBORO MEMORIAL HOSPITAL

## I. PURPOSE

The purpose of this Letter of Agreement is to establish arrangements with Brattleboro Memorial Hospital (hereafter known as Hospital) to accept and render treatment to radiation accident patients from the Vermont Yankee Nuclear Power Station (hereafter known as Utility).

## II. AGREEMENT

The following shall be binding upon the Hospital and the Utility:

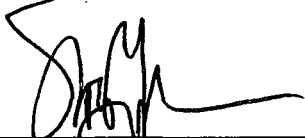
- A. The Hospital and Utility shall cooperate at all times in reviewing and updating procedures for treatment of radiation accident patients.
- B. The Hospital and Utility shall join in coordinated medical drill/ tabletop at a mutually agreed upon frequency. The Hospital and Utility shall coordinate the scheduling of the medical drill/tabletop.
- C. Selected Hospital personnel shall participate in an ongoing training program to meet the needs of the Hospital personnel. Hospital and Utility shall coordinate the scheduling of the training sessions.
- D. It is the Utility's duty and obligation to notify the Hospital (Emergency Room) in a timely manner if radiation accident patients will be transferred to the Hospital for treatment.
- E. The Utility shall provide the Hospital with data outlined in established plant procedures when patients are to be referred to the Hospital.
- F. The Utility shall furnish a person qualified in Health Physics radiological control procedures to accompany or meet the radiation accident patient at the Hospital. This person shall evaluate the radiological situation, then advise and make appropriate recommendations to the senior Hospital staff member in charge.
- G. The Utility shall collect and dispose of all contaminated material and shall decontaminate Hospital areas and supplies, as required. The Utility shall replace all supplies and/or equipment that cannot be adequately decontaminated.
- H. The Utility shall inventory their radiological emergency equipment and supplies. In addition, the Utility shall inventory and replace radiological emergency equipment and/or supplies after each medical drill or actual treatment of radiation patient.
- I. The Utility shall be responsible for initially notifying the next of kin of the incident situation.
- J. The Utility is responsible for the release of information on the incident and condition of the patient while at the plant. The Hospital is responsible for the release of information on the

# LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

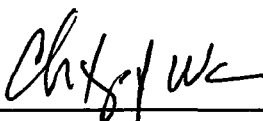
medical status of the patient while at the Hospital within the limits of the patient's right to privacy. Both the Hospital and the Utility, within their respective areas of responsibility for release of information, shall work together in a coordinated manner.

- K. This Letter of Agreement shall be effective upon implementation of the Permanently Defueled Emergency Plan. This Agreement will remain in effect until superseded by another Letter of Agreement or by notification of withdrawal of either party to the remaining party. This Letter of Agreement supersedes all previous agreements between Brattleboro Memorial Hospital and Vermont Yankee Nuclear Power Station.

BRATTLEBORO MEMORIAL  
HOSPITAL

  
\_\_\_\_\_  
4/8/15  
\_\_\_\_\_  
Date

VERMONT YANKEE NUCLEAR  
POWER STATION

  
\_\_\_\_\_  
6/11/15  
\_\_\_\_\_  
Date

# LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

**LETTER OF AGREEMENT  
BETWEEN  
VERMONT YANKEE NUCLEAR POWER STATION  
AND  
RESCUE INC. AMBULANCE SERVICE**

I. PURPOSE

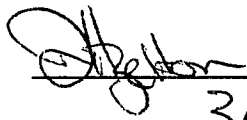
The purpose of this Letter of Agreement is to establish arrangements with Rescue Inc. Ambulance Service, Brattleboro Vermont to provide off-site medical transportation support to Vermont Yankee Nuclear Power Station.

II. AGREEMENT

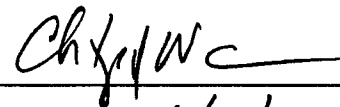
The Rescue, Inc. Ambulance Service and Vermont Yankee agree to the following:

- A. Rescue Inc. will respond to all contingencies involving personal injury at Vermont Yankee Nuclear Power Station, when requested.
- B. Selected Rescue, Inc. personnel shall attend off-site medical support training given at Brattleboro Memorial Hospital as scheduled.
- C. Rescue, Inc. and Vermont Yankee shall participate in scheduled emergency medical drills/table tops involving simulated patients from Vermont Yankee. Details of each drill/table top will be mutually agreed upon.
- D. Vermont Yankee will notify Rescue Inc, of the scheduled training sessions to be held at Brattleboro Memorial Hospital.
- E. Vermont Yankee will provide the facilities and trained personnel to assist in the decontamination of all equipment used by Rescue Inc. when responding to emergencies and/or drills involving radioactive material.
- F. Vermont Yankee agrees to send a person qualified in Health Physics radiological control procedures with the patient to the hospital, when available.
- G. Upon the effective date, this Letter of Agreement will supersede all previous agreements signed between Rescue Inc. and Vermont Yankee Nuclear Power Station.
- H. This Letter of Agreement shall be effective upon implementation of the Permanently Defueled Emergency Plan. This Agreement will remain in effect until superseded by another Letter of Agreement or by notification of withdrawal of either party to the remaining party.

RESCUE, INC.

  
\_\_\_\_\_  
3/24/15  
Date

VERMONT YANKEE NUCLEAR  
POWER STATION

  
\_\_\_\_\_  
6/11/15  
Date

# LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

## LETTER OF AGREEMENT BETWEEN VERMONT YANKEE NUCLEAR POWER STATION AND THE VERNON, VT FIRE DEPARTMENT

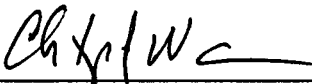
The purpose of this Letter of Agreement is to establish arrangements with the Vernon Fire Department to provide firefighting support to the Vermont Yankee Nuclear Power Station when required, and to establish authorities for firefighting on Vermont Yankee property.

The Vernon Fire Department agrees to provide firefighting manpower and equipment support to the Vermont Yankee Power Station when requested. Vermont Yankee staff will provide escort for the fire department when entering the plant site.

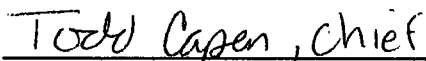
Authorities for firefighting on Vermont Yankee property are established as follows:

1. Vermont Yankee remains primary command authority in the following areas:
  - a. All buildings, structures and areas within, and including, the inner Protected Area boundary fence;
  - b. Security Gate House #2;
2. The Vernon Fire Department is delegated primary command in all other areas on Station property not listed above. The Vernon Fire Department agrees to obtain Station Control Room approval before commencing firefighting operations. For any fire in these areas, Vermont Yankee will assign a minimum of one member of plant Operations to:
  - a. Advise the Vernon Fire Department/Incident Commander regarding conditions and circumstances relevant to the fire such as: plant operational concerns, structure lay-out; combustible material loading; and potential electrical, chemical, radiological or other hazards; and,
  - b. Act as liaison between the Vernon Fire Department/Incident Commander and the Station Control Room in the interests of plant operational and firefighter safety.

This Letter of Agreement shall be effective Upon implementation of the Permanently Defueled Emergency Plan. This Agreement will remain in effect until superseded by another Letter of Agreement or by notification of withdrawal of either party to the remaining party.

  
\_\_\_\_\_  
Vermont Yankee Nuclear Power Station

6/11/15  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Vernon Fire Department

3/25/2015  
\_\_\_\_\_  
Date

# LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

## LETTER OF AGREEMENT BETWEEN ENTERGY NUCLEAR VERMONT YANKEE, LLC AND BRATTLEBORO FIRE DEPARTMENT

### I. PURPOSE

The purpose of this Letter of Agreement is to establish arrangements between Entergy Nuclear Vermont Yankee, LLC (ENVY) and the Brattleboro (VT) Fire Department to provide a ladder truck in support of ENVY's Vermont Yankee Nuclear Power Station (Vermont Yankee).

The Brattleboro Fire Department agrees to provide firefighting personnel and equipment support to the Vermont Yankee Power Station when requested. Vermont Yankee staff will provide escort for the fire department when entering the Protected Area.

### II. AGREEMENT


The Brattleboro Fire Department and ENVY agree to the following:


- A. Upon request from ENVY, the Brattleboro Fire Department will provide a ladder truck with a minimum 100 foot capability and an installed nozzle with a minimum capacity of 750 gpm. The Brattleboro Fire Department will notify ENVY if this commitment cannot be met.
  - a. ENVY agrees to pay for the response time of the ladder truck and all personnel cost, including overtime, per the Town of Brattleboro ordinance Chapter 20.
  - b. ENVY agrees to replace the ladder truck with a new model of the same kind and with the same equipment should it become damaged or contaminated in the course of providing assistance to ENVY as contemplated by this agreement to the point it is no longer usable for the purposes intended as determined by the Brattleboro Fire Department.
  - c. ENVY will retain all risk of property loss or damage at the Vermont Yankee site associated with a fire or other incident requiring Brattleboro Fire Department ladder truck support. ENVY hereby releases the Brattleboro Fire Department, the Town of Brattleboro, its officers, agents, volunteers, employees and contractors from any and all claims for any loss, or damage to ENVY's structures, equipment and other property caused by the Brattleboro Fire Department in the course of providing assistance to Vermont Yankee as contemplated by this agreement. Further, ENVY hereby agrees to indemnify, defend and hold harmless the Town of Brattleboro and the Brattleboro Fire Department, its officers, agents, volunteers, employees and contractors against any and all liability, loss, costs, damages, expenses, claims or actions, including attorney fees associated with third party claims of any persons in relation to any incident in which the Brattleboro Fire Department provides assistance under this agreement, except to the degree that such claims relate to actions taken by the Brattleboro Fire Department outside of ENVY property, and except to the extent arising from the gross negligence or intentional fault of the Brattleboro Fire Department, its agents, employees or contractors.

# LETTER OF AGREEMENT FOR THE PERMANENTLY DEFUELED EMERGENCY PLAN

- B. For any fire inside the Protected Area, Vermont Yankee will assign a minimum of one member of plant Operations to:
- a. Advise the Incident Commander(s) regarding conditions and circumstances relevant to the fire such as: plant operational concerns, structure lay-out; combustible material loading; and potential electrical, chemical, radiological or other hazards; and,
  - b. Act as liaison between the Incident Commander(s) and the Station Control Room in the interests of plant operational and firefighter safety.

This Letter of Agreement shall be effective upon implementation of the Permanently Defueled Emergency Plan. This Agreement will remain in effect until superseded by another Letter of Agreement or by notification of withdrawal of either party to the remaining party.

  
\_\_\_\_\_  
Entergy Nuclear Vermont Yankee, LLC

  
\_\_\_\_\_  
Peter B. Elwell, Town Manager  
For the Brattleboro Fire Department

6/11/15  
Date

6/3/15  
Date

TOWN OF VERNON  
567 GOVERNOR HUNT ROAD  
VERNON, VT 05354

May 7, 2015

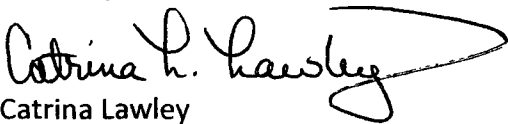
Michael P. McKenney  
Emergency Planning Manager  
Entergy Nuclear Vermont Yankee  
PO Box 250  
185 Old Ferry Road  
Brattleboro, VT 05301

Dear Mr. McKenney,

On May 4, 2015, the Vernon Selectboard approved and authorized the signing of the verification form for the Letter of Agreement making the agreement still valid after the Permanently Defueled Emergency Plan is enacted.

Should you require anything additional, or have any other questions, please do not hesitate to contact me at 802-299-7337.

Sincerely,

A handwritten signature in black ink, appearing to read "Catrina L. Lawley", with a large, sweeping flourish extending to the right.

Catrina Lawley  
Board Secretary

Cc: Christiane Howe, Chair  
Michael Courtemanche, Vice Chair

Letter of Agreement for the  
Permanently Defueled Emergency Plan  
Town of Vernon  
Verification Form

Check one:

X

The Letter of Agreement between Entergy Nuclear Vermont Yankee and my organization will still be valid even after the Permanently Defueled Emergency Plan is implemented (currently scheduled for April of 2016). No changes are necessary.

The Letter of Agreement between Entergy Nuclear Vermont Yankee and my organization requires revision. The necessary changes have been marked on the Letter.

Christine Horne  
Signature

May 4, 2015  
Date

Please return this form and any requested changes to [jatwood@entergy.com](mailto:jatwood@entergy.com) or fax to 802-258-2101 no later than **05/05/2015**.



Entergy Nuclear Northeast  
Vermont Yankee  
P.O. Box 250  
185 Old Ferry Rd  
Brattleboro, VT 05301

April 16, 2015

Town of Vernon  
567 Governor Hunt Rd.  
Vernon, VT 05354

Dear Mrs. Howe:

Letters of Agreement are an integral part of the Vermont Yankee Emergency Plan. Normally these Letters are reviewed annually to ensure continued compliance. Vernon has reviewed and returned this year's verification form for 2015. We are asking to have a review of the Letter of Agreement for its applicability after the Permanently Defueled Emergency Plan is enacted. I have enclosed the current Letter of Agreement between Entergy Nuclear Vermont Yankee and your organization.

Please review the enclosed Letter of Agreement between Entergy Nuclear Vermont Yankee and your organization. After reviewing the Letter, please complete the enclosed verification form. Also note that wording has been added to the form to show that the Letter of Agreement is still valid after the Permanently Defueled Emergency Plan is enacted. Currently the implementation of the Permanently Defueled Emergency Plan is planned for April of 2016.

Thank you for your continued support of the Vermont Yankee Emergency Plan. If you have any questions concerning this please contact me.

Sincerely,

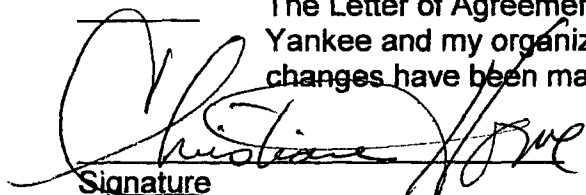
Michael P. McKenney  
Emergency Planning Manager  
Entergy Nuclear Vermont Yankee  
802-258-4183

Letter of Agreement for the  
Permanently Defueled Emergency Plan  
Town of Vernon  
Verification Form

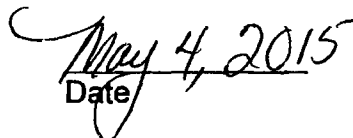
Check one:

☒

The Letter of Agreement between Entergy Nuclear Vermont Yankee and my organization will still be valid even after the Permanently Defueled Emergency Plan is implemented (currently scheduled for April of 2016). No changes are necessary.

  
Signature

The Letter of Agreement between Entergy Nuclear Vermont Yankee and my organization requires revision. The necessary changes have been marked on the Letter.

  
Date

Please return this form and any requested changes to [jatwood@entergy.com](mailto:jatwood@entergy.com) or fax to 802-258-2101 no later than **05/05/2015**.

**McKenney, Michael P**

---

**Subject:** MOU for after VY Implementation PDEP  
**Attachments:** doecopier@bnl.gov\_20150504\_104000.pdf

---

**From:** Parsons, Mark [<mailto:parsons@bnl.gov>]  
**Sent:** Monday, May 04, 2015 12:01 PM  
**To:** Gilmore, Mark E  
**Cc:** McKenney, Michael P; Anderson, Justine  
**Subject:** RE: MOU for after VY Implementation PDEP

Good morning sir,

The U.S. Department of Energy Radiological Assistance Program maintains its ability to respond to radiological events and will do so in the event of an incident involving your facility. Please see attached acknowledgement.

---

Mark Parsons, Regional Response Coordinator  
(CT,DE,MA,MD,ME,NH,NJ,NY,PA,RI,VT)  
U.S. Department of Energy  
National Nuclear Security Administration  
Office of Emergency Response (NA-42)  
Radiological Assistance Program (RAP) Region 1  
53 Bell Avenue  
Upton, NY 11973  
631-344-7978 (Office)  
631-466-1927 (Cell)  
631-344-3065 (Fax)  
631-344-2200 (24 Hour Emergency #)  
[PARSONS@BNL.GOV](mailto:PARSONS@BNL.GOV)

Letter of Agreement  
Department of Energy  
Verification Form

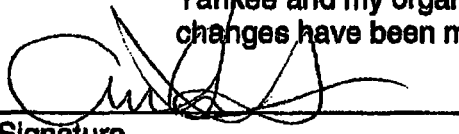
Check one:

X

The Letter of Agreement between Entergy Nuclear Vermont Yankee and my organization is still valid even after the Permanently Defueled Emergency Plan is implemented (currently scheduled for April of 2016). No changes are necessary.

\_\_\_\_\_

The Letter of Agreement between Entergy Nuclear Vermont Yankee and my organization requires revision. The necessary changes have been marked on the Letter.

  
Signature

5.4.2015  
Date

Please return this form and any requested changes to [jatwood@entergy.com](mailto:jatwood@entergy.com) or fax to 802-258-2101 no later than **04/30/2015**.



**Entergy Nuclear Northeast**  
**Vermont Yankee**  
P.O. Box 250  
185 Old Ferry Rd  
Brattleboro, VT 05301

April 7, 2015

Department of Energy  
National Nuclear Security Administration  
Washington, DC 20585

Dear Regional Response Coordinator:

Letters of Agreement are an integral part of the Vermont Yankee Emergency Plan. These Letters are reviewed annually to ensure continued compliance. I have enclosed the current Letter of Agreement between Entergy Nuclear Vermont Yankee and your organization.

Please review the enclosed Letter of Agreement between Entergy Nuclear Vermont Yankee and your organization. After reviewing the Letter, please complete the enclosed verification form. Also note that wording has been added to the form to show that the Letter of Agreement is still valid after the Permanently Defueled Emergency Plan is enacted. Currently the implementation of the Permanently Defueled Emergency Plan is planned for April of 2016.

Thank you for your continued support of the Vermont Yankee Emergency Plan. If you have any questions concerning this please contact me.

Sincerely,

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

Michael P. McKernney  
Emergency Planning Manager  
Entergy Nuclear Vermont Yankee  
802-258-4183



Department of Energy  
National Nuclear Security Administration  
Washington, DC 20585



Mr. Alan Grosjean  
Emergency Programs  
Entergy Nuclear  
Entergy Nuclear Operations, Inc.  
440 Hamilton Avenue  
White Plains, NY 10601-1813

Dear Mr. Grosjean:

**SUBJECT: U.S. DEPARTMENT OF ENERGY (DOE) RADIOLOGICAL ASSISTANCE  
AVAILABILITY FOR VERMONT YANKEE NUCLEAR POWER PLANT**

This letter is in response to a May 14, 2012 request to update a Letter of Agreement between the Vermont Yankee Nuclear Power Plant and Region 1 of the DOE/National Nuclear Security Administration (NNSA) Radiological Assistance Program (RAP). This letter supercedes all previous such letters between our organizations.

In accordance with the National Response Framework Nuclear/Radiological Incident Annex, the DOE will field teams in response to nuclear/radiological accidents and incidents. RAP team response is delineated in the current version of the DOE/NNSA Radiological Assistance Program Region 1, Response Plan dated July 2008, which should be on file at your office. If you are unable to locate your copy, please let us know and an electronic PDF version will be provided to you.

The Response Plan sets forth the procedure for obtaining radiological assistance and conditions pertaining to the scope that DOE will provide in support of your facility. Prior to dispatch of radiological assistance, we will consult with the Nuclear Regulatory Commission (NRC) and the appropriate state authorities to ensure that they are informed of the request and that there are not any duplication of efforts. The type and duration of radiological assistance provided will depend on the severity of the incident and will be limited to advice and emergency actions essential for the control of immediate hazards to health and safety. Please recognize that RAP Region 1 also has the responsibility to coordinate requests for additional DOE/NNSA Emergency Response Assets, should the situation warrant.

If you have any questions or require additional information, please contact me at (631) 344-7978.

Sincerely,  


Mark Parsons  
Regional Response Coordinator  
RAP Region 1

cc: M. Gilmore, Entergy Nuclear



Printed with soy ink on recycled paper



## Department of Energy

ORNL Site Office  
P.O. Box 2008  
Oak Ridge, Tennessee 37831-6269

April 14, 2015

Mr. Michael P. McKenney  
Emergency Planning Manager  
Entergy Nuclear Vermont Yankee  
185 Old Ferry Road  
Brattleboro, Vermont 05301

Dear Mr. McKenney:

### **LETTER OF AGREEMENT - RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TS) SUPPORT**

Please reference your letter dated April 7, 2015, requesting that the Department of Energy (DOE) REAC/TS facilities and team continue to be available to provide backup capability and assistance to the Entergy Nuclear Northeast's nuclear facilities in the event of a radiological emergency. This response constitutes our agreement to provide this service upon your request. The agreement remains in effect until terminated in writing by either party.

We wish to remind you that our REAC/TS facilities in the Oak Ridge Institute for Science and Education (ORISE) are government controlled and operated by the Oak Ridge Associated Universities under contract with DOE. Therefore, REAC/TS is prohibited from competing with commercial firms that can provide radiological emergency services. Only if the magnitude or uniqueness of a radiological emergency exceeds your in-house and commercially available capabilities would REAC/TS be authorized to provide backup services.

Since these facilities are government controlled, no fee or retainer is required to assure the availability of backup services by REAC/TS. However, if you utilize the services of REAC/TS, we should expect to recover those costs that could reasonably be related to handling such an incident, including all charges billed to DOE or ORISE by hospitals and physicians. Information concerning the REAC/TS facilities, staff, services available, and procedures for seeking REAC/TS assistance can be obtained by direct contact with the REAC/TS Director, Dr. Albert Wiley, ORISE, Post Office Box 117, Oak Ridge, Tennessee 37831, or telephone number (865) 576-3131.

Sincerely,

A handwritten signature in cursive script, reading "M. G. Branton".

Michele G. Branton  
Contracting Officer's Representative

cc:

Matthew P. Albert, ORISE  
Albert L. Wiley, ORISE



**Entergy Nuclear Northeast**  
**Vermont Yankee**  
P.O. Box 250  
185 Old Ferry Rd  
Brattleboro, VT 05301

April 7, 2015

Department of Energy  
Oak Ridge Office  
P.O. Box 2001  
Oak Ridge, TN 37831

To Whom It May Concern::

Letters of Agreement are an integral part of the Vermont Yankee Emergency Plan. These Letters are reviewed annually to ensure continued compliance. I have enclosed the current Letter of Agreement between Entergy Nuclear Vermont Yankee and your organization.

Please review the enclosed Letter of Agreement between Entergy Nuclear Vermont Yankee and your organization. After reviewing the Letter, please complete the enclosed verification form. Also note that wording has been added to the form to show that the Letter of Agreement is still valid after the Permanently Defueled Emergency Plan is enacted. Currently the implementation of the Permanently Defueled Emergency Plan is planned for April of 2016.

Thank you for your continued support of the Vermont Yankee Emergency Plan. If you have any questions concerning this please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael P. McKenney".

Michael P. McKenney  
Emergency Planning Manager  
Entergy Nuclear Vermont Yankee  
802-258-4183



## Department of Energy

ORNL Site Office  
P.O. Box 2008  
Oak Ridge, Tennessee 37831-6269

June 6, 2013

Mr. Michael P. McKenney  
Emergency Planning Manager  
Entergy Nuclear Vermont Yankee  
185 Old Ferry Road  
Brattleboro, Vermont 05301

Dear Mr. McKenney:

### **LETTER OF AGREEMENT – RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TS) SUPPORT**

Please reference your letter of May 1, 2013, requesting that the Department of Energy (DOE) REAC/TS facilities and team continue to be available to provide back-up capability and assistance to the Entergy Nuclear Northeast's nuclear facilities in the event of a radiological emergency. This response constitutes our agreement to provide this service upon your request. The agreement remains in effect until terminated in writing by either party.

We wish to remind you that our REAC/TS facilities in the Oak Ridge Institute for Science and Education (ORISE) are government controlled and operated by the Oak Ridge Associated Universities under contract with DOE. Therefore, REAC/TS is prohibited from competing with commercial firms that can provide radiological emergency services. Only if the magnitude or uniqueness of a radiological emergency exceeds your in-house and commercially available capabilities would REAC/TS be authorized to provide back-up services.

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Sincerely,

A handwritten signature in cursive script, reading "M. G. Branton".

Michele G. Branton  
Contracting Officer's Representative