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BVY 15-009

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

February 5, 2015

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 2 (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, Entergy Nuclear Operations, Inc. to USNRC, "Certifications of Permanent Cessation of Power Operations and Permanent Removal of Fuel from the Reactor Vessel," BVY 15-001, dated January 12, 2015 (ML15013A426)

3. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR 50, Appendix E," BVY 14-009, dated March 14, 2014 (ML14080A141) (TAC No. MF3614)

4. 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)

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 to reflect the permanently defueled condition of VY (Reference 2), and implements the emergency planning exemptions, if granted by the NRC, as requested in a letter dated March 14, 2014 (Reference 3).

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NRR

By letter dated October 20, 2014 (Reference 4), the NRC provided VY with specific questions in a Request for Additional Information (RAI) regarding the proposed changes to the SEP and EAL scheme. Attachment 1 of this letter provides the response to the RAI. Attachments 2 and 3 of this letter provide the revised Permanently Defueled Emergency Plan and Permanently Defueled EAL Technical Bases with the proposed changes shown in strikethrough and underline format to reflect the RAI response, respectively.

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.

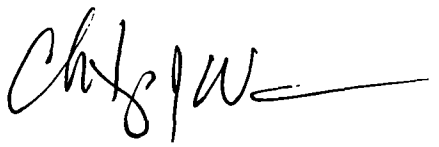
Attachment 4 of this letter contains new regulatory commitments.

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

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

Executed on February 5, 2015.

Sincerely,



CJW/plc

Attachments:
1. Response to Request for Additional Information
2. Permanently Defueled Emergency Plan, Revision 0
3. Permanently Defueled Emergency Action Level Technical Bases, Revision 0
4. List of Regulatory Commitments

cc list next page

cc: Mr. Daniel H. Dorman, Regional Administrator, Region 1
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Mr. Christopher Recchia, Commissioner
Vermont Department of Public Service
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Montpelier, Vermont 05620-2601

Attachment 1

Vermont Yankee Nuclear Power Station

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 NO. 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-01

Please provide a section cross-reference between the Vermont Yankee Nuclear Power Station (VY) PDEP and NUREG-0654/FEMA-REP-1 to assist the U.S. Nuclear Regulatory Commission (NRC) staff in verifying that applicable evaluation criteria are consistent with proposed exemptions.

Response

The following table provides a cross-reference of NUREG-0654/FEMA-REP-1, as well as the 10 CFR 50.47(b) Planning Standards, Appendix E.IV Planning Requirements to the applicable VY PDEP sections.

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

NUREG-0654, Section II Evaluation Criteria	Planning Standard (10 CFR 50.47)**	Planning Requirement (Appendix E.IV)**	VY PDEP Section
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
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

NUREG-0654, Section II Evaluation Criteria	Planning Standard (10 CFR 50.47)**	Planning Requirement (Appendix E.IV)**	VY PDEP Section
P	(b)(16)	G	Table of Contents 12.0 Appendix E

** as exempted

The above table has been added to the Permanently Defueled Emergency Plan (PDEP) as Appendix F. Attachment 2 of this response provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the addition of the above table as Appendix F.

VY-RAI-02

Section 1.0, "Introduction" of the PDEP inaccurately states, "The analysis of the potential radiological impact of an accident in a permanently defueled condition indicates that *any* [italics added] releases beyond the Site Boundary are below the Environmental Protection Agency's (EPA's) Protective Action Guide (PAG) exposure levels...." Please clarify that this statement applies to site-specific analyses provided for applicable "design-basis-accidents" not exceeding EPA PAGs at the site boundary, or provide technical justification that a spent fuel fire, if it were to occur, would not exceed EPA PAGs at the site boundary. While unlikely, consideration is still given as an exemption for the possibility of a spent fuel fire that offsite government officials may determine warrants implementation of a protective action for the public in the vicinity of the VY facility.

In addition, Section 1.2, "Scope" inaccurately states, "Because there are no postulated accidents that would result in dose consequences that are large enough to require offsite emergency planning..." Please clarify that site-specific analyses are provided for applicable "design-basis-accidents" not exceeding EPA PAGs at the site boundary and whether comprehensive (all hazards) emergency management planning may be used by offsite government officials to implement protective measures for the public as deemed warranted.

Response

The statement concerning the analysis of the potential radiological impact of an "accident" in Section 1.0 is meant to apply to "design basis" accidents only. Similarly, the statement included in Section 1.2 of the PDEP is intended to apply to postulated "design basis" accidents. In addition, the analyses show that after the spent fuel has decayed for 15.4 months, for beyond-design-basis events related to the spent fuel pool, the analyzed event is either not credible; sufficient time is available to take mitigative actions or, if needed, offsite protective actions using an all-hazards approach; or the radiological consequences of the event will not exceed the limits of the EPA PAGs at the exclusion area boundary.

To ensure clarity, the statements in Sections 1.0 and 1.2 of the PDEP have been revised to include the phrase "design basis accidents." Section 1.2 is also revised to state that an all

hazards approach to emergency planning may be used by government officials to implement protective measures for the public as deemed appropriate.

Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Sections 1.0 and 1.2, described above.

VY-RAI-03

VY's current Emergency Plan provides the following information in Section 3.5, "State Government Notification and Response":

Vermont Yankee is responsible for conveying specific accident information, radiological assessment information, and protective action recommendations to the State of Vermont, State of New Hampshire, and Commonwealth of Massachusetts.

VY exemption request, dated March 14, 2014 (ADAMS Accession No. ML14080A141) requested the following:

> **E.9.a. Provision for communications with *contiguous* [italics added] State/local governments ~~within the plume exposure pathway EPZ~~. Such communications shall be tested monthly.**

Sections 3.1, "Overview of Permanently Defueled Emergency Plan" and 3.6, "State and Local Government Notification and Response" of the PDEP provide no reference to interfaces with the State of New Hampshire and the Commonwealth of Massachusetts. Please provide documentation that the State of New Hampshire and the Commonwealth of Massachusetts have agreed that they no longer require notification from the VY in the event of a declared emergency or revise to address these notifications. Notification of other contiguous States also needs to be addressed in Section 3.3(5) and Figure 9.1, "Notification Plan" of the PDEP.

Response

As states that are contiguous to the VY site, VY will maintain the capability to communicate with, and notify the state emergency management agencies of Vermont and New Hampshire of an emergency declaration. Additionally, as a noncontiguous state, VY will maintain the capability to communicate with, and notify, the Commonwealth of Massachusetts of an emergency declaration because of its proximity to the VY site. As described in Sections 3.6 and 7.1 of the PDEP, VY maintains the capability to communicate with the state emergency management agencies on a 24-hour basis and convey specific accident information using the InForm Notification System (InForm). As a backup to InForm, the commercial telephone can be used to notify the State Police of Vermont, New Hampshire and Massachusetts of any emergency. Sections 7.1, 7.2 and 12.1.2 of the PDEP describe the monthly tests of the communications channels between VY and the states.

Sections 3.1, 3.3 (Item #5). 3.6, 5.2, 5.3, 7.1, 7.2, 8.1.1 (Item #1), 8.3, 9.2.1 (Item #3), 11.1, 12.1.2, Table 7.1, Figure 9.1 and Appendix D (Letters of Agreement) of the PDEP have been revised to address the capability to communicate with and notify New Hampshire and Massachusetts of an emergency declaration.

Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to the sections described above.

VY-RAI-04

Section 3.1 (3rd paragraph) inaccurately states, "Because there are not postulated accidents that would result in off-site dose consequences large enough to require off-site emergency planning..." The NRC's evaluation of requested exemptions can consider credit for comprehensive (all hazards) emergency management planning, if needed, for an unlikely spent fuel fire or at the judgment of offsite government officials. Elimination of the Site Area and General Emergency classifications is based on analyses of applicable design-basis-accidents. Please revise accordingly to reflect that the capability exists to implement offsite protective action for the public, if needed, based on the judgment of offsite government officials using comprehensive (all hazards) emergency management planning.

Additionally, in the unlikely event that there is a catastrophic loss of spent fuel pool (SFP) water inventory, there is a potential for an offsite release of radioactive material, although they may be a small fraction of the EPA PAG. Please provide further discussion on how the interfaces with State and local government agencies would be performed to support an offsite protective action decision, if deemed appropriate by respective government authority.

Response

The statement included in Section 3.1 of the PDEP is intended to apply to postulated "design basis" accidents. In addition, the analyses show that after the spent fuel has decayed for 15.4 months, for beyond-design-basis events related to the spent fuel pool, the analyzed event is either not credible; sufficient time is available to take mitigative actions or, if needed, offsite protective actions using an all-hazards approach; or the radiological consequences of the event will not exceed the limits of the EPA PAGs at the exclusion area boundary.

To ensure clarity, the statement in Section 3.1 of the PDEP has been revised to include the phrase "design basis accidents." Section 3.1 is also revised to state that an all hazards approach to emergency planning may be used by government officials to implement protective measures for the public as deemed appropriate.

Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 3.1, described above.

In the unlikely event that there is a catastrophic loss of SFP water inventory VY maintains the capability to communicate with the state emergency management agencies on a 24-hour basis and convey specific accident information using the InForm Notification System (InForm). As a backup to InForm, the commercial telephone can be used to notify offsite authorities of any emergency. As described in Section 11.1 of the PDEP, notification is made within 60 minutes of emergency declaration or change in classification. Due to the slow rate of the postulated event scenarios and the absence of immediate actions necessary to protect the public health and safety, the notification time of 60 minutes is appropriate. In the permanently defueled condition, notification to offsite authorities will continue to include the classification of an emergency, the impact of a potential release of radioactive materials and sufficient information to support an

offsite protective action decision utilizing an all hazards approach to emergency planning, if deemed appropriate by respective government authorities.

VY-RAI-05

Section 3.8, "Technical Support" of the PDEP states (in part), "augmentation...can be requested from various contractors." Please specify what functions are relied on in the PDEP for contractor support and identify whether contracts or letters of agreement are in-place with these contract organizations for response during an emergency at the VY facility.

Response

VY does not rely upon contractor support to implement the PDEP. Thus, there are no contracts or letters of agreement in place with any contract organizations to provide personnel to respond to an event requiring implementation of the VY Emergency Plan. However, if an emergency exceeds the capabilities of the VY emergency organization, additional resources are available within the Entergy fleet. Additional expertise could also be requested through a variety of contractors and private sector support organizations. However, the necessary expertise would be dependent on the specific nature of the emergency and cannot be determined in advance.

VY-RAI-06

Please provide an estimate of the time frame required to implement the SFP mitigation strategies outlined in Section 3.9 "Mitigation of Consequences of Beyond Design Basis Events" using designated on-shift personnel trained and available to perform these actions.

Response

See response to RAI-16.

VY-RAI-07

NRC evaluation of exemption request in SECY-14-0066 considered that in the unlikely event of a beyond design-basis-accident, resulting in a radiological release due to a postulated zirconium fire, early offsite protective measures could be implemented. Section IV.B.1 to Appendix E of Part 50 still requires that the licensee have the means to determine the magnitude of, and for continually assessing the impact of, a release of radioactive materials. However, no reference to any type of dose assessment is provided in Section 6.0, "Emergency Response Facilities and Equipment" of the PDEP. Please describe in Section 6.0 of the PDEP on how VY addresses the capabilities to perform dose assessment to assess the magnitude of a potential radiological release.

Response

VY maintains and operates on-site monitoring systems needed to provide data that is essential for initiating emergency measures and performing accident assessment. This includes monitoring systems for plant processes, radiological conditions, meteorological conditions, and fire hazards. The essential monitoring systems are incorporated in the EALs referenced in

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

Section 6.1 of the PDEP states that 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.

Sections 6.2 and 6.2.2 of the PDEP have been revised to address the capability to perform dose assessment and to assess the magnitude of a potential radiological release. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Sections 6.2 and 6.2.2.

VY-RAI-08

Section 6.2.1, "Process Monitors" of the PDEP states, "Annunciator and computer alarms are provided for a variety of parameters including SFP cooling to indicate SFP level, temperature and pump status." Please clarify what specific parameters reflecting SFP cooling and level status will continue to be available in the Control Room in support of prompt classification and implementation of mitigation measures, if needed.

Response

The SFP pumps are monitored in the Control Room and locally near the equipment. Control Room indication includes direct SFP temperature, fuel pool water temperature out of the heat exchangers (taken downstream of the pumps), pump run lights, pump discharge pressures, service water flow, Station Service Water System (SWS) to the Standby Fuel Pool Cooling Subsystem (SFPCS) heat exchanger discharge pressure and valve position lights. Local indication includes SFP water temperature into the heat exchangers, pump suction and discharge pressures, and heat exchanger discharge pressure.

There are two narrow range channels of continuous remote indication of spent fuel pool water level in the control room. Each of these channels provides high and low annunciation on the Fuel Pool Filter Demineralizer Panel with a system trouble alarm and high and low level indicator lights in the Control Room. In addition, each of these channels provides input to the plant computer and there is local water level indication on the side of the SFP.

There are two channels of continuous remote indication of the spent fuel pool water temperature in the Control Room. There are two channels of SFP water temperature to a common recorder that provides high temperature annunciation in the Control Room. In addition, there are two channels of SFP water temperature that provide input to the plant computer.

There are two channels of continuous remote indication of Refueling Floor area radiation in the Control Room. Each of these channels provide high area radiation annunciation in the Control Room. A local alarm to notify personnel of high area radiation levels is also in place. In addition, each of these channels provides input to the plant computer.

The manner in which process monitors are used for accident recognition and classification is provided in EALs referenced in Appendix A of the PDEP.

VY-RAI-9

Clarify whether meteorological parameters, discussed in Section 6.2.1 "Meteorological Capability" of the PDEP, are available in the Control Room and are adequate to support dose assessment activities.

Response

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

Section 6.2.3, "Meteorological Capability" of the PDEP has been revised to indicate that the meteorological data is available in the Control Room and is used to determine the projected radiological conditions in the event of an accidental release of radioactivity to the environment. VY has no plans to modify or alter data currently provided to the Control Room to support dose assessment activities.

Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 6.2.3.

VY-RAI-10

Section 7.3, "Emergency Response Organization [ERO] Notification System" of the PDEP identifies the ERO Notification System as the primary means of activating the ERO upon declaration of an emergency, but provides no description of system capabilities. Please describe the capabilities and communications methods used by the ERO Notification Systems to provide for the timely notification and augmentation of ERO personnel.

Response

On-site staff are informed of an emergency condition through the use of the plant public address system and/or office telephone and/or wireless devices capable of receiving telephone calls and/or 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. The system is tested as described in Section 12.1.2 of the PDEP.

Sections 3.5 and 7.3 of the PDEP have been revised to address the capabilities and communications methods used to perform timely notification and augmentation of ERO personnel. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Sections 3.5 and 7.3.

VY-RAI-11

Table 7.1, "Vermont Yankee Emergency Communication Matrix" of the PDEP provides reference to the Southwest Fire Radio. Is this radio tested on a set frequency similar to all of the other communications devices, as listed in Section 12.1.2, "Communications Tests"? In addition, please clarify why the Southwest Fire Radio is not described in Section 7.0, "Communications", but is listed on Table 7.1 as a backup means of communication with the State Emergency Operations Centers.

Response

VY maintains a multi-channel radio, referred to as the Mutual Aid Radio, in the Control Room that can be utilized to contact the Southwest Mutual Aid; Rescue, Inc.; Brattleboro Memorial Hospital and the State EOCs in the event that all other offsite channels of communication fail. The Southwest Fire Radio is not a stand-alone system, but is a single channel on the Mutual Aid Radio. The Southwest Fire Radio is tested on a monthly basis.

Section 7.8 has been added to the PDEP to address the Mutual Aid Radio. Table 7.1 has been revised to indicate that the Mutual Aid Radio serves as a means to communicate with the State EOCs. Section 12.1.2 of the PDEP has not been revised to address periodic testing of the Mutual Aid Radio because the system is a communication channel with the state government of New Hampshire and is addressed in Item 1 of Section 12.1.2. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the addition of Section 7.8 and change to Table 7.1.

VY-RAI-12

Please describe the alternate external telephone line arrangement, described in Section 7.7, "Commercial Telephone System" of the PDEP, to address telephone equipment blockage in the local area. Is this referring to "microwave" communications listed in Section 7.8, "Emergency Power Supply for Communications"?

Response

The alternate external telephone line arrangement consists of two distinct paths from the plant to the telephone company Central Office (CO) with no single failure point that would result in a loss of capability of the system. Additionally, Internet Protocol (IP) telephones are installed to provide additional diversity when added to the CO and Private Branch Exchange (PBX) telephones.

The alternate telephone line arrangement described in Section 7.7 of the PDEP does not refer to the "microwave" communication system. VY currently utilizes the microwave system to notify system load dispatchers of emergency conditions at the plant. In a permanently shutdown and defueled condition, VY will no longer supply electricity to the grid and there is no need to contact system load dispatchers to notify them of potential disruptions to the electricity supply. This communication system is not included in the PDEP and reference to "microwave" in Section 7.9 (as revised) of the PDEP has been replaced with "IP" to indicate that the IP telephones are provided with a redundant power supply.

Section 7.9 has been revised to replace "microwave" with "IP" in accordance with this response. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the change to Section 7.9.

VY-RAI-13

Section 7.8 of the PDEP states, "All emergency communications (including all phones) located within the plant are connected to an emergency or redundant supply. Please describe the power source and duration for these emergency or redundant supplies.

Response

As a backup to the normal offsite power supply, a feed from the Vernon Hydroelectric Station can also be used as an additional source of backup power. Power can be provided to the station, including communication systems, using the Station Blackout (SBO) Diesel Generator (DG). The SBO DG has a dedicated fuel oil storage tank with a capacity sufficient for operation of the SBO DG at 100% rated load for at least 36 hours.

VY-RAI-14

Plan objective #5, listed in Section 3.2, "Objectives" of the PDEP, is to "establish an engineering support organization to aid the plant personnel in limiting the consequences of and recovery from an event." However, this is not addressed in Section 8.2, "Emergency Response Organization", or specifically Section 8.2.4, "Recovery Organization" of the PDEP. Please describe how this plan objective is under the PDEP.

Response

During an emergency, engineering personnel would focus on plant assessment and provide technical support to the ERO as requested by the Technical Coordinator. To clarify how plan objective #5 is met, Section 8.2.1 of the PDEP has been revised to address engineering support to the Technical Coordinator for plant assessment and technical support.

Sections 8.2 and 8.2.1 of the PDEP have been revised to address plan objective #5. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Sections 8.2 and 8.2.1.

With respect to engineering support provided to the Recovery Organization, as described in Section 8.2.4 of the PDEP, planning for the recovery mode of operations involves the development of an organizational capability that can be adapted to any emergency situation. The Emergency Director utilizes the normal plant and emergency organizations described in Sections 8.1 and 8.2 of the PDEP to staff the recovery organization and provide the radiological and technical expertise required to restore the plant to normal conditions.

VY-RAI-15

Section 8.2.4 of the PDEP provides a general overview of recovery expectations. Please describe the position/title, authority and responsibilities of individuals who will fill key positions in the facility recovery organization, including technical personnel with responsibilities to develop, evaluate and direct recovery and reentry operations, consistent with NUREG-0654/FEMA-REP-1 Evaluation Criterion M.2.

Response

As described in Section 8.2.4 of the PDEP, planning for the recovery mode of operations involves the development of an organizational capability that can be adapted to any emergency situation. In a permanently shutdown and defueled condition, the only key position identified in the recovery organization is the Emergency Director. 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 is responsible for:

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

The Emergency Director utilizes the normal plant and emergency organizations described in Sections 8.1 and 8.2 of the PDEP to staff the recovery organization and provide the radiological and technical expertise required to restore the plant to normal conditions.

VY-RAI-16

In reference to Table 8.1, "Minimum On-Shift and Staffing Requirements" of the PDEP, please response to the following:

a. **Has VY performed an on-shift analysis for ERO functions to ensure sufficient personnel will be able to respond to the limiting event, which is a catastrophic loss of SFP water inventory, using the minimum shift staffing as indicated in the Table 8.1, to verify that a SFP mitigation strategy can be promptly implemented using available on-shift personnel? The response should include:**

   - **SFP mitigation strategies as described in Section 3.9 of the PDEP, and**
   - **All functional areas of the Table B-1 to address any potential collateral duties.**

Additionally, provide an update to Table 8.1 reflecting the on-shift personnel required to perform mitigation strategies for a catastrophic loss of SFP inventory.

Response

An analysis of the time frame required to implement the SFP mitigation strategies outlined in Section 3.9 of the PDEP has been performed and indicates that the strategies can be implemented using the on-shift staffing complement (Shift Manager/Emergency Director, Non-certified Operator (NCO) and Radiation Protection Technician (RPT)) within two hours and without impacting the ability to meet all of the major functional areas of Table B-1 in NUREG-0654/FEMA-REP-1. The two hour time frame is based on Performance Attribute 11 in Section 2.3.1, SFP Makeup Capability, of NEI 06-12, B.5.b Phase 2 & 3 Submittal Guideline (Reference 2):

> *The system should be capable of being deployed within 2 hours from the time plant personnel diagnose that external SFP makeup is required.*

The specific event scenario utilized for this analysis involves a catastrophic loss of SFP level. The analysis of the time to initiate SFP mitigation strategies is based on the expected system configurations at the time the PDEP will be implemented (April 2016) and assumes that an engineering change has been completed to permanently relocate the B.5.b pump closer to its water source at the cooling tower deep basin and permanently makeup the associated suction and discharge hoses to reduce the time to implement. This engineering change is scheduled to be completed prior to the end of 2015. It is further assumed that the intake structure and the fire protection system in the Turbine Building (TB) and/or Reactor Building (RB) is damaged which requires those structures to be isolated to support pressurizing the fire header successfully.

The Shift Manager retains the responsibility to make emergency classifications, notify the State and NRC, and activate the ERO in a timely manner, and is not distracted from emergency event oversight, including ERO leadership responsibilities. The Shift Manager is capable of assessing, classifying and declaring an emergency condition within 30 minutes, notifying the states of Vermont, New Hampshire and Massachusetts within 60 minutes of emergency declaration and making notifications to the ERO of the need to augment.

It is reasonable to expect that mitigating actions required to address a catastrophic loss of SFP can be performed using an on-shift RPT because credit is taken for existing area radiation monitors and associated alarms and NCOs are trained to self-monitor using radiation dose rate meters. In extreme conditions, the Radiation Protection Director would be responding within the required ERO two hour response time to assist in final implementation of the mitigating actions.

The demonstration was performed on November 8, 2014. Calibrated stop watches were utilized to time the actions. Operators were stationed in the Auxiliary Operator break room. This location yields the longest time to reach the B.5.b storage shed to assemble/obtain the required equipment. The external SFP strategy was used (PP 7019, Appendix G, Attachments 1, 2, 2A and 16) for the demonstration because it is considered the longest to implement. The following results (times are identified in minutes) were obtained:

T=0: Start. The NCO and RPT start from the Administration Building. If they were to start from the Plant Support Building (PSB), then the time to obtain the required hoses, fittings and tools would be reduced accordingly. It is assumed the NCO and RPT would discuss the required actions to coordinate their response.

T=12: Time for the NCO/RPT to reach the B.5.b shed, obtain the required gear and return to Security Gatehouse 2. It is assumed that the Shift Manager would contact the Lead Security Shift Supervisor and request their support getting the gear through the gate house to reduce the delay. Security would work out the quickest means to support to minimize the delay.

Upon entering the protected area, the NCO and RPT would separate to perform the following tasks concurrently:

<u>RPT:</u>

T=24: Time after entering the Protected Area (PA) to make the required connections from the fire hydrant on the west side of the Containment Access Building (FH-2) to the RB penetration (SB-100-5 or 6). It is assumed that this task takes 12 minutes to account for handling of the hoses, tools and fittings by a person who will be new to handling fire equipment at the start of SAFSTOR. The time to accomplish is based on operator experience for operating the valves.

T=39: Time to rotate the inside RB penetration (SB-100-5(6)) out of the way (assume 15 minutes per flange) (includes travel from outside to inside RB).

T=59: Time to isolate the intake structure and TB/RB from the outer Fire Protection loop. A conservative estimate of 5 minutes per valve is utilized. For this scenario, it is assumed that four (4) valves would need to be isolated.

T=74: Time to rotate the outside RB penetration and make the final connection of the hoses. It is expected that the NCO and RPT would coordinate their actions to aid in making the connections. Straps are available inside and out to hold the hose to the penetration.

T=84: Time after making the final connections of the inside and outside fire hoses, the valves on FH-2 would start being throttled open to commence making up water to the fuel pool.

NCO:

T=42: Time to complete routing the hose from the RB 345 foot elevation to the 252 foot elevation including attaching the SFP diffuser to the fuel pool railing and installing straps to hold the fire hoses in place. It is assumed to take 30 minutes to be conservative based on the actual recorded time of 26 minutes 58 seconds for the single operator to complete.

T=57: Time for the NCO to walk from the RB to the pump at the West Cooling Tower. Timing was performed utilizing the several paths possible to the location the B.5.b pump will be located. The time to walk through the West Security Owner Controlled Area access building and around the West Cooling Tower was 10 minutes 44 seconds. To be conservative, it is assumed to take 15 minutes to account for uncertainties based on weather/plant conditions.

T=69: Time for the NCO to start the pump once any leaks in the fire header have been isolated. Per the guideline, the pump would not be started until the header is isolated so that will coincide with the RPT isolating the header at T=59 minutes.

Summary

Successful implementation of the mitigating strategy was achieved within 84 minutes utilizing only the on-shift staffing (Shift Manager, NCO and RPT) required by the proposed PDEP currently undergoing NRC review. Specifically, the PDEP minimum on-shift staff is tasked with implementation of the mitigating strategy. The Shift Manager retains the responsibility to implement the emergency plan. The NCO and RPT are capable of performing the actions necessary to implement the mitigation strategy without the need to mobilize off-site resources or the utilization of other on-shift personnel.

Table 8.1 of the PDEP has been revised to reflect the positions performing the mitigating strategy.

Section 3.9 of the PDEP has been revised to correct the reference to the mitigation strategies order, EA-02-026.

VY-RAI-17

Sections 5.0, "Emergency Classification System" and 9.1, "Emergency Condition Recognition and Classification" of the PDEP state (in part), "VY maintains the capability to assess, classify, and declare an emergency condition in accordance with site procedures...." Please identify a specific time frame, and supporting technical justification, where VY will maintain the capability required for the prompt classification of an emergency condition, based on the permanent shutdown and defueled condition of the facility, or provide a copy of the site procedure that provides this information?

Response

The emergency classification levels that will be applicable at VY, in order of increasing severity, are a Notification of Unusual Event and Alert. Each of these emergency classes requires notification to offsite agencies, as designated in the PDEP, as well as to the NRC. The classification of emergencies up to an Alert is consistent with the regulations for an ISFSI in 10 CFR 72.32(a)(3) and the exemptions proposed in Reference 1.

VY will maintain the capability to assess, classify, and declare an emergency condition within 30 minutes after the availability of indications to plant operators that an emergency action level threshold has been reached. In the permanently defueled condition, the rapidly developing scenarios associated with events initiated during reactor power operation are no longer credible. The consequences resulting from the only remaining events (e.g., fuel handling accident) develop over a significantly longer period. The 30 minute classification time frame is consistent with that approved for Kewaunee Power Station (Reference 3). Section 9.1 of the PDEP has been revised to include the 30 minute time frame.

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.

Response

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. Additionally, the on-shift staffing includes a Radiation Protection Technician.

With VY permanently shutdown, the only design basis accident scenario will be a fuel handling accident (FHA) in the SFP and the predominant isotope that will be released from a FHA is Kr-85. It is no longer necessary to maintain a sophisticated dose assessment capability with associated hardware, software and training appropriate for an operating nuclear power plant and a simplified manual method can provide an effective replacement dose assessment capability. Conceptually, the method used to predict a Site Boundary dose from a FHA in the SFP area is to multiply a radiation monitor reading by a dose conversion factor based on wind speed and stability class. VY currently maintains a manual method to evaluate off-site radiological conditions. Specific procedures supporting the PDEP, including the procedure

associated with Initial Radiological Dose Projection, have not yet been developed. The procedure will be developed considering that after permanent shutdown and removal of fuel from the reactor, the only viable accident scenario is a FHA in the SFP and will be provided to the NRC in a supplemental response by June 30, 2015.

VY-RAI-19

Section 10.3.1, "Site Personnel Accountability" of the PDEP provides that the goal of the personnel accountability process is to account for personnel at an Alert declaration. Please clarify in the PDEP how the following NUREG-0654/FEMA-REP-1 evaluation criterion is addressed or provide justification for why criteria are no longer considered applicable:

> **[J.5] Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 60 minutes of the start of an emergency and account for all onsite individuals continuously thereafter,**

In addition, describe the communication means intended to notify site personnel of accountability, since Section 7.5 of the PDEP only identifies that the Plant Intercom System is located in "many areas" throughout the plant.

Response

Upon declaration of an emergency, Control Room personnel announce the emergency classification over the plant page system. As described in Section 7.5 of the PDEP, during emergency situations, the system is used as the primary means for notifying plant personnel of the emergency and calling for any missing or unaccounted for personnel that may be in the plant. In a permanently shutdown and defueled condition, the inability to communicate with plant personnel because of noise is no longer a significant issue. The use of the plant page system, supplemented by Security sweeps as described below, is appropriate to notify plant personnel of an emergency declaration.

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 classification announcement prompts Security to print a report detailing the locations of on-site personnel. 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 announcements, Security will initiate sweeps to locate the missing individuals.

Section 10.3.1 has been revised to indicate that the goal of the personnel accountability process is to account for personnel within 60 minutes of an Alert declaration. Section 10.3.1 has also been revised to indicate that plant personnel are responsible for reporting to designated areas following announcement of an emergency classification; the Control Room will initiate announcements using the plant page system if personnel are unaccounted for; and if personnel are still unaccounted for following Control Room announcements, then Security will initiate sweeps to locate the missing individuals. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the addition of Section 10.3.1.

VY-RAI-20

Section 10.3.3, "Decontamination Capability" of the PDEP is limited to a general discussion of personnel monitoring and decontamination. Please describe how, or where, NUREG-0654/FEMA-REP-1 Evaluation Criteria K.5.a and K.6 are addressed for decontamination and on-site contamination control.

Response

Evaluation Criteria K.5.a requires the emergency plan to address action levels for determining the need for decontamination. 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.

Evaluation Criteria K.6 requires licensees to provide contamination control measures with respect to area access control, drinking water and food supplies and the return of areas and items to normal use. VY isolates and restricts the use of contaminated areas; monitors personnel leaving contaminated areas; controls access to potentially contaminated drinking water and food supplies; makes arrangements for transport of non-contaminated off-site supplies if the potential exists for contamination of on-site food or drinking water supplies that renders these supplies non-consumable; and restricts areas and contaminated items from returning to normal use until conduct of appropriate surveys and verification that the contamination levels are acceptable.

Section 10.3.3 of the PDEP has been revised to reflect standard station protocol described above. Additionally, the title of Section 10.3.3 has been revised to Contamination Control and Decontamination Capability to reflect the changes. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 10.3.3.

VY-RAI-21

Section 10.4.1, "Medical Treatment" of the PDEP provides that initial on-site medical treatment is provided by on-site personnel. Please provide further information on who these personnel are (e.g., on-shift, duty performed as a collateral function), and what level and frequency of training are they giving.

Response

Upon implementation of the PDEP, rescue and first aid treatment will be provided by two qualified, on-shift personnel (Control Room staff or other qualified personnel). The members assigned rescue/first aid treatment duties will attend to normal plant duties until notified of an incident requiring a first-aid response. Individual responsibilities then immediately change to the higher priority role. The health and safety of personnel take precedence over other normally assigned responsibilities. Rescue/first aid duties of on-shift staff do not create a conflict between their normal and emergency duties.

NUREG-0654/FEMA-REP-1, Revision 1, Evaluation Criterion II.O.3 establishes guidance for use of Red Cross Multi-Media Training for individuals assigned to licensee first aid teams. This guidance was published in 1980. In the interim, Red Cross Multi-Media Training has been superseded by other courses. Because the suggested Red Cross Multi-Media course no longer

exists, VY is unable to provide a direct correlation between its own training program and the Red Cross Multi-Media training course. However, VY notes that the Red Cross Multi-Media training program was intended to train a layperson to recognize simple first aid situations and provide minimal first aid care until the arrival of a professional medical response team. The Red Cross Multi-Media training course was an 8 to 16 hour program. VY personnel who will be qualified to provide initial on-site medical treatment will, at a minimum, complete an 8-hour program based on the American Heart Association First Aid/CPR/AED course to meet the educational and examination requirements of its Basic First Aid and CPR/AED courses. The course provides critical skills needed to respond to and manage a first aid, choking or sudden cardiac arrest emergency in the first few minutes until emergency medical services (EMS) arrives. Students learn skills such as how to treat bleeding, sprains, broken bones, shock and other first aid emergencies. This course also teaches adult CPR and AED use. Therefore, the content of the training course meets or exceeds the requirements of the superseded Red Cross Multi-Media training course identified in NUREG-0654-FEMA-REP-1.

Recertification of the members assigned rescue/first aid treatment duties will be conducted as required by the level of certification held by the individual. Section 12.1.5 of the PDEP, specifies the frequency of medical drills that evaluate the training of the medical response provided by on-site personnel.

VY-RAI-22

Section 10.5, "Protective Actions for Onsite Personnel" of the PDEP states, "A range of protective actions to protect onsite personnel and how they will ensure continued ability to perform the functions of the emergency plan." Please describe this intended range of protective actions to protect onsite personnel and how they will ensure continued ability to perform the functions of the emergency plan, or provide reference to and a copy of applicable implementing procedure.

Response

Protective actions for onsite personnel are addressed in Sections 10.2 through 10.4 of the PDEP consistent with the applicable guidance providing the Planning Standard J of NUREG-0654-FEMA-REP-1. Section 10.2 of the PDEP describes measures to be taken to control radiation exposure for the VY ERO and augmented personnel. These measures include emergency kits with self-reading dosimeters and maintenance of dose records. Section 10.3.4 of the PDEP addresses the use of plant supplied radiation protection equipment and gear to support the emergency response effort, including respiratory protection and protective clothing assigned to ERO members.

Additionally, Section 10.3.1 of the PDEP describes the means and timely notification of plant personnel following an emergency declaration and provisions for completing accountability within 60 minutes of an Alert declaration. Section 10.3.2 of the PDEP describes the provisions for evacuating all visitors and unnecessary contractors upon an Alert declaration and radiological monitoring of personnel evacuated from the site.

Section 10.5 of the PDEP has been revised to reflect that a range of protective actions for onsite personnel are addressed in Sections 10.2 through 10.4 of the PDEP. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 10.5.

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?

Response

As described in Section 7.1 of the PDEP, VY maintains the capability to communicate with the state emergency management agencies on a 24-hour basis and to convey specific accident information using the InForm Notification System (InForm). This system is currently in use at VY. Within InForm, an Emergency Message is composed using a structured emergency data input that provides a format for the user. The data entered is used by InForm to compose the Emergency Message that is sent electronically to offsite authorities. Preparation of the Emergency Message using the emergency data input will be evaluated following permanent cessation of operations to determine the necessary data inputs to the Emergency Message with consideration given to VY's permanently defueled condition.

Specific procedures supporting the PDEP, including the procedure associated with initial notification and follow-up messages to offsite authorities, have not yet been developed. However, in accordance with 10 CFR 50.47(b)(5), VY will develop a procedure establishing the format and content of initial and follow-up messages and the frequency at which the messages are provided. The procedure will address the permanently shutdown and defueled condition and the format and content of the initial and follow-up messages will be mutually agreed upon with responsible offsite authorities in accordance with the guidance contained in Planning Standard E, Evaluation Criterion 1 of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980).

With respect to the frequency of follow-up messages, Section 9.2.2 of the current revision of the VY Emergency Plan, at an Alert, follow-up information is provided to offsite emergency organizations as needed. Additionally, Section 11.2 of the current revision of the VY Emergency Plan states that follow-up reports are provided on an as-needed basis until such time that the emergency condition has been terminated. State agreement with the as-needed basis of follow-up messages is acceptable as evidenced by the existing Letters of Agreement. VY has not proposed any changes to the frequency of follow-up reports in Sections 9.2.2 and 11.1 of the proposed PDEP.

VY will develop the format and content of the initial and follow-up messages and provide the proposed messages to responsible offsite authorities for review prior to May 31, 2015. As indicated in the response to RAI-32, Letters of Agreement in support of the PDEP will be developed with consideration given to NRC-approved Regulatory Exemptions and the Permanently Defueled Emergency Action Levels (PD EALs) still under NRC review. VY will provide the Letters of Agreement to the NRC in a supplemental response to this RAI by June

30, 2015. The Letters of Agreement will address the format and content of initial and follow-up messages and the frequency of follow-up messages.

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.

Response

Because the VY Joint Information Center (JIC) is planned to be vacated following implementation of the PDEP and the current dedicated JIC company spokesperson position is planned for elimination, Entergy Nuclear Operations, Inc. (ENO) has not determined at this time exactly which, if any, revisions are needed to the current Entergy Corporate Communications protocols to ensure that the NUREG-0654/FEMA-REP-1 evaluation criteria will be addressed. For the same reasons, it has yet to be determined if the protocols will require revision to ensure that they will support the capability of Federal, State and local emergency response organizations to disseminate appropriate information regarding an emergency at VY.

A comprehensive response to this RAI, including any identified revisions to the PDEP, will be provided in a supplemental response by June 30, 2015.

VY-RAI-25

Please clarify why the following offsite support organizations listed in Appendix D, "Letters of Agreement" of the PDEP are not provided the opportunity to participate in biennial exercises or periodic drills, as described in Section 12.1.1, "Radiation Emergency Exercises and Drills" of the PDEP:

- **Vernon Fire Department, and**
- **Town of Vernon.**

Response

The Vernon Fire Department and the Town of Vernon are currently, and will continue to be, provided the opportunity to participate in biennial exercises and periodic drills.

Section 12.1.1 of the PDEP has been revised to include the Vernon Fire Department and the Town of Vernon. Attachment 2 of this letter provides the revised PDEP with the proposed

changes shown in strikethrough and underline format resulting from the revisions to Section 12.1.1.

VY-RAI-26

Please clarify why Section 12.1.4, "Fire Drills" of the PDEP only lists the Vernon Fire Department for demonstration of coordination with the plant's fire brigade, but does not address participation by the Brattleboro Fire Department, which is listed as an off-site support organization in Appendix D, "Letters of Agreement" of the PDEP.

Response

The Brattleboro Fire Department is currently, and will continue to be, provided the opportunity to participate in annual fire drills.

Section 12.1.4 of the PDEP has been revised to include the Brattleboro Fire Department. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 12.1.4.

VY-RAI-27

Please clarify whether the Medical Drills, as discussed in Section 12.1.5 of the PDEP, will involve the actual participation of the Brattleboro Memorial Hospital and Rescue Inc. Ambulance Service, as off-site support organizations listed in Appendix D of the PDEP.

Response

Annual medical drills with a simulated contaminated injured individual currently, and will continue to, involve the actual participation of the Brattleboro Memorial Hospital and Rescue Inc. Ambulance Service as off-site support organizations. Section 12.1.5 of the PDEP has been revised to incorporate this clarification. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 12.1.5.

VY-RAI-28

Under Section 12.2, "Training" of the PDEP, please describe site-specific emergency response training for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency, as outlined in NUREG-0654/FEMA-REP-1 Evaluation Criteria O.1.a.

Response

VY offers training annually to offsite response organizations which 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 is structured to meet the needs of the specific organization being trained to align with the nature of the support to be provided by the organization. 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.

Section 12.2 of the PDEP has been revised to include a discussion of the training offered to offsite organizations. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 12.2.

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.

Response

The current versions of Emergency Plan Training Procedure AP 3712 and the Emergency Plan Training Program Description support the current VY Emergency Plan and are not fully applicable to the PDEP. Revisions to AP 3712 and the Emergency Plan Training Program Description will be developed to support the PDEP and will be provided to the NRC in a supplemental response by June 30, 2015.

VY-RAI-30

Under Section 12.5, "Responsibility for Planning Effort" of the PDEP, describe how training is provided to individuals responsible for the planning effort, per NUREG-0654/FEMA-REP-1 Evaluation Criteria P.1.

Response

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.

Section 12.5 of the PDEP has been revised to include a discussion of the training provided to individuals responsible for the planning effort. Attachment 2 of this letter provides the revised PDEP with the proposed changes shown in strikethrough and underline format resulting from the revisions to Section 12.5.

VY-RAI-31

Appendix B, "Emergency Equipment Inventory" lists specific radiological monitoring instruments/equipment, but merely indicates that it be provided by other non-affected Entergy nuclear sites, as needed. Please list what procedures are in place to coordinate obtaining/transporting or remotely utilizing this equipment, and describe an estimated time frame when equipment would become available for use in support of an emergency at the VY facility.

Response

VY does not maintain specific Emergency Plan Implementing Procedures for obtaining or transporting equipment from other non-affected Entergy nuclear sites. However, VY does maintain contact information with other Entergy facilities. In the event that equipment is required, it can be obtained through established lines of communications within the Entergy fleet. In the event that equipment is obtained from other non-affected Entergy nuclear sites, the supplying facility will provide VY with the applicable operating procedures for the specific equipment being provided. Based on the proximity of other Entergy nuclear sites in the region (Pilgrim, Indian Point, Fitzpatrick), it is estimated that any equipment that is requested could be provided within 8 hours of the request being made.

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.

Response

VY's existing Letters of Agreement with the offsite support organizations support the current VY Emergency Plan and are not fully applicable to the PDEP, which will be implemented approximately 15.4 months after permanent cessation of operations. Development of the Letters of Agreement in support of the PDEP will be developed with consideration given to NRC-approved Regulatory Exemptions and the Permanently Defueled Emergency Action Levels (PD EALs) still under NRC review.

VY will develop the Letters of Agreement and provide them to the NRC in a supplemental response by June 30, 2015.

The following RAIs are for Attachment 3, "Permanently Defueled Emergency Action Level Technical Bases," of Entergy's June 12, 2014 submittal:

VY-RAI-33

Please annotate in Section 1, "Purpose" whether this document will be maintained in accordance with 10 CFR 50.54(q).

Response

The document will be maintained in accordance with 10 CFR 50.54(q). The first paragraph of

Section 1.0 of the Permanently Defueled Emergency Action Level Technical Bases concludes with the following statement: "All recommendations for changes to this document or associated implementing procedures are reviewed in accordance with 10 CFR 50.54(q)."

VY-RAI-34

[Page 32 of 51] EAL PD, "[Permanently Defueled" AU-2.2, basis discusses that if the area radiation monitors cannot detect or display values at or above 25 mR/hr over normal, then survey instruments can be used.

- **Verify whether the ranges of ARM-14 "Rx Bldg West Refuel" and ARM-15 "Spent Fuel Pool" are capable of detecting and displaying radiation levels at or above 25 mR/hr over normal.**
- **Which area radiation monitors are known to not be capable of detecting or displaying values at or above 25 mR/hr over normal?**
- **What would be the timeliness of performing local radiation surveys?**

Response

The area radiation monitors (ARMs) that would indicate that an EAL threshold has been exceeded are ARM-14 (Rx Bldg West Refuel) and ARM-15 (Spent Fuel Pool). Both ARM-14 and ARM-15 indicate in the Control Room and are capable of detecting and displaying radiation levels at or above 25 mR/hr over normal background levels.

Because the ARMs that would indicate whether an EAL threshold has been exceeded are capable of detecting and displaying radiation levels at or above 25 mR/hr over normal background levels, the statements included in the Vermont Yankee Basis for EALs PD-AU2.2 and PD-AU2.1 related to plant area radiation monitors that are unable to detect or display a reading that is 25 mR/hr over normal levels have been removed consistent with this response.

However, if performance of local radiation surveys is required, this action would be performed in a timely manner, primarily because VY maintains a Radiation Protection (RP) Technician on-shift as indicated in Section 8.1.3 and Table 8.1 of the PDEP. Furthermore, additional station personnel, including additional RP Technicians, would be onsite to support fuel movement.

Attachment 2 of this response provides the revised Permanently Defueled Emergency Action Level Technical Bases with the proposed changes shown in strikethrough and underline format resulting from the revisions to PD-AU2.1 and PD-AU2.2.

VY-RAI-35

[Page 51 of 51] EAL E, "Independent Spent Fuel Storage Installation" HU-1.1 basis provides the actual EAL values. Please explain why these values are not provided in the EAL itself to allow for timely event classification.

Response

When making an emergency classification, the VY Emergency Director is trained to consider all information having a bearing on the proper assessment of an Initiating Condition prior to making the declaration. This information includes the EAL and the associated basis information. In the case of the subject EAL, this review would also include the ISFSI Technical Specifications.

Providing the ISFSI Technical Specification allowable levels in the Basis, rather than the EAL would not impact the timeliness of an event classification. However, to facilitate timely event classification, the threshold values will be placed in the EAL.

Attachment 3 of this response provides the revised Permanently Defueled Emergency Action Level Technical Bases with the proposed changes shown in strikethrough and underline format resulting from the revision to E- HU1.1.

REFERENCES

1. Letter, Entergy Nuclear Operations, Inc., to NRC, "Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR 50, Appendix E," BVY 14-009, dated March 14, 2014 (ML14080A141)

2. NEI 06-12, B.5.b Phase 2&3 Submittal Guidance, Revision 3, September 2009 (ML092890400)

3. Letter, NRC to Dominion Energy Kewaunee, Inc., "Kewaunee Power Station - Issuance of Amendment for Changes to the Emergency Plan and Emergency Action Levels (TAC No. MF3411)," dated October 31, 2014 (ML14279A482)

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: (later) _____
Emergency Planning Manager (Print/Sign) Date

REVIEWED: _____
On-Site Safety Review Committee (Print/Sign) Date

APPROVED: _____
General Manager (Print/Sign) Date

APPROVED: _____
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 ~~an~~ 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

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 ~~state~~ 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 ~~state~~ 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 ~~State~~ authorities and VY concerning radiological

emergency preparedness. VY's emergency classification system and notification messages are reviewed with these States-/Commonwealth ~~of Vermont~~ 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 Appendix G, "Loss of Large Areas of the Plant Due to Fire or Explosion," of PP 7019, "Severe Accident Management Program." Appendix G of PP 7019 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-~~12-049~~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.

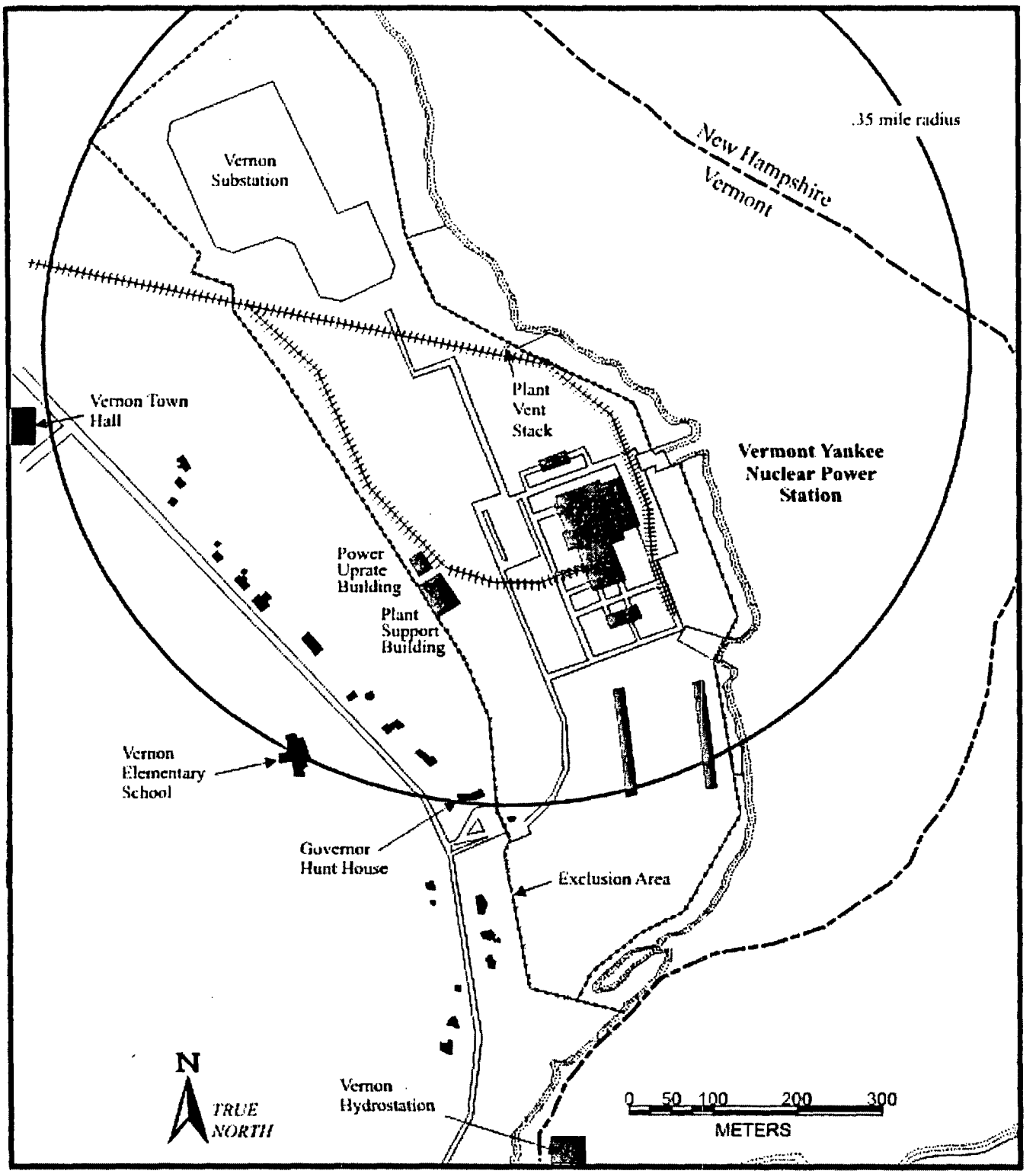

Figure 4.1

Vermont Yankee Site

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) ~~to~~ 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

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 ~~State of Vermont~~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 ~~state~~ 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.

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 ~~(Technical Requirements Manual)~~ 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 ~~of Vermont Police~~ 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.

~~7.8.~~7.9. Emergency Power Supply for Communications

Currently there are several telephone and other emergency communication channels (Gai-Tronics, radio network, and ~~microwave~~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

	CR
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

KEY

1. Commercial Telephone System
2. NAS
3. Mobile UHF Radio System
4. ENS (FTS)
5. Gai-Tronics
6. ERO notification system
7. ~~Southwest Fire~~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~~, Technical Requirements Manual or~~ and the ~~Entergy~~ 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:

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, ~~E~~engineering personnel would focus on plant assessment, ~~and~~ 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 organizations described in Section 8.1 and 8.2 provides the foundation for such a recovery organization.~~

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 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.~~ 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 of Vermont~~State/Commonwealth authorities.

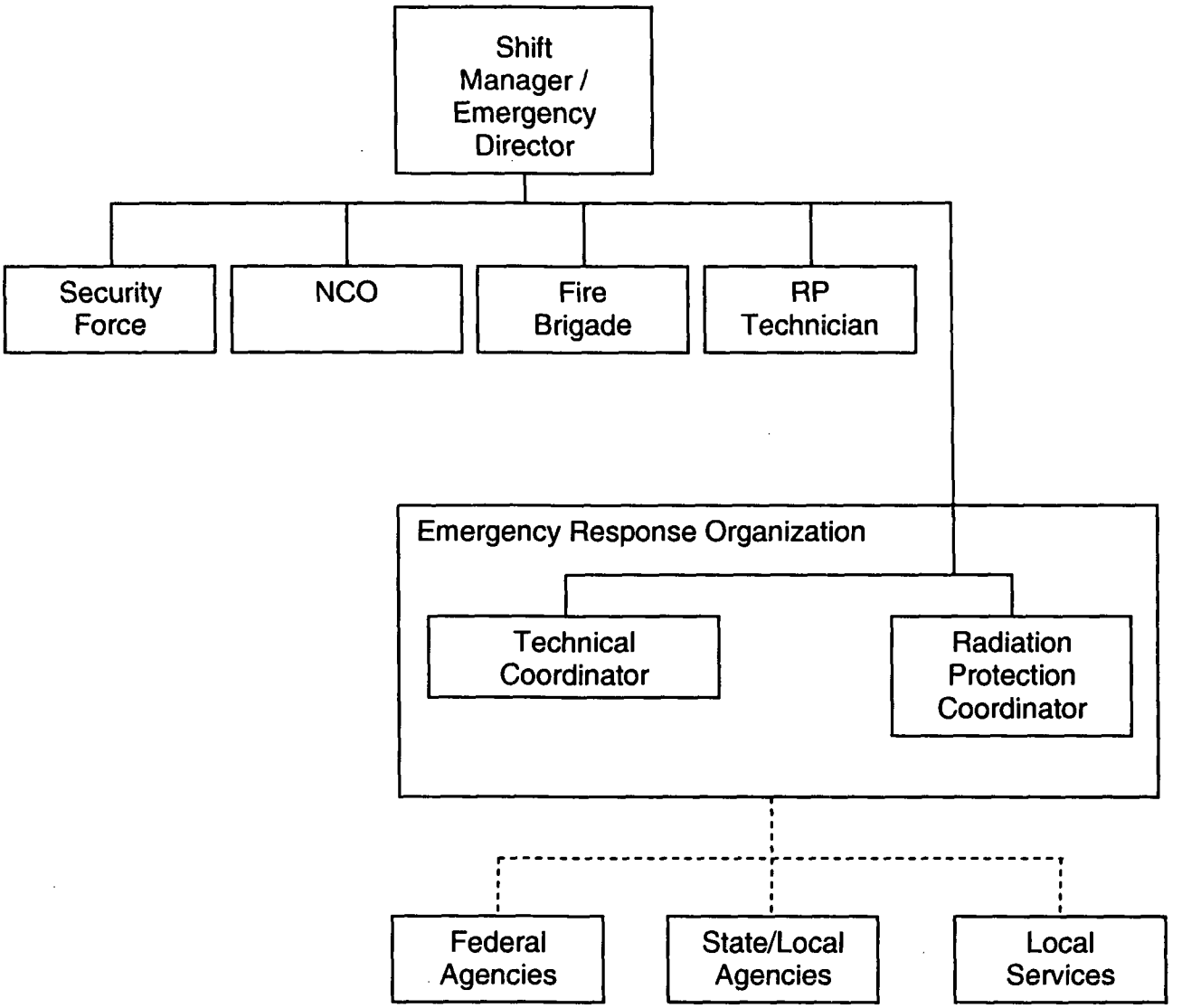

Figure 8.1

Normal On-Shift and Emergency Response Organization

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 Operators*	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 Repair, Mitigation, and Corrective Action Develop strategies for search and rescue and firefighting	As Directed by the Emergency Director	Technical Coordinator	-	1 (may augment the ERO with technical support and emergency repair personnel as deemed necessary)
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

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. ~~following identification of the appropriate emergency classification level.~~

Section 5.0 presents the emergency classification system used for categorizing the wide spectrum of possible emergency conditions into one of 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;

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 ~~State~~ 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.

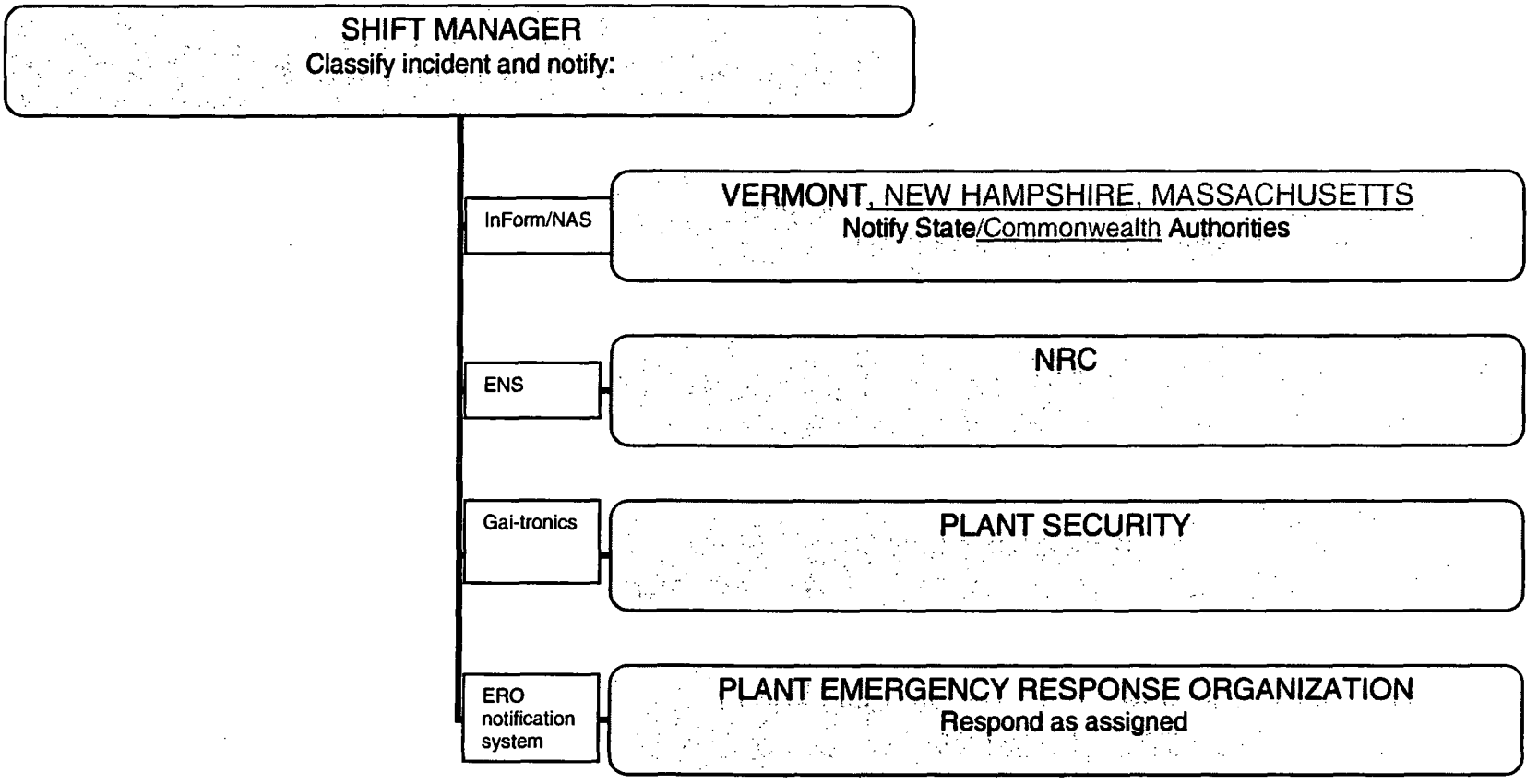

Figure 9.1

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 ~~at~~ 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 ~~is~~ 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[(a)]	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[(b)]	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. As part of its normal corporate structure, Entergy maintains a corporate public affairs office. Upon declaration of an Unusual Event or Alert, information is disseminated to the public and briefings will be held with pertinent media organizations in accordance with Entergy corporate communication protocols. Additionally, Federal, State and local emergency response organizations maintain the capability to disseminate appropriate information regarding an emergency at VY.

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. Brattleboro Memorial Hospital
3. Brattleboro Fire Department
4. Law Enforcement
5. Rescue, Inc. Ambulance Service
6. Town of Vernon
7. 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 ~~is~~ 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~~ambulance~~ and Brattleboro Memorial Hospital~~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 ~~Entergy~~ Vermont Yankee Nuclear Power 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.

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

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

EQUIPMENT	LOCATION	
	MAIN CONTROL ROOM	INNER GATE HOUSE
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")

EMERGENCY EQUIPMENT INVENTORY

	LOCATION
EQUIPMENT	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

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

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

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
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
AP 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

II. SUPPORT PLANS*

The Vermont Yankee Severe Accident Management Program (PP 7019)

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 ~~D~~ C and ~~E~~ 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

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

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

Permanently Defueled Emergency Action Level Technical Bases

Revision 0

Entergy

Vermont Yankee Nuclear Power Station

Permanently Defueled Emergency Action Level Technical Bases

Revision 0

Prepared by: (later) _____ _____
Planner, Emergency Planning — Date

Approved by: _____ _____
Manager, Emergency Planning — Date

Approved by: _____ _____
Manager, Operations — Date

Table of Contents

1.0 PURPOSE

This document provides the detailed set of Emergency Action Levels (EALs) applicable to the Vermont Yankee Nuclear Power Station (VY) and the associated Technical Bases using the EAL development methodology found in NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6 (NEI 99-01, Rev. 6). As a Permanently Defueled Station, VY will use the Recognition Category "PD" (Permanently Defueled) providing a stand-alone set of ICs/EALS for a permanently defueled nuclear power plant to consider for use in developing a site-specific emergency classification scheme. (Permanently defueled station ICs and EALs are addressed in Appendix C of NEI 99-01, Rev. 6.) All recommendations for changes to this document or associated implementing procedures are reviewed in accordance with 10 CFR 50.54(q).

This document should be used to facilitate review of the VY EALs, provide historical documentation for future reference and serve as a resource for training. Decision-makers responsible for implementation of AP-3125, Emergency Plan Classification and Action Level Scheme, may use this document as a technical reference in support of EAL interpretation.

The expectation is that emergency classifications are to be made as soon as conditions are present and recognizable for the classification, but within 60 minutes or less in all cases of conditions present. Use of this document for assistance is not intended to delay the emergency classification.

2.0 DISCUSSION

2.1 Permanently Defueled Station

NEI 99-01 provides guidance for an emergency classification scheme applicable to a permanently defueled station. This is a station that generated spent fuel under a 10 CFR Part 50 license, has permanently ceased operations and will store the spent fuel onsite for an extended period of time. The emergency classification levels applicable to this type of station are consistent with the requirements of 10 CFR Part 50 and NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Rev. 1" (NUREG-0654).

In order to relax the emergency plan requirements applicable to an operating station, the owner of a permanently defueled station must demonstrate that no credible event can result in a significant radiological release beyond the site boundary. It is expected that this verification will confirm that the source term and motive force available in the permanently defueled condition are insufficient to warrant classifications of a Site Area Emergency or General Emergency. Therefore, the generic Initiating Conditions (ICs) and Emergency Action Levels (EALs) applicable to a permanently defueled station may result in either a Notification of Unusual Event (Unusual Event) or Alert classification.

2.2 Independent Spent Fuel Storage Installation

Selected guidance in NEI 99-01, Rev. 6 is applicable to licensees electing to use their 10 CFR Part 50 emergency plan to fulfill the requirements of 10 CFR 72.32 for a stand-alone Independent Spent Fuel Storage Installation (ISFSI). The emergency classification levels applicable to an ISFSI are consistent with the requirements of 10 CFR Part 50. The initiating

conditions germane to a 10 CFR 72.32 emergency plan (as described in NUREG-1567) are subsumed within the classification scheme for a 10 CFR 50.47 emergency plan.

The analysis of potential onsite and offsite consequences of accidental releases associated with the operation of an ISFSI is contained in NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees" (NUREG-1140). NUREG-1140 concluded that the postulated worst-case accident involving an ISFSI has insignificant consequences to public health and safety. This evaluation shows that the maximum offsite dose to a member of the public due to an accidental release of radioactive materials would not exceed 1 rem Effective Dose Equivalent.

Regarding the above information, the expectations for an offsite response to an Alert classified under a 10 CFR 72.32 emergency plan are generally consistent with those for an Unusual Event in a 10 CFR 50.47 emergency plan (e.g., to provide assistance, if requested). Also, the licensee's Emergency Response Organization (ERO) required for 10 CFR 72.32 emergency plan is different than that prescribed for a 10 CFR 50.47 emergency plan (e.g., no emergency technical support function).

3.0 KEY TERMINOLOGY USED

There are several key terms that appear throughout the NEI 99-01, Rev. 6 methodology. These terms are introduced in this section to support understanding of subsequent material. As an aid to the reader, the following table is provided as an overview to illustrate the relationship of the terms to each other.

Emergency Classification Level	
Unusual Event	**Alert**
↓	↓
Initiating Condition	**Initiating Condition**
↓	↓
Permanently Defueled Emergency Action Level[1] • Notes • Basis	**Permanently Defueled Emergency Action Level[1]** • Notes • Basis
[1] When Making an emergency classification, the Shift Manager/Emergency Director must consider all information having a bearing on the proper assessment of an Initiating Condition. This includes the PD EALs, Notes and the Basis information.	

3.1 Emergency Classification Level

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

- Unusual Event
- Alert

3.1.1 **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.

Purpose: The purpose of this classification is to assure that the first step in future response has been carried out, to bring the operations staff to a state of readiness, and to provide systematic handling of unusual event information and decision-making.

3.1.2 **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 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.

Purpose: The purpose of this classification is to assure that emergency personnel are readily available to respond if the situation becomes more serious or to perform confirmatory radiation monitoring if required, and provide offsite authorities current information on plant status and parameters.

3.2 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.

Discussion: An Initiating Condition (IC) describes an event or condition, the severity or consequences of which meets the definition of an emergency classification level. An IC can be expressed as a continuous, measurable parameter (e.g., radiation monitor readings) or an event (e.g., an earthquake).

Appendix 1 of NUREG-0654 does not contain example EALs for each ECL, but rather Initiating Conditions (i.e., plant conditions that indicate that a radiological emergency, or events that could lead to a radiological emergency, has occurred). NUREG-0654 states that the Initiating Conditions form the basis for establishment by a licensee of the specific plant instrumentation readings (as applicable) which, if exceeded, would initiate the emergency classification. Thus, it is the specific instrument readings that would be the EALs.

3.3 Emergency Action Level

A pre-determined, site-specific, observable threshold for an IC that, when met or exceeded, places the plant in a given emergency classification level.

Discussion: EAL statements may utilize a variety of criteria including instrument readings and status indications; observable events; results of calculations and analyses; entry into particular procedures; and the occurrence of natural phenomena.

4.0 GUIDANCE ON MAKING EMERGENCY CLASSIFICATIONS

4.1 General Considerations

When making an emergency classification, the Emergency Director must consider all information having a bearing on the proper assessment of an IC. This includes the EAL plus Notes and the informing Basis information.

All emergency classification assessments should be based upon valid indications, reports or conditions. A valid indication, report, or condition, is one that has been verified through appropriate means such that there is no doubt regarding the indicator's operability, the condition's existence, or the report's accuracy. For example, validation could be accomplished through an instrument channel check, response on related or redundant indicators, or direct observation by plant personnel. The validation of indications should be completed in a manner that supports timely emergency declaration.

For ICs and EALs that have a stipulated time duration (e.g., 15 minutes, 60 minutes, etc.), the Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time. If an ongoing radiological release is detected and the release start time is unknown, it should be assumed that the release duration specified in the IC/EAL has been exceeded, absent data to the contrary.

A planned work activity that results in an expected event or condition which meets or exceeds an EAL does not warrant an emergency declaration provided that 1) the activity proceeds as planned and 2) the plant remains within the limits imposed by the operating license. Such activities include planned work to test, manipulate, repair, maintain or modify a system or component. In these cases, the controls associated with the planning, preparation and execution of the work will ensure that compliance is maintained with all aspects of the operating license provided that the activity proceeds and concludes as expected. Events or conditions of this type may be subject to the reporting requirements of 10 CFR 50.72.

The assessment of some EALs is based on the results of analyses that are necessary to ascertain whether a specific EAL threshold has been exceeded (e.g., gaseous and liquid effluent sampling, etc.); the EAL and/or the associated basis discussion will identify the necessary analysis. In these cases, the declaration period starts with the availability of the analysis results that show the threshold to be exceeded (i.e., this is the time that the EAL information is first available).

While the EALs have been developed to address a full spectrum of possible events and conditions which may warrant emergency classification, a provision for classification based on operator/management experience and judgment is still necessary. The NEI 99-01 scheme provides the Emergency Director with the ability to classify events and conditions based upon judgment using EALs that are consistent with the ECL definitions (refer to PD-HU3 and PD-HA3). The Emergency Director will need to determine if the effects or consequences of the event or condition reasonably meet or exceed a particular ECL definition.

4.2 Classification Methodology

To make an emergency classification, the user will compare an event or condition (i.e., the relevant plant indications and reports) to an EAL(s) and determine if the EAL has been met or exceeded. The evaluation of an EAL(s) must be consistent with the Notes. If an EAL has been met or exceeded, then the IC is considered met and the associated ECL is declared in accordance with plant procedures.

When assessing an EAL that specifies a time duration for the off-normal condition, the EAL time duration runs concurrently with the emergency notification time duration.

4.3 Classification of Multiple Events and Conditions

When multiple emergency events or conditions are present, the user will identify all met or exceeded EALs. The highest applicable ECL identified during this review is declared. For example:

- If an Unusual Event EAL and an Alert EAL are met, an Alert should be declared.

There is no "additive" effect from multiple EALs meeting the same ECL. For example:

- If two Alert EALs are met, an Alert should be declared.

Related guidance concerning classification of rapidly escalating events or conditions is provided in Regulatory Issue Summary (RIS) 2007-02, "Clarification of NRC Guidance for Emergency Notifications During Quickly Changing Events."

4.4 Classification of Imminent Conditions

Although EALs provide specific thresholds, the Emergency Director must remain alert to events or conditions that could lead to meeting or exceeding an EAL within a relatively short period of time (i.e., a change in the ECL is IMMINENT). If, in the judgment of the Emergency Director, meeting an EAL is IMMINENT, the emergency classification should be made as if the EAL has been met. While applicable to all emergency classification levels, this approach is particularly important at the higher emergency classification level since it provides additional time for implementation of protective measures.

4.5 Emergency Classification Level Upgrading and Downgrading

An ECL may be downgraded when the event or condition that meets the highest IC and EAL no longer exists, and other site-specific downgrading requirements are met. If downgrading the ECL

is deemed appropriate, the new ECL would then be based on a lower applicable IC(s) and EAL(s). The ECL may also simply be terminated.

The following approach to downgrading or terminating an ECL is recommended:

ECL	Action When Condition No Longer Exists
Unusual Event	Terminate the emergency in accordance with plant procedures
Alert	Downgrade or terminate the emergency in accordance with plant procedures.

As noted above, guidance concerning classification of rapidly escalating events or conditions is provided in RIS 2007-02.

4.6 Classification of Short-Lived Events

Event-based ICs and EALs define a variety of specific occurrences that have potential or actual safety significance. By their nature, some of these events may be short-lived and, thus, over before the emergency classification assessment can be completed. If an event occurs that meets or exceeds an EAL, the associated ECL must be declared regardless of its continued presence at the time of declaration. Examples of such events would be an earthquake or an explosion.

4.7 Classification of Transient Conditions

Many of the ICs and/or EALs contained in this document employ time-based criteria. These criteria will require that the IC/EAL conditions be present for a defined period of time before an emergency declaration is warranted. In cases where no time-based criterion is specified, it is recognized that some transient conditions may cause an EAL to be met for a brief period of time (e.g., a few seconds to a few minutes). The following guidance should be applied to the classification of these conditions.

EAL momentarily met during expected plant response - In instances where an EAL is briefly met during an expected (normal) plant response, an emergency declaration is not warranted provided that associated systems and components are operating as expected, and operator actions are performed in accordance with procedures.

EAL momentarily met but the condition is corrected prior to an emergency declaration – If an operator takes prompt manual action to address a condition, and the action is successful in correcting the condition prior to the emergency declaration, then the applicable EAL is not considered met and the associated emergency declaration is not required.

It is important to stress that the emergency classification assessment period is not a "grace period" during which a classification may be delayed to allow the performance of a corrective action that would obviate the need to classify the event; emergency classification assessments must be deliberate and timely, with no undue delays.

4.8 After-the-Fact Discovery of an Emergency Event or Condition

In some cases, an EAL may be met but the emergency classification was not made at the time of the event or condition. This situation can occur when personnel discover that an event or condition existed which met an EAL, but no emergency was declared, and the event or condition no longer exists at the time of discovery. This may be due to the event or condition not being recognized at the time or an error that was made in the emergency classification process.

In these cases, no emergency declaration is warranted; however, the guidance contained in NUREG-1022, "Event Report Guidelines 10 CFR 50.72 and 50.73," is applicable. Specifically, the event should be reported to the NRC in accordance with 10 CFR § 50.72 within one hour of the discovery of the undeclared event or condition. The licensee should also notify appropriate State and local agencies in accordance with the agreed upon arrangements.

4.9 Retraction of an Emergency Declaration

Guidance on the retraction of an emergency declaration reported to the NRC is discussed in NUREG-1022.

5.0 REFERENCES

5.1 Developmental

5.1.1 NEI 99-01 Revision 6, Development of Emergency Action Levels for Non-Passive Reactors, November 2012

5.1.2 10 CFR Part 50, Domestic Licensing of Production and Utilization Facilities

5.1.3 RIS 2007-02, Clarification of NRC Guidance for Emergency Notifications During Quickly Changing E vents, February 2007

5.1.4 NUREG-1022, Event Reporting Guidelines 10 CFR 50.72 and 50.73

5.1.5 1- CFR 50.72, Immediate Notification Requirements for Operating Nuclear Power Reactors

5.1.6 NUREG-0654/FEMA-REP-1, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

5.1.7 10 CFR 72.32, Emergency Plan

5.1.8 NUREG-1567, Spent Fuel Dry Storage Facilities

5.1.9 10 CFR 50.47, Emergency Plans

5.1.10 NUREG-1140, A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees

5.2 Implementing

5.2.1 AP-3125 Emergency Plan Classification and Action Level Scheme

5.2.2 EAL Comparison Matrix

5.2.3 EAL Classification Matrix

5.3 Commitments

None

6.0 DEFINITIONS & ACRONYMS

Acronyms

CDE ..... Committed Dose Equivalent
CFR ..... Code of Federal Regulations
EAL ..... Emergency Action Level
ECL ..... Emergency Classification Level
EOP ..... Emergency Operating Procedure
EPA ..... Environmental Protection Agency
FAA ..... Federal Aviation Agency
FBI ..... Federal Bureau of Investigation
FEMA ..... Federal Emergency Management Agency
FSAR ..... Final Safety Analysis Report
ISFSI ..... Independent Spent Fuel Storage Installation
IC ..... Initiating Condition
MPF ..... Maximum Probable Flood
mrem ..... milli-Roentgen Equivalent Man
MSL ..... Mean Sea Level
NEI ..... Nuclear Energy Institute
NORAD ..... North American Aerospace Defense Command
NPP ..... Nuclear Power Plant
NRC ..... Nuclear Regulatory Commission
ODCM/ODAM ..... Off-site Dose Calculation (Assessment) Manual
ORO ..... Off-site Response Organization
PAG ..... Protective Action Guide
rem ..... Roentgen Equivalent Man
SM ..... Shift Manager
TEDE ..... Total Effective Dose Equivalent

Definitions

The following definitions are taken from Title 10, Code of Federal Regulations, and related guidance documents.

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 PAG exposure levels.

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.

The following are key terms necessary for overall understanding the NEI 99-01 emergency classification scheme.

Emergency Action Level (EAL): 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 Level (ECL): One of a set of names or titles established by the US Nuclear Regulatory Commission (NRC) for grouping off-normal events or conditions according to (1) potential or actual effects or consequences, and (2) resulting onsite and offsite response actions. The ECLs, in ascending order of severity, are:

- Unusual Event
- Alert

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.

Initiating Condition (IC)

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.

Selected terms used in Initiating Condition and Emergency Action Level statements are set in all capital letters (e.g., ALL CAPS). These words are defined terms that have specific meanings as used in this document. The definitions of these terms are provided below.

CONFINEMENT BOUNDARY

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

EXPLOSION

A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or over pressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not

automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

FIRE

Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE

A person(s) held as leverage against the station to ensure that demands will be met by the station.

HOSTILE ACTION

An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate 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, (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTILE FORCE

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

IMMINENT

The trajectory of events or conditions is such than an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

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.

NORMAL LEVELS

As applied to radiological IC/EALs, the highest reading in the past twenty-four hours excluding the current peak value.

OWNER CONTROLLED AREA

The area outside the Protected Area, owned by Entergy.

PROJECTILE

An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA

An area which normally encompasses all controlled areas within the security protected area fence as depicted in Drawing 5920-13013, Protected Area Fence.

SECURITY CONDITION

Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION.

UNPLANNED

A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

VISIBLE DAMAGE

Damage to a component or structure that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected component or structure.

7.0 VYNPS-TO-NEI 99-01 EAL CROSS-REFERENCE

This cross-reference is provided to facilitate association and location of a Vermont Yankee EAL within the NEI 99-01, Rev. 6 IC/EAL identification scheme. Further information regarding the development of the Vermont Yankee EALs based on the NEI guidance can be found in the EAL Comparison Matrix (Reference 5.2.2).

VY Permanently Defueled IC/EALs	**NEI 99-01, Rev. 6, Appendix C – Permanently Defueled Station ICs/EALs**
PD-AU1	PD-AU1
PD-AA1	PD-AA1
PD-AU2	PD-AU2
PD-AA2	PD-AA2
PD-HU1	PD-HU1
PD-HA1	PD-HA1
PD-HU2	PD-HU2
PD-HU3	PD-HU3
PD-HA3	PD-HA3
PD-SU1	PD-SU1
VY ISFSI ICs/EAL	**NEI 99-01, Rev. 6, Section 8 – ISFSI ICs/ EALs**
E-HU1	E-HU1

8.0 ATTACHMENTS

8.1 Attachment 1, Recognition Category PD EAL Bases

8.2 Attachment 2, Recognition Category E EAL Basis

8.1 Attachment 1 – Recognition Category PD EAL Bases

Recognition Category PD provides a stand-alone set of ICs/EALs for a Permanently Defueled nuclear power plant to consider for use in developing a site-specific emergency classification scheme. For development, it was assumed that the plant had operated under a 10 CFR § 50 license and that the operating company has permanently ceased plant operations. Further, the company intends to store the spent fuel within the plant for some period of time.

When in a permanently defueled condition, the plant licensee typically receives approval from the NRC for exemption from specific emergency planning requirements. These exemptions reflect the lowered radiological source term and risks associated with spent fuel pool storage relative to reactor at-power operation. Source terms and accident analyses associated with plausible accidents are documented in the station's Final Safety Analysis Report (FSAR), as updated. As a result, each licensee will need to develop a site-specific emergency classification scheme using the NRC-approved exemptions, revised source terms, and revised accident analyses as documented in the station's FSAR.

Recognition Category PD uses the same ECLs as operating reactors; however, the source term and accident analyses typically limit the ECLs to an Unusual Event and Alert. The Unusual Event ICs provide for an increased awareness of abnormal conditions while the Alert ICs are specific to actual or potential impacts to spent fuel. The source terms and release motive forces associated with a permanently defueled plant would not be sufficient to require declaration of a Site Area Emergency or General Emergency.

A permanently defueled station is essentially a spent fuel storage facility with the spent fuel is stored in a pool of water that serves as both a cooling medium (i.e., removal of decay heat) and shield from direct radiation. These primary functions of the spent fuel storage pool are the focus of the Recognition Category PD ICs and EALs. Radiological effluent IC and EALs were included to provide a basis for classifying events that cannot be readily classified based on an observable events or plant conditions alone.

Appropriate ICs and EALs from Recognition Categories A, C, F, H, and S were modified and included in Recognition Category PD to address a spectrum of the events that may affect a spent fuel pool. The Recognition Category PD ICs and EALs reflect the relevant guidance in this document (e.g., the importance of avoiding both over-classification and under-classification). Nonetheless, each licensee will need to develop their emergency classification scheme using the NRC-approved exemptions, and the source terms and accident analyses specific to the licensee. Security-related events will also need to be considered.

The following table, Table PD-1: Recognition Category "PD" Initiating Condition Matrix, provides a summary of initiating conditions associated with Recognition Category PD.

Table PD-1: Recognition Category "PD" Initiating Condition Matrix

UNUSUAL EVENT	ALERT
PD-AU1 Release of gaseous or liquid radioactivity greater than 2 times the ODCM limits for 60 minutes or longer.	**PD-AA1** Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE.
PD-AU2 UNPLANNED rise in plant radiation levels.	**PD-AA2** UNPLANNED rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity.
PD-HU1 Confirmed SECURITY CONDITION or threat.	**PD-HA1** HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.
PD-HU2 Hazardous event affecting SAFETY SYSTEM equipment necessary for spent fuel cooling.	
PD-HU3 Other conditions exists which in the judgment of the Emergency Director warrant declaration of an Unusual Event.	**PD-HA3** Other conditions exists which in the judgment of the Emergency Director warrant declaration of an Alert.
PD-SU1 UNPLANNED spent fuel pool temperature rise.	

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: Release of gaseous or liquid radioactivity greater than 2 times the radiological effluent Offsite Dose Calculation Manual (ODCM) limits for 60 minutes or longer.

EAL:

PD-AU1.1

Reading on an effluent radiation monitor greater than the values shown for 60 minutes or longer.

Gaseous	Action Value
Gas-1 [RM-17-156]	2 X High Alarm
Gas-2 [RM-17-157]	2 X High Alarm
Liquid	**Action Value**
SW Discharge Hdr Discharge Monitor [RM-17-351]	2 X High Alarm

Note 1: The Emergency Director should declare the Unusual Event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.

Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.

Note 3: If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Vermont Yankee Basis:

This IC addresses a potential decrease in the level of safety of the plant as indicated by a low-level radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release). It includes any gaseous or liquid radiological release, monitored or un-monitored, including those for which a radioactivity discharge permit is normally prepared.

Nuclear power plants incorporate design features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, and to control and monitor intentional releases. The occurrence of an extended, uncontrolled radioactive release to the environment is indicative of degradation in these features and/or controls.

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped

due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.

EAL PD-AU1.1 addresses radioactivity releases that cause effluent radiation monitor readings to exceed 2 times the limit established by a radioactivity discharge permit. This EAL will typically be associated with planned batch releases from non-continuous release pathways (e.g., radwaste, waste gas).

The high alarm setpoint for the Stack Gas Monitor RM-17-156/157 (Gas-1 or Gas-2) is established to ensure the ODCM release limits are not exceeded. (Reference 3)

In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.

The high alarm setpoint for SW Discharge Hdr Discharge Monitor (RM-17-351) is established to ensure the ODCM release limits are not exceeded. (Reference 7)

Escalation of the emergency classification level would be via IC PD-AA1.

Vermont Yankee Basis Reference(s):

1. VYNPS ODCM
2. VYNPS ODCM Table 3.1.2 Gaseous Effluent Monitoring Instrumentation
3. VYNPS ODCM Section 8.2 Gaseous Effluent Instrumentation Setpoints
4. VYNPS ODCM Section 9.2 In-plant Radioactive Gaseous Effluent Pathways
5. Alarm Response Sheet (ARS) 9-3-G-7/8
6. VYNPS ODCM Table 3.1.1 Liquid Effluent Monitoring Instrumentation
7. VYNPS ODCM Section 8.1 Liquid Effluent Instrumentation Setpoints
8. VYNPS ODCM Section 9.1 In-plant Radioactive Liquid Effluent Pathways

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: Release of gaseous or liquid radioactivity greater than 2 times the radiological effluent Offsite Dose Calculation Manual (ODCM) limits for 60 minutes or longer.

EAL:

PD-AU1.2

Sample analysis for a gaseous or liquid release indicates a concentration or release rate greater than 2 times the ODCM limits for 60 minutes or longer.

Note 1: The Emergency Director should declare the Unusual Event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.

Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.

Note 3: If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Vermont Yankee Basis:

This IC addresses a potential decrease in the level of safety of the plant as indicated by a low-level radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release). It includes any gaseous or liquid radiological release, monitored or un-monitored, including those for which a radioactivity discharge permit is normally prepared.

Nuclear power plants incorporate design features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, and to control and monitor intentional releases. The occurrence of an extended, uncontrolled radioactive release to the environment is indicative of degradation in these features and/or controls.

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.

EAL PD-AU1.2 addresses uncontrolled gaseous or liquid releases that are detected by sample analyses or environmental surveys, particularly on unmonitored pathways (e.g., spills of radioactive liquids into storm drains, heat exchanger leakage in river water systems, etc.).

Releases in excess of two times the site ODCM (Reference 3) instantaneous limits that continue for 60 minutes or longer represent an uncontrolled situation and hence, a potential degradation in the level of safety. The final integrated dose (which is very low in the Unusual Event emergency class) is not the primary concern here; it is the degradation in plant control implied by the fact that the release could possibly continue for a prolonged duration.

In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.

Escalation of the emergency classification level would be via IC PD-AA1.

Vermont Yankee Basis Reference(s):

1. VYNPS ODCM
2. VYNPS ODCM Table 3.1.2 Gaseous Effluent Monitoring Instrumentation
3. VYNPS ODCM Section 8.2 Gaseous Effluent Instrumentation Setpoints
4. VYNPS ODCM Section 9.2 In-plant Radioactive Gaseous Effluent Pathways
5. ARS 9-3-G-7/8
6. VYNPS ODCM Table 3.1.1 Liquid Effluent Monitoring Instrumentation
7. VYNPS ODCM Section 8.1 Liquid Effluent Instrumentation Setpoints
8. VYNPS ODCM Section 9.1 In-plant Radioactive Liquid Effluent Pathways

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE.

EAL:

PD-AA1.1

Reading on an effluent radiation monitor greater than the values shown for 15 minutes or longer.

Gaseous	Action Value
Gas-1 [RM-17-156]	9.0E+06 cpm
Gas-2 [RM-17-157]	9.0E+06 cpm
Liquid	**Action Value**
SW Discharge Hdr Discharge Monitor [RM-17-351]	192 cps

Note 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.

Note 3: If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Note 4: The pre-calculated effluent monitor values presented in EAL PD-AA1.1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

Vermont Yankee Basis:

This EAL addresses a release of gaseous or liquid radioactivity that results in detectable levels offsite that are below 1% of the EPA PAGs and reflects the condition of an uncontrolled release of gaseous or liquid radioactivity that results in detectable levels at the site boundary. It includes both monitored and un-monitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant as indicated by a radiological release that could potentially exceed regulatory limits (e.g., a significant uncontrolled release).

With VY permanently shutdown, the only radionuclide of any significance available to be released in gaseous form is the noble gas Kr-85. Kr-85 decays emitting a low abundance gamma and is therefore not a significant contributor to TEDE.

The gaseous release portion of this EAL is not based on any particular dose value, but rather on effluent radiation monitor readings equivalent to 90% of of the full scale reading of the monitors (Reference 11).

The liquid release portion of this EAL is based on a counts per second value equivalent to 10 mrem TEDE (Reference 11).

Radiological effluent EALs provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.

Vermont Yankee Basis Reference(s):

1. VYNPS ODCM Table 3.1.2 Gaseous Effluent Monitoring Instrumentation
2. VYNPS ODCM Section 8.2 Gaseous Effluent Instrumentation Setpoints
3. VYNPS ODCM Section 9.2 In-plant Radioactive Gaseous Effluent Pathways
4. ARS 9-3-G-7/8
5. VYNPS ODCM Table 3.1.1 Liquid Effluent Monitoring Instrumentation
6. VYNPS ODCM Section 8.1 Liquid Effluent Instrumentation Setpoints
7. VYNPS ODCM Section 9.1 In-plant Radioactive Liquid Effluent Pathways
8. OP 3513 Evaluations of Offsite Radiological Conditions
9. OP 3510 Offsite and Site Boundary Monitoring
10. OP 3525 Radiological Coordination
11. Calculation: Emergency Action Levels for Decommissioning for the Stack and Service Water Discharge Monitors for Vermont Yankee

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE.

EAL:

PD-AA1.2

Dose assessment using actual meteorology indicates doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond the site boundary.

Note 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.

Note 3: If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Note 4: The pre-calculated effluent monitor values presented in EAL PD-AA1.1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

Vermont Yankee Basis:

This EAL addresses a release of gaseous or liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1% of the EPA PAGs. It includes both monitored and un-monitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant as indicated by a radiological release that significantly exceeds regulatory limits (e.g., a significant uncontrolled release).

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

The TEDE dose is set at 1% of the EPA PAG of 1,000 mrem while the 50 mrem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.

In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.

The dose rate EALs are based on a Site Boundary dose rate of 10 mR/hr TEDE or 50 mR/hr CDE thyroid, whichever is more limiting. Actual meteorology is specifically identified because it gives the most accurate dose assessment. Actual meteorology (including forecasts) should be used whenever possible.

For the purposes of this EAL the Site Boundary for Vermont Yankee is a 0.35 mile radius around the plant. This corresponds to the Owner Controlled Area fence for sectors 1-12 and the furthest accessible security barrier in sectors 13-16 (Reference 9).

Vermont Yankee Basis Reference(s):

1. VYNPS ODCM Table 3.1.2 Gaseous Effluent Monitoring Instrumentation
2. VYNPS ODCM Section 8.2 Gaseous Effluent Instrumentation Setpoints
3. VYNPS ODCM Section 9.2 In-plant Radioactive Gaseous Effluent Pathways
4. ARS 9-3-G-7/8
5. VYNPS ODCM Table 3.1.1 Liquid Effluent Monitoring Instrumentation
6. VYNPS ODCM Section 8.1 Liquid Effluent Instrumentation Setpoints
7. VYNPS ODCM Section 9.1 In-plant Radioactive Liquid Effluent Pathways
8. OP 3513 Evaluations of Offsite Radiological Conditions
9. OP 3510 Offsite and Site Boundary Monitoring
10. OP 3525 Radiological Coordination

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE.

EAL:

PD-AA1.3

Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond the site boundary for one hour of exposure.

Note 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.

Note 3: If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Note 4: The pre-calculated effluent monitor values presented in EAL PD-AA1.1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

Vermont Yankee Basis:

This EAL addresses a release of liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1% of the EPA PAGs. It includes both monitored and un-monitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant as indicated by a radiological release that significantly exceeds regulatory limits (e.g., a significant uncontrolled release).

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

The TEDE dose is set at 1% of the EPA PAG of 1,000 mrem while the 50 mrem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.

The dose rate EALs are based on a Site Boundary dose rate of 10 mR/hr TEDE or 50 mR/hr CDE thyroid, whichever is more limiting. For the purposes of this EAL the Site Boundary for Vermont Yankee is a 0.35 mile radius around the plant. This corresponds to the Owner Controlled Area fence for sectors 1-12 and the furthest accessible security barrier in sectors 13-16 (Reference 9).

Vermont Yankee Basis Reference(s):

1. VYNPS ODCM Table 3.1.2 Gaseous Effluent Monitoring Instrumentation
2. VYNPS ODCM Section 8.2 Gaseous Effluent Instrumentation Setpoints

3. VYNPS ODCM Section 9.2 In-plant Radioactive Gaseous Effluent Pathways
4. ARS 9-3-G-7/8
5. VYNPS ODCM Table 3.1.1 Liquid Effluent Monitoring Instrumentation
6. VYNPS ODCM Section 8.1 Liquid Effluent Instrumentation Setpoints
7. VYNPS ODCM Section 9.1 In-plant Radioactive Liquid Effluent Pathways
8. OP 3513 Evaluations of Offsite Radiological Conditions
9. OP 3510 Offsite and Site Boundary Monitoring
10. OP 3525 Radiological Coordination

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE.

EAL:

PD-AA1.4

Field survey results indicate **EITHER** of the following at or beyond the site boundary:

- Closed window dose rates greater than 10 mR/hr expected to continue for 60 minutes or longer
- Analyses of field survey samples indicate thyroid CDE greater than 50 mrem for one hour of inhalation

Note 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.

Note 3: If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Note 4: The pre-calculated effluent monitor values presented in EAL PD-AA1.1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

Vermont Yankee Basis:

This EAL addresses a release of gaseous or liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1% of the EPA PAGs. It includes both monitored and un-monitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant as indicated by a radiological release that significantly exceeds regulatory limits (e.g., a significant uncontrolled release).

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

The TEDE dose is set at 1% of the EPA PAG of 1,000 mrem while the 50 mrem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.

In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.

The dose rate EALs are based on a Site Boundary dose rate of 10 mR/hr TEDE or 50 mR/hr CDE thyroid, whichever is more limiting. For the purposes of this EAL the Site Boundary for Vermont Yankee is a 0.35 mile radius around the plant. This corresponds to the Owner

Controlled Area fence for sectors 1-12 and the furthest accessible security barrier in sectors 13-16 (Reference 9).

Vermont Yankee Basis Reference(s):

1. VYNPS ODCM Table 3.1.2 Gaseous Effluent Monitoring Instrumentation
2. VYNPS ODCM Section 8.2 Gaseous Effluent Instrumentation Setpoints
3. VYNPS ODCM Section 9.2 In-plant Radioactive Gaseous Effluent Pathways
4. ARS 9-3-G-7/8
5. VYNPS ODCM Table 3.1.1 Liquid Effluent Monitoring Instrumentation
6. VYNPS ODCM Section 8.1 Liquid Effluent Instrumentation Setpoints
7. VYNPS ODCM Section 9.1 In-plant Radioactive Liquid Effluent Pathways
8. OP 3513 Evaluations of Offsite Radiological Conditions
9. OP 3510 Offsite and Site Boundary Monitoring
10. OP 3525 Radiological Coordination

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: UNPLANNED rise in plant radiation levels.

EAL:

PD-AU2.1

a. UNPLANNED water level drop in the spent fuel pool as indicated by ANY of the following:

- Spent Fuel Pool low water level alarm as monitored by LT-19-63A and B
- Visual observation

AND

b. UNPLANNED rise in area radiation levels as indicated by ANY of the following radiation monitors.

- ARM #14 Rx Bldg West Refuel
- ARM #15 Spent Fuel Floor

Vermont Yankee Basis:

This IC addresses elevated plant radiation levels caused by a decrease in water level above irradiated (spent) fuel or other UNPLANNED events. The increased radiation levels are indicative of a minor loss in the ability to control radiation levels within the plant or radioactive materials. Either condition is a potential degradation in the level of safety of the plant.

A water level decrease will be primarily determined by indications from available level instrumentation. Other sources of level indications may include reports from plant personnel or video camera observations (if available). A significant drop in the water level may also cause an increase in the radiation levels of adjacent areas that can be detected by monitors in those locations.

The effects of planned evolutions should be considered. Note that PDAU2.1 is applicable only in cases where the elevated reading is due to an UNPLANNED water level drop.

Loss of inventory from the spent fuel pool may reduce water shielding above spent fuel and cause unexpected increases in plant radiation. Classification as an Unusual Event is warranted as a precursor to a more serious event.

The low water level alarm (SFP level 36 ft. 7 in.) in this EAL refers to the SFP low level alarm (Reference 1).

The SFP level is monitored by two transmitters (LT-19-63A and B).

Allowing level to decrease could result in spent fuel being uncovered, reducing spent fuel decay heat removal and creating an extremely hazardous radiation environment. Technical Specifications (Reference 4) require SFP level to be maintained at least 36 ft.

Area radiation monitors that may indicate a loss of shielding of spent fuel in the SFP or refueling cavity include (References 3 and 4):

- ARM-14 Rx Bldg West Refuel
- ARM-15 Spent Fuel Pool

The ARMs monitor the gamma radiation levels in units of mR/hr at selected areas throughout the station. If radiation levels exceed a preset limit in any channel, the Control Room annunciator and local alarms will be energized to warn of abnormal or significantly changing radiological conditions. The alarm limit is normally set at approximately 10 times normal background for each channel. (References 5 and 6)

~~It is recognized that some plant area radiation monitors may not be able to detect or display a reading that is 25 mR/hr over NORMAL LEVELS.~~ The intent of this IC is to rely on currently installed plant monitors and not to require design changes/backfits. In cases where an installed area radiation monitor cannot detect or display values at or above 25 mR/hr over NORMAL LEVELS, then survey instrument results may be used.

Routine and work specific surveys are conducted throughout the station at frequencies specified by the Radiation Protection Superintendent. Routine surveys are scheduled per the RP Department Surveillance Schedule. Work specific surveys are conducted in accordance with the Radiation Work Permit (RWP). (Reference 7)

Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.

Vermont Yankee Basis Reference(s):

1. ARS 21009, FPC Alarm Response Sheets
2. ON 3157 Loss of Fuel Pool Level
3. ON 3153 Excessive Radiation Levels
4. Technical Specification Section 3.12.C Fuel Storage Pool Water Level
5. ON 3153 Excessive Radiation Levels
6. OP 2135 Area Radiation Monitoring System
7. OP 4530 Dose Rate Radiation Surveys

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: UNPLANNED rise in plant radiation levels.

EAL:

PD-AU2.2

Area radiation monitor reading or survey result indicates an UNPLANNED rise of 25 mR/hr over NORMAL LEVELS*.

* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value.

Vermont Yankee Basis:

This IC addresses elevated plant radiation levels caused by a decrease in water level above irradiated (spent) fuel or other UNPLANNED events. The increased radiation levels are indicative of a minor loss in the ability to control radiation levels within the plant or radioactive materials. Either condition is a potential degradation in the level of safety of the plant.

The effects of planned evolutions should be considered. Note that PD-AU2.2 excludes radiation level increases that result from planned activities such as use of radiographic sources and movement of radioactive waste materials.

Loss of inventory from the SFP may reduce water shielding above spent fuel and cause unexpected increases in plant radiation. Classification as an Unusual Event is warranted as a precursor to a more serious event.

The low water level alarm (SFP level 36 ft. 7 in.) in this EAL refers to the SFP low level alarm (Reference 1).

The SFP level is monitored by two transmitters (LT-19-63A and B).

Allowing level to decrease could result in spent fuel being uncovered, reducing spent fuel decay heat removal and creating an extremely hazardous radiation environment. Technical Specifications (Reference 4) require SFP level to be maintained at least 36 ft.

Area radiation monitors that may indicate a loss of shielding of spent fuel in the SFP or refueling cavity include (References 3 and 4):

- ARM-14 Rx Bldg West Refuel
- ARM-15 Spent Fuel Pool

The ARMs monitor the gamma radiation levels in units of mR/hr at selected areas throughout the station. If radiation levels exceed a preset limit in any channel, the Control Room annunciator and local alarms will be energized to warn of abnormal or significantly changing radiological conditions. The alarm limit is normally set at approximately 10 times normal background for each channel. (References 5 and 6)

~~It is recognized that some plant area radiation monitors may not be able to detect or display a reading that is 25 mR/hr over NORMAL LEVELS.~~ The intent of this IC is to rely on currently

installed plant monitors and not to require design changes/backfits. In cases where an installed area radiation monitor cannot detect or display values at or above 25 mR/hr over NORMAL LEVELS, then survey instrument results may be used.

Routine and work specific surveys are conducted throughout the station at frequencies specified by the Radiation Protection Superintendent. Routine surveys are scheduled per the Radiation Protection Department Surveillance Schedule. Work specific surveys are conducted in accordance with the Radiation Work Permit. (Reference 7)

Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.

Vermont Yankee Basis Reference(s):

1. ARS 21009, FPC Alarm Response Sheets
2. ON 3157 Loss of Fuel Pool Level
3. ON 3153 Excessive Radiation Levels
4. Technical Specification Section 3.12.C Fuel Storage Pool Water Level
5. ON 3153 Excessive Radiation Levels
6. OP 2135 Area Radiation Monitoring System
7. OP 4530 Dose Rate Radiation Surveys

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: UNPLANNED rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity.

EAL:

PD-AA2.1

UNPLANNED dose rate greater than 15 mR/hr in **ANY** of the following areas requiring continuous occupancy to maintain control of radioactive material or operation of systems needed to maintain spent fuel integrity:

- Control Room

Vermont Yankee Basis:

This IC addresses increased radiation levels that impede necessary access to areas containing equipment that must be operated manually or that requires local monitoring, in order to maintain systems needed to maintain spent fuel integrity. As used here, 'impede' includes hindering or interfering, provided that the interference or delay is sufficient to significantly threaten necessary plant access. It is this impaired access that results in the actual or potential substantial degradation of the level of safety of the plant. The Emergency Director should consider the cause of the increased radiation levels and determine in another IC may be applicable.

Areas that meet this threshold include the Control Room. There are no permanently installed Control Room area radiation monitors that may be used to assess this EAL threshold. Therefore these thresholds must be assessed via local radiation survey (Reference 1).

An emergency declaration is not warranted if any of the following conditions apply:

- The increased radiation levels are a result of a planned activity that includes compensatory measures which address the temporary inaccessibility of a room or area (e.g., radiography, spent filter or resin transfer, etc.).
- The action for which room/area entry is required is of an administrative or record keeping nature (e.g., normal rounds or routine inspections).
- The access control measures are of a conservative or precautionary nature, and would not actually prevent or impede a required action.

Vermont Yankee Basis Reference(s):

1. OP 4530 Dose Rate Radiation Surveys

Category: A – Abnormal Rad Levels/Rad Effluent

Initiating Condition: UNPLANNED rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity.

EAL:

PD-AA2.2

Survey results that indicate an UNPLANNED rise of 100 mR/hr over NORMAL LEVELS* that impedes access to **ANY** of the following areas needed to maintain control of radioactive material or operation of systems needed to maintain spent fuel pool integrity.

- Spent Fuel Pool Pump Area

* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value.

Vermont Yankee Basis:

This IC addresses increased radiation levels that impede necessary access to areas containing equipment that must be operated manually or that requires local monitoring, in order to maintain systems needed to maintain spent fuel integrity. As used here, 'impede' includes hindering or interfering, provided that the interference or delay is sufficient to significantly threaten necessary plant access. It is this impaired access that results in the actual or potential substantial degradation of the level of safety of the plant. The Emergency Director should consider the cause of the increased radiation levels and determine in another IC may be applicable.

Areas that meet this threshold include the Spent Fuel Pool Pump Area. There are no permanently installed Spent Fuel Pool Pump Area area radiation monitors that may be used to assess this EAL threshold. Therefore, these thresholds must be assessed via local radiation survey (Reference 1).

For EAL PD-AA2.2, an Alert declaration is warranted if entry into the affected room/area is, or may be, procedurally required at the time of the elevated radiation levels. The emergency classification is not contingent upon whether entry is actually necessary at the time of the increased radiation levels. Access should be considered as impeded if extraordinary measures are necessary to facilitate entry of personnel into the affected room/area (e.g., installing temporary shielding, requiring use of non-routine protective equipment, requesting an extension in dose limits beyond normal administrative limits).

An emergency declaration is not warranted if any of the following conditions apply:

- The increased radiation levels are a result of a planned activity that includes compensatory measures which address the temporary inaccessibility of a room or area (e.g., radiography, spent filter or resin transfer, etc.).
- The action for which room/area entry is required is of an administrative or record keeping nature (e.g., normal rounds or routine inspections).

- The access control measures are of a conservative or precautionary nature, and would not actually prevent or impede a required action.

Vermont Yankee Basis Reference(s):

1. OP 4530 Dose Rate Radiation Surveys

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: Confirmed SECURITY CONDITION or threat.

EAL:

PD-HU1.1

A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor.

Vermont Yankee Basis:

This IC addresses events that pose a threat to plant personnel or the equipment necessary to maintain cooling of spent fuel, and thus represent a potential degradation in the level of plant safety. Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR 73.71 or 10 CFR 50.72.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event. Classification of these events will initiate appropriate threat-related notifications to plant personnel and OROs.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

PD-HU1.1 references the Security Shift Supervisor because these are the individuals trained to confirm that a security event is occurring or has occurred. Training on security event confirmation and classification is controlled due to the nature of Safeguards and 10 CFR 2.390 information.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Physical Security Plan.

OP 3132, Operations Department Response to Security Events, (Reference 3) provides guidance for response to security related events based on contingency events at the Vermont Yankee Plant.

Security events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.

Vermont Yankee Basis Reference(s):

1. VYNPS Physical Security Plan
2. OP 3132 Operations Department Response to Security Events
3. SP 0904 Contingency Procedures and Events
4. ON 3177 Operations Response to Aircraft Threats

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: Confirmed SECURITY CONDITION or threat.

EAL:

PD-HU1.2

Notification of a credible security threat directed at the site.

Vermont Yankee Basis:

This IC addresses events that pose a threat to plant personnel or the equipment necessary to maintain cooling of spent fuel, and thus represent a potential degradation in the level of plant safety. Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR 73.71 or 10 CFR 50.72.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event. Classification of these events will initiate appropriate threat-related notifications to plant personnel and OROs.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

PD-HU1.2 addresses the receipt of a credible security threat. The credibility of the threat is assessed in accordance with OP 3132, Operations Department Response to Security Events, and SP 0904, Contingency Procedures and Events.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Physical Security Plan.

OP 3132, Operations Department Response to Security Events, (Reference 3) provides guidance for response to security related events based on contingency events at the Vermont Yankee Plant.

Security events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.

Vermont Yankee Basis Reference(s):

1. VYNPS Physical Security Plan
2. OP 3132 Operations Department Response to Security Events
3. SP 0904 Contingency Procedures and Events
4. ON 3177 Operations Response to Aircraft Threats

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: Confirmed SECURITY CONDITION or threat.

EAL:

PD-HU1.3

A validated notification from the NRC providing information of an aircraft threat.

Vermont Yankee Basis:

This IC addresses events that pose a threat to plant personnel or the equipment necessary to maintain cooling of spent fuel, and thus represent a potential degradation in the level of plant safety. Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR 73.71 or 10 CFR 50.72.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event. Classification of these events will initiate appropriate threat-related notifications to plant personnel and OROs.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

PD-HU1.3 addresses the threat from the impact of an aircraft on the plant. The NRC HOO will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may also be provided by the NORAD through the NRC. Validation of the threat is performed in accordance with ON 3177, Operations Response to Aircraft Threats.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Physical Security Plan.

OP 3132, Operations Department Response to Security Events, (Reference 3) provides guidance for response to security related events based on contingency events at the Vermont Yankee Plant.

Security events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.

Vermont Yankee Basis Reference(s):

1. VYNPS Physical Security Plan
2. OP 3132 Operations Department Response to Security Events
3. SP 0904 Contingency Procedures and Events
4. ON 3177 Operations Response to Aircraft Threats

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.

EAL:

PD-HA1.1

A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor.

Vermont Yankee Basis:

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the PROTECTED AREA, or the need to prepare the plant and staff for a potential aircraft impact.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

As time and conditions allow, these events require a heightened state of readiness by the plant staff and implementation of onsite protective measures (e.g., evacuation, dispersal or sheltering). The Alert declaration will also heighten the awareness of OROs, allowing them to be better prepared should it be necessary to consider further actions.

This IC does not apply to incidents that are accidental events, acts of civil disobedience, or otherwise are not a HOSTILE ACTION perpetrated by a HOSTILE FORCE. Examples include the crash of a small aircraft, shots from hunters, physical disputes between employees, etc. Reporting of these types of events is adequately addressed by other EALs, or the requirements of 10 CFR 73.71 or 10 CFR 50.72.

PD-HA1.1 is applicable for any HOSTILE ACTION occurring, or that has occurred, in the OWNER CONTROLLED AREA. This includes any action directed against an ISFSI that is located within the OWNER CONTROLLED AREA.

The NRC HOO will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may be provided by NORAD through the NRC.

In some cases, it may not be readily apparent if an aircraft impact within the OWNER CONTROLLED AREA was intentional (i.e., a HOSTILE ACTION). It is expected, although not certain, that notification by an appropriate Federal agency to the site would clarify this point. In this case, the appropriate federal agency is intended to be NORAD, FBI, FAA or NRC. The emergency declaration, including one based on other ICs/EALs, should not be unduly delayed while awaiting notification by a Federal agency.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

OP 3132, Operations Department Response to Security Events (Reference 2) provides guidance for response to security related events based on contingency events at VY.

Vermont Yankee Basis Reference(s):

1. VYNPS Physical Security Plan
2. OP 3132 Operations Department Response to Security Events
3. ON 3177 Operations Response to Aircraft Threats

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.

EAL:

PD-HA1.2

A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.

Vermont Yankee Basis:

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the PROTECTED AREA, or the need to prepare the plant and staff for a potential aircraft impact.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

As time and conditions allow, these events require a heightened state of readiness by the plant staff and implementation of onsite protective measures (e.g., evacuation, dispersal or sheltering). The Alert declaration will also heighten the awareness of OROs, allowing them to be better prepared should it be necessary to consider further actions.

This IC does not apply to incidents that are accidental events, acts of civil disobedience, or otherwise are not a HOSTILE ACTION perpetrated by a HOSTILE FORCE. Examples include the crash of a small aircraft, shots from hunters, physical disputes between employees, etc. Reporting of these types of events is adequately addressed by other EALs, or the requirements of 10 CFR 73.71 or 10 CFR 50.72.

PD-HA1.2 addresses the threat from the impact of an aircraft on the plant, and the anticipated arrival time is within 30 minutes. The intent of this EAL is to ensure that threat-related notifications are made in a timely manner so that plant personnel and OROs are in a heightened state of readiness. This EAL is met when the threat-related information has been validated in accordance with ON 3177, Operations Response to Aircraft Threats.

The NRC HOO will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may be provided by NORAD through the NRC.

In some cases, it may not be readily apparent if an aircraft impact within the OWNER CONTROLLED AREA was intentional (i.e., a HOSTILE ACTION). It is expected, although not certain, that notification by an appropriate Federal agency to the site would clarify this point. In this case, the appropriate federal agency is intended to be NORAD, FBI, FAA or NRC. The emergency declaration, including one based on other ICs/EALs, should not be unduly delayed while awaiting notification by a Federal agency.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

OP 3132, Operations Department Response to Security Events (Reference 2) provides guidance for response to security related events based on contingency events at VY.

Vermont Yankee Basis Reference(s):

1. VYNPS Physical Security Plan
2. OP 3132 Operations Department Response to Security Events
3. ON 3177 Operations Response to Aircraft Threats

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: Hazardous event affecting equipment necessary for spent fuel cooling.

EAL:

PD-HU2.1

a. The occurrence of **ANY** of the following hazardous events:

- Seismic Event (earthquake)
- Internal or external flooding event
- River water level >250 ft. MSL (plant grade)
- Intake water level < 210 ft. MSL
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

b. The event has damaged at least one train of a system needed for spent fuel cooling.

AND

c. The damaged train(s) cannot, or potentially cannot, perform its designed function based on **EITHER**:

- Indications of degraded performance
- VISIBLE DAMAGE

Vermont Yankee Basis:

This IC addresses a hazardous event that causes damage to at least one train of a system needed for spent fuel cooling. The Service Water System and SFP Cooling systems are the systems necessary to maintain SFP cooling. The damage must be of sufficient magnitude that the system(s) train cannot, or potentially cannot, perform its design function. This condition reduces the margin to a loss or potential loss of the fuel clad barrier, and therefore represents a potential degradation of the level of safety of the plant.

Plant Grade is 250 ft. MSL. The maximum water level experienced at the site was 231.4 ft. MSL. The Maximum Probable Flood is 252.5 ft. MSL. Since the entrances to all structures containing equipment necessary for cooling are at elevation 252.5 ft. MSL, they are protected against the MPF. However, water level in excess of plant grade may result in a loss of accessibility. (References 1, 2, 3) Gradients, ranging from 248 feet to 254 feet, are available on the north side of the intake structure wall to assist in classifying this event.

Intake water level less than 210 feet indicates low river water conditions which may threaten the operability of the spent fuel pool cooling system. Intake Bay Level Gauge LI-104-9 on Control Room Panel CRP-9-6 as well as direct observation at the intake structure can be used to ascertain this initiating condition threshold.

For EAL PD-HU2.1a, the last bullet is not intended to address component failures within the system such as pump bearing failures, electrical grounds or shorts in a pump, failure of valves, etc. Declaration of an event due to the failure of a component would be based on PD-SU1.1.

For EAL PD-HU2.1c, the first bullet addresses damage to a system that is in service/operation since indications for it will be readily available.

For EAL PD-HU2.1c, the second bullet addresses damage to a system that is not in service/operation or readily apparent through indications alone. Operators will make this determination based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage.

Escalation of the emergency classification level could, depending upon the event, be based on any of the Alert ICs; PD-AA1, PD-AA2, PD-HA1 or PD-HA3.

Vermont Yankee Basis Reference(s):

1. OP 3127, Natural Phenomena
2. FSAR Section 2.4.3.4
3. FSAR Section 2.4.8
4. ON 3148, Loss of Service Water

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Unusual Event.

EAL:

PD-HU3.1

Other conditions exist which in the judgment of the Emergency Director indicate that 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.

Vermont Yankee Basis:

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for an Unusual Event.

The Emergency Director is the designated onsite individual having the responsibility and authority for implementing the Vermont Yankee Emergency Plan. The Shift Manager (SM) initially acts in the capacity of the Emergency Director and takes actions as outlined in the Emergency Plan implementing procedures. If required by the emergency classification or if deemed appropriate by the Emergency Director, emergency response personnel are notified and instructed to report to their emergency response locations. In this manner, the individual usually in charge of activities in the Control Room is responsible for initiating the necessary emergency response, but plant management is expected to manage the emergency response as soon as available to do so in anticipation of the possible wide-ranging responsibilities associated with managing a major emergency (Reference 1).

Vermont Yankee Basis Reference(s):

1. Vermont Yankee Emergency Plan Section 8.0, Organization

Category: H – Hazards and Other Conditions Affecting Plant Safety

Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert.

EAL:

PD-HA3.1

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve a potential substantial degradation of the level of safety of the plant or indicate 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.

Vermont Yankee Basis:

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for an Alert.

The Emergency Director is the designated onsite individual having the responsibility and authority for implementing the Vermont Yankee Emergency Plan. The SM initially acts in the capacity of the Emergency Director and takes actions as outlined in the Emergency Plan implementing procedures. If required by the emergency classification or if deemed appropriate by the Emergency Director, emergency response personnel are notified and instructed to report to their emergency response locations. In this manner, the individual usually in charge of activities in the Control Room is responsible for initiating the necessary emergency response, but Plant Management is expected to manage the emergency response as soon as available to do so in anticipation of the possible wide-ranging responsibilities associated with managing a major emergency.

Vermont Yankee Basis Reference(s):

1. Vermont Yankee Emergency Plan Section 8.0, Organization

Category: S – System Malfunction

Initiating Condition: UNPLANNED spent fuel pool temperature rise.

EAL:

PD-SU1.1
UNPLANNED spent fuel pool temperature rise to greater than 150°F.

Vermont Yankee Basis:

This IC addresses a condition that is a precursor to a more serious event and represents a potential degradation in the level of safety of the plant. If uncorrected, boiling in the pool will occur, and result in a loss of pool level and increased radiation levels.

Whenever irradiated fuel is stored in the spent fuel pool, the pool water temperature shall be maintained below 150°F. The Spent Fuel Pool Cooling System is designed to maintain the pool water temperature below 125°F (Reference 1).

Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.

Vermont Yankee Basis Reference(s):

1. Vermont Yankee Technical Specifications

8.2 Attachment 2 – Recognition Category E EAL Basis

Recognition Category E provides a set of ICs/EALs for an ISFSI. An ISFSI is a complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage. A significant amount of the radioactive material contained within a cask must escape its packaging and enter the biosphere for there to be a significant environmental effect resulting from an accident involving the dry storage of spent nuclear fuel. Formal offsite planning is not required because the postulated worst-case accident involving an ISFSI has insignificant consequences to the public health and safety.

An Unusual Event is declared on the basis of the occurrence of an event of sufficient magnitude that a loaded cask confinement boundary is damaged or violated. This includes classification based on a loaded fuel storage cask confinement boundary loss leading to the degradation of the fuel during storage or posing an operational safety problem with respect to its removal from storage.

Table E-1: Recognition Category "E" Initiating Condition Matrix

UNUSUAL EVENT
E-HU1 Damage to a loaded cask CONFINEMENT BOUNDARY.

Category: E – Independent Spent Fuel Storage Istallation

Initiating Condition: Damage to a loaded cask CONFINEMENT BOUNDARY

EAL:

E-HU1.1

Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading greater than two times the ISFSI Technical Specification allowable levels.

Two times the ISFSI Technical Specification allowable levels equate to:

- 2.88 mR/hr on the top of the overpack

  or

- 1.90 mR/hr on the side of the overpack, excluding inlet and outlet ducts.

Vermont Yankee Basis:

This IC addresses an event that results in damage to the CONFINEMENT BOUNDARY of a storage cask containing spent fuel. It applies to irradiated fuel that is licensed for dry storage beginning at the point that the loaded storage cask is sealed. The issues of concern are the creation of a potential or actual release path to the environment, degradation of one or more fuel assemblies due to environmental factors, and configuration changes which could cause challenges in removing the cask or fuel from storage.

The existence of "damage" is determined by radiological survey. The Technical Specification multiple of two times is used here to distinguish between non-emergency and emergency conditions. The emphasis for this classification is the degradation in the level of safety of the spent fuel cask and not the magnitude of the associated dose or dose rate. It is recognized that in the case of extreme damage to a loaded cask, the fact that the dose rate limit is exceeded may be determined based on measurement of a dose rate at some distance from the cask.

Minor surface damage that does not affect the storage cask boundary is excluded from the scope of this EAL.

Two times the ISFSI Technical Specification allowable levels equate to:

- 2.88 mR/hr on the top of the overpack

  or

- 1.90 mR/hr on the side of the overpack, excluding inlet and outlet ducts. (Reference 1)

Security-related events for ISFSIs are covered under IC PD-HU1 and PD-HA1.

Vermont Yankee Basis Reference(s):

1. Entergy Nuclear 10 CFR 72.212 Evaluation Report Appendix G VY Specific Information for ISFSIs Utilizing the Holtec, International HI-STORM 100 Cask System
2. VYNPS Procedure 2530 Radiological Monitoring for Dry Fuel Storage

3. VYNPS Procedure DP 3201 Equipment Handling and Storage Abnormal Conditions
4. VYNPS Procedure OP3127 Natural Phenomena

Attachment 4

Vermont Yankee Nuclear Power Station

List of Regulatory Commitments

List of Regulatory Commitments

This table identifies actions discussed in this letter for which Entergy commits to perform. Any other actions discussed in this submittal are described for the NRC's information and are **not** commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
The procedure regarding Initial Radiological Dose Projection will be developed considering that after permanent shutdown and removal of fuel from the reactor, the only viable accident scenario is a Fuel Handling Accident in the spent fuel pool and will be provided to the NRC in a supplemental response by June 30, 2015 (RAI-18).	x		June 30, 2015
VY will develop the format and content of the initial and follow-up messages and provide the proposed messages to responsible offsite authorities for review prior to May 31, 2015 (RAI-23).	x		May 31, 2015
Letters of Agreement in support of the Permanently Defueled Emergency Plan will be developed with consideration given to NRC-approved Regulatory Exemptions and the Permanently Defueled Emergency Action Levels still under NRC review. VY will provide the Letters of Agreement to the NRC in a supplemental response to this Request for Additional Information by June 30, 2015 (RAI-23 and 32).	x		June 30, 2015
VY will develop a procedure establishing the format and content of initial and follow-up messages and the frequency at which the messages are provided. The procedure will address the permanently shutdown and defueled condition and the format and content of the initial and follow-up messages will be mutually agreed upon with responsible offsite authorities in accordance with the guidance contained in Planning Standard E, Evaluation Criterion 1 of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980) (RAI-23).	x		Consistent with the implementation schedule for the approved amendment

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
A comprehensive response to RAI-24, including any identified revisions to the PDEP, will be provided in a supplemental response by June 30, 2015 (RAI-24).	x		June 30, 2015
Revisions to AP 3712 and the Emergency Plan Training Program Description will be developed to support the Permanently Defueled Emergency Plan and will be provided to the NRC in a supplemental response by June 30, 2015 (RAI-29).	x		June 30, 2015