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

BVY 14-033

June 12, 2014

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

SUBJECT: Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

REFERENCES:

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Notification of Permanent Cessation of Power Operations," BVY 13-079, dated September 23, 2013 (ML13273A204)
2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Proposed Changes to the Vermont Yankee Emergency Plan," BVY 14-018, dated March 24, 2014 (ADAMS Accession No. ML14085A257) (TAC No. MF3668)
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 (ADAMS Accession No. ML14080A141) (TAC No. MF3614)

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (ENO) requests 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 for the permanently defueled condition. The proposed changes are being submitted to the NRC for approval prior to implementation, as required under 10 CFR 50.54(q)(4) and 10 CFR Part 50, Appendix E, Section IV.B.2.

In Reference 1, ENO provided notification that it intended to permanently cease power operation of VY at the end of the current operating cycle. In Reference 2, ENO submitted proposed changes to the VY SEP to reduce the minimum required on-shift and Emergency Response Organization (ERO) staffing following the transition from an operating facility to a permanently defueled facility.

The proposed changes would result in a Permanently Defueled Emergency Plan (PDEP) and a Permanently Defueled EAL scheme, consistent with Nuclear Energy Institute (NEI) 99-01, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6.

The proposed PDEP and Permanently Defueled EAL scheme are predicated on approval of requests for exemptions from portions of 10 CFR 50.47(b), 10 CFR 50.47(c)(2) and 10 CFR Part 50, Appendix E, Section IV, previously submitted in Reference 3. The proposed PDEP reduces the scope of offsite and onsite emergency planning commensurate with the permanently defueled condition. Additionally, the proposed PDEP states that notification of an emergency declaration will be made to State authorities within 60 minutes of an emergency declaration or change in classification.

Reference 3 included an analysis which shows that 15.4 months following shutdown of the VY reactor, the spent fuel stored in the spent fuel pool will have decayed to the point where the requested exemptions, PDEP and Permanently Defueled EAL scheme may be implemented without additional compensatory actions. Following the final VY shutdown, which is expected to occur by the end of 2014 (Reference 1), 15.4 months after shutdown will occur near the middle of April 2016.

The proposed PDEP and Permanently Defueled EAL scheme are commensurate with the significantly reduced spectrum of credible accidents that can occur in the permanently defueled condition and are necessary to properly reflect the conditions of the facility while continuing to preserve the VY Decommissioning Trust Fund and the effectiveness of the emergency plan.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and ENO has determined that this change involves no significant hazards consideration. ENO has also determined that the proposed emergency plan changes satisfy the criteria for categorical exclusion in accordance with 10 CFR 51.22(c)(9) and do not require an environmental review. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is required.

Attachment 1 to this letter provides a description, technical analysis, significant hazards determination, and environmental considerations evaluation for the proposed amendment. Attachment 2 provides the proposed PDEP. Attachment 3 provides the Permanently Defueled EAL Bases Document. Attachment 4 provides the proposed Permanently Defueled EAL scheme. Attachment 5 provides a comparison of the proposed Permanently Defueled EAL Bases Document to the corresponding information contained in NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6.

This letter contains no new regulatory commitments.

In accordance with 10 CFR 50.91(b)(1), a copy of this application, with attachments, is being provided to the designated state of Vermont official.

ENO requests review and approval of the proposed license amendment by December 1, 2015 with an effective date of April 15, 2016 and a 90 day implementation period. Approval of these changes by December 1, 2015 will allow VY adequate time to implement the changes to the emergency plan and EAL Scheme by the requested effective date.

If you have any questions on this transmittal, please contact Mr. Coley Chappell at 802-451-3374.

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 12, 2014.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Recchia", with a long horizontal flourish extending to the right.

CJW/plc

- Attachments:
1. Description and Evaluation of Proposed Changes
 2. Permanently Defueled Emergency Plan
 3. Permanently Defueled Emergency Action Level Bases Document
 4. Permanently Defueled Emergency Action Level Scheme
 5. Comparison Matrix for Permanently Defueled EALs Based on NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6

cc: Mr. William M. Dean
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Attachment 1

Vermont Yankee Nuclear Power Station
Description and Evaluation of Proposed Changes

1. SUMMARY DESCRIPTION

This evaluation supports a request to amend the Renewed Facility Operating License (OL) DPR-28 for Vermont Yankee Nuclear Power Station (VY).

The proposed changes would revise the VY site emergency plan (SEP) and Emergency Action Level (EAL) scheme to support the pending permanent cessation of operations and permanent defueling of the VY reactor at the end of the current operating cycle (Reference 1). This request contains the proposed VY Permanently Defueled Emergency Plan (PDEP) and the Permanently Defueled Emergency Action Level (EAL) scheme for NRC review and approval.

The proposed PDEP and Permanently Defueled EAL scheme are predicated on approval of requests for exemptions from portions of 10 CFR 50.47(b); 10 CFR 50.47(c)(2); and 10 CFR Part 50, Appendix E, Section IV, previously submitted by letter dated March 14, 2014 (Reference 2). Reference 2 contained an analysis which shows that, within 15.4 months after shutdown, the spent fuel stored in the spent fuel pool (SFP) will have decayed to the extent that the requested exemptions, PDEP and Permanently Defueled EAL scheme may be implemented at VY without any additional compensatory actions. Following the VY shutdown, which is expected by the end of 2014 (Reference 1), 15.4 months after shutdown will occur near the middle of April 2016.

Based on approval of the previously submitted requests for exemption (Reference 2), the proposed PDEP meets the applicable standards of 10 CFR 50.47(b) and requirements of 10 CFR Part 50, Appendix E for a permanently defueled reactor.

2. PROPOSED CHANGES

The proposed amendment would modify the VY license by revising the SEP and the associated EAL scheme to reflect the pending permanent cessation of operation and permanent defueling of the VY reactor at the end of the current operating cycle and anticipated conditions following 15.4 months of decay of the spent fuel in the SFP. In a permanently defueled condition, the number and severity of potential radiological accidents is significantly less than when the plant is operating. Therefore, the offsite radiological consequences of accidents possible at VY are substantially lower. 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 (Reference 2). Therefore, the proposed PDEP states that notification of an emergency declaration will be made to State authorities within 60 minutes of an emergency declaration or change in classification. The proposed PDEP reduces the scope of offsite and onsite emergency planning commensurate with the spectrum of credible accidents that can occur in a permanently defueled condition.

The proposed PDEP meets the applicable standards of 10 CFR 50.47(b) and requirements of 10 CFR Part 50, Appendix E, considering the previously submitted requests for exemption (Reference 2).

The current EAL scheme is based upon NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 5, approved February 22, 2008 (Reference 3). ENO determined that a revision to the EAL scheme to implement the EAL scheme contained in Appendix C of NEI 99-01, Rev. 6 (Reference 4), Recognition Category PD (Permanently Defueled), is appropriate for the permanently defueled conditions, as a result of the supporting analyses presented in Reference 2.

The NEI 99-01, Rev. 6 guidance has been endorsed by the NRC in a letter dated March 28, 2013 (Reference 5).

3. REASON FOR PROPOSED CHANGES

The proposed changes are desired to reflect the pending permanent cessation of operation and permanent defueling of the VY reactor at the end of the current operating cycle and anticipated conditions following 15.4 months of decay of the spent fuel in the SFP. After the reactor is shut down, all fuel assemblies will be removed from the reactor vessel and placed in the SFP. Upon docketing of the certifications for permanent cessation of operations (10 CFR 50.82(a)(1)(i)) and permanent removal of fuel from the reactor vessel (10 CFR 50.82(a)(1)(ii)), pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license for VY will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel. The irradiated fuel will be stored in the SFP and in the Independent Spent Fuel Storage Installation (ISFSI) until it is shipped off-site in accordance with the schedules that will be described in the Post-Shutdown Decommissioning Activities Report (PSDAR) and updated Irradiated Fuel Management Plan.

The proposed revisions to the SEP and EAL scheme are commensurate with the reduction in radiological hazards associated with the permanently defueled condition and will allow the facility to transition to an emergency plan and EAL scheme required for a permanently defueled facility. The proposed changes are necessary to properly reflect the conditions of the facility 15.4 months following shutdown while continuing to preserve the VY Decommissioning Trust Fund and the effectiveness of the emergency plan.

4. BACKGROUND

VY is located in the town of Vernon, Vermont in Windham County on the west shore of the Connecticut River immediately upstream of the Vernon Hydrostation. VY is a boiling water reactor with a rated thermal power of 1912 MWt. The station is located on approximately 125 acres in Windham County, and is owned by Entergy Nuclear Vermont Yankee, LLC, with the exception of a narrow strip of land between the Connecticut River and the VY property for which Entergy Nuclear Vermont Yankee, LLC has perpetual rights and easements from the owner.

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. Warwick and Northfield State Forests (approximately 8 miles southwest of the site), Green Mountain National Forest (approximately 18 miles southwest of the site) and the Pisgah Mountain Range (northeast of the site) limit the population density and land use within a 50-mile radius of the site. Most of the land around the site is undeveloped. The developed land is used for agricultural, dairying, and for residential areas within small villages. The primary agricultural crop is silage corn, which is stored for year-round feed for milk cows.

Section 14 of the VY Updated Final Safety Analysis Report (UFSAR) describes the design basis accident (DBA) scenarios that are applicable to VY during power operations and describes the accidents with the greatest potential for radiation exposure of any accident considered under the same assumptions. The most severe postulated accidents for nuclear power plants involve damage to the nuclear reactor core and the release of fission products. The UFSAR accident scenarios include a Control Rod Drop Accident (CRDA), a Loss-of-Coolant Accident (LOCA), a Refueling/Fuel Handling Accident (RA/FHA) and a Main Steam Line Break Accident.

Following docketing of its certification of permanent removal of fuel from the reactor vessel, in accordance with 10 CFR 50.82(a)(1)(ii), and within two years following cessation of operations, VY will submit a Post-Shutdown Decommissioning Activities Report (PSDAR), which will identify the

selected method of decommissioning for VY. At the end of the current operating cycle, the VY reactor will be permanently shut down. After the reactor is shut down, all fuel assemblies will be removed from the reactor vessel and placed in the SFP. The irradiated fuel will be stored in the SFP and the ISFSI until it is shipped off-site in accordance with the schedules described in the PSDAR and updated Irradiated Fuel Management Plan.

When the reactor is permanently defueled, the SFP and its supporting systems will be modified and dedicated to spent fuel storage. With the reactor defueled, the reactor vessel assembly and supporting structures and systems are no longer in operation and have no function related to the safe storage and management of irradiated fuel in the SFP. A SFP cooling system is provided to remove decay heat from spent fuel stored in the SFP and to maintain a specified water temperature and level.

5. TECHNICAL EVALUATION

5.1 Accident Analysis Overview

Following the cessation of reactor operations at VY and the permanent removal of the fuel from the reactor vessel, the postulated accidents involving failure or malfunction of the reactor and supporting structures, systems and components will no longer be applicable.

A summary of the postulated radiological accidents analyzed for the permanently shutdown and defueled condition of VY is presented below. According to the EPA, "Protective Action Guides and Planning Guidance for Radiological Incidents, Draft for Interim Use and Public Comment," dated March 2013 (EPA PAG Manual), Section 2.3.5, "PAGs and Nuclear Facilities Emergency Planning Zones (EPZ)," EPZs are not necessary at those facilities where it is not possible for PAGs to be exceeded off-site (Reference 6).

5.1.1 Consequences of Design Basis Events

The postulated DBA that will remain applicable to VY in its permanently shutdown and defueled condition is the FHA in the reactor building where the SFP is located. An analysis, based on the FHA, was performed to determine the dose to operators in the Control Room and the public at the Exclusion Area Boundary (EAB or "Site Boundary") and Low Population Zone (LPZ), as a function of time after shutdown. The analysis shows that the dose at the EAB and LPZ 17 days after shutdown (with no credit for containment) is less than 1 rem Total Effective Dose Equivalent (TEDE), which is below the EPA PAG threshold of 1 rem for recommended evacuation.

Due to the amount of decay calculated (17 days), the results of this analysis may be applied after January 17, 2015, assuming a VY shutdown by the end of December 2014. The analysis was submitted for NRC review in Reference 7.

5.1.2 Consequences of Beyond Design Basis Events

5.1.2.1 Hottest Fuel Assembly Adiabatic Heatup – Beyond Design Basis Event

The analysis provided in Reference 2 compares the conditions for the hottest fuel assembly stored in the VY SFP to a criterion proposed in SECY-99-168 (Reference 8) applicable to offsite emergency response for the unit in the decommissioning process. This criterion considers the time for the hottest assembly to heat up from 30 degrees Celsius (°C) to 900°C adiabatically. If the heat up time is greater than 10 hours, then offsite emergency preplanning involving the plant is not necessary.

Based on the limiting fuel assembly for decay heat and adiabatic heatup analysis, at 15.4 months after shutdown (15.4 months decay time), the time for the hottest fuel assembly to reach 900°C is 10 hours after the assemblies have been uncovered. As stated in NUREG-1738, “Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants” (February 2001) (Reference 9), 900°C is an acceptable temperature to use for assessing onset of fission product release under transient conditions (to establish the critical decay time for determining availability of 10 hours to evacuate) if fuel and cladding oxidation occurs in air.

Because of the length of time it would take for the adiabatic heatup to occur, there is ample time to respond to any partial drain down event that might cause such an occurrence by restoring SFP cooling or makeup. As a result, the likelihood that such a scenario would progress to a zirconium fire is not deemed credible.

5.1.3 Consequences of Other Analyzed Events

5.1.3.1 Loss of Spent Fuel Pool Normal Cooling

This analysis assesses the time available to initiate compensatory measures in the event of a loss of spent fuel pool inventory as well as the radiological impact. The initiating event is postulated to be an external event that results in a prolonged loss of all Alternating Current (AC) power. In this scenario, there is no active cooling of the SFP, nor is there the ability to maintain SFP water inventory with normal plant systems. This evaluation determined that 15.4 months following shutdown, the time for SFP cooling water inventory to reach 212 degrees Fahrenheit will be 74 hours, and the total time from the loss of cooling to boil off SFP cooling water inventory to 3 feet above the top of the fuel assemblies will be 16 days. Although no fuel damage is expected while the water level remains above the top of the fuel, a SFP cooling water level of 3 feet above the top of the fuel was chosen for ease of comparison to the corresponding information contained in NUREG-1738. Three feet of water continues to provide sufficient shielding from radiation to any personnel involved in responding to the event. Due to the slow progression rate of SFP water boil-off, adequate time will be available to restore cooling or makeup, either through restoration of normal systems or through readily available mitigation measures, without significant radiological consequences for plant workers in the Reactor Building.

5.1.3.2 Radioactive Waste Handling Accident

This analysis evaluated the drop of a high integrity container (HIC). The accident evaluated the drop of the largest liner containing the highest concentration of radioactive materials (dewatered resin containing 19,415 curies of 25 various radionuclides representing the highest activity waste at the facility). The calculation postulates that the container is dropped at a location 250 meters (820 feet) from the closest site boundary with subsequent

container failure with 1% of the liner contents released and 0.5% of the release becoming aerosolized and carried in the direction of the closest Site Boundary. The resulting two hour integrated dose at the Site Boundary is projected to be 16.1 millirem TEDE, which is below the EAB limit of 1 rem TEDE.

5.2 Comparison to NUREG-1738 Industry Decommissioning Commitments and Staff Decommissioning Assumptions

Although the limited scope of design and beyond design basis accidents that remain applicable to VY justify a reduction in the necessary scope of emergency response capabilities, ENO also evaluated the industry decommissioning commitments (IDCs) and staff decommissioning assumptions (SDAs) contained in NUREG-1738 (Reference 9).

NUREG-1738 contains the results of the NRC staff's evaluation of the potential accident risk in SFPs at decommissioning plants in the United States. As stated therein, the study was undertaken to support development of a risk-informed technical basis for reviewing exemption requests and a regulatory framework for integrated rulemaking. The NRC staff performed analyses and sensitivity studies on evacuation timing to assess the risk significance of relaxed offsite emergency preparedness requirements during decommissioning. The staff based its sensitivity assessment on the guidance in Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment In Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (Reference 10). The staff's analyses and conclusions apply to decommissioning facilities with SFPs that meet the design and operational characteristics assumed in the risk analysis.

The study found that the risk at decommissioning plants is low and well within the Commission's Safety Goals. The risk is low because of the very low likelihood of a zirconium fire (resulting from a postulated irrecoverable loss of SFP cooling water inventory) even though the consequences from a zirconium fire could be serious.

The study provided the following assessment:

"The staff found that the event sequences important to risk at decommissioning plants are limited to large earthquakes and cask drop events. For emergency planning (EP) assessments, this is an important difference relative to operating plants where typically a large number of different sequences make significant contributions to risk. Relaxation of offsite EP a few months after shutdown resulted in only a "small change" in risk, consistent with the guidance of RG 1.174. Figures ES-1 and ES-2 [in NUREG-1738] illustrate this finding. The change in risk due to relaxation of offsite EP is small because the overall risk is low, and because even under current EP requirements, EP was judged to have marginal impact on evacuation effectiveness in the severe earthquakes that dominate SFP risk. All other sequences including cask drops (for which emergency planning is expected to be more effective) are too low in likelihood to have a significant impact on risk.

For comparison, at operating reactors, additional risk-significant accidents for which EP is expected to provide dose savings are on the order of 1×10^{-5} per year, while for decommissioning facilities, the largest contributor for which EP would provide dose savings is about two orders of magnitude lower (cask drop sequence at 2×10^{-7} per year)."

The Executive Summary in NUREG-1738 states, in part, "the staff's analyses and conclusions apply to decommissioning facilities with SFPs that meet the design and operational characteristics assumed in the risk analysis. These characteristics are identified in the study as IDCs and SDAs.

Provisions for confirmation of these characteristics would need to be an integral part of rulemaking." The IDCs and SDAs are listed in Tables 4.1-1 and 4.1-2, respectively, of NUREG-1738. Tables 3 and 4 of Reference 2 identify how the VY SFP meets or compares with each of these IDCs and SDAs.

5.3 Consequences of a Beyond Design Basis Earthquake

In June 2013, a draft study, entitled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark 1 Boiling Water Reactor," was published for public comment (Reference 11). The purpose of the consequence study was to determine if accelerated transfer of older, colder spent fuel from the SFP at a reference plant to dry cask storage significantly reduces risks to public health and safety. The specific reference plant used for the study was a General Electric (GE) Type 4 BWR with a Mark I containment. VY is a GE BWR/4 with a Mark I containment.

The study states: "*Past risk studies have shown that storage of spent fuel in a high-density configuration is safe and risk of a large release due to an accident is very low. This study's results are consistent with earlier research conclusions that spent fuel pools are robust structures that are likely to withstand severe earthquakes without leaking. The NRC continues to believe, based on this study and previous studies that spent fuel pools protect public health and safety.*"

The study also estimated that the likelihood of a radiological release from the SFP resulting from the selected severe seismic event analyzed in the study was on the order of one time in 10 million years or lower. The study analyzed two cases for each scenario: one where mitigation measures of 10 CFR 50.54(hh)(2) were credited, and one where they were not used or were unsuccessful. It showed that successful mitigation reduces the likelihood of a release and that the likelihood of a release was equally low for both high- and low-density loading in the SFP.

5.4 Permanently Defueled Emergency Plan

The VY PDEP is provided as Attachment 2 of this submittal for NRC review and approval. The PDEP describes the station's plan for responding to emergencies that may arise at VY while in a permanently shutdown and defueled configuration. The PDEP was developed considering the guidance contained within Attachment 1 of Draft NSIR/DPR-ISG-02, Interim Staff Guidance, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants" (Reference 15).

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 EPA 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 (Reference 2). Therefore, the proposed PDEP states that notification of an emergency declaration will be made to State authorities within 60 minutes of an emergency declaration or change in classification. Based on the results of the accident analysis, a 60-minute notification time and reduced scope of offsite and onsite emergency response plans can be implemented without undue risk to public health and safety, commensurate with the reduced offsite radiological consequences associated with the defueled and decommissioning status of the plant.

In the event of a large area fire, deliberate attack or other rapidly developing beyond design basis events, the rapid deployment of offsite resources, including law enforcement, ambulance, and fire/rescue services may be requested by the station to assist with the onsite response. These

requests would be made via direct contact with local law enforcement using established communications methods, including the 911 system.

The PDEP addresses the applicable regulations contained in 10 CFR 50.47, "Emergency Plans" and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities" and is consistent with the applicable guidance established in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (Reference 12) that remain applicable after the previously requested exemptions are approved (Reference 2).

5.5 Permanently Defueled Emergency Action Levels

The current VY EAL scheme, based on the guidance presented in NEI 99-01, Rev. 5 was approved by the NRC on June 26, 2009 (Reference 13).

Attachment 3 provides the proposed Permanently Defueled EAL Bases Document, Rev. 0, containing the site-specific technical bases for the proposed Permanently Defueled EAL scheme. The EALs that comprise the proposed Permanently Defueled EAL scheme are also presented in the matrix provided in Attachment 4.

5.5.1 Differences and Deviations

Attachment 5 provides a cross-reference between each generic EAL contained in NEI 99-01, Revision 6 (Reference 4) and the proposed Permanently Defueled EALs. Differences and deviations are identified in accordance with the guidance contained in NRC Regulatory Issue Summary (RIS) 2003-18, "Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels, Revision 4, Dated January 2003," (and Supplements) (Reference 14). As discussed in RIS 2003-18, Supplement 1, dated July 13, 2004, differences and deviations are defined as follows:

"A *difference* is an EAL change where the basis scheme guidance (NUREG, NUMARC, NEI) differs in wording but agrees in meaning and intent, such that classification of an event would be the same, whether using the basis scheme guidance or the site-specific proposed EAL. Examples of *differences* include the use of site-specific terminology or administrative reformatting of site-specific EALs."

An explanation for each difference between the Permanently Defueled EALs and the guidance presented in NEI 99-01, Rev. 6 is included in Attachment 5. The differences do not alter the meaning or intent of the Initiating Condition or EAL.

"A *deviation* is an EAL change where the basis scheme guidance differs in wording and is altered in meaning or intent, such that classification of the event could be different between the basis scheme guidance and the site-specific proposed EAL. Examples of *deviations* include the use of altered mode applicability, altering key words or time limits, or changing words of physical reference (protected area, safety- related equipment, etc.)."

5.5.2 Operating Modes and Applicability

The proposed Permanently Defueled EALs are only applicable to the permanently defueled condition, with all irradiated fuel permanently removed from the reactor vessel and following 15.4 months of decay of the spent fuel.

5.5.3 State and Local Government Review of Proposed Changes

State and local emergency management officials are advised of EAL changes that are implemented. Following NRC approval and prior to implementation, VY will provide an overview of the new classification scheme to State and local emergency management officials in accordance with 10 CFR Part 50, Appendix E, Section IV.B.1.

5.6 Summary

On September 23, 2013, ENO submitted a notification of permanent cessation of power operations pursuant to 10 CFR 50.82(a)(1)(i), stating that ENO has decided to permanently cease power operation of VY at the end of the current operating cycle (Reference 1). Upon docketing of the certifications for permanent cessation of operations (10 CFR 50.82(a)(1)(i)) and permanent removal of fuel from the reactor vessel (10 CFR 50.82(a)(1)(ii)), pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license for VY will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel.

This proposed amendment would revise the emergency plan and the EAL scheme to reflect the permanently defueled condition following 15.4 months of decay of the spent fuel. The new emergency plan and EAL scheme are being submitted to the NRC for approval prior to implementation, as required under 10 CFR 50.54(q)(4) and 10 CFR Part 50, Appendix E, Section IV.B.2, and are predicated on approval of exemptions (Reference 2).

6. REGULATORY EVALUATION

The proposed PDEP and Permanently Defueled EAL scheme are predicated on approval of requests for exemptions from portions of 10 CFR 50.47(b); 10 CFR 50.47(c)(2); and 10 CFR Part 50, Appendix E, Section IV, previously submitted in Reference 2. Therefore, the proposed PDEP does not meet all the standards of 10 CFR 50.47(b) and requirements of 10 CFR Part 50, Appendix E.

Upon approval of the requested exemptions, the emergency plan, as revised, will continue to meet the remaining applicable requirements in 10 CFR Part 50, Appendix E and the planning standards of 10 CFR 50.47(b).

6.1 Applicable Regulatory Requirements and Guidance

10 CFR 50.47, "Emergency Plans," sets forth emergency plan requirements for nuclear power plant facilities. The regulations in 10 CFR 50.47(a)(1)(i) state, in part: "...no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."

10 CFR 50.47(b) establishes the standards that the onsite and offsite emergency response plans must meet for NRC staff to make a positive finding that there is reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency. Planning Standard (4) of this section requires that a licensee's emergency response plan contain the following:

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

10 CFR 50.54(q)(4) specifies the process for revising emergency plans where the changes reduce the effectiveness of the plan. This regulation states the following:

The changes to a licensee's emergency plan that reduce the effectiveness of the plan as defined in paragraph (q)(1)(iv) of this section may not be implemented without prior approval by the NRC. A licensee desiring to make such a change after February 21, 2012 shall submit an application for an amendment to its license. In addition to the filing requirements of §§ 50.90 and 50.91, the request must include all emergency plan pages affected by that change and must be accompanied by a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the licensee's emergency plan, as revised, will continue to meet the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

Section IV.B.1 of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, states, in part:

The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant.

Section IV.B.2 of Appendix E states that: "A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change."

Section IV.C.1 of Appendix E requires each emergency plan to define the emergency classification levels that determine the extent of the participation of the emergency response organization. The emergency classification levels include: (1) notification of unusual events, (2) alert, (3) site area emergency, and (4) general emergency. EALs are used by plant personnel in determining the appropriate emergency classification level to declare.

In November 2012, NEI published NEI 99-01, Revision 6 (Reference 4). The EAL scheme changes being requested herein are based on Revision 6 to NEI 99-01. NRC endorsed NEI 99-01, Revision 6, by letter dated March 28, 2013 (Reference 5). 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 EPA 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 (Reference 2). Therefore, the Permanently Defueled EALs, detailed in NEI 99-01, Revision 6, will be adopted, with certain differences and deviations. Pursuant to 10 CFR Part 50, Appendix E, Section IV.B.2, a revision to an entire EAL scheme must be approved by the NRC before implementation.

Draft NSIR/DPR-ISG-02, Interim Staff Guidance, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants" (Reference 15) was issued for public comment on

January 10, 2014 and contains guidance for NRC staff evaluation of decommissioning emergency plans.

The proposed amendment is being submitted to the NRC pursuant to 10 CFR 50.90, for the purpose of revising the VY SEP in order to establish a plan appropriate for a permanently defueled facility and to implement a Permanently Defueled EAL scheme, predicated on approval of Reference 2.

6.2 Precedence

Similar changes to the emergency plan and the associated EAL scheme were approved by NRC for the Zion station as it transitioned from an operating plant to a decommissioned facility, as described in References 16 and 17.

Requests for the Haddam Neck Plant (Reference 18), the La Crosse Boiling Water Reactor (LACBWR) facility (Reference 19), Maine Yankee (Reference 20) and Yankee Rowe (Reference 21), were approved exempting each plant from notifying responsible state and local governmental agencies within 15 minutes after declaring an emergency by increasing the notification time to 60 minutes.

6.3 No Significant Hazards Consideration Determination

Pursuant to 10 CFR 50.92, Entergy Nuclear Operations, Inc. (ENO) has reviewed the proposed changes and concludes that the changes do not involve a significant hazards consideration because the proposed changes satisfy the criteria in 10 CFR 50.92(c). These criteria require that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The proposed changes would revise the Vermont Yankee Nuclear Power Station (VY) site emergency plan (SEP) and emergency action level (EAL) scheme commensurate with the hazards associated with a permanently shutdown and defueled facility.

The discussion below addresses each of these criteria and demonstrates that the proposed amendment does not constitute a significant hazard.

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes to the emergency plan and EAL scheme do not impact the function of plant structures, systems, or components (SSCs). The proposed changes do not affect accident initiators or precursors, nor does it alter design assumptions. The proposed changes do not prevent the ability of the on-shift staff and emergency response organization (ERO) to perform their intended functions to mitigate the consequences of any accident or event that will be credible in the permanently defueled condition.

The probability of occurrence of previously evaluated accidents is not increased, since most previously analyzed accidents can no longer occur and the probability of the few remaining credible accidents are unaffected by the proposed amendment.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed changes reduce the scope of the emergency plan and EAL scheme commensurate with the hazards associated with a permanently shutdown and defueled facility. The proposed changes do not involve installation of new equipment or modification of existing equipment, so that no new equipment failure modes are introduced. Also, the proposed changes do not result in a change to the way that the equipment or facility is operated so that no new or different kinds of accident initiators are created.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed changes are associated with the emergency plan and EAL scheme and do not impact operation of the plant or its response to transients or accidents. The change does not affect the Technical Specifications. The proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Safety analysis acceptance criteria are not affected by the proposed changes. The revised SEP will continue to provide the necessary response staff with the proposed changes.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, ENO concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

6.4 Conclusion

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.5 Environmental Considerations

This amendment request meets the eligibility criteria for categorical exclusion from environmental review set forth in 10 CFR 51.22(c)(9) as follows:

- (i) The amendment involves no significant hazards consideration.

As described in Section 6.3 of this evaluation, the proposed changes involve no significant hazards consideration.

- (ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

The proposed changes do not involve any physical alterations to the plant configuration or any changes to the operation of the facility that could lead to a change in the type or amount of effluent release offsite.

- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes do not involve any physical alterations to the plant configuration or any changes to the operation of the facility that could lead to a significant increase in individual or cumulative occupational radiation exposure.

Based on the above, ENO concludes that the proposed change meets the eligibility criteria for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

7. REFERENCES

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2. 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)
3. Nuclear Energy Institute (NEI) 99-01, Revision 5, "Methodology for Development of Emergency Action Levels," dated February 22, 2008. (ML080450149)
4. Nuclear Energy Institute (NEI) 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012. (ML12326A805)
5. Letter, Mark Thaggard (USNRC) to Susan Perkins-Grew (NEI), "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, Dated November, 2012 (TAC No. D92368)," dated March 28, 2013. (ML12346A463)
6. U.S. Environmental Protection Agency, "Protective Action Guide and Planning Guidance for Radiological Incidents," Draft for Interim Use and Public Comment, dated March 2013 (PAG Manual)
7. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Technical Specifications Proposed Change No. 306, Eliminate Certain ESF Requirements during Movement of Irradiated Fuel," BVY 13-097, dated November 14, 2013 (ML13323A516) (TAC No. MF3068)

8. Commission Paper SECY-99-168, Improving Decommissioning Regulations for Nuclear Power Plants, dated June 30, 1999
9. NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants," dated February 2001
10. Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment In Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis"
11. USNRC, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor" (Draft Report for Comment) June 2013 (ML13133A132)
12. NUREG-0654, FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, published November 1980
13. Letter USNRC to VYNPS, "Vermont Yankee Nuclear Power Station – Safety Evaluation for Emergency Action Levels (TAC No. MD9157)", dated June 16, 2009
14. NRC Regulatory Issue Summary 2003-18, "Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels, Revision 4, Dated January 2003," and Supplements. (ML032580518, ML041550395 and ML051450482)
15. Draft NSIR/DPR-ISG-02, Interim Staff Guidance, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants"
16. Letter, USNRC to Zion Nuclear Power Station, Unit Nos. 1 and 2, "Request For Approval of Defueled Station Emergency Plan and Exemption from Certain Requirements of 10 CFR 50.47, "Emergency Plans"- Zion Nuclear Power Station, Unit Nos. 1 and 2 (TAC NOS MA5253 and MA554)," dated August 31, 1998
17. Letter, USNRC to Zion Nuclear Power Station, Unit Nos. 1 and 2, "Emergency Action Level Revisions for Zion Nuclear Power Station (TAC Nos. J00327 and J00328)," dated February 25, 2008 (ML072680350)
18. Letter, USNRC to Connecticut Yankee Atomic Power Company, "Response to Exemption Request for Portions of Title 10 of the Code of Federal Regulations Part 50 Appendix E, and Title 10 of the Code of Federal Regulations Part 50.47 for the Haddam Neck Plant (TAC NO. L24663)," dated March 18, 2013. (ML13064A374)
19. Letter, USNRC to Dairyland Power Cooperative, "La Crosse Boiling Water Reactor – Issuance of Exemption From Certain Emergency Planning Requirements (TAC NO. J00438)," dated July 31, 2013. (ML13008A565)
20. Letter, USNRC to Maine Yankee Atomic Electric Company, "Response to Exemption Request for Portions of Title 10 of the Code of Federal Regulations Part 50 Appendix E, and Title 10 of the Code of Federal Regulations Part 50.47 for the Maine Yankee Atomic Power Station (TAC NO. L24661)," dated May 2, 2013. (ML13112A842)

21. Letter, USNRC to Yankee Rowe Plant ISFSI, "Response to Exemption Request for Portions of Title 10 of the Code of Federal Regulations Part 50 Appendix E, and Title 10 of the Code of Federal Regulations Part 50.47 for the Yankee Rowe Plant (TAC NO. L24662)," dated May 7, 2013. (ML13121A560)

Attachment 2

Vermont Yankee Nuclear Power Station
Permanently Defueled Emergency Plan

PERMANENTLY DEFUELED EMERGENCY PLAN
ENTERGY VERMONT YANKEE
VERNON, VERMONT

REVISION 0

PREPARER:	_____	_____
	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	<p>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).</p>

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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 accident 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 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.

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

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

2.0 DEFINITIONS

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

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

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

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

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

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

Emergency Action Levels – A pre-determined, site-specific, observable threshold for an Initiating Condition that, when met or exceeded, places the plant in a given emergency classification level.

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

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

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

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

Gai-Tronics – An intra-site station operation and public address system which consists of speakers and microphones located in areas vital to the operation of the station. The

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

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

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

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

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

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

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

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

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

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

3.0 SUMMARY OF EMERGENCY PLAN

3.1. Overview of Permanently Defueled Emergency Plan

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

This plan describes the organization and responsibilities for implementing emergency measures. It describes interfaces with Federal, State of Vermont 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 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."

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, 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 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. 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. 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 State of Vermont using the InForm Notification System.

A cooperative arrangement exists among the Vermont State authorities and VY concerning radiological emergency preparedness. VY's emergency classification system and notification messages are reviewed with the State 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 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) 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, emplacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2).

4.2. Area Characteristics and Land Use

The site is bounded by the Connecticut River (Vernon Pond) on the east, by farm and pasture land mixed with wooded areas on the north and south, and by the town of Vernon on the west. Most of the land around the site is undeveloped. The developed land is used for agriculture, dairying, and for residential areas within small villages. The nearest residence is 1,300 feet from the Reactor Building and is one of several west of the site. The Vernon Elementary School (approximate enrollment of 250 pupils) is about 1,500 feet from the Reactor Building. The nearest hospital, Brattleboro Memorial, is approximately five (5) miles north-northwest from the site.

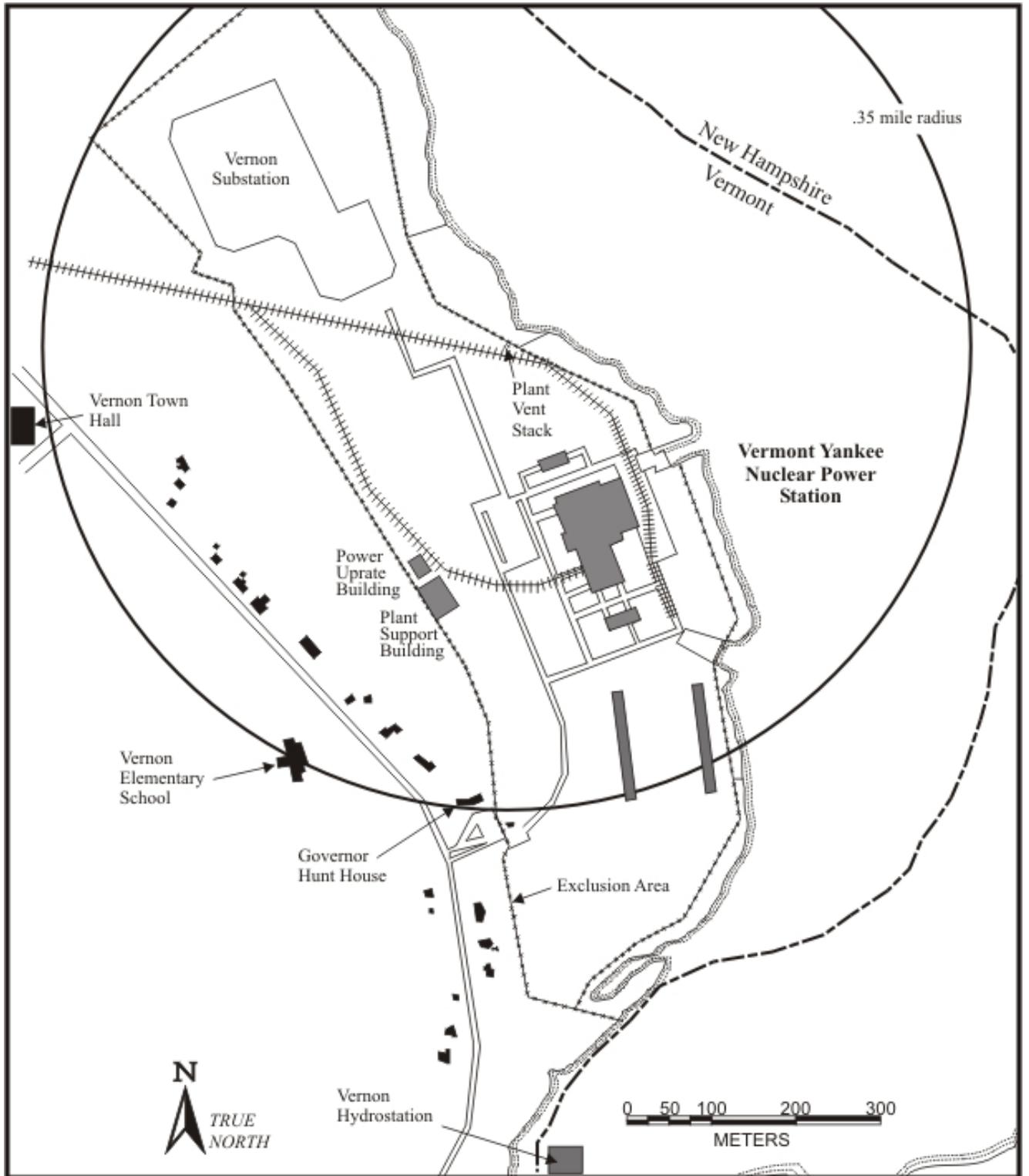


Figure 4.1

Vermont Yankee Site

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5.0 EMERGENCY CLASSIFICATION SYSTEM

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

The incidents leading to each of the emergency classifications are further identified by certain measurable and observable indicators of plant conditions (EALs). EALs addressed in Appendix A aid the operator in recognizing the potential of an incident immediately and assure that the first step in the emergency response is carried out. The classification of the event may change as the conditions change. VY maintains the capability to assess, classify and declare an emergency condition in accordance with site procedures.

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

5.1. Unusual Event

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

Unusual Event conditions do not cause serious damage to the plant. The purpose of the Unusual Event declaration is to: 1) provide for an increased awareness of abnormal conditions; 2) ensure that the first step in any response later found to be necessary has been carried out; 3) bring the ERO to a state of readiness; 4) 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

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

The purpose of the Alert declaration is to: 1) activate the Emergency Response Organization to perform event mitigation and radiation monitoring, if required, 2) provide the State of Vermont 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 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. 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.

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.

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.

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.

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 State of Vermont.

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 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 of Vermont 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 of Vermont. The NAS is tested monthly between the plant and the State 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. 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. Emergency Power Supply for Communications

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

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

TABLE 7.1

VERMONT YANKEE EMERGENCY COMMUNICATIONS MATRIX

	<u>CR</u>
Offsite and Site Boundary Monitors	1, 3
Nuclear Regulatory Commission	1, 4
State Police (VT)	1, 2, 8
State EOCs (VT)	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 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 Quality Assurance Manual.

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

8.1.1. Shift Manager/Emergency Director

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

This position is responsible for monitoring conditions and approving all onsite activities and has the requisite authority, management ability, technical knowledge, and staff to manage the site emergency and recovery organization. The Emergency Director is responsible for the direction of the total emergency response and has the company authority to accomplish this responsibility.

The Emergency Director cannot delegate the following responsibilities:

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

Other responsibilities assumed by the Emergency Director include:

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

8.1.2. Non-Certified Operator

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

8.1.3. Radiation Protection Technician

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

8.1.4. Security

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

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

8.2. Emergency Response Organization

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

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

The minimum augmented staff consists of a Technical Coordinator and a Radiation Protection Coordinator. Augmented staff provides the technical expertise required to assist the Emergency Director. The on-shift staff is augmented by additional personnel that report as directed after receiving notification of an emergency requiring augmented staff. Designated members of the on-shift staff fulfill roles within the ERO appropriate with their training and experience. For example, Radiation Protection personnel would be expected to undertake radiation protection activities, Security personnel would undertake security activities, Engineering personnel would focus on plant assessment and technical support, 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. Recommend mitigating and corrective actions
4. Direct search and rescue operations
5. Coordinate maintenance and equipment restoration
6. Establish and maintain communications as desired by the Emergency Director
7. 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. 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. 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.

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 State of Vermont as a means of promptly notifying appropriate authorities under accident conditions.

The Shift Manager initiates notification of Vermont authorities, providing them with applicable information utilizing an established message format that describes the accident status. The Emergency Director, or designee, issues periodic reports to State of Vermont authorities.

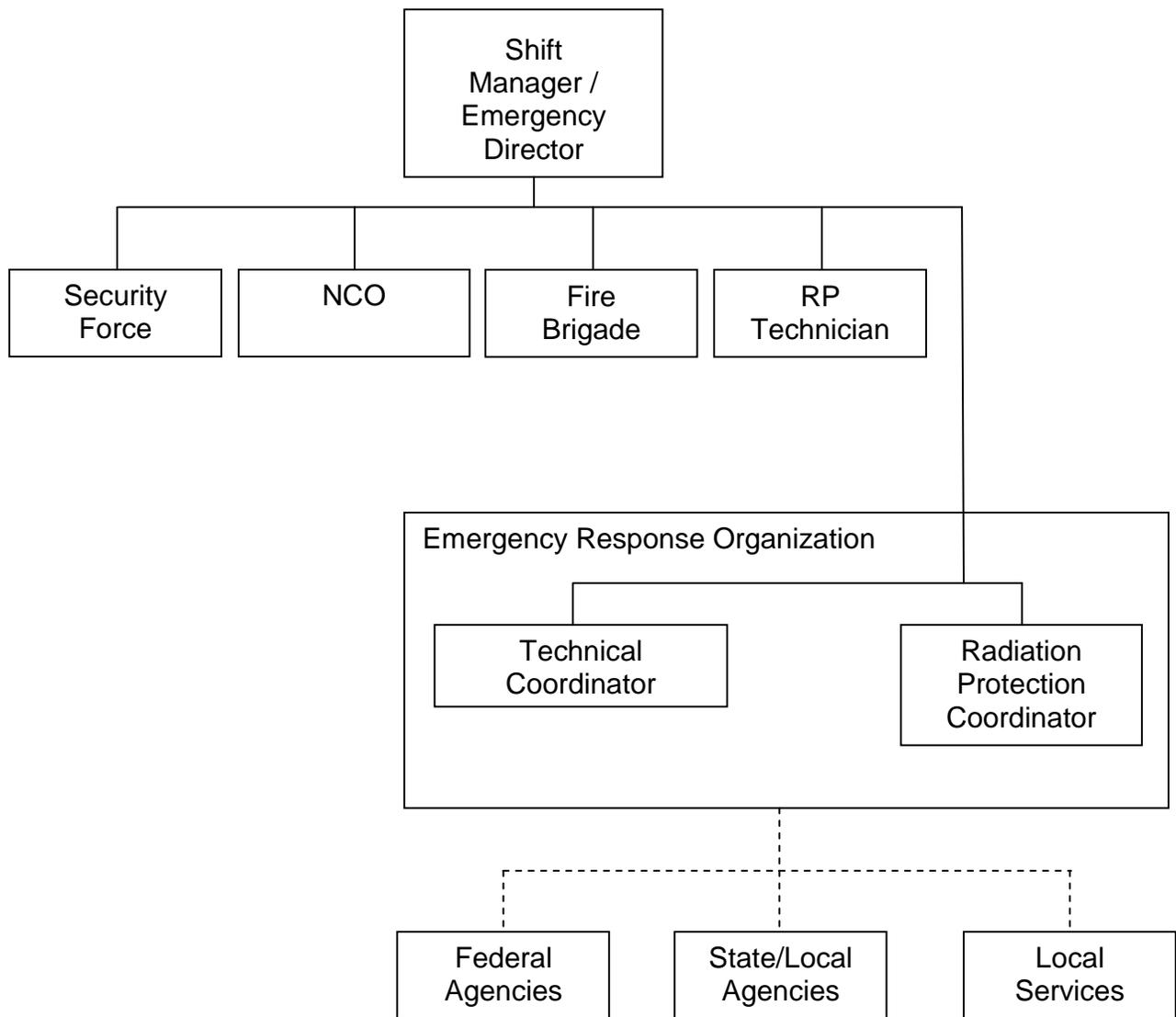


Figure 8.1

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 Operator	1	-
Emergency Direction and Control	Emergency Director	Control Room	Shift Manager	1	-
Notification/Communication	Notify Licensee, State local and Federal personnel and maintain communications	Control Room			-
Radiological Accident Assessment and Support of Operational Accident Assessment	Onsite Dose Assessment and Monitoring	As Directed by the Emergency Director	Radiation Protection Coordinator	-	1 (may augment the ERO with Radiation Monitoring Personnel as deemed necessary)
Protective Actions (In-Plant)	In-Plant Surveys Radiation Protection a. Access Control b. HP Coverage for Repair, Corrective Actions, Search and Rescue, First Aid, and Firefighting c. Personnel Monitoring d. Dosimetry	On-Scene	Radiation Protection Technician	1	-
Plant Condition Evaluation, Repair, and Corrective Action	Technical Support	As Directed by the Emergency Director	Technical Coordinator	-	1 (may augment the ERO with technical support and emergency repair personnel as deemed necessary)
	Repair, Mitigation, and Corrective Action				
	Develop strategies for search and rescue and firefighting				
Firefighting	Firefighting	On-Scene	Fire Brigade	Per the Fire Protection Plan	-
Fire Team Leader Rescue Operations/ First Aid	Fire Fighting Rescue and First Aid	On- Scene	Fire Brigade	Per the Fire Protection Plan	-
Site Access Control and Accountability	Security, Firefighting, Communications, and Personnel Accountability	Per the Physical Security Plan	Security Personnel	Per the Physical Security Plan	-

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9.0 EMERGENCY RESPONSE

9.1. Emergency Condition Recognition and Classification

VY maintains the capability to assess, classify, and declare an emergency condition in accordance with plant procedures 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 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 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.

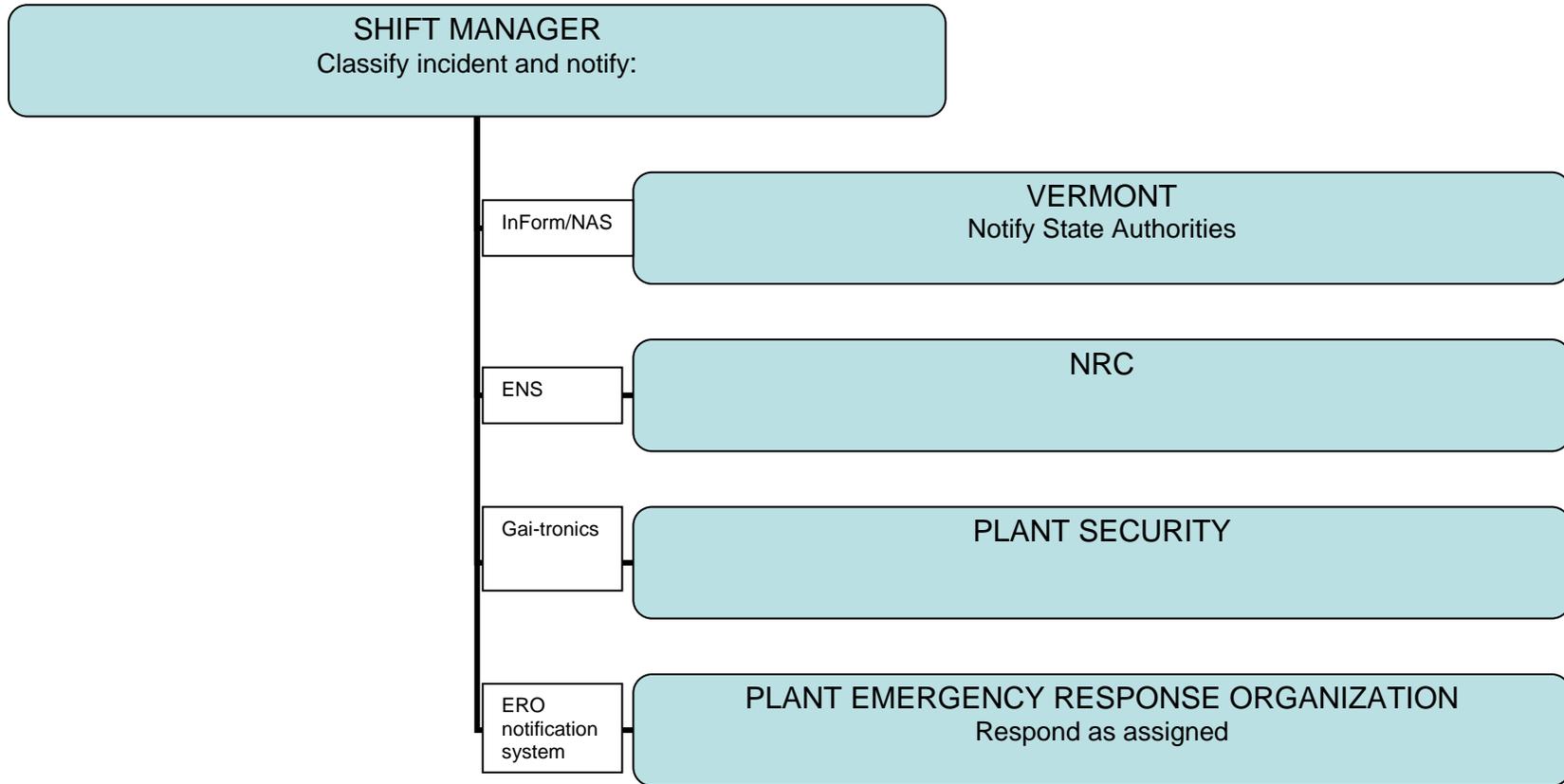


Figure 9.1
Notification Plan

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 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. 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.

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. Decontamination Capability

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 provided 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 State of Vermont. 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 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 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

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 government of Vermont, 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 Vernon Fire Department, the fire department is 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 (ambulance and hospital), a medical drill is conducted annually with a simulated contaminated injured individual. This drill can be performed as part of an Emergency Plan drill or exercise.

12.1.6. 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

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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 Quality Assurance Program 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:

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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.

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

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

APPENDIX A

EMERGENCY CLASSIFICATION SYSTEM

AND

EMERGENCY ACTION LEVELS

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

APPENDIX B

EMERGENCY EQUIPMENT

This Appendix contains a list of emergency equipment by location. Backup equipment is available at the Radiation Protection control point. 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")

APPENDIX B (Continued)

EMERGENCY EQUIPMENT INVENTORY

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

APPENDIX C

ENVIRONMENTAL LABORATORY ANALYTICAL AND DOSIMETRY SERVICES

APPENDIX C (Continued)

General

In the event of a radiological emergency at Vermont Yankee, laboratory services (as described in 6.2.5) are available, on a 24-hour emergency call basis, to perform gamma isotopic analyses on samples taken by the plant's emergency monitoring teams. Portable gamma spectroscopy equipment can be deployed to the plant site to determine the presence and level of contamination in samples of various media in the event of an accidental release of radioactive material.

Portable Emergency Analysis Equipment

Portable analysis equipment with computerized spectral analysis capability may be deployed to assist in an emergency response. A report of plant-related nuclide concentrations, standard deviation, and Minimum Detectable Concentration (MDC) is forwarded to assessment personnel.

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

Emergency DLR Services

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

Portable Body Burden Service

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

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

APPENDIX D
LETTERS OF AGREEMENT

APPENDIX D (Continued)

Letters of agreement in effect between Vermont Yankee and the offsite authorities are maintained in the Emergency Planning Department files. Entergy Operations, Inc. maintains agreements and/or contracts with the following organizations in support of Vermont Yankee Emergency Response.

Letters of Agreement have been ascertained with offsite groups to provide on-site aid in the event of an emergency situation at Vermont Yankee.

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

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

Hospitals: Brattleboro Memorial Hospital has agreed to accept patients from Vermont Yankee who have been injured, contaminated or irradiated.

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

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

APPENDIX D (Continued)

Letters of Agreement

1. State of Vermont
2. Brattleboro Memorial Hospital
3. Rescue, Inc. Ambulance Service
4. Vernon Fire Department
5. Brattleboro Fire Department
6. Town of Vernon
7. Department of Energy
8. DOE - REAC/TS
9. Law Enforcement *

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

APPENDIX E

INDEX OF EMERGENCY PLAN IMPLEMENTING PROCEDURES AND SUPPORT PLANS

APPENDIX E (Continued)

I. EMERGENCY PLAN IMPLEMENTING PROCEDURES

AP 3125	Emergency Plan Classification and Action Level Scheme
EPOP-COMM-3504	Emergency Communications
EPOP-EQUIP-3506	Emergency Equipment Readiness Check
OP 3507	Emergency Radiation Exposure Control
OP 3508	Onsite Medical Emergency Procedure
OP 3509	Environmental Sample Collection during an Emergency
OP 3510	Site Boundary Monitoring
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

APPENDIX E (Continued)

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 and E of this plan.**

Attachment 3

Vermont Yankee Nuclear Power Station

Permanently Defueled Emergency Action Level Bases Document



Vermont Yankee Nuclear Power Station

Permanently Defueled Emergency Action Level Technical Bases

Revision 0

Prepared by: _____
Planner, Emergency Planning Date

Approved by: _____
Manager, Emergency Planning Date

Approved by: _____
Manager, Operations Date

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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

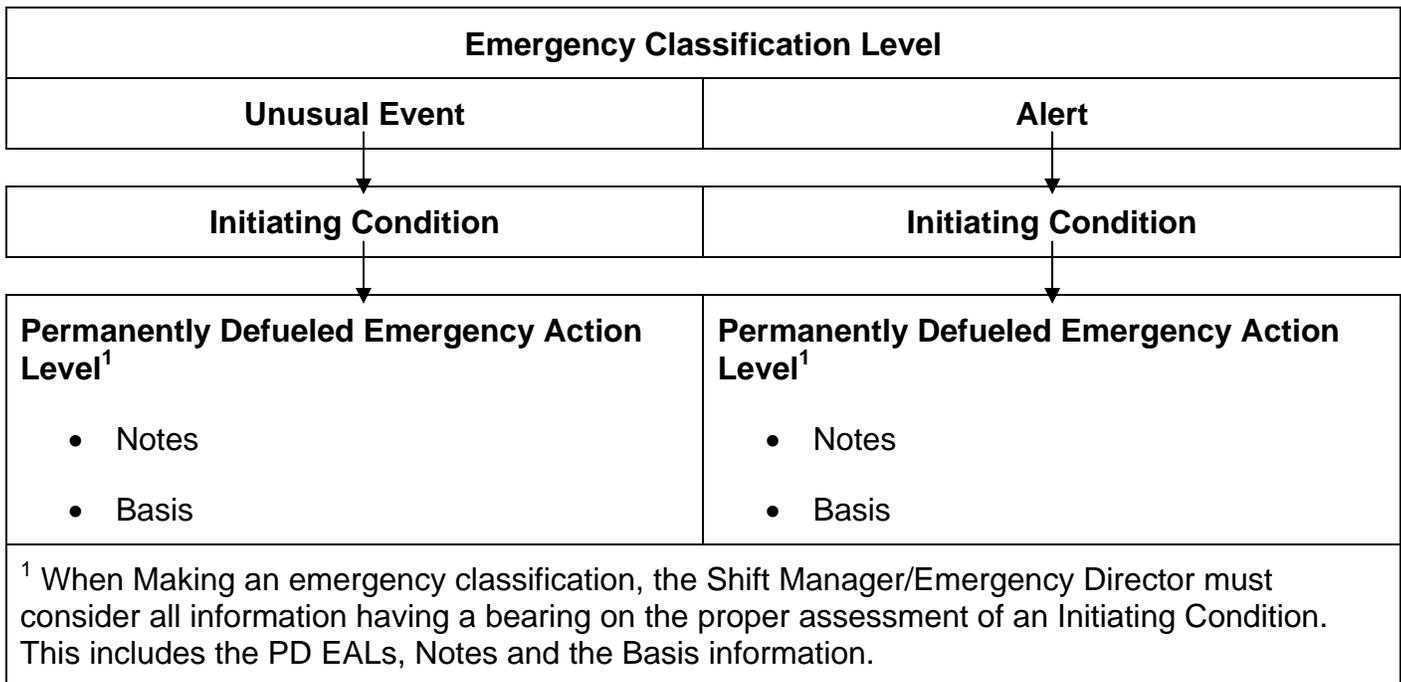
conditions germane to a 10 CFR 72.32 emergency plan (as described in NUREG-1567) are subsumed within the classification scheme for a 10 CFR 50.47 emergency plan.

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.



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 IMMIDENT). If, in the judgment of the Emergency Director, meeting an EAL is IMMIDENT, 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 Events, 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 ACRONYMS & DEFINITIONS

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 that 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.	

Attachment 1 – Recognition Category PD EAL Bases

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.

<u>Gaseous</u>	<u>Action Value</u>
Gas-1 [RM-17-156]	2 X High Alarm
Gas-2 [RM-17-157]	2 X High Alarm
<u>Liquid</u>	<u>Action Value</u>
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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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.

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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.

<u>Gaseous</u>	<u>Action Value</u>
Gas-1 [RM-17-156]	9.0E+06 cpm
Gas-2 [RM-17-157]	9.0E+06 cpm
<u>Liquid</u>	<u>Action Value</u>
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).

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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 unmonitored 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):

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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 unmonitored 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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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 unmonitored 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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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).

Attachment 1 – Recognition Category PD EAL Bases

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 Radiation Protection management. 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

Attachment 1 – Recognition Category PD EAL Bases

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 Radiation Protection management. 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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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).

Attachment 1 – Recognition Category PD EAL Bases

- 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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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.

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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.

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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.

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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

Attachment 1 – Recognition Category PD EAL Bases

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.

Attachment 2 – Recognition Category E EAL Bases

Table E-1: Recognition Category “E” Initiating Condition Matrix

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

Attachment 2 – Recognition Category E EAL Bases

Category: E – Independent Spent Fuel Storage Installation

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.

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
Permanently Defueled Emergency Action Level Scheme

ALERT

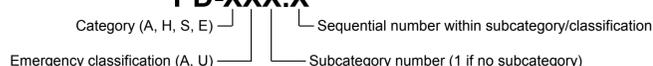
UNUSUAL EVENT

<h2 style="font-size: 2em;">A</h2> <p>Abnormal Rad Levels Radiological Effluent</p>	<h3 style="font-size: 2em;">1</h3> <p>Effluent Radiation</p>	<p>PD-AA1.1</p> <p>Reading on an effluent radiation monitor greater than the values shown for 15 minutes or longer</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #add8e6;"> <th colspan="4">Table A-1 Effluent Monitor Thresholds</th> </tr> <tr> <th></th> <th>Release Point</th> <th>Monitor</th> <th>Declaration Value</th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Gaseous</td> <td>Stack Gas Monitor 1</td> <td>RM-17-156</td> <td>9.0 E+06 cpm</td> </tr> <tr> <td>Stack Gas Monitor 2</td> <td>RM-17-157</td> <td>9.0 E+06 cpm</td> </tr> <tr> <td>Liquid</td> <td>SW Discharge Hdr Discharge Monitor</td> <td>RM-17-351</td> <td>192 cps</td> </tr> </tbody> </table>	Table A-1 Effluent Monitor Thresholds					Release Point	Monitor	Declaration Value	Gaseous	Stack Gas Monitor 1	RM-17-156	9.0 E+06 cpm	Stack Gas Monitor 2	RM-17-157	9.0 E+06 cpm	Liquid	SW Discharge Hdr Discharge Monitor	RM-17-351	192 cps	<p>PD-AU1.1</p> <p>Reading on an effluent radiation monitor greater than the values shown for 60 minutes or longer</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #add8e6;"> <th colspan="4">Table A-2 Effluent Monitor Thresholds</th> </tr> <tr> <th></th> <th>Release Point</th> <th>Monitor</th> <th>Declaration Value</th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Gaseous</td> <td>Stack Gas Monitor 1</td> <td>RM-17-156</td> <td>2 X High Alarm</td> </tr> <tr> <td>Stack Gas Monitor 2</td> <td>RM-17-157</td> <td>2 X High Alarm</td> </tr> <tr> <td>Liquid</td> <td>SW Discharge Hdr Discharge Monitor</td> <td>RM-17-351</td> <td>2 X High Alarm</td> </tr> </tbody> </table>	Table A-2 Effluent Monitor Thresholds					Release Point	Monitor	Declaration Value	Gaseous	Stack Gas Monitor 1	RM-17-156	2 X High Alarm	Stack Gas Monitor 2	RM-17-157	2 X High Alarm	Liquid	SW Discharge Hdr Discharge Monitor	RM-17-351	2 X High Alarm
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<p>PD-AA1.2</p> <p>Dose assessment using actual meteorology indicates doses greater than 10 mRem TEDE or 50 mRem thyroid CDE at or beyond the site boundary</p>	<p>PD-AU1.2</p> <p>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</p>																																								
<p>PD-AA1.3</p> <p>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</p>																																									
<p>PD-AA1.4</p> <p>Field survey results indicate EITHER of the following at or beyond the site boundary:</p> <ul style="list-style-type: none"> - Closed window dose rates greater than 10 mR/hr expected to continue for 60 minutes or longer - Analysis of field survey samples indicates thyroid CDE greater than 50 mRem for one hour of inhalation <p style="text-align: center;">NOTES FOR PD-AA1</p> <p>Note 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.</p> <p>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.</p> <p>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.</p>	<p style="text-align: center;">NOTES FOR PD-AU1</p> <p>Note 1: The Emergency Director should declare the Unusual Event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.</p> <p>Note 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.</p> <p>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.</p>																																								
<h3 style="font-size: 2em;">2</h3> <p>Plant Rad Levels</p>	<p>PD-AA2.1</p> <p>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:</p> <ul style="list-style-type: none"> - Control Room 	<p>PD-AU2.1</p> <p>UNPLANNED water level drop in the spent fuel pool as indicated by ANY of the following:</p> <ul style="list-style-type: none"> - Spent Fuel Pool low water level alarm as monitored by LT-19-63A and B - Visual observation <p>AND</p> <p>UNPLANNED rise in area radiation levels as indicated by ANY of the following radiation monitors:</p> <ul style="list-style-type: none"> - ARM #14 Rx Bldg West Refuel - ARM #15 Spent Fuel Floor 																																							
	<p>PD-AA2.2</p> <p>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 integrity: *</p> <ul style="list-style-type: none"> - Spent Fuel Pool Pump Area <p>* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value.</p>	<p>PD-AU2.2</p> <p>Area radiation monitor reading or survey result indicates an UNPLANNED rise of 25 mR/hr over NORMAL LEVELS *</p> <p>* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value.</p>																																							
<h2 style="font-size: 2em;">H</h2> <p>Hazards</p>	<h3 style="font-size: 2em;">1</h3> <p>Security</p>	<p>PD-HA1.1</p> <p>A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor</p>	<p>PD-HU1.1</p> <p>A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor</p>																																						
		<p>PD-HA1.2</p> <p>A validated notification from NRC of an aircraft attack threat within 30 minutes of the site</p>	<p>PD-HU1.2</p> <p>Notification of a credible security threat directed at the site</p>																																						
			<p>PD-HU1.3</p> <p>A validated notification from the NRC providing information of an aircraft threat</p>																																						
	<h3 style="font-size: 2em;">2</h3> <p>Natural & Destructive Phenomena</p>	<p>None</p>	<p>PD-HU2.1</p> <p>The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> - 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 <p>AND</p> <p>The event has damaged at least one train of a system needed for spent fuel cooling</p> <p>AND</p> <p>The damaged train(s) cannot, or potentially cannot, perform its design function based on EITHER</p> <ul style="list-style-type: none"> - Indications of degraded performance - VISIBLE DAMAGE 																																						
		<p>PD-HA3.1</p> <p>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.</p>	<p>PD-HU3.1</p> <p>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 onsite response or monitoring are expected unless further degradation of safety systems occurs.</p>																																						
<h2 style="font-size: 2em;">S</h2> <p>System Malfunction</p>		<p>None</p>	<p>PD-SU1.1</p> <p>UNPLANNED spent fuel pool temperature rise to greater than 150°F</p>																																						
		<p>None</p>	<p>E-HU1.1</p> <p>Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading greater than two times the ISFSI Technical Specifications allowable levels</p>																																						

PERMANENTLY DEFUELED CONDITIONS

EAL Identifier

PD-XXX.X



Vermont Yankee Nuclear Power Station
EAL Classification Matrix

AP 3125 Appendix A, Rev. XX

Attachment 5

Vermont Yankee Nuclear Power Station

Comparison Matrix for Permanently Defueled EALs Based on NEI 99-01, "Development of
Emergency Action Levels for Non-Passive Reactors," Revision 6

**COMPARISON DOCUMENT FOR PERMANENTLY DEFUELED EALS
BASED UPON NUCLEAR ENERGY INSTITUTE (NEI) 99-01,
“METHODOLOGY FOR DEVELOPMENT OF EMERGENCY ACTION LEVELS,” REVISION 6**

The following provides a description of the Vermont Yankee Nuclear Power Station (VY) Emergency Action Level (EAL) Technical Bases Document (provided as Attachment 3 to this submittal) and includes the results of a comparison of the EAL matrix against the corresponding information contained in NEI 99-01, “Development of Emergency Action Levels for Non-Passive Reactors,” Revision 6.

Description of EAL Technical Basis Document

1.0 Purpose

A comparison between this section and NEI 99-01 was not made. The VY EAL Technical Bases Document includes reference to the Recognition Category “PD” based on the facility’s permanently shutdown and defueled condition, providing a stand-alone set of Initiating Conditions (ICs)/EALs for a permanently defueled nuclear power facility.

2.0 Discussion

This section was developed based on information contained in NEI 99-01 Rev. 6, Section 1, “Regulatory Background.” Differences between the VY Permanently Defueled (PD) EALs Technical Bases Document and NEI 99-01, Rev. 6 are discussed below.

- NEI 99-01, Section 1.1, “Operating Reactors,” was excluded as it pertains to operating reactors. VY has permanently ceased operation.
- NEI 99-01, Section 1.5, “Applicability to Advanced and Small Modular Reactor Designs,” was excluded because it does not apply to VY.

3.0 Key Terminology Used

This section was developed based on information contained in NEI 99-01, Section 2, “Key Terminology Used in NEI 99-01.” Differences between the VY PD EALs Technical Bases Document and NEI 99-01, Rev. 6 are discussed below.

- References to Site Area Emergency and General Emergency were removed throughout the section. EALs have been developed using Section 8 for Independent Spent Fuel Storage Installation (ISFSI) and Appendix C for Permanently Defueled Station ICs/EALs. Emergency Classification Levels only include Notification of Unusual Event (Unusual Event) and Alert.
- In Section 3.2, “Initiating Condition (IC)” (Section 2.2 of NEI 99-01, Rev. 6), references to RCS Leakage and fission product barriers were removed. Upon permanent cessation of operations, the RCS and Containment will no longer be considered fission product barriers because the reactor will be permanently defueled.

- NEI 99-01, Section 2.4, “Fission Product Barrier Threshold,” was excluded for reasons previously identified related to fission product barriers.

4.0 Guidance on Making Emergency Classifications

This section was developed based on information contained in NEI 99-01, Section 5, “Guidance on Making Emergency Classifications.” Differences between the VY PD EAL Technical Bases Document and NEI 99-01, Rev. 6 are discussed below.

- In Section 4.1 (Section 5.1 of NEI 99-01), references to fission product barrier thresholds were removed as the RCS and Containment no longer serve as fission product barriers.
- In Section 4.1 (Section 5.1 of NEI 99-01), the second paragraph of NEI 99-01 stating that, “regulations require the licensee to establish and maintain the capability to assess, classify and declare an emergency condition within 15 minutes,” was excluded. As detailed in draft NSIR/DPR-ISG-02, Interim Staff Guidance, “Emergency Planning Exemption Requests for Decommissioning Plants,” “...the NRC did not include requirements in the 2011 EP Final Rule for non-power reactor licensees to assess, classify, and declare an emergency condition within 15 minutes and promptly declare an emergency condition. The staff considered the similarity between a permanently defueled reactor and a non-power reactor for the low likelihood of any credible accident resulting in radiological releases requiring offsite protective measures.”

Analyses were included in “Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR 50, Appendix E,” BVY 14-009, dated March 14, 2014 (ADAMS Accession No. ML14080A141) (TAC No. MF3614) indicating that, within 15.4 months after shutdown, 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, VY will make notifications to the State of Vermont within 60 minutes of declaration of an event. In the permanently defueled condition, the rapidly developing scenarios associated with events initiated during reactor power operation are no longer credible. The radiological consequences resulting from the only remaining events (e.g., fuel handling accident) develop over a significantly longer period. As such, a 15 minute notification requirement is unnecessarily restrictive. Sixty minutes provides a reasonable amount of time to provide notification to state and local governmental. This notification timeliness is also consistent with the notification requirement to the NRC Operations Center, contained in 10 CFR 50.72(a)(1)(i), for the declaration of an emergency class.

- In Section 4.2 (Section 5.2 in NEI 99-01), reference to Operating Mode Applicability was removed because Operating Modes are not applicable in a permanently defueled facility.
- NEI 99-01, Section 5.4 was excluded because mode changes during classification are not applicable to a permanently defueled facility.

- In Section 4.3 (Section 5.3 of NEI 99-01), references to two units were removed because VY is a single unit site.
- In Section 4.4 (Section 5.5 of NEI 99-01), the word “levels” was changed to “level” because there is only one higher emergency classification level above an Unusual Event for a permanently defueled facility.
- In Section 4.5 (Section 5.6 of NEI 99-01), references to Site Area Emergency and General Emergency were removed. Site Area Emergency and General Emergency are no longer credible emergency classifications because analyses have been developed indicting that, within 15.4 months after shutdown, no credible accident at VY will result in radiological releases requiring offsite protective actions.
- In Section 4.6 (Section 5.7 of NEI 99-01) references to an operating plant short-lived event (reactor trip) were removed and replaced with verbiage applicable to a permanently defueled facility.
- In Section 4.7 (Section 5.8 of NEI 99-01) the example was removed because an emergency declaration associated with the auxiliary feedwater system is no longer credible at VY. The reference to the 15 –minute emergency classification was excluded for reasons presented above.

5.0 References

This section was added to provide Developmental and Implementing References applicable to the VY EAL Technical Bases Document. No corresponding section is included in NEI 99-01.

6.0 Acronyms & Definitions

This section was developed based on the information presented in Appendices A and B of NEI 99-01, Rev. 6. The list incorporates only those acronyms used in the VY EAL Technical Bases Document.

- The following definitions, included in NEI 99-01, Rev. 6, were excluded because they are not used in the VY PD EAL Technical Bases Document:

General Emergency
Site Area Emergency

- The following key terms necessary for overall understanding of the NEI 99-01 emergency classification scheme were excluded because they are not used in the VY PD EAL Technical Bases Document:

Fission Product Barrier Threshold

- The key term, Initiating Condition (IC), was revised to change “four emergency classification levels” to “two emergency classification levels because Site Area

Emergency and General Emergency are not used in the VY PD EAL Technical Bases Document.

- The key term, Emergency Classification Level, was revised to exclude reference to Site Area Emergency and General Emergency because they are not used in the VY PD EAL Technical Bases Document.
- 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 NEI 99-01, Rev. 6. Definitions not used in the VY PD EAL Technical Bases Document were excluded.

7.0 VYNPS to NEI 99-01 EAL Cross-Reference

No corresponding section is included in NEI 99-01, Rev. 6. This section was added 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.

8.0 Attachments

8.1 Attachment 1, Recognition Category PD EAL Bases

- Attachment 1 of the VY EAL Technical Bases provides the Permanently Defueled IC/EALs and incorporates Appendix C of NEI 99-01, Rev. 6.
- Reference to Section 3 of NEI 99-01, Rev. 6 was excluded.
- References to Operating Modes were removed from Table PD-1.
- The table below provides a comparison of the VY PD EALs against the corresponding information contained in NEI 99-01, Rev. 6.

8.2 Attachment 2, Recognition Category E EAL Basis

- Attachment 2 of the VY EAL Technical Bases provides the ISFSI IC/EALs and incorporates Section 8 of NEI 99-01, Rev. 6.
- Reference to Operating Mode was removed from Table E-1.
- The table below provides a comparison of the VY ISFSI EALs against the corresponding information contained in NEI 99-01, Rev. 6.

NEI 99-01 Sections Not Included

The following sections of NEI 99-01, Rev. 6 were not included and references made to these sections were also removed:

- Section 3, "Design of the NEI 99-01 Emergency Classification Scheme"

- Section 4, "Site-Specific Scheme Development Guidance"

The following sections of NEI 99-01, Rev. 6 were removed from the VY PD EAL matrix as these do not apply to a permanently defueled facility:

- Section 6, Abnormal Rad Levels/Radiological Effluent ICs/EALs,
- Section 7, Cold Shutdown/Refueling System Malfunction ICs/EALs,
- Section 9, Fission Product Barrier ICs/EALs,
- Section 10, Hazards and Other Conditions Affecting Plant Safety ICs/EALs, and
- Section 11, System Malfunction ICs/EALs.

<p>NEI 99-01 Rev 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>PD-AU1 ECL: Notification of Unusual Event Initiating Condition: Release of gaseous or liquid radioactivity greater than 2 times the (site-specific effluent release controlling document) limits for 60 minutes or longer. Operating Mode Applicability: Not Applicable Example Emergency Action Levels: (1 or 2) Notes:</p> <ul style="list-style-type: none"> ● The Emergency Director should declare the Unusual Event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded. ● If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes. ● 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. 	<p>PD-AU1 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.</p>	<ul style="list-style-type: none"> ● Removed Emergency Classification Level (ECL) ● Added Recognition Category ● Removed Operating Mode Applicability as it does not apply in a permanently defueled condition ● Removed “Example Emergency Action Levels” ● Changed numbering of EALs to separate EALs 1 and 2 into separate EALs ● Added numbers to bulleted Notes and relocated notes after each EAL

NEI 99-01 Rev 6 Appendix C – Permanently Defueled Station ICs/EALs	Proposed EAL Matrix for VY	Comparison												
<p>(1) Reading on ANY effluent radiation monitor greater than 2 times the alarm setpoint established by a current radioactivity discharge permit for 60 minutes or longer.</p>	<p>PD-AU1.1 Reading on an effluent radiation monitor greater than the values shown for 60 minutes or longer.</p> <table border="1" data-bbox="726 431 1346 638"> <thead> <tr> <th data-bbox="726 431 1129 459"><u>Gaseous</u></th> <th data-bbox="1129 431 1346 459"><u>Action Value</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="726 459 1129 487">Gas-1 [RM-17-156]</td> <td data-bbox="1129 459 1346 487">2 X High Alarm</td> </tr> <tr> <td data-bbox="726 487 1129 514">Gas-2 [RM-17-157]</td> <td data-bbox="1129 487 1346 514">2 X High Alarm</td> </tr> <tr> <td data-bbox="726 514 1129 542"></td> <td data-bbox="1129 514 1346 542"></td> </tr> <tr> <th data-bbox="726 542 1129 570"><u>Liquid</u></th> <th data-bbox="1129 542 1346 570"><u>Action Value</u></th> </tr> <tr> <td data-bbox="726 570 1129 638">SW Discharge Hdr Discharge Monitor [RM-17-351]</td> <td data-bbox="1129 570 1346 638">2 X High Alarm</td> </tr> </tbody> </table> <p>NOTE 1: The Emergency Director should declare the Unusual Event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.</p> <p>NOTE 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.</p> <p>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.</p>	<u>Gaseous</u>	<u>Action Value</u>	Gas-1 [RM-17-156]	2 X High Alarm	Gas-2 [RM-17-157]	2 X High Alarm			<u>Liquid</u>	<u>Action Value</u>	SW Discharge Hdr Discharge Monitor [RM-17-351]	2 X High Alarm	<ul style="list-style-type: none"> Replaced “2 times the alarm setpoint established by a current radioactivity discharge permit” with a table that includes VY-specific radiation monitors and action values of “2 x High Alarm” for gaseous and liquid release monitors.
<u>Gaseous</u>	<u>Action Value</u>													
Gas-1 [RM-17-156]	2 X High Alarm													
Gas-2 [RM-17-157]	2 X High Alarm													
<u>Liquid</u>	<u>Action Value</u>													
SW Discharge Hdr Discharge Monitor [RM-17-351]	2 X High Alarm													
<p>Basis:</p> <p>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</p>	<p>Vermont Yankee Basis:</p> <p>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</p>	<ul style="list-style-type: none"> Added VY-specific basis information 												

<p>NEI 99-01 Rev 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>is normally prepared.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.</p> <p>EAL #1 - This EAL addresses radioactivity</p>	<p>is normally prepared.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.</p> <p>EAL PD-AU1.1 addresses radioactivity releases</p>	

<p>NEI 99-01 Rev 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>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).</p> <p>EAL #2 - This EAL 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.).</p> <p>Escalation of the emergency classification level would be via IC PD-AA1.</p>	<p>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).</p> <p>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.</p> <p>In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.</p> <p>The high alarm setpoint for SW Discharge Hdr Discharge Monitor (RM-17-351) is established to ensure the ODCM release limits are not exceeded.</p> <p>Escalation of the emergency classification level would be via IC PD-AA1.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>(2) Sample analysis for a gaseous or liquid release indicates a concentration or release rate greater than 2 times the (site-specific effluent release controlling document) limits for 60 minutes or longer.</p>	<p>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.</p> <p>NOTE 1: The Emergency Director should declare the Unusual Event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.</p> <p>NOTE 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.</p> <p>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.</p>	<ul style="list-style-type: none"> • No differences
<p>Basis:</p> <p>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.</p> <p>Nuclear power plants incorporate design features intended to control the release of radioactive effluents to the environment.</p>	<p>Vermont Yankee Basis:</p> <p>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.</p> <p>Nuclear power plants incorporate design features intended to control the release of radioactive effluents to the environment.</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>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.</p> <p>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.</p> <p>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.</p> <p>Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.</p> <p>EAL #1 - This EAL 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</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.</p> <p>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,</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>pathways (e.g., radwaste, waste gas). EAL #2 - This EAL 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.). Escalation of the emergency classification level would be via IC PD-AA1.</p>	<p>etc.). Releases in excess of two times the site ODCM 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.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>PD-AA1 ECL: Alert Initiating Condition: Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE. Operating Mode Applicability: Not Applicable Example Emergency Action Levels: (1 or 2 or 3 or 4) Notes:</p> <ul style="list-style-type: none"> ● The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded. ● If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes. ● 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. ● The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available. 	<p>PD-AA1 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.</p>	<ul style="list-style-type: none"> ● Removed ECL ● Added Recognition Category ● Removed Operating Mode Applicability as it does not apply in a permanently defueled condition ● Removed “Example from Emergency Action Levels” ● Changed numbering of EALs and separated EALs 1, 2, 3 and 4 into separate EALs ● Added numbers to bulleted Notes and relocated notes after each EAL

NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs	Proposed EAL Matrix for VY	Comparison												
<p>(1) Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site-specific monitor list and threshold values)</p>	<p>PD-AA1.1 Reading on an effluent radiation monitor greater than the value shown for 15 minutes or longer:</p> <table border="1" data-bbox="726 431 1346 638"> <thead> <tr> <th data-bbox="726 431 1079 459"><u>Gaseous</u></th> <th data-bbox="1079 431 1346 459"><u>Action Value</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="726 459 1079 487">Gas-1 [RM-17-156]</td> <td data-bbox="1079 459 1346 487">9.0E+06 cpm</td> </tr> <tr> <td data-bbox="726 487 1079 514">Gas-2 [RM-17-157]</td> <td data-bbox="1079 487 1346 514">9.0E+06 cpm</td> </tr> <tr> <td colspan="2" data-bbox="726 514 1346 542"> </td> </tr> <tr> <th data-bbox="726 542 1079 570"><u>Liquid</u></th> <th data-bbox="1079 542 1346 570"><u>Action Value</u></th> </tr> <tr> <td data-bbox="726 570 1079 638">SW Discharge Hdr Discharge Monitor [RM-17-351]</td> <td data-bbox="1079 570 1346 638">192 cps</td> </tr> </tbody> </table> <p>NOTE 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>NOTE 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.</p> <p>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.</p> <p>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.</p>	<u>Gaseous</u>	<u>Action Value</u>	Gas-1 [RM-17-156]	9.0E+06 cpm	Gas-2 [RM-17-157]	9.0E+06 cpm			<u>Liquid</u>	<u>Action Value</u>	SW Discharge Hdr Discharge Monitor [RM-17-351]	192 cps	<ul style="list-style-type: none"> VY no longer has the source term or motive force from a credible accident to create a gaseous release resulting in offsite dose equal to 10 mrem TEDE or 50 mrem thyroid CDE. Therefore, this Initiating Condition does not directly apply to VY as written in the NEI 99-01, Rev. 6 guidance for gaseous releases. Any releases associated with fuel damage caused by credible fuel handling accidents would be monitored by RM-17-156 and RM-17-157. Therefore using the Initiating Condition dose values of 10 mrem TEDE and 50 mrem thyroid CDE is not practicable and would result in count rates that exceed the capacity of the gaseous effluent monitors at small fractions of the 10 mrem TEDE or 50 mrem thyroid CDE. Using effluent radiation monitor readings equivalent to 90% of full scale of the monitor range more accurately implements the NEI guidance for the gaseous release portion of this EAL and provides for an appropriate escalation from PD-AU1. The liquid release portion of this EAL is based on a counts per second value equivalent to 10 mrem TEDE
<u>Gaseous</u>	<u>Action Value</u>													
Gas-1 [RM-17-156]	9.0E+06 cpm													
Gas-2 [RM-17-157]	9.0E+06 cpm													
<u>Liquid</u>	<u>Action Value</u>													
SW Discharge Hdr Discharge Monitor [RM-17-351]	192 cps													
<p>Basis: This IC addresses a release of gaseous or liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1%</p>	<p>Vermont Yankee Basis: This EAL addresses a release of gaseous or liquid radioactivity that results in detectable levels that are below 1% of the EPA PAGs and</p>	<ul style="list-style-type: none"> Added VY-specific basis information 												

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>of the EPA Protective Action Guides (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 release).</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>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).</p> <p>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.</p> <p>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 the full scale reading of the monitors.</p> <p>The liquid release portion of this EAL is based on a counts per second value equivalent to 10 mrem TEDE.</p> <p>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.</p> <p>Classification based on effluent monitor readings assumes that a release path to the</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
	<p>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.</p> <p>In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>(2) Dose assessment using actual meteorology indicates doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond (site-specific dose receptor point).</p>	<p>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.</p> <p>NOTE 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>NOTE 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.</p> <p>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.</p> <p>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.</p>	<ul style="list-style-type: none"> • No differences
<p>Basis: This IC 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 Protective Action Guides (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</p>	<p>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.,</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>release).</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>a significant uncontrolled release).</p> <p>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.</p> <p>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.</p> <p>In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.</p> <p>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.</p> <p>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.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>(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 (site-specific dose receptor point) for one hour of exposure.</p>	<p>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.</p> <p>NOTE 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>NOTE 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.</p> <p>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.</p> <p>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.</p>	<ul style="list-style-type: none"> • No differences
<p>Basis: This IC 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 Protective Action Guides (PAGs). It includes both monitored and un-monitored releases. Releases of this magnitude represent an actual or potential substantial degradation of</p>	<p>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</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>the level of safety of the plant as indicated by a release).</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>indicated by a radiological release that significantly exceeds regulatory limits (e.g., a significant uncontrolled release).</p> <p>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.</p> <p>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.</p> <p>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.</p>	

NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs	Proposed EAL Matrix for VY	Comparison
<p>(4) Field survey results indicate EITHER of the following at or beyond (site-specific dose receptor point):</p> <ul style="list-style-type: none"> • 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. 	<p>PD-AA1.4 Field survey results indicate EITHER of the following at or beyond the site boundary:</p> <ul style="list-style-type: none"> • 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 <p>NOTE 1: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>NOTE 2: If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.</p> <p>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.</p> <p>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.</p>	<ul style="list-style-type: none"> • No differences
<p>Basis: This IC addresses a release of gaseous or liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1%</p>	<p>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%</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>of the EPA Protective Action Guides (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 release).</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>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).</p> <p>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.</p> <p>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.</p> <p>In a permanently shutdown and defueled condition, the only credible scenario for releasing gas would be to damage spent fuel during handling.</p> <p>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.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>Basis:</p> <p>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.</p> <p>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.</p> <p>The effects of planned evolutions should be considered. Note that EAL #1 is applicable only in cases where the elevated reading is due to an UNPLANNED water level drop. EAL #2 excludes radiation level increases that result from planned activities such as use of radiographic sources and movement of radioactive waste materials.</p> <p>Escalation of the emergency classification level</p>	<p>Vermont Yankee Basis:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<ul style="list-style-type: none"> • Added site-VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>would be via IC PD-AA1 or PD-AA2.</p>	<p>The low water level alarm (SFP level 36 ft. 7 in.) in this EAL refers to the SFP low level alarm.</p> <p>The SFP level is monitored by two transmitters (LT-19-63A and B).</p> <p>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 require SFP level to be maintained at least 36 ft.</p> <p>Area radiation monitors that may indicate a loss of shielding of spent fuel in the SFP or refueling cavity include:</p> <ul style="list-style-type: none"> • ARM-14 Rx Bldg West Refuel • ARM-15 Spent Fuel Pool <p>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.</p> <p>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</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
	<p>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.</p> <p>Routine and work specific surveys are conducted throughout the station at frequencies specified by Radiation Protection management. Routine surveys are scheduled per the RP Department Surveillance Schedule. Work specific surveys are conducted in accordance with the Radiation Work Permit (RWP).</p> <p>Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>(2) Area radiation monitor reading or survey result indicates an UNPLANNED rise of 25 mR/hr over NORMAL LEVELS.</p>	<p>PD-AU2.2 Area radiation monitor reading or survey result indicates an UNPLANNED rise of 25 mR/hr over NORMAL LEVELS*.</p> <p>* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value.</p>	<ul style="list-style-type: none"> • Added definition of NORMAL LEVELS
<p>Basis:</p> <p>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.</p> <p>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.</p> <p>The effects of planned evolutions should be considered. Note that EAL #1 is applicable only in cases where the elevated reading is due to</p>	<p>Vermont Yankee Basis:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>The low water level alarm (SFP level 36 ft. 7 in.)</p>	<ul style="list-style-type: none"> • Added site-VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>an UNPLANNED water level drop. EAL #2 excludes radiation level increases that result from planned activities such as use of radiographic sources and movement of radioactive waste materials.</p> <p>Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.</p>	<p>in this EAL refers to the SFP low level alarm.</p> <p>The SFP level is monitored by two transmitters (LT-19-63A and B).</p> <p>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 require SFP level to be maintained at least 36 ft.</p> <p>Area radiation monitors that may indicate a loss of shielding of spent fuel in the SFP or refueling cavity include:</p> <ul style="list-style-type: none"> • ARM-14 Rx Bldg West Refuel • ARM-15 Spent Fuel Pool <p>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.</p> <p>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</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
	<p>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.</p> <p>Routine and work specific surveys are conducted throughout the station at frequencies specified by Radiation Protection management. Routine surveys are scheduled per the Radiation Protection Department Surveillance Schedule. Work specific surveys are conducted in accordance with the Radiation Work Permit.</p> <p>Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.</p>	

NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs	Proposed EAL Matrix for VY	Comparison
<p>PD-AA2 ECL: Alert Initiating Condition: UNPLANNED rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity. Operating Mode Applicability: Not Applicable Example Emergency Action Levels: (1 or 2)</p>	<p>PD-AA2 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.</p>	<ul style="list-style-type: none"> • Removed ECL • Added Recognition Category • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition • Removed “Example Emergency Action Levels” • Changed numbering of EALs and separated EALs 1 and 2 into separate EALs
<p>(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: (site-specific area list)</p>	<p>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:</p> <ul style="list-style-type: none"> • Control Room 	<ul style="list-style-type: none"> • No differences
<p>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</p>	<p>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</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>is this impaired access that results in the actual or potential substantial degradation of the level of safety of the plant.</p> <p>This IC does not apply to anticipated temporary increases due to planned events.</p>	<p>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.</p> <p>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.</p> <p>An emergency declaration is not warranted if any of the following conditions apply:</p> <ul style="list-style-type: none"> • 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. 	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>(2) UNPLANNED Area Radiation Monitor readings or survey results indicate a rise by 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 integrity.</p> <p>(site-specific area list)</p>	<p>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 integrity.</p> <ul style="list-style-type: none"> • Spent Fuel Pool Pump Area <p>* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value.</p>	<ul style="list-style-type: none"> • PD-AA2.2 (EAL 2) was reworded to ensure the connection of UNPLANNED was to the word “rise” and not to the phrase “Area Radiation Monitor or survey results”. • Deleted reference to Area Radiation Monitor reading because there are no permanently installed Spent Fuel Pool Pump Area area radiation monitors that may be used to assess the EAL threshold and this is the area that must be operated manually to maintain spent fuel pool integrity. These thresholds must be assessed via local radiation survey. • Added definition of NORMAL LEVELS
<p>Basis:</p> <p>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.</p> <p>This IC does not apply to anticipated temporary increases due to planned events.</p>	<p>Vermont Yankee Basis:</p> <p>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.</p> <p>Areas that meet this threshold include the Spent Fuel Pool Pump Area. There are no</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
	<p>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.</p> <p>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).</p> <p>An emergency declaration is not warranted if any of the following conditions apply:</p> <ul style="list-style-type: none"> • 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 	

NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs	Proposed EAL Matrix for VY	Comparison
	conservative or precautionary nature, and would not actually prevent or impede a required action.	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>PD-HU1 ECL: Notification of Unusual Event Initiating Condition: Confirmed SECURITY CONDITION or threat. Operating Mode Applicability: Not Applicable Example Emergency Action Levels: (1 or 2 or 3)</p>	<p>PD-HU1 Category: H – Hazards and Other Conditions Affecting Plant Safety Initiating Condition: Confirmed SECURITY CONDITION or threat.</p>	<ul style="list-style-type: none"> • Remove ECL • Added Recognition Category • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition. • Removed “Example Emergency Action Levels” • Changed numbering of EALs and separated EALs 1, 2 and 3 into separate EALs
<p>(1) A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the (site-specific security shift supervision).</p>	<p>PD-HU1.1 A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor.</p>	<ul style="list-style-type: none"> • No differences
<p>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. Security events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1. 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</p>	<p>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.</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>notifications to plant personnel and OROs.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>EAL #1 references (site-specific security shift supervision) 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.</p> <p>EAL #2 addresses the receipt of a credible security threat. The credibility of the threat is assessed in accordance with (site-specific procedure).</p> <p>EAL #3 addresses the threat from the impact of an aircraft on the plant. The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may also be provided by NORAD through the NRC. Validation of the threat is performed in accordance with (site-specific procedure).</p> <p>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</p>	<p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>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.</p> <p>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.</p> <p>OP 3132, Operations Department Response to Security Events provides guidance for response to security related events based on contingency events at the Vermont Yankee Plant.</p> <p>Security Events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.</p> <p>Escalation of the emergency classification level would be via IC PD-HA1.</p>		

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>(2) Notification of a credible security threat directed at the site.</p>	<p>PD-HU1.2 Notification of a credible security threat directed at the site.</p>	<ul style="list-style-type: none"> • No differences
<p>Basis:</p> <p>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. Security events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.</p> <p>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.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>EAL #1 references (site-specific security shift supervision) 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</p>	<p>Vermont Yankee Basis:</p> <p>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.</p> <p>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.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>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.</p> <p>Emergency plans and implementing procedures are public documents; therefore, EALs should</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>10 CFR § 2.390 information.</p> <p>EAL #2 addresses the receipt of a credible security threat. The credibility of the threat is assessed in accordance with (site-specific procedure).</p> <p>EAL #3 addresses the threat from the impact of an aircraft on the plant. The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may also be provided by NORAD through the NRC. Validation of the threat is performed in accordance with (site-specific procedure).</p> <p>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.</p> <p>Escalation of the emergency classification level would be via IC PD-HA1.</p>	<p>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.</p> <p>OP 3132, Operations Department Response to Security Events provides guidance for response to security related events based on contingency events at the Vermont Yankee Plant.</p> <p>Security Events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>(3) A validated notification from the NRC providing information of an aircraft threat.</p>	<p>PD-HU1.3 A validated notification from the NRC providing information of an aircraft threat.</p>	<ul style="list-style-type: none"> • No differences
<p>Basis:</p> <p>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. Security events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.</p> <p>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.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>EAL #1 references (site-specific security shift supervision) 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</p>	<p>Vermont Yankee Basis:</p> <p>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.</p> <p>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.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>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,</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>controlled due to the nature of Safeguards and 10 CFR § 2.390 information.</p> <p>EAL #2 addresses the receipt of a credible security threat. The credibility of the threat is assessed in accordance with (site-specific procedure).</p> <p>EAL #3 addresses the threat from the impact of an aircraft on the plant. The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may also be provided by NORAD through the NRC. Validation of the threat is performed in accordance with (site-specific procedure).</p> <p>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.</p> <p>Escalation of the emergency classification level would be via IC PD-HA1.</p>	<p>Operations Response to Aircraft Threats.</p> <p>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.</p> <p>OP 3132, Operations Department Response to Security Events provides guidance for response to security related events based on contingency events at the Vermont Yankee Plant.</p> <p>Security Events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>PD-HA1 ECL: Alert Initiating Condition: HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes. Operating Mode Applicability: Not Applicable Example Emergency Action Levels: (1 or 2)</p>	<p>PD-HA1 Category: H – Hazards and Other Conditions Affecting Plant Safe Initiating Condition: HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p>	<ul style="list-style-type: none"> • Removed ECL • Added Recognition Category • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition. • Removed “Example Emergency Action Levels” • Changed numbering of EALs and separated EALs 1, 2 and 3 into separate EALs
<p>(1) A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the (site-specific security shift supervision).</p>	<p>PD-HA1.1 A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor.</p>	<ul style="list-style-type: none"> • No differences
<p>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</p>	<p>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</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>Room is essential for proper classification of a security-related event.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>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 Offsite Response Organizations, allowing them to be better prepared should it be necessary to consider further actions.</p> <p>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.</p> <p>EAL #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</p>	<p>Room is essential for proper classification of a security-related event.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>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.</p> <p>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.</p> <p>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</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>the OWNER CONTROLLED AREA.</p> <p>EAL #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 (site-specific procedure).</p> <p>The NRC Headquarters Operations Officer (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.</p> <p>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.</p> <p>Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information.</p>	<p>AREA.</p> <p>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.</p> <p>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.</p> <p>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 VY Physical Security Plan.</p> <p>OP 3132, Operations Department Response to Security Events, provides guidance for response to security related events based on contingency events at VY.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>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.</p>		

NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs	Proposed EAL Matrix for VY	Comparison
<p>(2) A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.</p>	<p>PD-HA1.2 A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.</p>	<ul style="list-style-type: none"> • No differences
<p>Basis:</p> <p>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.</p> <p>Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>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 Offsite Response Organizations, allowing them to be better</p>	<p>Vermont Yankee Basis:</p> <p>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.</p> <p>Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.</p> <p>Security plans and terminology are based on the guidance provided by NEI 03-12, <i>Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]</i>.</p> <p>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</p>	<ul style="list-style-type: none"> • Added VY-specific basis information

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>prepared should it be necessary to consider further actions.</p> <p>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.</p> <p>EAL #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.</p> <p>EAL #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 (site-specific procedure).</p> <p>The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may be provided by NORAD</p>	<p>necessary to consider further actions.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>through the NRC.</p> <p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p> <p>OP 3132, Operations Department Response to Security Events, provides guidance for response to security related events based on contingency events at VY.</p>	

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>PD-HU2 ECL: Notification of Unusual Event Initiating Condition: Hazardous event affecting SAFETY SYSTEM equipment necessary for spent fuel cooling. Operating Mode Applicability: Not Applicable Example Emergency Action Levels:</p>	<p>PD-HU2 Category: H – Hazards and Other Conditions Affecting Plant Safe Initiating Condition: Hazardous event affecting equipment necessary for spent fuel cooling.</p>	<ul style="list-style-type: none"> • Removed ECL • Added Recognition Category • Removed reference to “SAFETY SYSTEM”. This IC addresses a hazardous event that causes damage to equipment needed for spent fuel cooling. All systems required to support Spent Fuel Pool cooling will be considered to be within the scope of this EAL. • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition. • Removed “Example Emergency Action Levels” • Changed numbering of EAL
<p>(1) a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by 	<p>PD-HU2.1</p> <p>a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Added high river level and low intake level to the list of hazardous events. Both are ICs that exist presently in the VY EAL matrix and should continue to be considered. • Removed reference to “SAFETY SYSTEM”. Following permanent cessation of operations, Spent Fuel Pool cooling will be accomplished using the Standby Fuel Pool Cooling Subsystem (SFPCS). The SFPCS is a two-train system designed to prevent a single active failure from disabling both trains. The system consists of two pumps and two heat exchangers which are normally lined up as two parallel trains. Each train of the SFPCS

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>the Shift Manager</p> <p>AND</p> <p>b. The event has damaged at least one train of a SAFETY SYSTEM needed for spent fuel cooling.</p> <p>AND</p> <p>c. The damaged SAFETY SYSTEM train(s) cannot, or potentially cannot, perform its design function based on EITHER:</p> <ul style="list-style-type: none"> • Indications of degraded performance • VISIBLE DAMAGE 	<ul style="list-style-type: none"> • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. The event has damaged at least one train of a system needed for spent fuel cooling.</p> <p>AND</p> <p>c. The damaged train(s) cannot, or potentially cannot, perform its design function based on EITHER:</p> <ul style="list-style-type: none"> • Indications of degraded performance • VISIBLE DAMAGE 	<p>can be placed in service remotely.</p>
<p>Basis:</p> <p>This IC addresses a hazardous event that causes damage to at least one train of a SAFETY SYSTEM needed for spent fuel 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.</p>	<p>Vermont Yankee Basis:</p> <p>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</p>	<ul style="list-style-type: none"> • Added VY-specific basis information • Removed reference to “SAFETY SYSTEM”. Following permanent cessation of operations, Spent Fuel Pool cooling will be accomplished using the Standby Fuel Pool Cooling Subsystem (SFPCS). The SFPCS is a two-train system designed to prevent a single active failure from disabling both trains. The system consists of two pumps and two heat exchangers which are normally lined up as two parallel trains. Each train of the SFPCS

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>For EAL 1.c, the first bullet addresses damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available.</p> <p>For EAL 1.c, the second bullet addresses damage to a SAFETY SYSTEM train 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.</p> <p>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.</p>	<p>therefore represents a potential degradation of the level of safety of the plant.</p> <p>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. 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.</p> <p>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.</p> <p>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.</p> <p>For EAL PD-HU2.1c, the first bullet addresses damage to a system that is in service/operation</p>	<p>can be placed in service remotely.</p> <ul style="list-style-type: none"> • The intent of the last bullet in PD-HU2.1a is to consider similar hazards that may cause damage to a system and not intended to include component failures in a system. If a component fails, SFP temperature will be affected and the Shift Manager/Emergency Director (SM/ED) should consider declaration per PD-SU1 if it rises above 150°F.

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
	<p>since indications for it will be readily available.</p> <p>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.</p> <p>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.</p>	

NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs	Proposed EAL Matrix for VY	Comparison
<p>PD-HU3 ECL: Notification of Unusual Event Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of a (NO)UE. Operating Mode Applicability: Not Applicable Example Emergency Action Levels:</p>	<p>PD-HU3 Category: H – Hazards and Other Conditions Affecting Plant Safe Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Unusual Event.</p>	<ul style="list-style-type: none"> • Removed ECL • Added Recognition Category • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition. • Removed “Example Emergency Action Levels” • Changed numbering of EAL
<p>(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.</p>	<p>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.</p>	<ul style="list-style-type: none"> • No differences

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>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 a NOUE.</p>	<p>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.</p>	<ul style="list-style-type: none"> • Added VY-specific basis information.

<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>PD-HA3 ECL: Alert Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert. Operating Mode Applicability: Not Applicable Example Emergency Action Levels:</p>	<p>PD-HA3 Category: H – Hazards and Other Conditions Affecting Plant Safe Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert.</p>	<ul style="list-style-type: none"> • Removed ECL • Added Recognition Category • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition. • Removed “Example Emergency Action Levels” • Changed numbering of EAL
<p>(1) Other conditions exist which in the judgment of the Emergency Director indicate that 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.</p>	<p>Emergency Action Levels: 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 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.</p>	<ul style="list-style-type: none"> • No differences
<p>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</p>	<p>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</p>	<ul style="list-style-type: none"> • Added VY-specific basis information.

<p>Emergency Director to fall under the emergency classification level description for an Alert.</p>	<p>Emergency Director to fall under the emergency classification level description for an Alert.</p> <p>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.</p>	
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<p>NEI 99-01 REV 6 Appendix C – Permanently Defueled Station ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>PD-SU1 ECL: Notification of Unusual Event Initiating Condition: UNPLANNED spent fuel pool temperature rise. Operating Mode Applicability: Not Applicable Example Emergency Action Levels:</p>	<p>PD-SU1 Category: S – System Malfunction Initiating Condition: UNPLANNED spent fuel pool temperature rise.</p>	<ul style="list-style-type: none"> • Removed ECL • Added Recognition Category • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition. • Removed “Example Emergency Action Levels”
<p>(1) UNPLANNED spent fuel pool temperature rise to greater than (site-specific °F).</p>	<p>PD-SU1.1 UNPLANNED spent fuel pool temperature rise to greater than 150°F.</p>	<ul style="list-style-type: none"> • No differences
<p>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. Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.</p>	<p>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. Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.</p>	<ul style="list-style-type: none"> • Added VY-specific Technical Specification information.

<p>NEI 99-01 REV 6 Section 8 – ISFSI ICs/EALs</p>	<p>Proposed EAL Matrix for VY</p>	<p>Comparison</p>
<p>E-HU1 ECL: Notification of Unusual Event Initiating Condition: Damage to a loaded cask CONFINEMENT BOUNDARY. Operating Mode Applicability: All Example Emergency Action Levels:</p>	<p>E-HU1 Category: H – Hazards and Other Conditions Affecting Plant Safe Initiating Condition: Damage to a loaded cask CONFINEMENT BOUNDARY.</p>	<ul style="list-style-type: none"> • Removed ECL • Added Recognition Category • Removed Operating Mode Applicability as it does not apply in a permanently defueled condition. • Removed “Example Emergency Action Levels”
<p>(1) Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading greater than (2 times the site-specific cask specific technical specification allowable radiation level) on the surface of the spent fuel cask.</p>	<p>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.</p>	<ul style="list-style-type: none"> • Removed reference to “on-contact”. • Removed “on the surface of the spent fuel cask”.
<p>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.</p>	<p>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</p>	<ul style="list-style-type: none"> • Added VY-specific basis information. The “two times the ISFSI Technical Specification allowable levels” are included. • Removed reference to “on-contact”.

NEI 99-01 REV 6 Section 8 – ISFSI ICs/EALs	Proposed EAL Matrix for VY	Comparison
<p>The existence of “damage” is determined by radiological survey. The technical specification multiple of “2 times”, which is also used in Recognition Category A IC AU1, 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 “on-contact” dose rate limit is exceeded may be determined based on measurement of a dose rate at some distance from the cask.</p> <p>Security-related events for ISFSIs are covered under ICs HU1 and HA1.</p>	<p>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.</p> <p>Minor surface damage that does not affect the storage cask boundary is excluded from the scope of this EAL.</p> <p>Two times the ISFSI Technical Specification allowable levels equate to:</p> <ul style="list-style-type: none"> • 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. <p>Security-related events for ISFSIs are covered under IC PD-HU1 and PD-HA1.</p>	