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Enclosure 2

Vermont Yankee Nuclear Power Station
ISFSI EAL Technical Bases Document

ENTERGY VERMONT YANKEE

**ISFSI EMERGENCY PLAN
Emergency Action Level
Technical Bases Document**

REVISION 0

PREPARER: _____

Manager, Emergency Preparedness (Print/Sign) Date

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Decommissioning Director (Print/Sign) Date

Effective Date _____

ENTERGY VERMONT YANKEE
ISFSI EMERGENCY PLAN
EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

REVISION SUMMARY

DATE	REVISION	DESCRIPTION
TBD	0	The Vermont Yankee Independent Spent Fuel Storage Installation Emergency Plan Emergency Action Level Technical Bases Document describes VY's classification scheme for emergencies that may arise after all fuel is moved to the ISFSI.

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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) Independent Spent Fuel Storage Installation (ISFSI) and the associated technical bases. The EALs have been developed in accordance with the EAL development methodology provided in NEI 99-01, *Development of Emergency Action Levels for Non-Passive Reactors*, Revision 6 (NEI 99-01). All recommendations for changes to this document or associated implementing procedures are reviewed in accordance with the requirements of 10 CFR 50.54(q).

This information provided in 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. Personnel responsible for implementation of the ISFSI Emergency Plan and the ISFSI Emergency Action Level scheme may use the information provided in 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. Use of this document for assistance is not intended to delay the emergency classification.

2.0 REFERENCES

- 2.1 NEI 99-01 Revision 6, Development of Emergency Action Levels for Non-Passive Reactors, Appendix C, Permanently Defueled Station ICs/EALs and Section 8, Independent Spent Fuel Storage Installation (ISFSI) ICs/EALs, November 2012
- 2.2 ISFSI Emergency Plan
- 2.3 NUREG-1022, Event Reporting Guidelines 10 CFR 50.72 and 50.73
- 2.4 NUREG-1536, Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility
- 2.5 NEI 03-12, Template for Security Plan, Training and Qualification, Safeguards Contingency Plan, and ISFSI Security Program

3.0 DEFINITIONS AND ACRONYMS

3.1 DEFINITIONS

Selected terms used in Initiating Condition (IC) and EAL 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.

ALERT – Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the ISFSI or a security event that involves probable life threatening risk to site personnel or damage to ISFSI equipment because of

HOSTILE ACTION. Any releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guide (PAG) exposure levels.

CONFINEMENT BOUNDARY – The barrier(s) between spent fuel and the environment once the spent fuel is processed for dry storage.

CREDIBLE SECURITY THREAT – A threat to the ISFSI confirmed and validated by Security per procedures or received over the Emergency Notification System (ENS) from the NRC.

EMERGENCY ACTION LEVEL (EAL) – A pre-determined, site-specific, observable threshold for an Initiating Condition that, when met or exceeded, places the ISFSI in a given emergency classification level.

EMERGENCY CLASSIFICATION LEVEL (ECL) – One of a set of names or titles established by the U.S. 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 NOTIFICATION OF UNUSUAL EVENT (UNUSUAL EVENT) and ALERT.

HOSTILE ACTION – An act toward the ISFSI 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 ISFSI. Non-terrorism-based EALs should be used to address such activities, (i.e., this may include violent acts between individuals within the OWNER CONTROLLED AREA).

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

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) – A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

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.

OWNER CONTROLLED AREA (OCA) – The fenced in area outside the Protected Area, owned by Entergy.

PROTECTED AREA – That area within the perimeter of the security 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 ISFSI. A SECURITY CONDITION does not involve a HOSTILE ACTION.

SITE BOUNDARY – That line beyond which the land is not owned, leased, or otherwise controlled by the licensee. This line establishes the perimeter of the Owner Controlled Area (OCA).

UNUSUAL EVENT – Events are in progress or have occurred which indicate a potential degradation of the level of safety of the ISFSI or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected.

3.2 ACRONYMS

EAL – Emergency Action Level

ECL – Emergency Classification Level

ENS – Emergency Notification System

EPA – Environmental Protection Agency

FAA – Federal Aviation Administration

FBI – Federal Bureau of Investigation

IC – Initiating Condition

ISFSI – Independent Spent Fuel Storage Installation

NEI – Nuclear Energy Institute

NORAD – North American Aerospace Defense Command

NRC – U.S. Nuclear Regulatory Commission

OCA – Owner Controlled Area

PAG – Protective Action Guide

VY – Vermont Yankee

ATTACHMENT 1

EMERGENCY ACTION LEVEL TECHNICAL BASES

Table A-1: Recognition Category "PD" and "E" Initiating Condition Matrix

ALERT	UNUSUAL EVENT
	<p>E-HU1: Damage to a loaded cask CONFINEMENT BOUNDARY. <i>(Attachment 1, Page 2)</i></p>
<p>PD-HA1 HOSTILE ACTION is occurring or has occurred. <i>(Attachment 1, Page 5)</i></p>	<p>PD-HU1 Confirmed SECURITY CONDITION or threat. <i>(Attachment 1, Page 3)</i></p>
<p>PD-HA3 Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT. <i>(Attachment 1, Page 8)</i></p>	<p>PD-HU3 Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT. <i>(Attachment 1, Page 7)</i></p>

Independent Spent Fuel Storage Installation

E-HU1**ECL: Unusual Event****Initiating Condition:** Damage to a loaded cask CONFINEMENT BOUNDARY.**Emergency Action Levels: E-HU1.1****E-HU1.1**

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

Two times the ISFSI Technical Specification allowable levels equate to:

- 14.80 mR/hr on the top of the overpack
- or
- 16.62 mR/hr on the side of the overpack, excluding inlet and outlet ducts

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.

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

Hazards and Other Conditions

PD-HU1

ECL: Unusual Event

Initiating Condition: Confirmed SECURITY CONDITION or threat.

Emergency Action Levels: PD-HU1.1 or PD-HU1.2

PD-HU1.1	A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor.
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PD-HU1.2	Notification of a CREDIBLE SECURITY THREAT directed at the site.
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Basis:

This IC addresses events that pose a threat to facility personnel or spent fuel, and thus represent a potential degradation in the level of facility 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 ISFSI Shift Supervisor/Emergency Director are essential for proper classification of a security-related event. Classification of these events will initiate appropriate threat-related notifications to facility personnel and Offsite Response Organizations (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 this is the individual 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.

PD-HU1.2 addresses the receipt of a CREDIBLE SECURITY THREAT. The credibility of a threat is assessed in accordance with Security procedures.

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.

Escalation of the emergency classification level would be via Initiating Condition PD-HA1.

Hazards and Other Conditions

PD-HA1**ECL: Alert****Initiating Condition:** HOSTILE ACTION is occurring or has occurred.**Emergency Action Levels: PD-HA1.1**

PD-HA1.1 A HOSTILE ACTION is occurring or has occurred as reported by the Security Shift Supervisor.

Basis:

This IC addresses the occurrence of a HOSTILE ACTION.

Timely and accurate communications between Security Shift Supervision and the ISFSI Shift Supervisor/Emergency Director are 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 facility 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.

This EAL is applicable for any HOSTILE ACTION directed against the ISFSI.

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

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

Hazards and Other Conditions

PD-HU3**ECL: Unusual Event****Initiating Condition:** Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT.**Emergency Action Levels: PD-HU3.1**

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 ISFSI 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.

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.

Hazards and Other Conditions

PD-HA3**ECL: Alert**

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

Emergency Action Levels: PD-HA3.1

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 ISFSI or a security event that involves probable life threatening risk to site personnel or damage to ISFSI equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

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.

ATTACHMENT 2

EMERGENCY CLASSIFICATION TABLES

EMERGENCY CLASSIFICATION TABLE INDEX

ISFSI MALFUNCTION		
CATEGORY (E)	UNUSUAL EVENT (U)	ALERT (A)
ISFSI Malfunction <i>(Attachment 2, Page 2)</i>	HU1	Not Applicable
HAZARDS AND OTHER CONDITIONS		
CATEGORY (H)	UNUSUAL EVENT (U)	ALERT (A)
Security <i>(Attachment 2, Page 3)</i>	HU1	HA1
Hazards and Other Conditions/ Emergency Director Judgment <i>(Attachment 2, Page 4)</i>	HU3	HA3

EMERGENCY CLASSIFICATION TABLE
INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

CATEGORY	UNUSUAL EVENT (HU1)	ALERT (HA1)
<p><u>ISFSI Malfunction</u></p> <p style="text-align: center;">(E)</p>	<p><u>Initiating Condition:</u> Damage to a loaded cask CONFINEMENT BOUNDARY.</p> <p><u>E-HU1.1</u></p> <p>Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading greater than two times the ISFSI Technical Specification allowable levels.</p> <p>Two times the ISFSI Technical Specification allowable levels equate to:</p> <ul style="list-style-type: none"> • 14.80 mR/hr on the top of the overpack or • 16.62 mR/hr on the side of the overpack, excluding inlet and outlet ducts 	<p style="text-align: center;">Not Applicable</p>

EMERGENCY CLASSIFICATION TABLE

PERMANENTLY DEFUELED (PD)

CATEGORY	UNUSUAL EVENT (<u>HU1</u>)	ALERT (<u>HA1</u>)
<p><u>Hazards and Other Conditions</u></p> <p>(H)</p>	<p><u>Initiating Condition:</u> Confirmed SECURITY CONDITION or threat.</p> <p><u>PD-HU1.1</u></p> <p>A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor.</p> <p><u>PD-HU1.2</u></p> <p>Notification of a CREDIBLE SECURITY THREAT directed at the site.</p>	<p><u>Initiating Condition:</u> HOSTILE ACTION is occurring or has occurred.</p> <p><u>PD-HA1.1</u></p> <p>A HOSTILE ACTION is occurring or has occurred as reported by the Security Shift Supervisor.</p>

EMERGENCY CLASSIFICATION TABLE
PERMANENTLY DEFUELED (PD)

CATEGORY	UNUSUAL EVENT (HU3)	ALERT (HA3)
<p><u>Hazards and Other Conditions</u></p> <p align="center">(H)</p>	<p><u>Initiating Condition:</u> Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT.</p> <p><u>PD-HU3.1</u></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 ISFSI 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><u>Initiating Condition:</u> Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT.</p> <p><u>PD-HA3.1</u></p> <p>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 ISFSI or a security event that involves probable life threatening risk to site personnel or damage to ISFSI equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.</p>