

STI 34266155	0ERP01-ZV-IN01	Rev. 10	Page 1 of 179
Emergency Classification			
Quality	Non Safety-Related	Usage: IN HAND	Effective Date: 01/28/16
D. Kaopuiki	L. G. Weldon	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

Table of ContentsPage

1.0	Purpose and Scope	2
2.0	Definitions.....	3
3.0	Precautions and Limitations	7
4.0	Responsibilities	8
5.0	Procedure.....	9
6.0	References	14
7.0	Support Documents.....	14
	Addendum 1, Emergency Classification Tables	15
	F-Fission Product Barriers	17
	S-System Malfunctions	35
	H-Hazards and Other Conditions Affecting Plant Safety	71
	R-Abnormal Radiation Levels/Radiological Effluents	109
	E-Independent Spent Fuel Storage Installation.....	137
	C-Cold Shutdown/Refueling System Malfunctions.....	143
	Addendum 2, Exclusion Area Boundary	174
	Addendum 3, Containment Integrity or Bypass Examples.....	175
	Addendum 4, Fission Product Barrier Chart.....	176
	Addendum 5, Hot Modes Chart	177
	Addendum 6, All Modes Chart	178
	Addendum 7, Cold Modes Chart	179

	0ERP01-ZV-IN01	Rev. 10	Page 2 of 179
Emergency Classification			

1.0 Purpose and Scope

- 1.1 This procedure provides designated Emergency Response Organization Members with a method of evaluating plant conditions, determining INITIATING CONDITION s (IC), and determining EMERGENCY CLASSIFICATION LEVELs (ECLs).
- 1.2 The STPEGS methodology makes use of symptom-based, barrier-based and event-based ICs and EMERGENCY ACTION LEVELS (EALs). Each type is discussed below.
 - 1.2.1 Symptom-based ICs and EALs are parameters or conditions that are measurable over some range using plant instrumentation (e.g., core temperature, reactor coolant level, radiological effluent, etc.). When one or more of these parameters or conditions are off-normal, reactor operators will implement procedures to identify the probable cause(s) and take corrective action.
 - 1.2.2 Fission product barrier-based ICs and EALs are the subset of symptom-based EALs that refer specifically to the level of challenge to the principal barriers against the release of radioactive material from the reactor core to the environment. These barriers are the fuel cladding, the reactor coolant system pressure boundary, and the containment. The barrier-based ICs and EALs consider the level of challenge to each individual barrier - potentially lost and lost - and the total number of barriers under challenge.
 - 1.2.3 Event-based ICs and EALs define a variety of specific occurrences that have potential or actual safety significance. These include the failure of an automatic reactor scram/trip to shut down the reactor, natural phenomena (e.g., an earthquake), or man-made hazards such as a toxic gas release.
- 1.3 This procedure implements the requirements of the South Texas Project Electric Generating Station (STPEGS) Emergency Plan specific to Emergency Classification.

Emergency Classification**2.0 Definitions****NOTE**

The definitions in the following section reflect the definitions in the STPEGS Emergency Action Level (EAL) Technical Bases Document, except where noted. Definitions followed by an asterisk (*) are procedure specific and not included in the STPEGS EAL Technical Bases Document.

- 2.1 **ALERT:** Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the station 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 Environmental Protection Agency (EPA) **PROTECTIVE ACTION GUIDELINE (PAG)** exposure levels.
- 2.2 **CONFINEMENT BOUNDARY:** The barrier(s) between spent fuel and the environment once the spent fuel is processed for dry storage.
- 2.3 **CONTAINMENT CLOSURE:** Those actions necessary to place the RCB in the closed containment condition that provides at least one integral barrier to the release of radioactive material. Sufficient separation of the containment atmosphere from the outside environment is to be provided such that a barrier to the escape of radioactive material is reasonably expected to remain in place following a core melt accident.
- 2.4 **CREDIBLE SECURITY THREAT:** Information received from a source determined to be reliable (e.g., law enforcement, government agency, etc.) or has been verified to be true or considered credible when: (1) Physical evidence supporting the threat exists, (2) Information independent from the actual threat message exists that supports the threat, or (3) A specific known group or organization claims responsibility for the threat.
- 2.5 **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**.
- 2.6 **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**, **SITE AREA EMERGENCY (SAE)**, and **GENERAL EMERGENCY (GE)**.
- 2.7 **EXCLUSION AREA BOUNDARY*:** The boundary shown in Addendum 2 which is oval shaped such that any point on the boundary is at least 1430 meters from the center of either containment building. STPEGS has control over all activities within the **EXCLUSION AREA BOUNDARY**.

Emergency Classification

- 2.8 **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.
- 2.9 **FACILITY:** The area and buildings within the PROTECTED AREA and the switchyard.
- 2.10 **FAULTED:** The term applied to a steam generator that has a steam leak on the secondary side of sufficient size to cause an uncontrolled drop in steam generator pressure or the steam generator to become completely depressurized.
- 2.11 **FISSION PRODUCT BARRIER (FPB)*:** The three boundaries for preventing the release of fission products to the environment. They are:
- Fuel Cladding
 - Reactor Coolant System
 - Reactor Containment Building
- 2.12 **GENERAL EMERGENCY (GE):** Events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the FACILITY. Releases can be reasonably expected to exceed Environmental Protection Agency (EPA) PROTECTIVE ACTION GUIDELINE (PAG) exposure levels offsite for more than the immediate site area.
- 2.13 **HATCH MONITOR:** Temporary monitor installed when Containment Monitors RT-8050 and RT-8051 are out of service.
- 2.14 **HOSTAGE:** A person(s) held as leverage against the station to ensure that demands will be met by the station.
- 2.15 **HOSTILE ACTION:** An act toward STP 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).
- 2.16 **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.
- 2.17 **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.

Emergency Classification

- 2.18 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.
- 2.19 INITIATING CONDITION (IC): An event or condition that aligns with the definition of one of the four EMERGENCY CLASSIFICATION LEVELS by virtue of the potential or actual effects or consequences.
- 2.20 NORMAL LEVELS: As applied to radiological IC/EALs, the highest reading in the past twenty-four hours excluding the current peak value.
- 2.21 OWNER CONTROLLED AREA: The area surrounding the PROTECTED AREA where STP Nuclear Operating Company (STPNOC) reserves the right to restrict access, search personnel, and vehicles.
- 2.22 PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.
- 2.23 PROTECTED AREA: The area under continuous access monitoring and control, and armed protection as described in the site Security Plan.
- 2.24 PROTECTIVE ACTION GUIDES (PAG): Environmental Protection Agency (EPA) guide for exposure to a release of radioactive material.
- 2.25 RECOVERY*: That phase of an emergency when the emergency condition no longer exists and the plant is in a stable, shutdown, and safe condition; major repairs, if required, have been identified in order to return the plant to operation; and the potential for uncontrolled releases of radioactive material to the environment no longer exists.
- 2.26 REFUELING PATHWAY: Includes all the cavities, tubes, canals and pools through which irradiated fuel may be moved, but not including the reactor vessel.
- 2.27 RUPTURE(D): The condition of a steam generator in which primary-to-secondary leakage is of sufficient magnitude to require a safety injection.
- 2.28 SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related
- 2.29 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.
- 2.30 SECURITY EVENT: Any incident representing an attempted, threatened, or actual breach of the security system or reduction of the operational effectiveness of that system. A SECURITY EVENT can result in either a SECURITY CONDITION or HOSTILE ACTION.

Emergency Classification

- 2.31 **SITE BOUNDARY:** The edge of the plant property whose access may be controlled by STPEGS. This boundary is congruent with the **EXCLUSION AREA BOUNDARY** for the purpose of dose assessment.
- 2.32 **SITE AREA EMERGENCY (SAE):** Events are in progress or have occurred which involve an actual or likely major failures of station functions needed for protection of the public or **HOSTILE ACTION** that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed Environmental Protection Agency (EPA) **PROTECTIVE ACTION GUIDELINE (PAG)** exposure levels beyond the **SITE BOUNDARY**.
- 2.33 **TERMINATION*:** Exiting the emergency condition.
- 2.34 **THYROID CDE:** The dose equivalent to the thyroid from an intake of radioactive material by an individual during the 50-year period following the intake.
- 2.35 **TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE)*:** The sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).
- 2.36 **UNISOLABLE:** An open or breached system line that cannot be isolated, remotely or locally.
- 2.37 **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.
- 2.38 **UNUSUAL EVENT:** Events are in progress or have occurred which indicate a potential degradation of the level of safety of the station 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.
- 2.39 **VALID:** An indication, report or condition is considered to be **VALID** when it is verified through appropriate means such that there is no doubt regarding the indicator's operability, the condition's existence, or the report's accuracy. This may be accomplished through an instrument channel check, response on related or redundant indicators, or direct observation by plant personnel. The verification methods should be completed in a manner the supports timely emergency declaration.
- 2.40 **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.

	0ERP01-ZV-IN01	Rev. 10	Page 7 of 179
Emergency Classification			

3.0 Precautions and Limitations

- 3.1 The STPEGS Emergency Action Level (EAL) Technical Bases Document is the NRC approved document that provides the foundation for the EAL scheme in Addendum 1. EAL basis information from the STPEGS EAL Technical Bases Document is included throughout this procedure to support EAL decision making. Technical changes to this procedure need to be supported by changing the STPEGS Emergency Action Level (EAL) Technical Bases Document in accordance with 0PGP05-ZV-0010, Emergency Plan Change.
- 3.2 The Emergency Director is the only individual who can declare an emergency or change an Emergency Classification. The normal progression for Emergency Director is:
 - 3.2.1 Shift Manager to
 - 3.2.2 TSC Manager to
 - 3.2.3 EOF Director
- 3.3 The Shift Manager/Emergency Director shall declare an emergency within a 15-minute time frame described below; except when both of the following conditions are met:
 - Actions are immediately needed to protect the public health and safety and results in less risk to the general public.
 - The Offsite Response Organizations are not denied the opportunity to implement actions to protect the public health and safety.
- 3.3.1 The 15-minute time frame starts when information, which exceeds an EAL, is available to any staff member trained in EAL assessment. This information may be from:
 - A plant indicator or indicators.
 - A report of an off-normal condition.
 - Computer displays.
 - Completion of dose assessments.
 - Completion of chemistry analysis.
 - Completion of inspections.
- 3.3.2 The 15 minute time frame is to assess INITIATING CONDITIONs and associated EALs, and validate or confirm the information. If this assessment/validation or confirmation is completed before the 15 minute time frame elapses, the emergency class shall be declared as soon as possible.

	0ERP01-ZV-IN01	Rev. 10	Page 8 of 179
Emergency Classification			

3.3.3 The 15 minute time frame shall not be construed as a grace period to attempt to restore plant conditions to avoid declaring an emergency class.

4.0 Responsibilities

4.1 The Emergency Director is responsible for declaring or changing an Emergency Classification based on the EALs contained in Addendum 1, Emergency Classification Tables.

4.2 Emergency Response personnel are responsible for alerting the Emergency Director of conditions which may change the emergency classification.

Emergency Classification

5.0 Procedure

NOTE

The EAL charts should be the initial tool for making emergency declarations with Addendum 1, Emergency Classification Tables supplementing the process as necessary.

Addendum 1, Emergency Classification Tables, may be removed from the basic procedure for use when classifying emergencies.

- 5.1 Declaration of an emergency class is not required when a planned work activity results in an expected event or condition which meets or exceeds an EAL, provided that both of the following conditions are met:
 - The activity proceeds as planned
 - The plant remains within the limits imposed by the operating license.
- 5.2 Any person recognizing an emergency or potential emergency condition should notify the Emergency Director and/or Shift Manager.
- 5.3 Anytime Emergency Operating Procedures (EOPs) or Off-Normal Procedures are initiated, this procedure should be reviewed to determine if an EMERGENCY ACTION LEVEL (EAL) has been reached.
- 5.4 Upon recognition that an event or plant condition potentially constitutes an emergency OR as directed from other procedures, refer to the EMERGENCY ACTION LEVEL (EAL) chart that is appropriate for the operating mode; and when necessary, Addendum 1, Emergency Classification Tables.
- 5.5 Although EALs provide specific thresholds, the Emergency Director must remain alert to events or conditions that could lead to meeting or exceeding an EAL within a relatively short period of time (i.e., a change in the ECL is IMMINENT). If, in the judgment of the Emergency Director, meeting an EAL is IMMINENT, the emergency classification should be made as if the EAL has been met. While applicable to all EMERGENCY CLASSIFICATION LEVELS, this approach is particularly important at the higher EMERGENCY CLASSIFICATION LEVELS since it provides additional time for implementation of protective measures.

Emergency Classification**5.6 Mode of Applicability**

- 5.6.1 The mode in effect at the time that an event or condition occurred, and prior to any plant or operator response, is the mode that determines whether or not an INITIATING CONDITION is applicable.
- 5.6.2 If an event or condition occurs, and results in a mode change before the emergency is declared, the emergency classification level is still based on the mode that existed at the time that the event or condition was initiated (and not when it was declared).
- 5.6.3 Once a different mode is reached, any new event or condition, not related to the original event or condition, requiring emergency classification should be evaluated against the ICs and EALs applicable to the operating mode at the time of the new event or condition.
- 5.6.4 For events that occur in Cold Shutdown or Refueling, escalation is via EALs that are applicable in the Cold Shutdown or Refueling modes, even if Hot Shutdown (or a higher mode) is entered during the subsequent plant response. In particular, the fission product barrier EALs are applicable only to events that initiate in the Hot Shutdown mode or higher.

5.7 After-The-Fact Discovery of an Emergency Event or Condition

- 5.7.1 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.
- 5.7.2 In these cases, no emergency declaration is warranted; however, the guidance contained in NUREG-1022 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.
- 5.7.3 Appropriate state and local agencies should also be notified in accordance with the agreed upon arrangements. Refer to 0ERP01-ZN-IN01, Notifications To Offsite Agencies for additional guidance.

5.8 Classification of Short-Lived Events

- 5.8.1 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.

Emergency Classification

- 5.8.2 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 include a failure of the reactor protection system to automatically scram/trip the reactor followed by a successful manual scram/trip or an earthquake.
- 5.9 Classification of Transient Conditions
- 5.9.1 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.
- 5.9.2 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.
- 5.9.2.1 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.
- 5.9.2.2 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. For illustrative purposes, consider the following example.
- Example: An ATWS occurs and the auxiliary feedwater system fails to automatically start. Steam generator levels rapidly lower and the plant enters an inadequate RCS heat removal condition (a potential loss of both the fuel clad and RCS barriers). If an operator manually starts the auxiliary feedwater system in accordance with an EOP step and clears the inadequate RCS heat removal condition prior to an emergency declaration, then the classification should be based on the ATWS only.
- 5.10 IF the event or condition meets EALs applicable to more than one Emergency Classification, THEN declare the highest Emergency Classification and implement the appropriate procedure.
- 5.11 The classification of an emergency may be downgraded by the Emergency Director if appropriate for the conditions.

Emergency Classification**5.12 Use the following criteria/guidance to determine entry into RECOVERY or TERMINATION:****5.12.1 Enter into RECOVERY when:**

- A SITE AREA EMERGENCY or GENERAL EMERGENCY has been declared;
- The emergency condition no longer exists and the plant is in a stable, shutdown, and safe condition;
- Major repairs, if required, have been identified in order to return the plant to operation;
- The potential for uncontrolled release of radioactive material to the environment no longer exists; and
- Concurrence from the NRC, State, and County has been obtained.

5.12.2 Enter into TERMINATION from RECOVERY when repairs identified during the RECOVERY phase are complete and the plant is ready to return to normal operations.**5.12.3 Enter into TERMINATION from ALERT or UNUSUAL EVENT when:**

- The emergency condition no longer exists and the plant is ready to return to normal operations; or
- The emergency condition no longer exists, repair activities are minor, and the plant is in a stable shutdown mode.

5.13 Emergency Action Level Charts and Usage**5.13.1 Emergency Action Level (EAL) charts are tools designed to reduce the cognitive workload necessary to determine the appropriate EMERGENCY CLASSIFICATION LEVEL; when compared to the Addendum 1 classification tables, and have been implemented in order to improve the capability of the Emergency Response Organization to make accurate and timely emergency declarations.****5.13.2 The EAL charts should be the primary tool for making emergency declarations with the Addendum 1, Emergency Classification Tables used as a supplement to the process.****5.13.3 Guidance for Marking the EAL Charts****5.13.3.1 The applicable EAL should be circled.****5.13.3.2 A Potential Loss of a Fission Product Barrier should be indicated by a slash (/) through the respective barrier icon in all applicable EMERGENCY CLASSIFICATION LEVELS.**

Emergency Classification

5.13.3.3 A Loss of a Fission Product Barrier should be indicated by an “X” through the respective barrier icon in all applicable EMERGENCY CLASSIFICATION LEVELS.

5.13.4 With the exception of the Fission Product Barrier EAL chart, the EAL charts are organized according to the Mode of Applicability and include the NEI 99-01 ECL categories as described below:

5.13.4.1 Fission Product Barrier Chart– Addendum 4

- a. Applicable Modes 1, 2, 3, and 4
- b. Contains the ECLs for the Loss or Potential Loss of the Fuel Clad, Reactor Coolant System and Containment Fission Product Barriers.

5.13.4.2 Hot Modes Chart - Addendum 5

- a. Applicable Modes 1, 2, 3 and 4
- b. Contains the ECLs for Category S-System Malfunctions

5.13.4.3 All Modes Chart - Addendum 6

- a. Applicable Modes 1, 2, 3, 4, 5, 6 and Defueled
- b. Contains the ECLs for Category H-Hazards and Other Conditions Affecting Plant Safety, Category R-Abnormal Radiation Levels/Radiological Effluent and Category E-Independent Spent Fuel Storage Installation (ISFSI)

5.13.4.4 Cold Modes Chart - Addendum 7

- a. Applicable Modes 5, 6 and Defueled
- b. Contains the ECLs for Category C-Cold Shutdown/Refueling System Malfunction

5.13.5 The EAL charts in the Addendums may be separated from this procedure and may be configured in any manner that satisfies the need of the emergency facility.

For example, Addendum 5 may be combined with Addendum 6 in a single one-sided or two-sided display or Addendum 7 may be combined with Addendum 6 in a single one-sided or two-sided display or Addendums 5, 6 and 7 can be displayed as single one-sided displays.

	0ERP01-ZV-IN01	Rev. 10	Page 14 of 179
Emergency Classification			

6.0 References

- 6.1 STPEGS Emergency Plan
- 6.2 STPEGS Emergency Action Level Technical Bases Document; NEI 99-01 Rev. 6 Implementation
- 6.3 Updated Final Safety Analysis Report (UFSAR)
- 6.4 0ERP01-ZV-IN02, Notifications To Offsite Agencies
- 6.5 Regulatory Guide 1.101, Emergency Planning and Preparedness for Nuclear Power Reactors.
- 6.6 NEI 99-01 (Revision 6), Development of Emergency Action Levels for Non-Passive Reactors
- 6.7 10 CFR Part 50, Appendix E, Section IV.C, Activation of Emergency Organization
- 6.8 NSIR/DRP-ISG-01, Interim Staff Guidance, Emergency Planning for Nuclear Power Plants

7.0 Support Documents

- 7.1 Addendum 1, Emergency Classification Tables
- 7.2 Addendum 2, Exclusion Area Boundary
- 7.3 Addendum 3, Containment Integrity or Bypass Examples
- 7.4 Addendum 4, Fission Product Barrier Chart
- 7.5 Addendum 5, Hot Modes Chart
- 7.6 Addendum 6, All Modes Chart
- 7.7 Addendum 7, Cold Modes Chart

	0ERP01-ZV-IN01	Rev. 10	Page 15 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 1 of 159

Table of Contents				
Recognition Category	Related Chart	Keywords	Modes	Page
F – Fission Product Barriers	Fission Product Barrier - Addendum 4	Fuel Clad, RCS, Containment	1, 2, 3, 4	17
S – System Malfunction	Hot Modes – Addendum 5	Electrical power, CR indications, RCS activity, RCS leakage, RPS failure, Containment	1, 2, 3, 4	35
H - Hazards and Other Conditions Affecting Plant Safety	All Modes – Addendum 6	Security, Fire, Toxic Gas, Airborne threat, CR evacuation, ED judgment	All	71
R - Abnormal Radiation Levels/ Radiological Effluents	All Modes – Addendum 6	Radiation levels, Release rates, ODCM, Offsite doses, Fuel damage or uncover	All	109
E – Independent Spent Fuel Storage Installation (ISFSI)	All Modes – Addendum 6	Dry cask storage	All	137
C - Cold Shutdown /Refueling System Malfunctions	Cold Modes – Addendum 7	Shutdown Cooling, RCS inventory, RCS temperature, Communications, Electrical power	5, 6, De-fueled	143

Mode	Description	Criteria (Rx Power excludes decay heat)		
1	Power Operations	Reactor Power > 5%,	$K_{eff} \geq 0.99$	$T_{Avg} \geq 350^{\circ}F$
2	Startup	Reactor Power $\leq 5\%$,	$K_{eff} \geq 0.99$	$T_{Avg} \geq 350^{\circ}F$
3	Hot Standby	Reactor Power 0%	$K_{eff} < 0.99$	$T_{Avg} \geq 350^{\circ}F$
4	Hot Shutdown	Reactor Power 0%	$K_{eff} < 0.99$	$350^{\circ}F > T_{Avg} > 200^{\circ}F$
5	Cold Shutdown	Reactor Power 0%	$K_{eff} < 0.99$	$T_{Avg} \leq 200^{\circ}F$
6	Refueling	Reactor Power 0%	$K_{eff} \leq 0.95$	$T_{Avg} \leq 200^{\circ}F$ Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.
	Defueled	All fuel removed from the reactor vessel (i.e., full core offload during refuel or extended outage)		

	0ERP01-ZV-IN01	Rev. 10	Page 16 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 2 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 17 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 3 of 159

FISSION PRODUCT BARRIERS (F)

TABLE OF CONTENTS

F-Fission Product Barriers	18
F-Fission Product Barrier Matrix.....	19
Fuel Clad Barrier.....	21
RCS Barrier.....	23
Containment Barrier.....	27

Emergency Classification

Addendum 1

Emergency Classification Tables

Page 4 of 159

F – Fission Product Barriers (Modes 1, 2, 3, 4)

FG1 - General Emergency

Loss of any two barriers and Loss or Potential Loss of the third barrier.

Clad

RCS

Cont

FS1 - Site Area Emergency

Loss or Potential Loss of any two barriers.

Clad

RCS

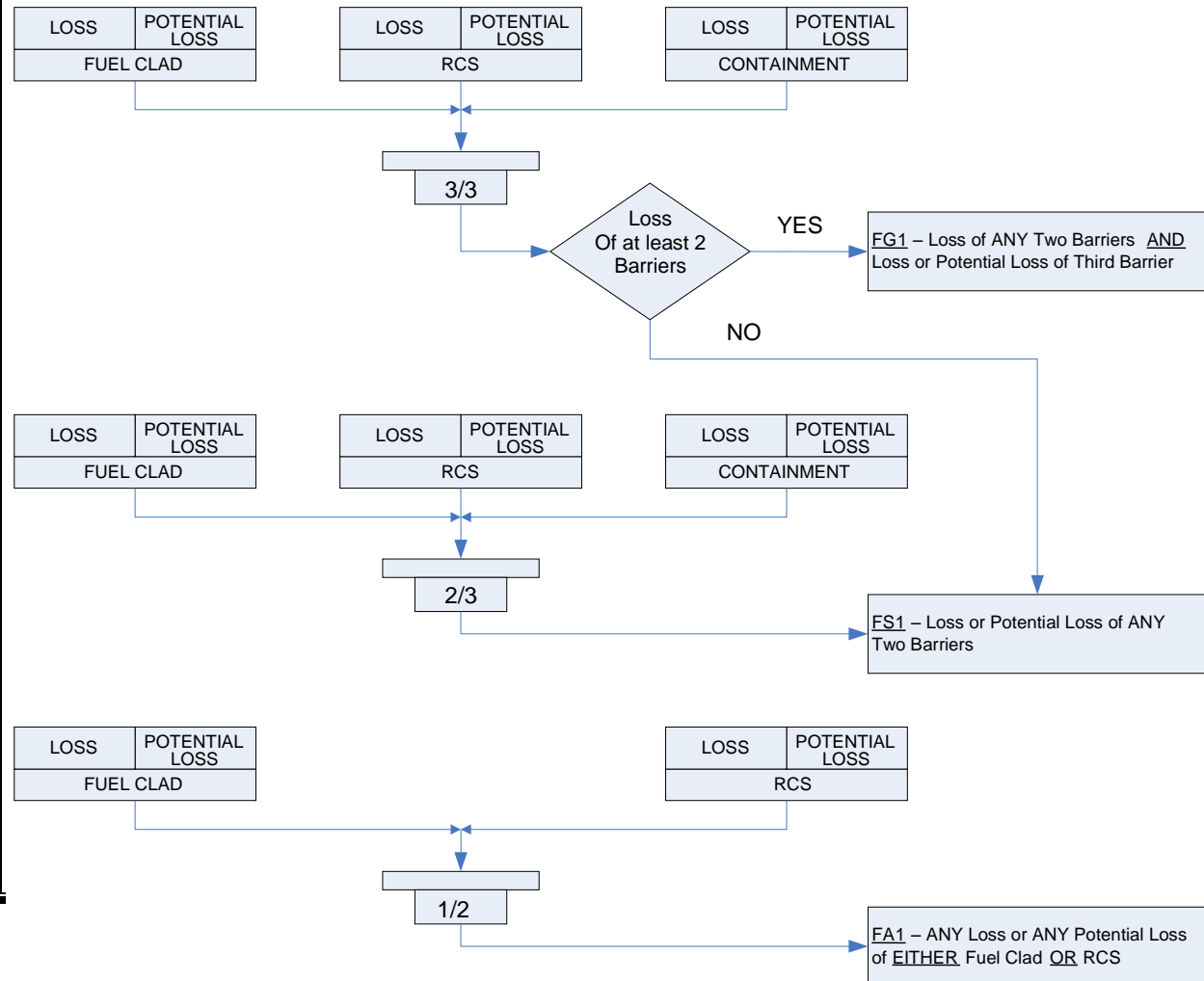
Cont

FA1 - Alert

Any Loss or any Potential Loss of either the Fuel Clad or RCS barrier.

Clad

RCS



	0ERP01-ZV-IN01	Rev. 10	Page 19 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 5 of 159

Fission Product Barrier Matrix					
Fuel Clad Barrier		RCS Barrier		Containment Barrier	
Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
1. RCS or SG Tube Leakage					
Not Applicable	A. Core Cooling - Orange entry conditions met	A. An automatic or manual ECCS (SI) actuation is required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube RUPTURE.	A. Operation of a standby charging pump is required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube leakage. OR B. Integrity – Red entry conditions met	A. A Leaking or RUPTURED SG is FAULTED outside of containment.	Not Applicable
2. Inadequate Heat Removal					
A. Core Cooling - Red entry conditions met	A. Core Cooling - Orange entry conditions met OR B. Heat Sink - Red entry conditions met	Not Applicable	A. Heat Sink - Red entry conditions met.	Not Applicable	A. Core Cooling – Red entry conditions met for 15 minutes or longer
3. RCS Activity/Containment Radiation					
A1. RCB Rad Monitor RT-8050 or RT-8051 greater than 2100 R/hr OR A2. HATCH MONITOR greater than 4200 mR/hr OR B. Sample analysis indicates that reactor coolant activity is greater than 300 µCi/gm dose equivalent I-131	Not Applicable	A1. RCB Rad Monitor RT-8050 or RT-8051 greater than 10 R/hr OR A2. HATCH MONITOR greater than 20 mR/hr	Not Applicable	Not Applicable	A1. RCB Rad Monitor RT-8050 or RT-8051 greater than 45,000 R/hr OR A2. HATCH MONITOR greater than 90,000 mR/hr

	0ERP01-ZV-IN01	Rev. 10	Page 20 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 6 of 159

Fission Product Barrier Matrix					
Fuel Clad Barrier		RCS Barrier		Containment Barrier	
Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
4. Containment Integrity or Bypass					
Not Applicable	Not Applicable	Not Applicable	Not Applicable	A. Containment isolation is required AND EITHER of the following: 1. Containment integrity has been lost based on Emergency Director judgment. OR 2. UNISOLABLE pathway from the containment to the environment exists OR B. Indications of RCS leakage outside of containment.	A. Containment - Red entry conditions met OR B. Explosive mixture exists inside containment ($H_2 \geq 4\%$) OR C1. Containment – Orange entry conditions met AND C2. Less than one full train of Containment Spray is operating for 15 minutes or longer.
5. Other Indications					
N/A	N/A	N/A	N/A	N/A	N/A
6. Emergency Director Judgment					
A. ANY condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier.	A. ANY condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier.	A. ANY condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier.	A. ANY condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier.	A. ANY condition in the opinion of the Emergency Director that indicates Loss of the Containment Barrier.	A. ANY condition in the opinion of the Emergency Director that indicates Potential Loss of the Containment Barrier.

	0ERP01-ZV-IN01	Rev. 10	Page 21 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 7 of 159

STP is part of the Westinghouse Owners Group (WOG) and has adopted the WOG Emergency Response Guidelines (ERG). These guidelines employ the use of Critical Safety Function Status Trees (CSFST). Since STP has implemented the WOG ERGs, the guidance in NEI 99-01 allows the use of certain CSFST assessment results as EALs and fission product barrier loss/potential loss thresholds. This approach allows consistency between EOPs and emergency classifications.

FUEL CLAD BARRIER

The Fuel Clad Barrier consists of the cladding material that contains the fuel pellets.

1. RCS or SG Tube Leakage

Loss 1.

There is no Loss threshold associated with RCS or SG Tube Leakage.

Potential Loss 1.A

Core Cooling - Orange entry conditions met ($CETs \geq 708^{\circ} F$) are sufficient to allow the onset of heat-induced cladding damage.

2. Inadequate Heat Removal

Loss 2.A

Core Cooling - Red entry conditions met ($CETs \geq 1200^{\circ} F$) are sufficient to cause significant superheating of reactor coolant.

Potential Loss 2.A

Core Cooling - Orange entry conditions ($CETs \geq 708^{\circ} F$) are sufficient to allow the onset of heat-induced cladding damage.

Potential Loss 2.B

Heat Sink - Red entry conditions met ((NR level in All SG $\leq 14\%$ [34%] OR pressure in at least one SG ≥ 1325 PSIG SG) AND total AFW flow to SG ≤ 576 GPM). This condition indicates an extreme challenge to the ability to remove RCS heat using the steam generators (i.e., loss of an effective secondary-side heat sink). This condition represents a potential loss of the Fuel Clad Barrier. In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.

Meeting this threshold results in a SITE AREA EMERGENCY because this threshold is identical to RCS Barrier Potential Loss threshold 2.A; both will be met. This condition warrants a SITE AREA EMERGENCY declaration because inadequate RCS heat removal may result in fuel heat-up sufficient to damage the cladding and increase RCS pressure to the point where mass will be lost from the system.

F_B

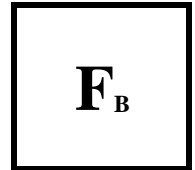
	0ERP01-ZV-IN01	Rev. 10	Page 22 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 8 of 159

FUEL CLAD BARRIER

3. RCS Activity / Containment Radiation

Loss 3.A1

The readings for the containment high range area monitors (RT-8050 and RT-8051) correspond to an instantaneous release of all reactor coolant mass into the containment, assuming that reactor coolant activity equals 300 μ Ci/gm dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier. The values for RT-8050 and RT-8051 were based on Calculation 15-RA-011. The threshold values were conservatively rounded down from the calculated value of 2144 R/hr to make the values readily assessable. Temperature induced current (TIC) limitations are not applicable to the Fuel Clad Barrier Loss threshold 3.A.1 because the expected radiation dose for this event overwhelms the TIC effect. This effect is discussed in the 10CFR50.59 evaluation 04-8245-60 associated with DCP 04-8245-33.



Loss 3.A2

The HATCH MONITOR is located outside containment and is the back-up monitor to the containment high range monitors (RT-8050 and RT-8051). The HATCH MONITOR threshold value is based on Calculation No. 03-ZE-003. This value corresponds to the calculated containment high range monitor readings for Fuel Clad Barrier Loss 3.A

The radiation monitor reading in this threshold is higher than that specified for RCS Barrier Loss threshold 3.A since it indicates a loss of both the Fuel Clad Barrier and the RCS Barrier. Note that a combination of the two monitor readings appropriately escalates the EMERGENCY CLASSIFICATION LEVEL to a SITE AREA EMERGENCY.

Loss 3.B

This threshold indicates that RCS radioactivity concentration is greater than 300 μ Ci/gm dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

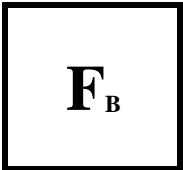
Potential Loss 3

There is no potential loss threshold associated with RCS Activity / Containment Radiation.

	0ERP01-ZV-IN01	Rev. 10	Page 23 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 9 of 159

FUEL CLAD BARRIER

4. Containment Integrity or Bypass
 Not Applicable (included for numbering consistency)



5. Other Indications
Loss and/or Potential Loss 5.
 N/A

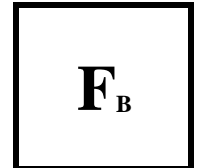
6. Emergency Director Judgment
Loss 6.A
 This threshold addresses any other factors that may be used by the Emergency Director in determining whether the Fuel Clad Barrier is lost.

Potential Loss 6.A
 This threshold addresses any other factors that may be used by the Emergency Director in determining whether the Fuel Clad Barrier is potentially lost. The Emergency Director should also consider whether or not to declare the barrier potentially lost in the event that barrier status cannot be monitored.

	0ERP01-ZV-IN01	Rev. 10	Page 24 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 10 of 159

REACTOR COOLANT SYSTEM BARRIER

The Reactor Coolant System (RCS) Barrier includes the RCS primary side and its connections up to and including the pressurizer safety and relief valves, and other connections up to and including the primary isolation valves.



1. RCS or SG Tube Leakage

Loss 1.A

This threshold is based on an UNISOLABLE RCS leak of sufficient size to require an automatic or manual actuation of the Emergency Core Cooling System (ECCS). This condition clearly represents a loss of the RCS Barrier.

This threshold is applicable to unidentified and pressure boundary leakage, as well as identified leakage. It is also applicable to UNISOLABLE RCS leakage through an interfacing system. The mass loss may be into any location – inside containment, to the secondary-side (i.e., steam generator tube leakage) or outside of containment.

A steam generator with primary-to-secondary leakage of sufficient magnitude to require a safety injection is considered to be RUPTURED. If a RUPTURED steam generator is also FAULTED outside of containment, the declaration escalates to a SITE AREA EMERGENCY since the Containment Barrier Loss threshold 1.A will also be met.

Potential Loss 1.A

This threshold is based on an UNISOLABLE RCS leak that results in the inability to maintain pressurizer level within specified limits by operation of a normally used charging (makeup) pump, but an ECCS (SI) actuation has not occurred. The threshold is met when an operating procedure, or operating crew supervision, directs that a standby charging (makeup) pump be placed in service to restore and maintain pressurizer level.

This threshold is applicable to unidentified and pressure boundary leakage, as well as identified leakage. It is also applicable to UNISOLABLE RCS leakage through an interfacing system. The mass loss may be into any location – inside containment, to the secondary-side (i.e., steam generator tube leakage) or outside of containment.

If a leaking steam generator is also FAULTED outside of containment, the declaration escalates to a SITE AREA EMERGENCY since the Containment Barrier Loss threshold 1.A will also be met.

Potential Loss 1.B

Integrity - Red entry conditions met indicates an extreme challenge to the integrity of the RCS pressure boundary due to pressurized thermal shock – a transient that causes rapid RCS cooldown while the RCS is in Mode 3 or higher (i.e., hot and pressurized).

	0ERP01-ZV-IN01	Rev. 10	Page 25 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 11 of 159

REACTOR COOLANT SYSTEM BARRIER

2. Inadequate Heat Removal

Loss 2.

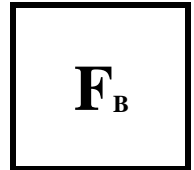
There is no Loss threshold associated with RCS or SG Tube Leakage.

Potential Loss 2.A

Heat Sink – Red entry conditions met ((NR level in All SG \leq 14% [34%] OR pressure in at least one SG \geq 1325 PSIG SG) AND total AFW flow to SG \leq 576 GPM).

This condition indicates an extreme challenge to the ability to remove RCS heat using the steam generators (i.e., loss of an effective secondary-side heat sink). This condition represents a potential loss of the RCS Barrier. In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.

Meeting this threshold results in a SITE AREA EMERGENCY because this threshold is identical to Fuel Clad Barrier Potential Loss threshold 2.B; both will be met. This condition warrants a SITE AREA EMERGENCY declaration because inadequate RCS heat removal may result in fuel heat-up sufficient to damage the cladding and increase RCS pressure to the point where mass will be lost from the system.



3. RCS Activity / Containment Radiation

Loss 3.A1

Calculation 15-RA-11 provides a value that corresponds to an instantaneous release of all reactor coolant mass into the containment, assuming that reactor coolant activity equals the Technical Specification allowable limits. The threshold values were conservatively rounded down from the calculated value of 13 R/hr to make the values readily assessable. Temperature induced current (TIC) limitations are not applicable to the RCS Barrier Loss threshold 3.A1 because the expected radiation dose for this event overwhelms the TIC effect. This effect is discussed in the 10CFR50.59 evaluation 04-8245-60 associated with DCP 04-8245-33.

Loss 3.A2

The HATCH MONITOR is located outside containment and is the back-up monitor to the containment high range monitors (RT-8050 and RT-8051). The HATCH MONITOR threshold value is based on Calculation No. 03-ZE-003. This value corresponds to the calculated containment high range monitor readings for RCS Barrier Loss 3.A1

Potential Loss 3

There is no potential loss threshold associated with RCS Activity / Containment Radiation.

	0ERP01-ZV-IN01	Rev. 10	Page 26 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 12 of 159

REACTOR COOLANT SYSTEM BARRIER

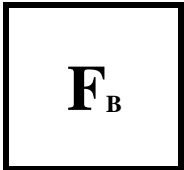
4. Containment Integrity or Bypass

Not Applicable (included for numbering consistency)

5. Other Indications

Loss and/or Potential Loss 5.A

Not Applicable



6. Emergency Director Judgment

Loss 6.A

This threshold addresses any other factors that may be used by the Emergency Director in determining whether the RCS Barrier is lost.

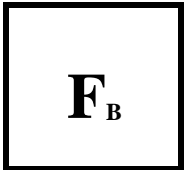
Potential Loss 6.A

This threshold addresses any other factors that may be used by the Emergency Director in determining whether the RCS Barrier is potentially lost. The Emergency Director should also consider whether or not to declare the barrier potentially lost in the event that barrier status cannot be monitored.

	0ERP01-ZV-IN01	Rev. 10	Page 27 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 13 of 159

CONTAINMENT BARRIER

The Containment Barrier includes the containment building and connections up to and including the outermost containment isolation valves. This barrier also includes the main steam, feedwater, and blowdown line extensions outside the containment building up to and including the outermost secondary side isolation valve. Containment Barrier thresholds are used as criteria for escalation of the ECL from ALERT to a SITE AREA EMERGENCY or a GENERAL EMERGENCY.



1. RCS or SG Tube Leakage

Loss 1.A

This threshold addresses a leaking or RUPTURED Steam Generator (SG) that is also FAULTED outside of containment. The condition of the SG, whether leaking or RUPTURED, is determined in accordance with the thresholds for RCS Barrier Potential Loss 1.A and Loss 1.A, respectively. This condition represents a bypass of the containment barrier.

FAULTED is a defined term within the NEI 99-01 methodology; this determination is not necessarily dependent upon entry into, or diagnostic steps within, an EOP. For example, if the pressure in a steam generator is decreasing uncontrollably [*part of the FAULTED definition*] and the FAULTED steam generator isolation procedure is not entered because EOP user rules are dictating implementation of another procedure to address a higher priority condition, the steam generator is still considered FAULTED for emergency classification purposes.

The FAULTED criterion establishes an appropriate lower bound on the size of a steam release that may require an emergency classification. Steam releases of this size are readily observable with normal Control Room indications. The lower bound for this aspect of the containment barrier is analogous to the lower bound criteria specified in IC SU3 for the fuel clad barrier (i.e., RCS activity values) and IC SU4 for the RCS barrier (i.e., RCS leak rate values).

This threshold also applies to prolonged steam releases necessitated by operational considerations such as the forced steaming of a leaking or RUPTURED steam generator directly to atmosphere to cooldown the plant, or to drive an auxiliary (emergency) feed water pump. These types of conditions will result in a significant and sustained release of radioactive steam to the environment (and are thus similar to a FAULTED condition). The inability to isolate the steam flow without an adverse effect on plant cooldown meets the intent of a loss of containment.

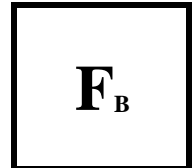
Steam releases associated with the expected operation of a SG power operated relief valve or safety relief valve do not meet the intent of this threshold. Such releases may occur intermittently for a short period of time following a reactor trip as operators process through emergency operating procedures to bring the plant to a stable condition and prepare to initiate a plant cooldown. Steam releases associated with the unexpected operation of a valve (e.g., a stuck-open safety valve) do meet this threshold.

Following an SG tube leak or rupture, there may be minor radiological releases through a secondary-side system component (e.g., air ejectors, gland seal exhausters, valve packing, etc.). These types of releases do not constitute a loss or potential loss of containment but should be evaluated using the Recognition Category R ICs.

	0ERP01-ZV-IN01	Rev. 10	Page 28 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 14 of 159

CONTAINMENT BARRIER

The EMERGENCY CLASSIFICATION LEVELs resulting from primary-to-secondary leakage, with or without a steam release from the FAULTED SG, are summarized below.



Affected SG is FAULTED Outside of Containment?

P-to-S Leak Rate	Yes	No
Less than or equal to 25 gpm	No classification	No classification
Greater than 25 gpm	UNUSUAL EVENT per SU4	UNUSUAL EVENT per SU4
Requires operation of a standby charging pump (<i>RCS Barrier Loss</i>)	SITE AREA EMERGENCY per FS1	ALERT per FA1
Requires an automatic or manual ECCS (SI) actuation (<i>RCS Barrier Loss</i>)	SITE AREA EMERGENCY per FS1	ALERT per FA1

Potential Loss 1.

There is no potential loss threshold associated with RCS or SG Tube Leakage.

2. Inadequate Heat Removal

Loss 2.

There is no Loss threshold associated with Inadequate Heat Removal.

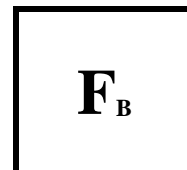
Potential Loss 2.A

Core Cooling – Red entry conditions met for 15 minutes or longer. This condition represents an IMMINENT core melt sequence which, if not corrected, could lead to vessel failure and an increased potential for containment failure. For this condition to occur there must already have been a loss of the RCS Barrier and the Fuel Clad Barrier. If implementation of a procedure(s) to restore adequate core cooling is not effective (successful) within 15 minutes, it is assumed that the event trajectory will likely lead to core melting and a subsequent challenge of the Containment Barrier.

	0ERP01-ZV-IN01	Rev. 10	Page 29 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 15 of 159

CONTAINMENT BARRIER

The restoration procedure is considered “effective” if core exit thermocouple readings are decreasing and/or if RCS level is increasing. Whether or not the procedure(s) will be effective should be apparent within 15 minutes. The Emergency Director should escalate the emergency classification level as soon as it is determined that the procedure(s) will not be effective.



Severe accident analyses (e.g., NUREG-1150) have concluded that function restoration procedures can arrest core degradation in a significant fraction of core damage scenarios, and that the likelihood of containment failure is very small in these events. Given this, it is appropriate to provide 15 minutes beyond the required entry point to determine if procedural actions can reverse the core melt sequence.

3. RCS Activity / Containment Radiation

Loss 3.

There is no Loss threshold associated with RCS Activity / Containment Radiation.

Potential Loss 3.A1

The readings for the containment high range area monitors (RT-8050 and RT-8051) correspond to an instantaneous release of the radioactive material inventory of the reactor coolant system (i.e., All the RCS coolant mass) into the containment, assuming that 20% of the fuel cladding has failed. The values for RT-8050 and RT-8051 were based on Calculation No.15-RA-11. The threshold values used were conservatively rounded down from the calculated value of 45,040 R/hr to ensure the values were readily assessable. This level of assumed fuel clad failure is well beyond that used to determine the analogous Fuel Clad Barrier Loss and RCS Barrier Loss thresholds. Temperature induced current (TIC) limitations are not applicable to the Containment Barrier Potential Loss threshold 3.A.1 because the expected radiation dose for this event overwhelms the TIC effect. This effect is discussed in 10CFR50.59 evaluation 04-8245-60 associated with DCP 04-8245-33.

NUREG-1228, *Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents*, indicates the fuel clad failure must be greater than approximately 20% in order for there to be a major release of radioactivity requiring offsite protective actions. For this condition to exist, there must already have been a loss of the RCS Barrier and the Fuel Clad Barrier. It is therefore prudent to treat this condition as a potential loss of containment which would then escalate the EMERGENCY CLASSIFICATION LEVEL to a GENERAL EMERGENCY.

Potential Loss 3.A2

The HATCH MONITOR is located outside containment and is the back-up monitor to the containment high range monitors (RT-8050 and RT-8051). The HATCH MONITOR threshold value is based on Calculation No. 03-ZE-003. This value corresponds to the calculated containment high range monitor readings for Containment Barrier Threshold Potential Loss 3.A.1.

	0ERP01-ZV-IN01	Rev. 10	Page 30 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 16 of 159

CONTAINMENT BARRIER

4. Containment Integrity or Bypass

Loss 4.A

These thresholds address a situation where containment isolation is required and one of two conditions exists as discussed below. Users are reminded that there may be accident and release conditions that simultaneously meet both thresholds 4.A.1 and 4.A.2.

F_B

Loss 4.A1 – Containment integrity has been lost, i.e., the actual containment atmospheric leak rate likely exceeds that associated with allowable leakage (or sometimes referred to as design leakage). Following the release of RCS mass into containment, containment pressure will fluctuate based on a variety of factors; a loss of containment integrity condition may (or may not) be accompanied by a noticeable drop in containment pressure. Recognizing the inherent difficulties in determining a containment leak rate during accident conditions, it is expected that the Emergency Director will assess this threshold using judgment, and with due consideration given to current plant conditions, and available operational and radiological data (e.g., containment pressure, readings on radiation monitors outside containment, operating status of containment pressure control equipment, etc.).

Refer to the middle piping run of Figure F-4 in Addendum 3, Containment Integrity or Bypass Examples. Two simplified examples are provided. One is leakage from a penetration and the other is leakage from an in-service system valve. Depending upon radiation monitor locations and sensitivities, the leakage could be detected by any of the four monitors depicted in the figure.

Another example would be a loss or potential loss of the RCS barrier, and the simultaneous occurrence of two FAULTED locations on a steam generator where one fault is located inside containment (e.g., on a steam or feedwater line) and the other outside of containment. In this case, the associated steam line provides a pathway for the containment atmosphere to escape to an area outside the containment.

Following the leakage of RCS mass into containment and a rise in containment pressure, there may be minor radiological releases associated with allowable (design) containment leakage through various penetrations or system components. These releases do not constitute a loss or potential loss of containment but should be evaluated using the Recognition Category R ICs.

Loss 4.A2 – Conditions are such that there is an UNISOLABLE pathway for the migration of radioactive material from the containment atmosphere to the environment. As used here, the term “environment” includes the atmosphere of a room or area, outside the containment, that may, in turn, communicate with the outside-the-plant atmosphere (e.g., through discharge of a ventilation system or atmospheric leakage). Depending upon a variety of factors, this condition may or may not be accompanied by a noticeable drop in containment pressure.

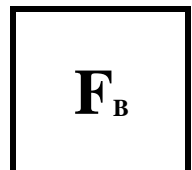
Refer to the top piping run of Figure F-4 in Addendum 3, Containment Integrity or Bypass Examples. In this simplified example, the inboard and outboard isolation valves remained open after a containment isolation was required (i.e., containment isolation was not successful). There is now an UNISOLABLE pathway from the containment to the environment.

	0ERP01-ZV-IN01	Rev. 10	Page 31 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 17 of 159

CONTAINMENT BARRIER

The existence of a filter is not considered in the threshold assessment. Filters do not remove fission product noble gases. In addition, a filter could become ineffective due to iodine and/or particulate loading beyond design limits (i.e., retention ability has been exceeded) or water saturation from steam/high humidity in the release stream.

Leakage between two interfacing liquid systems, by itself, does not meet this threshold.



Refer to the bottom piping run of Figure F-4 in Addendum 3, Containment Integrity or Bypass Examples. In this simplified example, leakage in an RCP seal cooler is allowing radioactive material to enter the Auxiliary Building. The radioactivity would be detected by the Process Monitor. If there is no leakage from the closed water cooling system to the Auxiliary Building, then no threshold has been met. If the pump or system piping developed a leak that allowed steam/water to enter the Auxiliary Building, then threshold 4.B would be met. Depending upon radiation monitor locations and sensitivities, this leakage could be detected by any of the four monitors depicted in the figure and cause threshold 4.A.1 to be met as well.

Following the leakage of RCS mass into containment and a rise in containment pressure, there may be minor radiological releases associated with allowable (design) containment leakage through various penetrations or system components. Minor releases may also occur if a containment isolation valve(s) fails to close but the containment atmosphere escapes to a closed system. These releases do not constitute a loss or potential loss of containment but should be evaluated using the Recognition Category R ICs.

The status of the containment barrier during an event involving steam generator tube leakage is assessed using Loss Threshold 1.A.

Loss 4.B

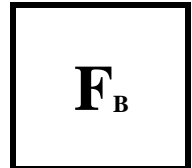
Containment sump, temperature, pressure and/or radiation levels will increase if reactor coolant mass is leaking into the containment. If these parameters have not increased, then the reactor coolant mass may be leaking outside of containment (i.e., a containment bypass sequence). Increases in sump, temperature, pressure, flow and/or radiation level readings outside of the containment may indicate that the RCS mass is being lost outside of containment.

Unexpected elevated readings and alarms on radiation monitors with detectors outside containment should be corroborated with other available indications to confirm that the source is a loss of RCS mass outside of containment. If the fuel clad barrier has not been lost, radiation monitor readings outside of containment may not increase significantly; however, other unexpected changes in sump levels, area temperatures or pressures, flow rates, etc. should be sufficient to determine if RCS mass is being lost outside of the containment.

	0ERP01-ZV-IN01	Rev. 10	Page 32 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 18 of 159

CONTAINMENT BARRIER

Refer to the middle piping run of Figure 9-F-3. In this simplified example, a leak has occurred at a reducer on a pipe carrying reactor coolant in the Auxiliary Building. Depending upon radiation monitor locations and sensitivities, the leakage could be detected by any of the four monitors depicted in the figure and cause threshold 4.A.1 to be met as well.



To ensure proper escalation of the emergency classification, the RCS leakage outside of containment must be related to the mass loss that is causing the RCS Loss and/or Potential Loss threshold 1.A to be met.

Potential Loss 4.A

Containment – Red entry conditions met (containment pressure ≥ 56.5 PSIG). If containment pressure exceeds the design pressure, there exists a potential to lose the Containment Barrier. To reach this level, there must be an inadequate core cooling condition for an extended period of time; therefore, the RCS and Fuel Clad barriers would already be lost. Thus, this threshold is a discriminator between a SITE AREA EMERGENCY and GENERAL EMERGENCY since there is now a potential to lose the third barrier.

Potential Loss 4.B

The existence of an explosive mixture means, at a minimum, that the containment atmospheric hydrogen concentration is sufficient to support a hydrogen burn (i.e., at the lower deflagration limit (4%)). A hydrogen burn will raise containment pressure and could result in collateral equipment damage leading to a loss of containment integrity. It therefore represents a potential loss of the Containment Barrier.

Potential Loss 4.C1 and C2

This threshold describes a condition where containment pressure is greater than the setpoint (9.5PSIG) at which Containment Spray is designed to automatically actuate, and less than one full train of equipment is capable of operating per design. The 15-minute criterion is included to allow operators time to manually start equipment that may not have automatically started, if possible. This threshold represents a potential loss of containment in that Containment Spray is either lost or performing in a degraded manner.

5. Other Indications

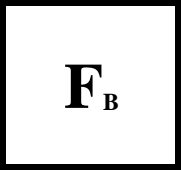
Loss and/or Potential Loss 5.

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 33 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 19 of 159

CONTAINMENT BARRIER

6. Emergency Director Judgment



Loss 6.A

This threshold addresses any other factors that may be used by the Emergency Director in determining whether the Containment Barrier is lost.

Potential Loss 6.A

This threshold addresses any other factors that may be used by the Emergency Director in determining whether the Containment Barrier is potentially lost. The Emergency Director should also consider whether or not to declare the barrier potentially lost in the event that barrier status cannot be monitored.

	0ERP01-ZV-IN01	Rev. 10	Page 34 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 20 of 159

END OF SECTION “F”

	0ERP01-ZV-IN01	Rev. 10	Page 35 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 21 of 159

SYSTEM MALFUNCTIONS (S)

TABLE OF CONTENTS

SG1- Prolonged loss of ALL offsite and ALL onsite AC power to emergency buses.....	37
SS1- Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer	39
SA1- Loss of ALL but one AC power source to emergency buses for 15 minutes or longer	41
SU1- Loss of ALL offsite AC power capability to emergency buses for 15 minutes or longer	43
SA2- UNPLANNED loss of Control Room indication for 15 minutes or longer with a significant transient in progress.....	45
SU2- UNPLANNED loss of Control Room indication for 15 minutes or longer	47
SU3- Reactor coolant activity greater than Technical Specification allowable limit.....	49
SU4- RCS leakage for 15 minutes or longer	51
SS5- Inability to shutdown the reactor causing a challenge to core cooling or RCS heat removal.....	53
SA5- Automatic or manual trip fails to shutdown the reactor, and subsequent manual actions taken at the reactor control panels are not successful in shutting down the reactor	55
SU5- Automatic or manual trip fails to shutdown the reactor	57
SU6- Loss of ALL onsite or offsite communications capabilities.....	59
SU7- Failure to isolate containment or loss of containment pressure control	61
SG8- Loss of ALL AC and Vital DC power sources for 15 minutes or longer.....	63
SS8- Loss of ALL Vital DC power for 15 minutes or longer	65
SA9- Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode	67

	0ERP01-ZV-IN01	Rev. 10	Page 36 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 22 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 37 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 23 of 159

GENERAL EMERGENCY		SG1
Initiating Condition: Prolonged loss of ALL offsite and ALL onsite AC power to emergency buses		
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

Note:

- The Emergency Director should declare the GENERAL EMERGENCY promptly upon determining that 4 hours has been exceeded, or will likely be exceeded.

EAL-1

- a. Loss of **ALL** offsite and **ALL** onsite AC power to 4160V AC ESF Buses.

AND

- b. **EITHER** of the following:

- Restoration of at least one 4160AC ESF bus in less than 4 hours is not likely.

OR

- Core Cooling – Red entry condition met

	0ERP01-ZV-IN01	Rev. 10	Page 38 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 24 of 159

Basis:

This IC addresses a prolonged loss of all power sources to AC emergency buses. A loss of all AC power compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A prolonged loss of these buses will lead to a loss of one or more fission product barriers. In addition, fission product barrier monitoring capabilities may be degraded under these conditions.

SG1_B

The EAL should require declaration of a GENERAL EMERGENCY prior to meeting the thresholds for IC FG1. This will allow additional time for implementation of offsite protective actions.

Escalation of the emergency classification from SITE AREA EMERGENCY will occur if it is projected that power cannot be restored to at least one AC emergency bus by the end of four (4) hours. Beyond this time, plant responses and event trajectory are subject to greater uncertainty, and there is a higher likelihood of challenges to multiple fission product barriers.

The estimate for restoring at least one emergency bus should be based on a realistic appraisal of the situation. Mitigation actions with a low probability of success should not be used as a basis for delaying a classification upgrade. The goal is to maximize the time available to prepare for, and implement, protective actions for the public.

The EAL will also require a GENERAL EMERGENCY declaration if the loss of AC power results in parameters that indicate an inability to adequately remove decay heat from the core.

EAL SELECTION BASES

The prolonged loss of all onsite and all offsite AC power coupled with Core Cooling - Red entry conditions (CETs > 1200° F) are sufficient indications of the inability to remove heat from the core.

Station Blackout does not include the loss of available AC power to buses fed by station batteries through inverters, or by Alternate AC (AAC) sources as defined in NUMARC 87-00. The STPEGS Station Blackout position credits any one of the three Standby Diesel Generators as the AAC source. The required coping duration category determined for STPEGS Station Blackout is a minimum of four hours, based on the guidance of NUMARC 87-00, Section 3. STPEGS meets this requirement and this condition forms the basis for the four hour time period.

	0ERP01-ZV-IN01	Rev. 10	Page 39 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 25 of 159

SITE AREA EMERGENCY		SS1
Initiating Condition: Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.		
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

Note:

- The Emergency Director should declare the SITE AREA EMERGENCY promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

Loss of **ALL** offsite and **ALL** onsite AC power to **ALL** three 4160V AC ESF Buses for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 40 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 26 of 159

Basis:

This IC addresses a total loss of AC power that compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. In addition, fission product barrier monitoring capabilities may be degraded under these conditions.



This IC represents a condition that involves actual or likely major failures of plant functions needed for the protection of the public.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via ICs RG1, FG1 or SG1.

EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 41 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 27 of 159

ALERT		SA1
Initiating Condition: Loss of ALL but one AC power source to emergency buses for 15 minutes or longer.		
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

Note:

- The Emergency Director should declare the ALERT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

- AC power capability to **ALL** three 4160V AC ESF Buses is reduced to a single power source for 15 minutes or longer.

AND

- ANY** additional single power source failure will result in a loss of **ALL** AC power to SAFETY SYSTEMS.

	0ERP01-ZV-IN01	Rev. 10	Page 42 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 28 of 159

Basis:

This IC describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to SAFETY SYSTEMS. In this condition, the sole AC power source may be powering one, or more than one, train of safety-related equipment. This IC provides an escalation path from IC SU1.



An “AC power source” is a source recognized in AOPs and EOPs, and capable of supplying required power to an emergency bus. Some examples of this condition are presented below

- A loss of all offsite power with a concurrent failure of all but one emergency power source (e.g., an onsite diesel generator).
- A loss of all offsite power and loss of all emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being fed from the unit main generator.
- A loss of emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being fed from an onsite or offsite power source.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC SS1.

EAL SELECTION BASES

This EAL is similar to IC CU2, except this EAL applies only to Modes 1-4.

	0ERP01-ZV-IN01	Rev. 10	Page 43 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 29 of 159

UNUSUAL EVENT		SU1
Initiating Condition: Loss of ALL offsite AC power capability to emergency buses for 15 minutes or longer.		
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

Note:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

Loss of **ALL** offsite AC power capability to **ALL** three 4160V AC ESF Buses for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 44 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 30 of 159

Basis:

This IC addresses a prolonged loss of offsite power. The loss of offsite power sources renders the plant more vulnerable to a complete loss of power to AC emergency buses. This condition represents a potential reduction in the level of safety of the plant.

SU1_B

For emergency classification purposes, “capability” means that an offsite AC power source(s) is available to the emergency buses, whether or not the buses are powered from it.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of offsite power.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC SA1.

EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 45 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 31 of 159

ALERT	SA2
Initiating Condition: UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress	
Emergency Action Levels (1) Operating Mode Applicability: 1,2,3,4	

Notes:

- The Emergency Director should declare the ALERT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

- a. An UNPLANNED event results in the inability to monitor one or more of the following parameters in Table S1 from within the Control Room for 15 minutes or longer.

Table S1: Plant Parameters
<ul style="list-style-type: none"> • Reactor Power • RCS Level • RCS Pressure • Core Exit Temperature • Levels in at least two steam generators • Steam Generator Auxiliary Feed Water Flow

AND

- b. **ANY** of the following transient events in progress.
- Automatic or manual runback greater than 25% thermal reactor power
 - Electrical load rejection greater than 25% full electrical load
 - Reactor trip
 - ECCS (SI) actuation

	0ERP01-ZV-IN01	Rev. 10	Page 46 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 32 of 159

Basis:

This IC addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain SAFETY SYSTEM parameters from within the Control Room. During this condition, the margin to a potential fission product barrier challenge is reduced. It thus represents a potential substantial degradation in the level of safety of the plant.



As used in this EAL, an “inability to monitor” means that values for one or more of the listed parameters cannot be determined from within the Control Room. This situation would require a loss of all of the Control Room sources for the given parameter(s). For example, the reactor power level cannot be determined from any analog, digital and recorder source within the Control Room.

An event involving a loss of plant indications, annunciators and/or display systems is evaluated in accordance with 10 CFR 50.72 (and associated guidance in NUREG-1022) to determine if an NRC event report is required. The event would be reported if it significantly impaired the capability to perform emergency assessments. In particular, emergency assessments necessary to implement abnormal operating procedures, emergency operating procedures, and emergency plan implementing procedures addressing emergency classification, accident assessment, or protective action decision-making.

This EAL is focused on a selected subset of plant parameters associated with the key safety functions of reactivity control, core cooling and RCS heat removal. The loss of the ability to determine one or more of these parameters from within the Control Room is considered to be more significant than simply a reportable condition. In addition, if all indication sources for one or more of the listed parameters are lost, then the ability to determine the values of other SAFETY SYSTEM parameters may be impacted as well. For example, if the value for RCS level cannot be determined from the indications and recorders on a main control board, the SPDS or the plant computer, the availability of other parameter values may be compromised as well.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via ICs FS1 or RS.

EAL SELECTION BASES

The plant parameters listed are from NEI 99-01, Rev. 6. Two steam generators were selected as a site-specific parameter for the minimum number of steam generators needed for plant cooldown and shutdown. This EAL is entered when level cannot be monitored in three of four steam generators.

Pressurizer level and the Reactor Vessel Water Level System (RVWLS) level indication are both associated with key safety functions of core cooling and RCS heat removal. Either indication may be used within its design parameters to meet Table S1: Plant Parameters – RCS Level. Pressurizer level may be used when the indication is on-scale and adequate core subcooling margin exists.

	0ERP01-ZV-IN01	Rev. 10	Page 47 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 33 of 159

UNUSUAL EVENT		SU2
Initiating Condition: UNPLANNED loss of Control Room indications for 15 minutes or longer.		
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

Notes:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

An UNPLANNED event results in the inability to monitor one or more of the following parameters in Table S1 from within the Control Room for 15 minutes or longer.

Table S1: Plant Parameters
<ul style="list-style-type: none"> • Reactor Power • RCS Level • RCS Pressure • Core Exit Temperature • Levels in at least two steam generators • Steam Generator Auxiliary Feed Water Flow

	0ERP01-ZV-IN01	Rev. 10	Page 48 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 34 of 159

Basis:

This IC addresses the difficulty associated with monitoring normal plant conditions without the ability to obtain SAFETY SYSTEM parameters from within the Control Room. This condition is a precursor to a more significant event and represents a potential degradation in the level of safety of the plant.



As used in this EAL, an “inability to monitor” means that values for one or more of the listed parameters cannot be determined from within the Control Room. This situation would require a loss of all of the Control Room sources for the given parameter(s). For example, the reactor power level cannot be determined from any analog, digital and recorder source within the Control Room.

An event involving a loss of plant indications, annunciators and/or display systems is evaluated in accordance with 10 CFR 50.72 (and associated guidance in NUREG-1022) to determine if an NRC event report is required. The event would be reported if it significantly impaired the capability to perform emergency assessments. In particular, emergency assessments necessary to implement abnormal operating procedures, emergency operating procedures, and emergency plan implementing procedures addressing emergency classification, accident assessment, or protective action decision-making.

This EAL is focused on a selected subset of plant parameters associated with the key safety functions of reactivity control, core cooling and RCS heat removal. The loss of the ability to determine one or more of these parameters from within the Control Room is considered to be more significant than simply a reportable condition. In addition, if all indication sources for one or more of the listed parameters are lost, then the ability to determine the values of other SAFETY SYSTEM parameters may be impacted as well. For example, if the value for RCS level cannot be determined from the indications and recorders on a main control board, the SPDS or the plant computer, the availability of other parameter values may be compromised as well.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC SA2.

EAL SELECTION BASES

The plant parameters listed are from NEI 99-01, Rev. 6. Two steam generators were selected as a site-specific parameter for the minimum number of steam generators needed for plant cooldown and shutdown. This EAL is entered when level cannot be monitored in three of four steam generators.

Pressurizer level and the Reactor Vessel Water Level System (RVWLS) level indication are both associated with key safety functions of core cooling and RCS heat removal. Either indication may be used within its design parameters to meet Table S1: Plant Parameters – RCS Level. Pressurizer level may be used when the indication is on-scale and adequate core subcooling margin exists.

	0ERP01-ZV-IN01	Rev. 10	Page 49 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 35 of 159

UNUSUAL EVENT		SU3
Initiating Condition: Reactor coolant activity greater than Technical Specification allowable limits.		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: 1,2,3,4	

Notes:

- None

EAL-1

RT-8039 reading greater than 30 µCi/ml.

EAL-2

Sample analysis indicates that a reactor coolant activity value is greater than an allowable limit specified in Technical Specifications.

- Greater than 1µCi/gm Dose Equivalent I-131
- OR**
- Greater than 100/ Ë bar µCi /gm gross activity

	0ERP01-ZV-IN01	Rev. 10	Page 50 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 36 of 159

Basis:

This IC addresses a reactor coolant activity value that exceeds an allowable limit specified in Technical Specifications. This condition is a precursor to a more significant event and represents a potential degradation of the level of safety of the plant.



Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via ICs FA1 or the Recognition Category R ICs.

EAL SELECTION BASES

EAL-1: RT-8039 is the Failed Fuel radiation monitor and samples via the CVCS letdown line. The value 30 $\mu\text{Ci}/\text{ml}$ is the reading that is equivalent to 1 $\mu\text{Ci}/\text{gm}$ Dose Equivalent I-131. The monitor value in this EAL is the calculated monitor response if the RCS activity were equivalent to 1 $\mu\text{Ci}/\text{gm}$ Dose Equivalent I-131. The value is based on Calculation STPNOC013-CALC-003. The value used in this EAL was conservatively truncated by approximately 5% to ensure the value is readily assessable.

EAL-2: The Technical Specification limits for RCS activity is greater than 1 $\mu\text{Ci}/\text{gm}$ Dose Equivalent I-131 or greater than 100/ \bar{E} bar $\mu\text{Ci}/\text{gm}$ gross activity.

	0ERP01-ZV-IN01	Rev. 10	Page 51 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 37 of 159

UNUSUAL EVENT		SU4
Initiating Condition: RCS leakage for 15 minutes or longer.		
Emergency Action Levels (1 or 2 or 3)	Operating Mode Applicability: 1,2,3,4	

Notes:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

RCS unidentified or pressure boundary leakage greater than 10 gpm for 15 minutes or longer.

EAL-2

RCS identified leakage greater than 25 gpm for 15 minutes or longer.

EAL-3

Leakage from the RCS to a location outside containment greater than 25 gpm for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 52 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 38 of 159

Basis:

This IC addresses RCS leakage which may be a precursor to a more significant event. In this case, RCS leakage has been detected and operators, following applicable procedures, have been unable to promptly isolate the leak. This condition is considered to be a potential degradation of the level of safety of the plant.



EAL #1 and EAL #2 are focused on a loss of mass from the RCS due to “unidentified leakage”, “pressure boundary leakage” or “identified leakage” (as these leakage types are defined in the plant Technical Specifications). EAL #3 addresses a RCS mass loss caused by an UNISOLABLE leak through an interfacing system. These EALs thus apply to leakage into the containment, a secondary-side system (e.g., steam generator tube leakage) or a location outside of containment.

The leak rate values for each EAL were selected because they are usually observable with normal Control Room indications. Lesser values typically require time-consuming calculations to determine (e.g., a mass balance calculation). EAL #1 uses a lower value that reflects the greater significance of unidentified or pressure boundary leakage.

The release of mass from the RCS due to the as-designed/expected operation of a relief valve does not warrant an emergency classification. An emergency classification would be required if a mass loss is caused by a relief valve that is not functioning as designed/expected (e.g., a relief valve sticks open and the line flow cannot be isolated).

The 15-minute threshold duration allows sufficient time for prompt operator actions to isolate the leakage, if possible.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via ICs of Recognition Category R or F

EAL SELECTION BASES

EAL-1: The STP Technical Specifications limit for unidentified leakage from the RCS is 1 gpm. NEI 99-01 Rev. 6 states to use the higher of the Technical Specification limit or 10 gpm.

EAL-2: The STP Technical Specifications limit for identified leakage from the RCS is 10 gpm. NEI 99-01 Rev. 6 requirements are to use the higher of the Technical Specification limit or 25 gpm.

EAL-3: The STP Technical Specification limit for primary-to-secondary leakage is 150 gallons per day through any one steam generator, but the specification does not specify the type of leakage. Therefore, STPEGS will use the leakage outside containment; which may include SG Tube Leakage, at 25 gpm for 15 minutes or longer in accordance with NEI 99-01 Rev. 6 guidance.

	0ERP01-ZV-IN01	Rev. 10	Page 53 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 39 of 159

SITE AREA EMERGENCY	SS5
Initiating Condition: Inability to shutdown the reactor causing a challenge to core cooling or RCS heat removal.	
Emergency Action Levels (1) Operating Mode Applicability: 1,2	

Notes:

- None

EAL-1

a. Entry into 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS

AND

b. **ALL** manual actions to shutdown the reactor have been unsuccessful.

AND

c. **EITHER** of the following conditions exists:

- Core Cooling – Red entry conditions met

OR

- Heat Sink- Red entry conditions met

	0ERP01-ZV-IN01	Rev. 10	Page 54 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 40 of 159

Basis:

This IC addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, all subsequent operator actions in 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS, to manually shutdown the reactor are unsuccessful, and continued power generation is challenging the capability to adequately remove heat from the core and/or the RCS. This condition will lead to fuel damage if additional mitigation actions are unsuccessful and thus warrants the declaration of a SITE AREA EMERGENCY.



In some instances, the emergency classification resulting from this IC/EAL may be higher than that resulting from an assessment of the plant responses and symptoms against the Recognition Category F ICs/EALs. This is appropriate in that the Recognition Category F ICs/EALs do not address the additional threat posed by a failure to shutdown the reactor. The inclusion of this IC and EAL ensures the timely declaration of a SITE AREA EMERGENCY in response to prolonged failure to shutdown the reactor.

A reactor shutdown is determined in accordance with applicable Emergency Operating Procedure criteria.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC RG1RG1 or FG1.

EAL SELECTION BASES

EAL-1: Core Cooling - Red entry conditions met (CETs > 1200° F) is the site specific indication of the inability to adequately remove heat from the core. Heat Sink - Red entry conditions met (NR level in All SG < 14% [34%] AND total AFW flow to SG < 576 GPM) is the site specific indication of the inability to remove heat from the RCS.

	0ERP01-ZV-IN01	Rev. 10	Page 55 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 41 of 159

ALERT		SA5
Initiating Condition: Automatic or manual trip fails to shutdown the reactor, and subsequent manual actions taken at the reactor control panels are not successful in shutting down the reactor.		
Emergency Action Levels (1)	Operating Mode Applicability: 1, 2	

Notes:

- None

EAL-1

Entry into 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS.

	0ERP01-ZV-IN01	Rev. 10	Page 56 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 42 of 159

Basis:

This IC addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and subsequent operator manual actions taken at the reactor control panels to shutdown the reactor are also unsuccessful. This condition represents an actual or potential substantial degradation of the level of safety of the plant. An emergency declaration is required even if the reactor is subsequently shutdown by an action taken away from the reactor control panels since this event entails a significant failure of the RPS.



A manual action at the reactor control panels is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core (e.g., initiating a manual reactor trip). The “at the reactor control panels” actions are performed in 0POP05- E0-E000, Reactor Trip or Safety Injection and do not include manually driving in control rods or implementation of boron injection strategies. Actions taken at back-panels or other locations within the Control Room, or any location outside the Control Room, are not considered to be “at the reactor control panels”. If these initial action(s) are unsuccessful, then operators would immediately pursue additional manual actions in 0POP05- E0-FRS1, Response to Nuclear Power Generation - ATWS. These actions include manually driving in control rods, implementation of boron injection strategies and locally opening breakers.

The plant response to the failure of an automatic or manual reactor trip will vary based upon several factors including the reactor power level prior to the event, availability of the condenser, performance of mitigation equipment and actions, other concurrent plant conditions, etc. If the failure to shutdown the reactor is prolonged enough to cause a challenge to the core cooling or RCS heat removal safety functions, the EMERGENCY CLASSIFICATION LEVEL will escalate to a SITE AREA EMERGENCY via IC SS5. Depending upon plant responses and symptoms, escalation is also possible via IC FS1.

It is recognized that plant responses or symptoms may also require an ALERT declaration in accordance with the Recognition Category F ICs; however, this IC and EAL are included to ensure a timely emergency declaration.

A reactor shutdown is determined in accordance with applicable Emergency Operating Procedure criteria.

SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 57 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 43 of 159

UNUSUAL EVENT		SU5
Initiating Condition: Automatic or manual trip fails to shutdown the reactor.		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: 1, 2	

Notes:

- A manual action is **ANY** operator action, or set of actions, which causes the control rods to be rapidly inserted into the core, and does not include manually driving in control rods or implementation of boron injection strategies.

EAL-1

- a. An automatic trip did not shutdown the reactor.

AND

- b. A subsequent manual action taken at the reactor control panels is successful in shutting down the reactor.

EAL-2

- a. A manual trip did not shutdown the reactor.

AND

- b. **EITHER** of the following:

1. A subsequent manual action taken at the reactor control panels is successful in shutting down the reactor.

OR

2. A subsequent automatic trip is successful in shutting down the reactor.

	0ERP01-ZV-IN01	Rev. 10	Page 58 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 44 of 159

Basis:

This IC addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and either a subsequent operator manual action taken at the reactor control panels or an automatic trip is successful in shutting down the reactor. This event is a precursor to a more significant condition and thus represents a potential degradation of the level of safety of the plant.



Following the failure on an automatic reactor trip, operators will promptly initiate manual actions at the reactor control panels to shutdown the reactor (e.g., initiate a manual reactor trip). If these manual actions are successful in shutting down the reactor, core heat generation will quickly fall to a level within the capabilities of the plant's decay heat removal systems.

If an initial manual reactor trip is unsuccessful, operators will promptly take manual action at another location(s) on the reactor control panels to shut down the reactor (e.g., initiate a manual reactor trip) using a different switch). Depending upon several factors, the initial or subsequent effort to manually trip the reactor, or a concurrent plant condition, may lead to the generation of an automatic reactor trip signal. If a subsequent manual or automatic trip is successful in shutting down the reactor, core heat generation will quickly fall to a level within the capabilities of the plant's decay heat removal systems.

A manual action at the reactor control panels is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core (e.g., initiating a manual trip). This action does not include manually driving in control rods or implementation of boron injection strategies. Actions taken at back-panels or other locations within the Control Room, or any location outside the Control Room, are not considered to be "at the reactor control panels".

The plant response to the failure of an automatic or manual reactor trip will vary based upon several factors including the reactor power level prior to the event, availability of the condenser, performance of mitigation equipment and actions, other concurrent plant conditions, etc. If subsequent operator manual actions taken at the reactor control panels are also unsuccessful in shutting down the reactor, then the EMERGENCY CLASSIFICATION LEVEL will escalate to an ALERT via IC SA5. Depending upon the plant response, escalation is also possible via IC FA1. Absent the plant conditions needed to meet either IC SA5 or FA1, an UNUSUAL EVENT declaration is appropriate for this event.

A reactor shutdown is determined in accordance with applicable Emergency Operating Procedure criteria.

Should a reactor trip signal be generated as a result of plant work (e.g., RPS setpoint testing), the following classification guidance should be applied.

- If the signal causes a plant transient that should have included an automatic trip and the RPS fails to automatically shutdown the reactor, then this IC and the EALs are applicable, and should be evaluated.
- If the signal does not cause a plant transient and the trip failure is determined through other means (e.g., assessment of test results), then this IC and the EALs are not applicable and no classification is warranted.

EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 59 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 45 of 159

UNUSUAL EVENT		SU6
Initiating Condition: Loss of ALL onsite or offsite communications capabilities.		
Emergency Action Levels (1 or 2 or 3)	Operating Mode Applicability: 1,2,3,4	

Notes:

- None

EAL-1

Loss of **ALL** of the following onsite communication methods listed in Table S2.

EAL-2

Loss of **ALL** of the following Offsite Response Organization (ORO) communications methods listed in Table S2.

EAL-3

Loss of **ALL** of the following NRC communications methods listed in Table S2.

Table S2: Communications Methods			
METHOD	EAL-1 ONSITE	EAL-2 ORO	EAL-3 NRC
• Plant PA system	X		
• Plant Radios	X		
• Plant telephone system	X	X	X
• Satellite phones		X	X
• Direct line from Control Rooms to Bay City		X	X
• Microwave Lines to Houston		X	X
• Security radio to Matagorda County		X	
• Dedicated Ring-down lines		X	
• ENS line			X

	0ERP01-ZV-IN01	Rev. 10	Page 60 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 46 of 159

Basis:

This IC addresses a significant loss of on-site or offsite communications capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to OROs and the NRC.



This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of on-site information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

EAL #1- addresses a total loss of the communications methods used in support of routine plant operations.

EAL #2- addresses a total loss of the communications methods used to notify all OROs of an emergency declaration. The OROs referred to here are Matagorda County Sheriff's Office, and Texas Department of Public Safety Disaster District in Pierce.

EAL #3- addresses a total loss of the communications methods used to notify the NRC of an emergency declaration.

EAL SELECTION BASES

Lines not included for offsite communications to ORO and NRC included links that would need relaying of information. Links were obtained from procedures OPGP05-ZV-0011, Emergency Communications.

	0ERP01-ZV-IN01	Rev. 10	Page 61 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 47 of 159

UNUSUAL EVENT		SU7
Initiating Condition: Failure to isolate containment or loss of containment pressure control.		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: 1,2,3,4	

Notes:

- None

EAL-1

- a. Failure of containment to isolate when required by an actuation signal.

AND

- b. **ALL** required penetrations are not isolated within 15 minutes of the actuation signal.

EAL-2

- a. Containment pressure greater than 9.5 psig.

AND

- b. No Containment Spray train is operating per design for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 62 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 48 of 159

Basis:

This IC addresses a failure of one or more containment penetrations to automatically isolate when required by an actuation signal. It also addresses an event that results in high containment pressure with a concurrent failure of containment pressure control systems. Absent challenges to another fission product barrier, either condition represents potential degradation of the level of safety of the plant.



EAL #1- the containment isolation signal must be generated as the result on an off-normal/accident condition (e.g., a safety injection or high containment pressure); a failure resulting from testing or maintenance does not warrant classification. The determination of containment and penetration status – isolated or not isolated – should be made in accordance with the appropriate criteria contained in the plant AOPs and EOPs. The 15-minute criterion is included to allow operators time to manually isolate the required penetrations, if possible.

EAL #2- addresses a condition where containment pressure is greater than the setpoint at which containment energy (heat) removal systems are designed to automatically actuate, and less than one full train of equipment is capable of operating per design. The 15-minute criterion is included to allow operators time to manually start equipment that may not have automatically started, if possible. The inability to start the required equipment indicates that containment heat removal/depressurization systems (e.g., containment spray) are either lost or performing in a degraded manner.

This event would escalate to a SITE AREA EMERGENCY in accordance with IC FS1 if there were a concurrent loss or potential loss of either the Fuel Clad or RCS fission product barriers.

EAL SELECTION BASES

EAL-1: N/A

EAL-2: If containment pressure reaches 9.5 psig, Containment Spray will actuate. If no train of Containment Spray is operating per design, the ability to lower containment pressure is compromised. One train of Containment Spray (Technical Specifications 3/4.6.2) is defined as one containment spray system capable of taking a suction from the RWST and transferring suction to the containment sump.

	0ERP01-ZV-IN01	Rev. 10	Page 63 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 49 of 159

GENERAL EMERGENCY		SG8
Initiating Condition: Loss of ALL AC and Vital DC power sources for 15 minutes or longer.		
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

Notes:

- The Emergency Director should declare the GENERAL EMERGENCY promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

- a. Loss of **ALL** offsite and **ALL** onsite AC power to **ALL** three 4160V AC ESF buses for 15 minutes or longer.

AND

- b. Indicated voltage is less than 105.5 VDC on **ALL** Class 1E 125 VDC battery buses for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 64 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 50 of 159

Basis:

This IC addresses a concurrent and prolonged loss of both AC and Vital DC power. A loss of all AC power compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A loss of Vital DC power compromises the ability to monitor and control SAFETY SYSTEMS. A sustained loss of both AC and DC power will lead to multiple challenges to fission product barriers.



Fifteen minutes was selected as a threshold to exclude transient or momentary power losses. The 15-minute emergency declaration clock begins at the point when both EAL thresholds are met.

EAL SELECTION BASES

This IC and EAL were included to address the operating experience for the March, 2011 accident at Fukushima Daiichi. Minimum voltage for Class 1E 125 VDC battery buses was determined in calculation 13-DJ-006 Rev.3 and determined to be 105.5 volts. At 105.5 volts or less, 0POP05-E0-EC00, Loss of All AC Power directs the operators to open the battery output breakers.

	0ERP01-ZV-IN01	Rev. 10	Page 65 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 51 of 159

SITE ARE EMERGENCY		SS8
Initiating Condition: Loss of ALL Vital DC power for 15 minutes or longer.		
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

- Notes:
- The Emergency Director should declare the SITE AREA EMERGENCY promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1
Indicated voltage is less than 105.5 VDC on **ALL** Class 1E 125 VDC battery buses for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 66 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 52 of 159

Basis:

This IC addresses a loss of Vital DC power which compromises the ability to monitor and control SAFETY SYSTEMS. In modes above Cold Shutdown, this condition involves a major failure of plant functions needed for the protection of the public.



Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via ICs RG1, FG1 or SG8.

EAL SELECTION BASES

Minimum voltage for Class 1E 125 VDC battery buses was determined in calculation 13-DJ-006 Rev.3 and determined to be 105.5 volts. At 105.5 volts or less, 0POP05-E0-EC00, Loss of All AC Power directs the operators to open the battery output breakers.

	0ERP01-ZV-IN01	Rev. 10	Page 67 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 53 of 159

ALERT		SA9
Initiating Condition	Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.	
Emergency Action Levels (1)	Operating Mode Applicability: 1,2,3,4	

Notes:

- None

EAL-1

a. The occurrence of **ANY** of the following hazardous events listed in Table S3:

Table S3: Hazardous Events
<ul style="list-style-type: none">• Seismic event (earthquake)• Internal or external flooding event• High winds or tornado strike• FIRE• EXPLOSION• Predicted or actual breach of Main Cooling Reservoir retaining dike along North Wall.• Other events with similar hazard characteristics as determined by the Shift Manager

AND

b. **EITHER** of the following:

1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.

OR

2. The event has caused **VISIBLE DAMAGE** to a SAFETY SYSTEM component or structure needed for the current operating mode.

	0ERP01-ZV-IN01	Rev. 10	Page 68 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 54 of 159

Basis:

This IC addresses a hazardous event that causes damage to a SAFETY SYSTEM, or a structure containing SAFETY SYSTEM components, needed for the current operating mode. This condition significantly reduces the margin to a loss or potential loss of a fission product barrier, and therefore represents an actual or potential substantial degradation of the level of safety of the plant.



EAL# 1.b.1- addresses damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

EAL# 1.b.2- addresses damage to a SAFETY SYSTEM component that is not in service/operation or readily apparent through indications alone, or to a structure containing SAFETY SYSTEM components.

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 would be via IC FS1 or RS1.

EAL SELECTION BASES

The listed hazards are from NEI 99-01 Rev.6 with the exception of the Main Cooling Reservoir breach along the north wall which was included because it is a credible hazard and analyzed in the STPEGS UFSAR.

	0ERP01-ZV-IN01	Rev. 10	Page 69 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 55 of 159

END OF SECTION “S”

	0ERP01-ZV-IN01	Rev. 10	Page 70 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 56 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 71 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 57 of 159

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY (H)

TABLE OF CONTENTS

HG1 - HOSTILE ACTION resulting in loss of physical control of the FACILITY	73
HS1 - HOSTILE ACTION within the PROTECTED AREA	75
HA1 - HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes	77
HU1 - Confirmed SECURITY CONDITION or threat	81
HU2 - Seismic event greater than OBE levels	83
HU3 - Hazardous event	85
HU4 - FIRE potentially degrading the level of safety of the plant	87
HA5 - Gaseous release impeding access to equipment necessary for normal plant operations, cooldown or shutdown	91
HS6 - Inability to control a key safety function from outside the Control Room	95
HA6 - Control Room evacuation resulting in transfer of plant control to alternate locations	97
HG7 - Other conditions exist which in the judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY	99
HS7 - Other conditions exist which in the judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY	101
HA7 - Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT	103
HU7 - Other conditions exist which in the judgment of the Emergency Director warrant declaration of a UE 105	

	0ERP01-ZV-IN01	Rev. 10	Page 72 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 58 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 73 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 59 of 159

GENERAL EMERGENCY		HG1
Initiating Condition: HOSTILE ACTION resulting in loss of physical control of the FACILITY.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

- a. A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by **ANY** of the following in Table H1:

Table H1: Security Supervision
<ul style="list-style-type: none"> • Security Force Supervisor • Acting Security Manager • Security Manager

AND

- b. **EITHER** of the following has occurred:

1. **ANY** of the following safety functions in Table H2 cannot be controlled or maintained in MODES 1, 2 or 3 ONLY.

Table H2: Safety Functions
<ul style="list-style-type: none"> • Reactivity control • Core cooling • RCS heat removal

OR

2. Damage to spent fuel has occurred or is IMMINENT.

	0ERP01-ZV-IN01	Rev. 10	Page 74 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 60 of 159

Basis:

This IC addresses an event in which a HOSTILE FORCE has taken physical control of the FACILITY to the extent that the plant staff can no longer operate equipment necessary to maintain key safety functions. It also addresses a HOSTILE ACTION leading to a loss of physical control that results in actual or IMMINENT damage to spent fuel due to 1) damage to a spent fuel pool cooling system (e.g., pumps, heat exchangers, controls, etc.) or, 2) loss of spent fuel pool integrity such that sufficient water level cannot be maintained.



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]*.

Emergency plans and implementing procedures are public documents; therefore, EALs do 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 is contained in the Security Plan.

EAL SELECTION BASES

The positions of Security Force Supervisor, Acting Security Manager, and Security Manager were also included since any of these positions could be activated prior to meeting this EAL. The mode applicability conditioning statement for Table H2 is based on the Technical Specification Operability requirement for the following Functions of the Remote Shutdown System:

- Core reactivity control (initial and long term)
- RCS pressure control
- Decay heat removal via the AFW System and the SG safety valves or SG PORVs
- RCS inventory control via charging flow, and
- Safety support systems for the above Functions.

	0ERP01-ZV-IN01	Rev. 10	Page 75 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 61 of 159

SITE AREA EMERGENCY		HS1
Initiating Condition: HOSTILE ACTION within the PROTECTED AREA.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by **ANY** of the following personnel in Table H1:

Table H1: Security Supervision
<ul style="list-style-type: none">• Security Force Supervisor• Acting Security Manager• Security Manager

	0ERP01-ZV-IN01	Rev. 10	Page 76 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 62 of 159

Basis:

This IC addresses the occurrence of a HOSTILE ACTION within the PROTECTED AREA. This event will require rapid response and assistance due to the possibility for damage to plant equipment. Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

HS1_B

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 SITE AREA EMERGENCY declaration will mobilize ORO resources and have them available to develop and implement public protective actions in the unlikely event that the attack is successful in impairing multiple safety functions.

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.

Emergency plans and implementing procedures are public documents; therefore, EALs do 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 is contained in the Security Plan.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC HG1.

EAL SELECTION BASES

The positions of Security Force Supervisor, Acting Security Manager, and Security Manager were included since any of these positions could be activated prior to meeting this EAL. The Security Force Supervisor is a 24-hour position, the Acting Security Manager is activated after an Unusual Event has been declared and the Security Manager is activated after an Alert is declared.

	0ERP01-ZV-IN01	Rev. 10	Page 77 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 63 of 159

ALERT		HA1
Initiating Condition: HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by ANY of the following personnel in Table H1:

Table H1: Security Supervision
<ul style="list-style-type: none">• Security Force Supervisor• Acting Security Manager• Security Manager

EAL-2

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

	0ERP01-ZV-IN01	Rev. 10	Page 78 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 64 of 159

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 Offsite Response Organizations, 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.

EAL #1- is applicable for any HOSTILE ACTION occurring, or that has occurred, in the OWNER CONTROLLED AREA.

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 OPOP04-ZO-SEC4, Guidelines for Airborne (Aircraft) Threat, and Security Force Instruction SI 2700, Security Response to Airborne Threat.

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.

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.

	0ERP01-ZV-IN01	Rev. 10	Page 79 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 65 of 159

Emergency plans and implementing procedures are public documents; therefore, EALs do 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 is contained in the Security Plan.



Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC HS1.

EAL SELECTION BASES

The EALs are taken from NEI 99-01, Rev. 6. For EAL-1, the positions of Security Force Supervisor OR Acting Security Manager were included because either of these positions could be activated prior to meeting this EAL. The Security Force Supervisor is a 24-hour position and the normally the Acting Security Manager is activated after an UNUSUAL EVENT has been declared. The Security Manager is also included although this position is normally activated after an ALERT.

	0ERP01-ZV-IN01	Rev. 10	Page 80 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 66 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 81 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 67 of 159

UNUSUAL EVENT		HU1
Initiating Condition: Confirmed SECURITY CONDITION or threat.		
Emergency Action Levels (1 or 2 or 3)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by **ANY** of the following personnel in Table H1:

Table H1: Security Supervision
<ul style="list-style-type: none">• Security Force Supervisor• Acting Security Manager• Security Manager

EAL-2

Notification of a CREDIBLE SECURITY THREAT directed at the site.

EAL-3

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

	0ERP01-ZV-IN01	Rev. 10	Page 82 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 68 of 159

Basis:

This IC addresses events that pose a threat to plant personnel or SAFETY SYSTEM equipment, 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 ICs HA1, HS1 and HG1.



Timely and accurate communications between Security Force 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]*.

EAL #1- references Security Force 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 § 2.39039 information.

EAL #2- addresses the receipt of a CREDIBLE SECURITY THREAT. The credibility of the threat is assessed in accordance with OSD01-ZS-0011, Implementing Procedure For Safeguards Contingency Events.

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 OPOP04-ZO-SEC4, Guideline For Airborne (Aircraft) Threat, and Security Force Instruction SI 2700, Security Response to Airborne Threat.

Emergency plans and implementing procedures are public documents; therefore, EALs do 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 is contained in the Security Plan.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC HA1.

EAL SELECTION BASES

For EAL-1, the position of Security Force Supervisor was included since it is a 24-hour position. Normally the event would not be reported by the Acting Security Manager or Security Manager because the Acting Security Manager position is not normally activated until after an UNUSUAL EVENT has been declared, and the Security Manager position is not normally activated until after an ALERT has been declared. However, reporting by the Acting Security Manager or Security Manager was included in the event these positions are staffed under unusual circumstances.

	0ERP01-ZV-IN01	Rev. 10	Page 83 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 69 of 159

UNUSUAL EVENT		HU2
Initiating Condition: Seismic event greater than OBE levels.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

a. **EITHER** of the following conditions exist:

1. "SEISMIC EVENT" alarm in Unit 1 Control Room (Lampbox 9M01, Window E-8)

OR

2. Control Room personnel feel an actual or potential seismic event.

AND

b. The occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director.

	0ERP01-ZV-IN01	Rev. 10	Page 84 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 70 of 159

Basis:



This IC addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE). An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE) should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant.

Although the “SEISMIC EVENT” alarm (0.02 g) in EAL 1.a is set below an O.B.E earthquake (0.05 g), it does provide an indication that a seismic event has occurred. In order to determine whether an O.B.E. earthquake occurred, additional indications may be needed. Determination per 0POP04-SY-001, Seismic Event is not practical if it takes longer than 15 minutes to perform.

Indications described in the EAL should be limited to those that are immediately available to Control Room personnel and which can be readily assessed. Indications available outside the Control Room and/or which require lengthy times to assess (e.g., processing of scratch plates or recorded data) should not be used. The goal is to specify indications that can be assessed within 15-minutes of the actual or suspected seismic event.

The EAL 1.b- statement is included to ensure that a declaration does not result from felt vibrations caused by a non-seismic source (e.g., a dropped heavy load). The Shift Manager or Emergency Director may seek external verification if deemed appropriate (e.g., a call to the USGS, check internet news sources, etc.); however, the verification action must not preclude a timely emergency declaration. It is recognized that this alternate EAL wording may cause a site to declare an UNUSUAL EVENT while another site, similarly affected but with readily assessable OBE indications in the Control Room, may not.

Depending upon the plant mode at the time of the event, escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC CA6 or SA9.

EAL SELECTION BASES

STP does not have a readily available indication in the Control Room for determining if the site has experienced an OBE. The Seismic Event Alarm setpoint is 0.02g in the vertical or horizontal position and the station design basis value for an OBE is 0.05g. Since the Seismic Event alarm is set at less than half of the OBE value, it cannot be used as the sole threshold value for determining whether or not STP has experienced an OBE.

STP has implemented the alternative EAL described in NEI 99-01 Developer Notes in conjunction with using the installed indication. EAL-1, b. allows the Shift Manager or Emergency Director to determine if a seismic event has taken place, taking into consideration the Seismic Event alarm, Control Room personnel feeling an actual or potential seismic event and other indications deemed appropriate.

	0ERP01-ZV-IN01	Rev. 10	Page 85 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 71 of 159

UNUSUAL EVENT		HU3
Initiating Condition: Hazardous event		
Emergency Action Levels (1 or 2 or 3 or 4 or 5)	Operating Mode Applicability: All	

Notes:

- EAL #4 does not apply to routine traffic impediments such as fog, snow, ice, or vehicle breakdowns or accidents.

EAL-1

A tornado strike within the PROTECTED AREA.

EAL-2

Internal room or area flooding of a magnitude sufficient to require manual or automatic electrical isolation of a SAFETY SYSTEM component needed for the current operating mode.

EAL-3

Movement of personnel within the PROTECTED AREA is impeded due to an offsite event involving hazardous materials (e.g., an offsite chemical spill or toxic gas release).

EAL-4

A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles.

EAL-5

Predicted or actual breach of Main Cooling Reservoir retaining dike along North Wall

	0ERP01-ZV-IN01	Rev. 10	Page 86 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 72 of 159

Basis:

This IC addresses hazardous events that are considered to represent a potential degradation of the level of safety of the plant.



EAL #1- addresses a tornado striking (touching down) within the PROTECTED AREA.

EAL #2- addresses flooding of a building room or area that results in operators isolating power to a SAFETY SYSTEM component due to water level or other wetting concerns. Classification is also required if the water level or related wetting causes an automatic isolation of a SAFETY SYSTEM component from its power source (e.g., a breaker or relay trip). To warrant classification, operability of the affected component must be required by Technical Specifications for the current operating mode.

EAL #3- addresses a hazardous materials event originating at an offsite location and of sufficient magnitude to impede the movement of personnel within the PROTECTED AREA.

EAL #4- addresses a hazardous event that causes an on-site impediment to vehicle movement and significant enough to prohibit the plant staff from accessing the site using personal vehicles. Examples of such an event include site flooding caused by a hurricane, heavy rains, up-river water releases, dam failure, etc., or an on-site train derailment blocking the access road. This EAL is not intended apply to routine impediments such as fog, snow, ice, or vehicle breakdowns or accidents, but rather to more significant conditions such as the Hurricane Andrew strike on Turkey Point in 1992, the flooding around the Cooper Station during the Midwest floods of 1993, or the flooding around Ft. Calhoun Station in 2011.

EAL#5- the Main Cooling Reservoir breach along the north wall which was included because it is a credible hazard and analyzed in the STPEGS UFSAR.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be based on ICs in Recognition Categories R, F, S or C.

EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 87 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 73 of 159

UNUSUAL EVENT		HU4
Initiating Condition: FIRE potentially degrading the level of safety of the plant.		
Emergency Action Levels (1 or 2 or 3 or 4)	Operating Mode Applicability: All	

Notes:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

EAL-1

a. A FIRE is NOT extinguished within 15-minutes of **ANY** of the following FIRE detection indications:

- Report from the field (i.e., visual observation)

OR

- Receipt of multiple (more than 1) fire alarms or indications

OR

- Field verification of a single fire alarm

AND

b. The FIRE is located within **ANY** of the plant rooms or areas in Table H4:

Table H4: Plant Rooms/Areas
<ul style="list-style-type: none"> • Mechanical/Electrical Auxiliary Building (MEAB) • Fuel Handling Building (FHB) • Reactor Containment Building (RCB) • Essential Cooling Water Intake Structure (ECWIS) • Isolation Valve Cubicle (IVC) • Diesel Generator Building (DGB)

EAL-2

a. Receipt of a single fire alarm (i.e., no other indications of a FIRE).

AND

b. The FIRE is located within **ANY** of the plant rooms or areas in Table H4:

AND

c. The existence of a FIRE is not verified within 30-minutes of alarm receipt.

EAL-3

A FIRE within the ISFSI **OR** plant PROTECTED AREA not extinguished within 60-minutes of the initial report, alarm or indication.

EAL-4

A FIRE within the ISFSI **OR** plant PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.

	0ERP01-ZV-IN01	Rev. 10	Page 88 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 74 of 159

Basis:

This IC addresses the magnitude and extent of FIRES that may be indicative of a potential degradation of the level of safety of the plant.



EAL #1

The intent of the 15-minute duration is to size the FIRE and to discriminate against small FIRES that are readily extinguished (e.g., smoldering waste paper basket). In addition to alarms, other indications of a FIRE could be a drop in fire main pressure, automatic activation of a suppression system, etc.

Upon receipt, operators will take prompt actions to confirm the validity of an initial fire alarm, indication, or report. For EAL assessment purposes, the emergency declaration clock starts at the time that the initial alarm, indication, or report was received, and not the time that a subsequent verification action was performed. Similarly, the fire duration clock also starts at the time of receipt of the initial alarm, indication or report.

EAL #2

This EAL addresses receipt of a single fire alarm, and the existence of a FIRE is not verified (i.e., proved or disproved) within 30-minutes of the alarm. Upon receipt, operators will take prompt actions to confirm the validity of a single fire alarm. For EAL assessment purposes, the 30-minute clock starts at the time that the initial alarm was received, and not the time that a subsequent verification action was performed.

A single fire alarm, absent other indication(s) of a FIRE, may be indicative of equipment failure or a spurious activation, and not an actual FIRE. For this reason, additional time is allowed to verify the validity of the alarm. The 30-minute period is a reasonable amount of time to determine if an actual FIRE exists; however, after that time, and absent information to the contrary, it is assumed that an actual FIRE is in progress.

If an actual FIRE is verified by a report from the field, then EAL #1 is immediately applicable, and the emergency must be declared if the FIRE is not extinguished within 15-minutes of the report. If the alarm is verified to be due to an equipment failure or a spurious activation, and this verification occurs within 30-minutes of the receipt of the alarm, then this EAL is not applicable and no emergency declaration is warranted.

EAL #3

In addition to a FIRE addressed by EAL #1 or EAL #2, a FIRE within the plant or ISFSI PROTECTED AREA not extinguished within 60-minutes may also potentially degrade the level of plant safety.

EAL #4

If a FIRE within the plant or ISFSI PROTECTED AREA is of sufficient size to require a response by an offsite firefighting agency (e.g., a local town Fire Department), then the level of plant safety is potentially degraded. The dispatch of an offsite firefighting agency to the site requires an emergency declaration only if it is needed to actively support firefighting efforts because the fire is beyond the capability of the Fire Brigade to extinguish. Declaration is not necessary if the agency resources are placed on stand-by, or supporting post-extinguishment recovery or investigation actions.

	0ERP01-ZV-IN01	Rev. 10	Page 89 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 75 of 159

Basis-Related Requirements from Appendix R

Appendix R to 10 CFR 50, states in part:



Criterion 3 of Appendix A to this part specifies that "Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and EXPLOSIONS."

When considering the effects of fire, those systems associated with achieving and maintaining safe shutdown conditions assume major importance to safety because damage to them can lead to core damage resulting from loss of coolant through boil-off.

Because fire may affect safe shutdown systems and because the loss of function of systems used to mitigate the consequences of design basis accidents under post-fire conditions does not per se impact public safety, the need to limit fire damage to systems required to achieve and maintain safe shutdown conditions is greater than the need to limit fire damage to those systems required to mitigate the consequences of design basis accidents.

In addition, Appendix R to 10 CFR 50, requires, among other considerations, the use of 1-hour fire barriers for the enclosure of cable and equipment and associated non-safety circuits of one redundant train (G.2.c). As used in EAL #2, the 30-minutes to verify a single alarm is well within this worst-case 1-hour time period.

Depending upon the plant mode at the time of the event, escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC CA6 or SA9.

EAL SELECTION BASES

The plant areas or rooms listed contain SAFETY SYSTEM equipment.

	0ERP01-ZV-IN01	Rev. 10	Page 90 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 76 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 91 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 77 of 159

ALERT		HA5
Initiating Condition: Gaseous release impeding access to equipment necessary for normal plant operations, cooldown or shutdown.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- If the equipment in the listed room or area was already inoperable or out-of-service before the event occurred, then no emergency classification is warranted.

EAL-1

- a. Release of a toxic, corrosive, asphyxiant or flammable gas into the Control Room or **ANY** of the plant rooms or areas listed in Table H3/R2:

AND

- b. Entry into the room or area is prohibited or impeded.

TABLE H3/R2: Plant Areas Requiring Access		
MODE 4	RCB	RHR Heat Exchanger Rooms
	MAB	51 ft Room 335
	EAB	Roof, MCC G8, 4.16KV Switchgear Rooms
MODE 5	EAB	4.16KV Switchgear Rooms

	0ERP01-ZV-IN01	Rev. 10	Page 92 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 78 of 159

Basis:

This IC addresses an event involving a release of a hazardous gas that precludes or impedes access to equipment necessary to maintain normal plant operation, or required for a normal plant cooldown and shutdown. This condition represents an actual or potential substantial degradation of the level of safety of the plant.



An ALERT declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect at the time of the gaseous release. The emergency classification is not contingent upon whether entry is actually necessary at the time of the release.

Evaluation of the IC and EAL do not require atmospheric sampling; it only requires the Emergency Director's judgment that the gas concentration in the affected room/area is sufficient to preclude or significantly impede procedurally required access. This judgment may be based on a variety of factors including an existing job hazard analysis, report of ill effects on personnel, advice from a subject matter expert or operating experience with the same or similar hazards. Access should be considered as impeded if extraordinary measures are necessary to facilitate entry of personnel into the affected room/area (e.g., requiring use of protective equipment, such as SCBAs, that is not routinely employed).

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

- The plant is in an operating mode different than the mode specified for the affected room/area (i.e., entry is not required during the operating mode in effect at the time of the gaseous release).
- For example, the plant is in Mode 1 when the gaseous release occurs, and the procedures used for normal operation, cooldown and shutdown do not require entry into the affected room until Mode 4.
- The gas release is a planned activity that includes compensatory measures which address the temporary inaccessibility of a room or area (e.g., fire suppression system testing).
- 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.

An asphyxiant is a gas capable of reducing the level of oxygen in the body to dangerous levels. Most commonly, asphyxiants work by merely displacing air in an enclosed environment. This reduces the concentration of oxygen below the normal level of around 19%, which can lead to breathing difficulties, unconsciousness or even death.

This EAL does not apply to firefighting activities that automatically or manually activate a fire suppression system in an area.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via Recognition Category R, C or F ICs.

	0ERP01-ZV-IN01	Rev. 10	Page 93 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 79 of 159

EAL SELECTION BASES

HA5_B

The areas listed in EAL-1 apply to areas that contain equipment necessary for plant operations, cooldown, or shutdown. Assuming all plant equipment is operating as designed, Normal operations and safe shutdown equipment operation is capable from the Main Control Room (MCR). The plant is able to transition into a hot shutdown from the MCR, therefore H3/R2 is a list of plant rooms or areas with entry-related mode applicability that contain equipment which require a manual/local action necessary following entry into hot shutdown (establish Residual Heat Removal shutdown cooling, disable operation of charging and ECCS equipment, and limit dilution pathways) and subsequent entry into cold shutdown (disable operation of ECCS equipment). After achieving cold shutdown it is assumed that the plant will be maintained in a cold shutdown condition.

	0ERP01-ZV-IN01	Rev. 10	Page 94 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 80 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 95 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 81 of 159

SITE AREA EMERGENCY	HS6
Initiating Condition: Inability to control a key safety function from outside the Control Room.	
Emergency Action Levels (1) Operating Mode Applicability: All	

Notes:

- The Emergency Director should declare the SITE AREA EMERGENCY promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded

EAL-1

- a. An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panel (ASP).

AND

- b. Control of **ANY** of the following key safety functions in Table H2 is not reestablished within 15 minutes in Modes 1, 2 or 3 ONLY.

Table H2: Safety Functions
<ul style="list-style-type: none"> • Reactivity control • Core cooling • RCS heat removal

	0ERP01-ZV-IN01	Rev. 10	Page 96 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 82 of 159

Basis:

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations, and the control of a key safety function cannot be reestablished in a timely manner. The failure to gain control of a key safety function following a transfer of plant control to alternate locations is a precursor to a challenge to one or more fission product barriers within a relatively short period of time.



The determination of whether or not “control” is established at the Auxiliary Shutdown Panel is based on Emergency Director judgment. The Emergency Director is expected to make a reasonable, informed judgment within 15 minutes whether or not the operating staff has control of key safety functions from the remote safe shutdown location(s).

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC FG1 or CG1.

EAL SELECTION BASES

The Auxiliary Shutdown Panel (ASP) is identified in 0POP04-ZO-0001, Control Room Evacuation, as the location where plant control is transferred in the event of a Control Room evacuation. The 15 minute timeframe to control the key safety functions is identified as site specific information. The mode applicability conditioning statement for Table H2 is based on the Technical Specification Operability requirement for the following functions of the Remote Shutdown System:

- Core reactivity control (initial and long term)
- RCS pressure control
- Decay heat removal via the AFW System and the SG safety valves or SG PORVs
- RCS inventory control via charging flow, and
- Safety support systems for the above functions.

	0ERP01-ZV-IN01	Rev. 10	Page 97 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 83 of 159

ALERT		HA6
Initiating Condition: Control Room evacuation resulting in transfer of plant control to alternate locations.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panel (ASP).

	0ERP01-ZV-IN01	Rev. 10	Page 98 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 84 of 159

Basis:

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety.



Following a Control Room evacuation, control of the plant will be transferred to alternate shutdown locations. The necessity to control a plant shutdown from outside the Control Room, in addition to responding to the event that required the evacuation of the Control Room, will present challenges to plant operators and other on-shift personnel. Activation of the ERO and emergency response facilities will assist in responding to these challenges.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC HS6.

EAL SELECTION BASES

The Auxiliary Shutdown Panel (ASP) is identified in 0POP04-ZO-0001, Control Room Evacuation, as the location where plant control is transferred in the event of a Control Room evacuation.

	0ERP01-ZV-IN01	Rev. 10	Page 99 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 85 of 159

GENERAL EMERGENCY		HG7
Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the FACILITY. Releases can be reasonably expected to exceed EPA PROTECTIVE ACTION GUIDELINE exposure levels offsite for more than the immediate site area.

	0ERP01-ZV-IN01	Rev. 10	Page 100 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 86 of 159

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 GENERAL EMERGENCY.



EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 101 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 87 of 159

SITE AREA EMERGENCY	HS7
Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY.	
Emergency Action Levels (1) Operating Mode Applicability: All	

Notes:

- None

EAL-1

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts, (1) toward site personnel or equipment that could lead to the likely failure of or, (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA PROTECTIVE ACTION GUIDELINE exposure levels beyond the SITE BOUNDARY.

	0ERP01-ZV-IN01	Rev. 10	Page 102 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 88 of 159

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 SITE AREA EMERGENCY.



EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 103 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 89 of 159

ALERT	HA7
Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT.	
Emergency Action Levels (1) Operating Mode Applicability: All	

Notes:

- None

EAL-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.

	0ERP01-ZV-IN01	Rev. 10	Page 104 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 90 of 159

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.



EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 105 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 91 of 159

UNUSUAL EVENT		HU7
Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of a UE.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-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.

	0ERP01-ZV-IN01	Rev. 10	Page 106 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 92 of 159

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 UE.



EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 107 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 93 of 159

END OF SECTION “H”

	0ERP01-ZV-IN01	Rev. 10	Page 108 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 94 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 109 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 95 of 159

ABNORMAL RADIATION LEVELS/RADIOLOGICAL EFFLUENTS (R)

TABLE OF CONTENTS

RG1 - Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mrem TEDE or 5,000 mrem THYROID CDE.....	111
RS1 - Release of gaseous radioactivity resulting in offsite dose greater than 100 mrem TEDE or 500 mrem THYROID CDE.....	113
RA1 - Release of gaseous radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem THYROID CDE.....	115
RU1 - Release of gaseous or liquid radioactivity greater than 2 times the ODCM limits for 60 minutes or longer.....	117
RG2 - Spent fuel pool level cannot be restored to at least 40' - 4 inches for 60 minutes or longer	121
RS2 - Spent fuel pool level at 40' - 4 inches or lower.....	123
RA2 - Significant lowering of water level above, or damage to, irradiated fuel	125
RU2 - UNPLANNED loss of water level above irradiated fuel	129
RA3 - Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown	133

	0ERP01-ZV-IN01	Rev. 10	Page 110 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 96 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 111 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 97 of 159

GENERAL EMERGENCY		RG1
Initiating Condition: Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mrem TEDE or 5,000 mrem THYROID CDE.		
Emergency Action Levels (1 or 2 or 3)	Operating Mode Applicability: All	

Notes:

- The Emergency Director should declare the GENERAL EMERGENCY 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.

EAL-1

Reading on **ANY** of the following radiation monitors greater than the values listed in Table R1 column “GE” for 15 minutes or longer.

Table R1: Effluent Monitors					
Release Point	Monitor	GE	SAE	ALERT	UE
Unit Vent	RT-8010B	1.50 E+08 µCi/sec	1.50 E+07 µCi/sec	1.50 E+06 µCi/sec	1.40 E+05 µCi/sec
Main Steam Lines	RT-8046 thru 8049	4.00 E+02 µCi/ml	4.00 E+01 µCi/ml	4.00 E+00 µCi/ml	5.00 E-02 µCi/ml

EAL-2

Dose assessment using actual meteorology indicates doses greater than 1,000 mrem TEDE or 5,000 mrem THYROID CDE at or beyond the SITE BOUNDARY.

EAL-3

Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY:

- Closed window dose rates greater than 1,000 mR/hr expected to continue for 60 minutes or longer.

OR

- Analyses of field survey samples indicate THYROID CDE greater than 5,000 mrem for one hour of inhalation.

	0ERP01-ZV-IN01	Rev. 10	Page 112 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 98 of 159

Basis:

This IC addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to the EPA PROTECTIVE ACTION GUIDES (PAGs). It includes both monitored and un-monitored releases. Releases of this magnitude will require implementation of protective actions for the public.



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 the EPA PAG of 1,000 mrem while the 5,000 mrem THYROID CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and THYROID CDE.

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.

EAL SELECTION BASES

The Unit Vent and Main Steam Line monitor readings were included in this EAL because they give instantaneous indications of a monitored gaseous release meeting the EAL threshold values of 1000 mrem TEDE or 5000 mrem CDE THYROID at the SITE BOUNDARY. Gaseous releases from the plant are monitored by the Unit Vent. The Main Steam Line monitor readings correspond to a concentration that would result in a release rate meeting the EAL threshold values if the release was via the Power Operated Relief Valves (PORVs) or Safety Relief Valves.

The Unit Vent and Main Steam Line release values are based on Calculation No. STPNOC013-CALC-002 Rev.2. The adjusted values used in this EAL were conservatively truncated by less than 1% of the calculated values to ensure they are readily assessable.

	0ERP01-ZV-IN01	Rev. 10	Page 113 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 99 of 159

SITE AREA EMERGENCY	RS1
Initiating Condition: Release of gaseous radioactivity resulting in offsite dose greater than 100 mrem TEDE or 500 mrem THYROID CDE.	
Emergency Action Levels (1 or 2 or 3) Operating Mode Applicability: All	

Notes:

- The Emergency Director should declare the SITE AREA EMERGENCY 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.

EAL-1

Reading on **ANY** of the following radiation monitors greater than the values listed in Table R1 column “SAE” for 15 minutes or longer.

Table R1: Effluent Monitors					
Release Point	Monitor	GE	SAE	ALERT	UE
Unit Vent	RT-8010B	1.50 E+08 µCi/sec	1.50 E+07 µCi/sec	1.50 E+06 µCi/sec	1.40 E+05 µCi/sec
Main Steam Lines	RT-8046 thru 8049	4.00 E+02 µCi/ml	4.00 E+01 µCi/ml	4.00 E+00 µCi/ml	5.00 E-02 µCi/ml

EAL-2

Dose assessment using actual meteorology indicates doses greater than 100 mrem TEDE or 500 mrem THYROID CDE at or beyond the SITE BOUNDARY.

EAL-3

Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY:

- Closed window dose rates greater than 100 mR/hr expected to continue for 60 minutes or longer.

OR

- Analyses of field survey samples indicate THYROID CDE greater than 500 mrem for one hour of inhalation.

	0ERP01-ZV-IN01	Rev. 10	Page 114 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 100 of 159

Basis:

This IC addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to 10% of the EPA PROTECTIVE ACTION GUIDES (PAGs). It includes both monitored and un-monitored releases. Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public.



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 10% of the EPA PAG of 1,000 mrem while the 500 mrem THYROID CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and THYROID CDE.

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.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC RG1.

EAL SELECTION BASES

The Unit Vent and Main Steam Line monitor readings were included in this EAL because they give instantaneous indications of a monitored gaseous release meeting the EAL threshold values of 100 mrem TEDE or 500 mrem CDE THYROID at the SITE BOUNDARY. Gaseous releases from the plant are monitored by the Unit Vent. The Main Steam Line monitor readings correspond to a concentration that would result in a release rate meeting the EAL threshold values if there were a release via the Power Operated Relief Valves (PORVs) or Safety Relief Valves.

The Unit Vent and Main Steam Line release values are based on Calculation No. STPNOC013-CALC-002 Rev.2. The adjusted values used in this EAL were conservatively truncated by less than 1% of the calculated values to ensure they are readily assessable.

	0ERP01-ZV-IN01	Rev. 10	Page 115 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 101 of 159

ALERT	RA1
Initiating Condition: Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem THYROID CDE.	
Emergency Action Levels (1 or 2 or 3 or 4) Operating Mode Applicability: All	

Notes:

- 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.

EAL-1

Reading on **ANY** of the following radiation monitors greater than the values listed in Table R1 column "ALERT" for 15 minutes or longer.

Table R1: Effluent Monitors					
Release Point	Monitor	GE	SAE	ALERT	UE
Unit Vent	RT-8010B	1.50 E+08 µCi/sec	1.50 E+07 µCi/sec	1.50 E+06 µCi/sec	1.40 E+05 µCi/sec
Main Steam Lines	RT-8046 thru 8049	4.00 E+02 µCi/ml	4.00 E+01 µCi/ml	4.00 E+00 µCi/ml	5.00 E-02 µCi/ml

EAL-2

Dose assessment using actual meteorology indicates doses greater than 10 mrem TEDE or 50 mrem THYROID CDE at or beyond the SITE BOUNDARY.

EAL-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.

EAL-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.

OR

- Analyses of field survey samples indicate THYROID CDE greater than 50 mrem for one hour of inhalation.

	0ERP01-ZV-IN01	Rev. 10	Page 116 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 102 of 159

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 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.

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.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC RS1.

EAL SELECTION BASES

The Unit Vent and Main Steam Line monitor readings were included in this EAL because they give instantaneous indications of a monitored gaseous release meeting the EAL threshold values of 10 mrem TEDE or 50 mrem CDE THYROID at the SITE BOUNDARY. Gaseous releases from the plant are monitored by the Unit Vent. The Main Steam Line monitor readings correspond to a concentration that would result in a release rate meeting the EAL threshold values if there were a release via the Power Operated Relief Valves (PORVs) or Safety Relief Valves.

The Unit Vent and Main Steam Line release values are based on Calculation No. STPNOC013-CALC-002, Rev. 2. The adjusted values used in this EAL were conservatively truncated by less than 1% of the calculated values to ensure they are readily assessable.

	0ERP01-ZV-IN01	Rev. 10	Page 117 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 103 of 159

UNUSUAL EVENT		RU1
Initiating Condition: Release of gaseous or liquid radioactivity greater than 2 times the ODCM limits for 60 minutes or longer.		
Emergency Action Levels (1 or 2 or 3)	Operating Mode Applicability: All	

Notes:

- 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.

EAL-1

Reading on **ANY** of the following radiation monitors greater than the values listed in Table R1 column “UE” for 60 minutes or longer.

Table R1: Effluent Monitors					
Release Point	Monitor	GE	SAE	ALERT	UE
Unit Vent	RT-8010B	1.50 E+08 µCi/sec	1.50 E+07 µCi/sec	1.50 E+06 µCi/sec	1.40 E+05 µCi/sec
Main Steam Lines	RT-8046 thru 8049	4.00 E+02 µCi/ml	4.00 E+01 µCi/ml	4.00 E+00 µCi/ml	5.00 E-02 µCi/ml

EAL-2

Reading on gaseous effluent radiation monitor RT-8010B greater than 2 times the alarm setpoint established by a current radioactivity discharge permit for 60 minutes or longer.

EAL-3

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.

	0ERP01-ZV-IN01	Rev. 10	Page 118 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 104 of 159

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.



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

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

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

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

EAL SELECTION BASES

EAL #1 - This EAL addresses normally occurring continuous radioactivity releases from monitored gaseous or liquid effluent pathways.

EAL #2 - 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 pathways (e.g., waste monitor tanks, containment purge).

EAL #3 - 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, or contaminated secondary coolant directly to the storm drain system.).

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC RA1.

	0ERP01-ZV-IN01	Rev. 10	Page 119 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 105 of 159

RU1: EAL-1 Selection Basis

The Unit Vent and Main Steam Line monitor readings were included in this EAL because they give instantaneous indications of a monitored gaseous release exceeding twice the ODCM limits. Normal gaseous effluents are due to planned RCB purges and monitored by the Unit Vent. The Main Steam Line monitor readings were included because they correspond to a concentration that would result in a release rate of twice the ODCM limits if there were a release via the Power Operated Relief Valves (PORVs) or Safety Relief Valves. A release from the PORVs or Safety Relief Valves is not a normal effluent pathway but meets the intent of the EAL.

RU1_B

The Unit Vent and Main Steam Line release values are based on Calculation No. STPNOC013-CALC-002, Rev. 2.

RU1: EAL-2, 3 Selection Basis

For EAL-2, there are two effluent radiation monitors, RT-8038 (liquid) and RT-8010B (gaseous), however only RT-8010B was included. The alarm setpoint for the gaseous effluent radiation monitor RT-8010B is set at the ODCM limits. An indication of two times the alarm setpoint (two times the ODCM limit) would allow operators time to secure the release prior to meeting this EAL. The liquid effluent radiation monitor RT-8038 was not included in EAL-2 because the activity in liquid discharges is normally the several orders of magnitude lower than the ODCM limits. In order to alert personnel to significant changes in the liquid effluent activity, the alarm setpoint for RT-8038 is normally set several orders of magnitude below the ODCM limits. Setting the alarm setpoint for RT-8038 at the ODCM limit would remove this capability and violate the intent of the EAL.

For EAL-3, sample analysis could be used as a backup for the effluent monitor indications.

	0ERP01-ZV-IN01	Rev. 10	Page 120 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 106 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 121 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 107 of 159

GENERAL EMERGENCY		RG2
Initiating Condition: Spent fuel pool level cannot be restored to at least 40’ - 4” for 60 minutes or longer.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- The Emergency Director should declare the GENERAL EMERGENCY promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.
- EAL-1 is not implemented until the enhanced SFP level instrumentation is available for use.

EAL-1

Spent fuel pool level cannot be restored to at least 40' - 4" for 60 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 122 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 108 of 159

Basis:

This IC addresses a significant loss of spent fuel pool inventory control and makeup capability leading to a prolonged uncover of spent fuel. This condition will lead to fuel damage and a radiological release to the environment.



It is recognized that this IC would likely not be met until well after another GENERAL EMERGENCY IC was met; however, it is included to provide classification diversity.

EAL SELECTION BASES

The Spent Fuel Pool level of 40’- 4” (Level 3) is a site specific level based on the guidance provided in NEI 12-02, Revision 1, Industry Guidance for Compliance with NRC Order EA-12-051, “To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation”, August 2012.

In NRC Order EA-12-051 and NEI 12-02, Level 3 is defined as “*level where fuel remains covered and actions to implement make-up water addition should no longer be deferred.*” The STP UFSAR identifies the top of the Spent Fuel Pool Racks at 39’- 10”.

	0ERP01-ZV-IN01	Rev. 10	Page 123 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 109 of 159

SITE AREA EMERGENCY		RS2
Initiating Condition: Spent fuel pool level at 40’- 4” or lower.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:
EAL-1 is not applicable until the enhanced SFP level instrumentation is available for use.

EAL-1
Lowering of spent fuel pool level to 40’ - 4” or lower.

	0ERP01-ZV-IN01	Rev. 10	Page 124 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 110 of 159

Basis:

This IC addresses a significant loss of spent fuel pool inventory control and makeup capability leading to IMMINENT fuel damage. This condition entails major failures of plant functions needed for protection of the public and thus warrant a SITE AREA EMERGENCY declaration.



It is recognized that this IC would likely not be met until well after another SITE AREA EMERGENCY IC was met; however, it is included to provide classification diversity.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC RG1 or RG2.

EAL SELECTION BASES

The Spent Fuel Pool level of 40'- 4" (Level 3) is a site specific level based on the guidance provided in NEI 12-02, Revision 1, Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation", August 2012.

In NRC Order EA-12-051 and NEI 12-02, Level 3 is defined as "*level where fuel remains covered and actions to implement make-up water addition should no longer be deferred.*" The STP UFSAR identifies the top of the Spent Fuel Pool Racks at 39'- 10".

	0ERP01-ZV-IN01	Rev. 10	Page 125 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 111 of 159

ALERT	RA2
Initiating Condition: Significant lowering of water level above, or damage to, irradiated fuel.	
Emergency Action Levels (1 or 2 or 3) Operating Mode Applicability: All	

Notes:

- EAL-3 is not applicable until the enhanced SFP level instrumentation is available for use.

EAL-1

Uncovery of irradiated fuel in the REFUELING PATHWAY.

EAL-2

- a. Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by **ANY** of the following FHB radiation monitors:

- FHB Exhaust, RT-8035 or RT-8036 greater than 1.00 E-1 $\mu\text{Ci/ml}$

OR

- ARM (68' FHB), RE-8090 greater than 1,500 mR/hr

OR

- b. Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by **ANY** of the following RCB radiation monitors readings (Mode 5 or 6 only).

- ARM (68' RCB), RE-8055 or RE-8099 greater than 850 mR/hr

EAL-3

Lowering of spent fuel pool level to 49'-10" or below.

	0ERP01-ZV-IN01	Rev. 10	Page 126 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 112 of 159

Basis:

This IC addresses events that have caused IMMEDIATE or actual damage to an irradiated fuel assembly, *or a significant lowering of water level within the spent fuel pool or Inside Containment Storage Area (ICSA)*. These events present radiological safety challenges to plant personnel and are precursors to a release of radioactivity to the environment. As such, they represent an actual or potential substantial degradation of the level of safety of the plant.



This IC applies to irradiated fuel that is licensed for dry storage up to the point that the loaded storage cask is sealed. Once sealed, damage to a loaded cask causing loss of the CONFINEMENT BOUNDARY is classified in accordance with IC E-HU1.

EAL #1 - This EAL escalates from RU2 in that the loss of level, in the affected portion of the REFUELING PATHWAY, is of sufficient magnitude to have resulted in uncover of irradiated fuel. Indications of irradiated fuel uncover may include direct or indirect visual observation (e.g., reports from personnel or camera images), as well as significant changes in water and radiation levels, or other plant parameters. Computational aids may also be used (e.g., a boil-off curve). Classification of an event using this EAL should be based on the totality of available indications, reports and observations. While an area radiation monitor could detect an increase in a dose rate due to a lowering of water level in some portion of the REFUELING PATHWAY, the reading may not be a reliable indication of whether or not the fuel is actually uncovered. To the degree possible, readings should be considered in combination with other available indications of inventory loss. A drop in water level above irradiated fuel within the reactor vessel may be classified in accordance Recognition Category C during the Cold Shutdown and Refueling modes.

EAL #2 - This EAL addresses a release of radioactive material caused by mechanical damage to irradiated fuel. Damaging events may include the dropping, bumping or binding of an assembly, or dropping a heavy load onto an assembly. A rise in readings on radiation monitors should be considered in conjunction with in-plant reports or observations of a potential fuel damaging event (e.g., a fuel handling accident).

EAL #3 - Spent fuel pool water level at this value is within the lower end of the level range necessary to prevent significant dose consequences from direct gamma radiation to personnel performing operations in the vicinity of the spent fuel pool. This condition reflects a significant loss of spent fuel pool water inventory and thus it is also a precursor to a loss of the ability to adequately cool the irradiated fuel assemblies stored in the pool.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via ICs RS1 or RS2.

	0ERP01-ZV-IN01	Rev. 10	Page 127 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 113 of 159

EAL SELECTION BASES

EAL #2 - The calculated airborne source term and radiation monitor responses for a fuel handling accident in the FHB is based on Calculation STPNOC013-CALC-005 Rev.2. The threshold value of 1500 mR/hr for area radiation monitor RE-8090 was truncated less than 4% from the calculated value to ensure the threshold was readily assessable. Threshold values for FHB Exhaust Monitors RT-8035 and RT-8036 were also included because they are accident monitors that are sensitive to noble gases which are expected to be present if irradiated fuel is damaged. The calculated monitor reading for RT-8035 and RT-8036 is 3.8 μ Ci/ml and the high range of the monitors is 0.3 μ Ci/ml. The threshold value of 0.1 μ Ci/ml is approximately 6 orders of magnitude above background and indicative of damaged irradiated fuel. It was selected because it is readily assessable and within the calibrated range of the monitors. The calculated airborne source term and radiation monitor response for a fuel handling accident in the RCB is based on Calculation STPNOC013-CALC-005 Rev.2. The threshold value of 850 mR/hr for RE-8055 and RE-8099 was truncated less than 2% from the calculated value to ensure the threshold is readily assessable.

RA2_B

EAL #3 - Spent Fuel Pool level of 49' - 10" (Level 2) is a site specific level based on the guidance provided in NEI 12-02, Revision 1, Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licensees with Regard to Reliable Spent Fuel Pool Instrumentation", August 2012.

In NRC Order EA-12-051 and NEI 12-02, Level 2 is defined as the *"level that is adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck ..."*

The STP UFSAR identifies the top of the Spent Fuel Storage Racks at 39' - 10". The guidance in NEI 12-02 indicates that 10' of water above the top of the Spent Fuel Storage Racks provides substantial radiation shielding. Ten feet of water above the Spent Fuel Storage Racks is 49' - 10", the threshold value for this EAL.

	0ERP01-ZV-IN01	Rev. 10	Page 128 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 114 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 129 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 115 of 159

UNUSUAL EVENT		RU2
Initiating Condition: UNPLANNED loss of water level above irradiated fuel.		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

- a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by **ANY** of the following:
 - Visual Observation

OR

 - Annunciator alarm on lampbox 22M02 Window F-5 “SFP WATER LVL HI/LO”

OR

 - Spent fuel in the ICSA **AND** Annunciator alarm on lampbox 22M02 Window F-6 “SFP Trouble” **AND** Plant Computer point FCLC1420 “REFLNG CAV LVL IN CNTMT” (ICSA Water Level HI/LO) is in alarm

AND
- b. UNPLANNED rise in area radiation levels on **ANY** of the following radiation monitors.
 - RE-8055 (68’ RCB) - Mode 5 or 6 only

OR

 - RE-8099 (68’ RCB) - Mode 5 or 6 only

OR

 - RE-8090 (68’ FHB)

	0ERP01-ZV-IN01	Rev. 10	Page 130 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 116 of 159

Basis:

This IC addresses a lowering in water level above irradiated fuel sufficient to cause elevated radiation levels. This condition could be a precursor to a more serious event and is also indicative of a minor loss in the ability to control radiation levels within the plant. It is therefore a potential degradation in the level of safety of the plant.



A water level lowering will be primarily determined by indications from available level instrumentation. Other sources of level indications may include reports from plant personnel (e.g., from a refueling crew) or video camera observations. A significant drop in the water level may also cause a rise in the radiation levels of adjacent areas that can be detected by monitors in those locations.

The effects of planned evolutions should be considered. For example, a refueling bridge area radiation monitor reading may rise due to planned evolutions such as lifting of the reactor vessel head or movement of a fuel assembly. Note that this EAL is applicable only in cases where the elevated reading is due to an UNPLANNED loss of water level.

A drop in water level above irradiated fuel within the reactor vessel may be classified in accordance Recognition Category C during the Cold Shutdown and Refueling modes.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC RA2.

EAL SELECTION BASES

Hi/Lo level sensors are located in the Spent Fuel Pool (LSHL 1401) and the RCB, In Containment Storage Area (ICSA) (LSHL 1420). If level in the Spent Fuel Pool rises or lowers by more than 6 inches above or below the normal water level of 66'-6" (UFSAR 9.1.2.1), the "SFP WATER LEVEL HI/LO" lampbox 22M02 window F-5 annunciator alarm is received in the Control Room (0POP09-AN-22M2, Annunciator Lampbox 22M02 Response Instructions).

Although the ICSA has a Hi/LO level sensor, there is not an annunciator in the Control Room similar to the one for the Spent Fuel Pool. There is however, a "SFP TROUBLE" lampbox 22M02 window F-6 annunciator in the control room. One of the inputs to this alarm is FC-LSHL-1420, the ICSA HI/LO level sensor. Since no fuel is located in the ICSA in modes 1-4, this EAL only applies in modes 5 or 6.

Area radiation monitors RE-8055 and RE-8099 are located in the RCB 68' elevation on the bioshield wall close to the refueling cavity. Area radiation monitor RE-8090 is located in the Fuel Handling Building on 68' Elevation near the Spent Fuel Pool.

Expected radiation levels for a loss of water level can range from a few mR/hr to thousands of R/hr. For a drop of water level of approximately 14' (from 66'-6" to 51'-10") with approximately 13' of water over the top of any array, the dose rate would be expected not to exceed 2.5 mR/hr, above background. This assumes 42 hours of decay with a full core off-load (section 9 of STP UFSAR).

	0ERP01-ZV-IN01	Rev. 10	Page 131 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 117 of 159

For a significant drop of water level that would still cover the arrays, the radiation levels could range from several hundred R/hr to over a thousand R/hr on and around the 68' elevation deck (table C-5 NUREG CR/0649).



	0ERP01-ZV-IN01	Rev. 10	Page 132 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 118 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 133 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 119 of 159

ALERT		RA3
Initiating Condition: Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: All	

Notes:

- If the equipment in the listed room or area was already inoperable or out-of-service before the event occurred, then no emergency classification is warranted.

EAL-1

Dose rate greater than 15 mR/hr in **ANY** of the following areas:

- Control Room ARM (RE-8066)

OR

- Central Alarm Station (CAS) by radiation survey

EAL-2

An UNPLANNED event results in radiation levels that prohibit or impede access to **ANY** of the areas listed in Table H3/R2:

TABLE H3/R2: Plant Areas Requiring Access		
MODE 4	RCB	RHR Heat Exchanger Rooms
	MAB	51 ft Room 335
	EAB	Roof, MCC G8, 4.16KV Switchgear Rooms
MODE 5	EAB	4.16KV Switchgear Rooms

	0ERP01-ZV-IN01	Rev. 10	Page 134 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 120 of 159

Basis:

This IC addresses elevated radiation levels in certain plant rooms/areas sufficient to preclude or impede personnel from performing actions necessary to maintain normal plant operation, or to perform a normal plant cooldown and shutdown. As such, it represents an actual or potential substantial degradation of the level of safety of the plant. The Emergency Director should consider the cause of the higher radiation levels and determine if another IC may be applicable.

RA3_B

For EAL #2, an ALERT declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect 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 higher 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 plant is in an operating mode different than the mode specified for the affected room/area (i.e., entry is not required during the operating mode in effect at the time of the elevated radiation levels). For example, the plant is in Mode 1 when the radiation rise occurs, and the procedures used for normal operation, cooldown and shutdown do not require entry into the affected room until Mode 4.
- The higher 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.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via Recognition Category R, C or F ICs.

EAL SELECTION BASES

The NEI 99-01 value of 15 mR/hr is derived from the GDC 19 value of 5 rem in 30 days with adjustment for expected occupancy times. The rooms listed in EAL-1 require continuous occupancy to maintain normal plant operation, or to perform a normal cooldown or shutdown.

The areas listed in EAL-2 apply to areas that contain equipment necessary for plant operations, cooldown, or shutdown. Assuming all plant equipment is operating as designed, Normal operations and safe shutdown equipment operation is capable from the Main Control Room (MCR).

	0ERP01-ZV-IN01	Rev. 10	Page 135 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 121 of 159

The plant is able to transition into a hot shutdown from the MCR, therefore H3/R2 is a list of plant rooms or areas with entry-related mode applicability that contain equipment which require a manual/local action necessary following entry into hot shutdown (establish Residual Heat Removal shutdown cooling, disable operation of charging and ECCS equipment, and limit dilution pathways) and subsequent entry into cold shutdown (disable operation of ECCS equipment). After achieving cold shutdown it is assumed that the plant will be maintained in a cold shutdown condition.

RA3_B

	0ERP01-ZV-IN01	Rev. 10	Page 136 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 122 of 159

END OF SECTION “R”

	0ERP01-ZV-IN01	Rev. 10	Page 137 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 123 of 159

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (E)

TABLE OF CONTENTS

E-HU1 - Damage to a loaded cask CONFINEMENT BOUNDARY 139

	0ERP01-ZV-IN01	Rev. 10	Page 138 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 124 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 139 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 125 of 159

UNUSUAL EVENT		E- HU1
Initiating Condition: Damage to a loaded cask CONFINEMENT BOUNDARY		
Emergency Action Levels (1)	Operating Mode Applicability: All	

Notes:

- None

EAL-1

Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading greater than:

- 60 mrem/hr (*gamma + neutron*) on the top surface of the spent fuel cask

OR

- 600 mrem/hr (*gamma + neutron*) on the side surface of the spent fuel cask

OR

- 7000 mrem/hr (*gamma + neutron*) on the side surface of the transfer cask.

	0ERP01-ZV-IN01	Rev. 10	Page 140 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 126 of 159

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 values for this EAL are 2 times the Technical Specification allowable radiation levels. The technical specification multiple of “2 times”, which is also used in Recognition Category R IC RU1, 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.

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

EAL SELECTION BASES

NEI 99-01 Rev.6 states that the dose rate limits are 2 times the Cask Technical Specification Limits. Section 5.3.2 of the “Certificate of Compliance No. 1032, Appendix A, Technical Specifications for the HI-STORM FW MPC Storage System”, states:

5.3.4 Notwithstanding the limits established in Section 5.3.3, the measured dose rates on a loaded OVERPACK or TRANSFER CASK shall not exceed the following values:

- a. 30 mrem/hr (gamma + neutron) on the top of the OVERPACK*
- b. 300 mrem/hr (gamma + neutron) on the side of the OVERPACK, excluding inlet and outlet ducts*
- c. 3500 mrem/hr (gamma + neutron) on the side of the TRANSFER CASK*

	0ERP01-ZV-IN01	Rev. 10	Page 141 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 127 of 159

END OF SECTION “E”

	0ERP01-ZV-IN01	Rev. 10	Page 142 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 128 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 143 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 129 of 159

COLD SHUTDOWN/REFUELING SYSTEM MALFUNCTIONS (C)

TABLE OF CONTENTS

CG1 - Loss of RCS inventory affecting fuel clad integrity with containment challenged	145
CS1 - Loss of RCS inventory affecting core decay heat removal capability	149
CA1 - Loss of RCS inventory	153
CU1 - UNPLANNED Loss of RCS inventory for 15 minutes or longer	155
CA2 - Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer....	157
CU2 - Loss of ALL but one AC power source to emergency buses for 15 minutes or longer.....	159
CA3 - Inability to maintain the plant in cold shutdown	161
CU3 - UNPLANNED rise in RCS temperature.....	165
CU4 - Loss of Vital DC power for 15 minutes or longer	167
CU5 - Loss of ALL onsite or offsite communications capabilities	169
CA6 - Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.....	171

	0ERP01-ZV-IN01	Rev. 10	Page 144 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 130 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 145 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 131 of 159

GENERAL EMERGENCY		CG1
Initiating Condition: Loss of RCS inventory affecting fuel clad integrity with containment challenged.		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: 5, 6	

Notes:

- The Emergency Director should declare the GENERAL EMERGENCY promptly upon determining that 30 minutes has been exceeded, or will likely be exceeded.

EAL-1

- a. RCS level less than 0% of plenum for 30 minutes or longer.

AND

- b. **ANY** indication from the Table C1.

EAL-2

- a. RCS level cannot be monitored for 30 minutes or longer.

AND

- b. Core uncover is indicated by **ANY** of the following:

- Reactor Containment Building, 68'-0" Area Radiation Monitors RE-8055 or RE-8099 reading greater than 9,000 mR/hr.

OR

- Erratic source range monitor indication

OR

- UNPLANNED rise in **ANY** of the following sump or tank levels in Table C2 of sufficient magnitude to indicate core uncover

AND

- c. **ANY** indication from Table C1

Table C1: Containment Challenge
<ul style="list-style-type: none"> CONTAINMENT CLOSURE not established * ≥4% hydrogen exists inside containment UNPLANNED rise in containment pressure

* IF CONTAINMENT CLOSURE is re-established prior to exceeding the 30-minute time limit, THEN declaration of a General Emergency is not required.

Table C2: RCS Leakage
<ul style="list-style-type: none"> Containment Normal Sump Pressurizer Relief Tank (PRT) Reactor Coolant Drain Tank (RCDT) MAB Sumps 1 thru 4 Containment Penetration Area Sump SIS/CSS Pump Compartment Sump

	0ERP01-ZV-IN01	Rev. 10	Page 146 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 132 of 159

Basis:

This IC addresses the inability to restore and maintain RCS level above the top of active fuel with containment challenged. This condition represents actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.



Following an extended loss of core decay heat removal and inventory makeup, decay heat will cause reactor coolant boiling and a further reduction in RCS level. If RCS level cannot be restored, fuel damage is probable.

With CONTAINMENT CLOSURE not established, there is a high potential for a direct and unmonitored release of radioactivity to the environment. If CONTAINMENT CLOSURE is re-established prior to exceeding the 30-minute time limit, then declaration of a GENERAL EMERGENCY is not required.

The existence of an explosive mixture means, at a minimum, that the containment atmospheric hydrogen concentration is sufficient to support a hydrogen burn (i.e., at the lower deflagration limit). A hydrogen burn will raise containment pressure and could result in collateral equipment damage leading to a loss of containment integrity. It therefore represents a challenge to Containment integrity.

In the early stages of a core uncover event, it is unlikely that hydrogen buildup due to a core uncover could result in an explosive gas mixture in containment. If all installed hydrogen gas monitors are out-of-service during an event leading to fuel cladding damage, it may not be possible to obtain a containment hydrogen gas concentration reading as ambient conditions within the containment will preclude personnel access. During periods when installed containment hydrogen gas monitors are out-of-service, operators may use indications in Table C1 to assess whether or not containment is challenged.

In EAL 2.b, the 30-minute criterion is tied to a readily recognizable event start time (i.e., the total loss of ability to monitor level), and allows sufficient time to monitor, assess and correlate reactor and plant conditions to determine if core uncover has actually occurred (i.e., to account for various accident progression and instrumentation uncertainties). It also allows sufficient time for performance of actions to terminate leakage, recover inventory control/makeup equipment and/or restore level monitoring.

The inability to monitor RCS level may be caused by instrumentation and/or power failures, or water level dropping below the range of available instrumentation. If water level cannot be monitored, operators may determine that an inventory loss is occurring by observing changes in sump and/or tank levels. Sump and/or tank level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the RCS

These EALs address concerns raised by Generic Letter 88-17, *Loss of Decay Heat Removal*; SECY 91-283, *Evaluation of Shutdown and Low Power Risk Issues*; NUREG-1449, *Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States*; and NUMARC 91-06, *Guidelines for Industry Actions to Assess Shutdown Management*.

	0ERP01-ZV-IN01	Rev. 10	Page 147 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 133 of 159

EAL SELECTION BASES

CG1_B

EAL #1 Per NEI 99-01 Rev. 6, the RCS level indication should be approximately the top of active fuel (TAF). The RCS level which corresponds to the top of the active fuel is 26'-1". The nearest Reactor Vessel Water Level Monitoring System thermocouple to TAF is Sensor 8 at elevation 29'-2.7". Use of RVWL to approximate TAF; with the inherent gap of 37 inches between indicated level and actual level, is acceptable for the purposes of maintaining the escalation logic for the loss of RCS level condition.

EAL #2 The secondary indicators of inventory loss include a list of tanks/sumps found in 0POP04-RC-0003, Excessive RCS Leakage. Since other system leaks could rise levels in various tanks and sumps, the list has been limited to the tanks and sumps that would have the highest probability of indicating RCS leakage inside the Reactor Containment Building.

As RCS level drops the dose rates above the core will rise. Area Radiation Monitors RE-8055 and RE-8099 are located on the 68'-0" elevation of the reactor containment building. Their locations are identified on drawing 9C129A81105. Their range (0.1 mR/hr to 10,000 mR/hr) is identified in Table 12.3.4-1 of Section 12 of the UFSAR. Rising indication on these monitors forewarns core uncover. Additionally, erratic source range monitor indications, or large level rises in the tanks listed can give further indication of core uncover.

The threshold value for radiation monitors RE-8055 and RE-8099 was based on Calculation STPNOC013-CALC-006 Rev.3. The calculated monitor response is 189 R/hr when RCS level is at the top of the active fuel. The high range of these monitors is 10 R/hr. The value of 9,000 mR/hr was selected for this threshold to ensure the threshold is readily assessable and within the calibrated range of the monitor. The threshold value of 9,000 mR/hr with the reactor head off corresponds to approximately 24 inches above the top of the active fuel which provides an additional indication that RCS levels are near the point of fuel uncover. These monitor readings in conjunction with the other threshold values allow for an accurate assessment of the EAL.

	0ERP01-ZV-IN01	Rev. 10	Page 148 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 134 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 149 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 135 of 159

SITE AREA EMERGENCY	CS1
Initiating Condition: Loss of RCS inventory affecting core decay heat removal capability.	
Emergency Action Levels (1 or 2 or 3) Operating Mode Applicability: 5, 6	

Notes:

- The Emergency Director should declare the SITE AREA EMERGENCY promptly upon determining that 30 minutes has been exceeded, or will likely be exceeded.

EAL-1

- a. CONTAINMENT CLOSURE not established.

AND

- b. RCS level less than 33% of plenum.

EAL-2

- a. CONTAINMENT CLOSURE established.

AND

- b. RCS level less than 0% of plenum

EAL-3

- a. RCS level cannot be monitored for 30 minutes or longer.

AND

- b. Core uncover is indicated by **ANY** of the following:

- Reactor Containment Building, 68'-0" Area Radiation Monitors RE-8055 or RE-8099 reading greater than 9,000 mR/hr.

OR

- Erratic source range monitor indication.

OR

- UNPLANNED rise in **ANY** of the following sump or tank levels in Table C2 of sufficient magnitude to indicate core uncover.

Table C2: RCS Leakage
<ul style="list-style-type: none"> • Containment Normal Sump • Pressurizer Relief Tank (PRT) • Reactor Coolant Drain Tank (RCDT) • MAB Sumps 1 thru 4 • Containment Penetration Area Sump • SIS/CSS Pump Compartment Sump

	0ERP01-ZV-IN01	Rev. 10	Page 150 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 136 of 159

Basis:

This IC addresses a significant and prolonged loss of reactor vessel/RCS inventory control and makeup capability leading to IMMEDIATE fuel damage. The lost inventory may be due to a RCS component failure, a loss of configuration control or prolonged boiling of reactor coolant. These conditions entail major failures of plant functions needed for protection of the public and thus warrant a SITE AREA EMERGENCY declaration.



Following an extended loss of core decay heat removal and inventory makeup, decay heat will cause reactor coolant boiling and a further reduction in RCS level. If RCS level cannot be restored, fuel damage is probable.

Outage/shutdown contingency plans provide for re-establishing or verifying CONTAINMENT CLOSURE following a loss of heat removal or RCS inventory control functions. The difference in the specified RCS levels of EALs 1.b and 2.b reflect the fact that with CONTAINMENT CLOSURE established, there is a lower probability of a fission product release to the environment.

In EAL 3.a, the 30-minute criterion is tied to a readily recognizable event start time (i.e., the total loss of ability to monitor level), and allows sufficient time to monitor, assess and correlate reactor and plant conditions to determine if core uncover has actually occurred (i.e., to account for various accident progression and instrumentation uncertainties). It also allows sufficient time for performance of actions to terminate leakage, recover inventory control/makeup equipment and/or restore level monitoring.

The inability to monitor RCS level may be caused by instrumentation and/or power failures, or water level dropping below the range of available instrumentation. If water level cannot be monitored, operators may determine that an inventory loss is occurring by observing changes in sump and/or tank levels. Sump and/or tank level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the RCS.

These EALs address concerns raised by Generic Letter 88-17, *Loss of Decay Heat Removal*; SECY 91-283, *Evaluation of Shutdown and Low Power Risk Issues*; NUREG-1449, *Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States*; and NUMARC 91-06, *Guidelines for Industry Actions to Assess Shutdown Management*.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC CG1 or RG1.

	0ERP01-ZV-IN01	Rev. 10	Page 151 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 137 of 159

EAL SELECTION BASES

EAL #1 Per NEI 99-01 Rev. 6, the RCS level indication should be six inches (6") below the bottom inside diameter of the RCS loop penetration at the reactor vessel. Six inches (6") below the bottom inside diameter of the RCS hot leg nozzle (elevation 31'-0.5") is elevation 30'-6.5" per OPOP03-ZG-0009, Mid-Loop Operation, Addendum 1, RCS/RHR Simplified Elevation Diagram. The nearest RVWL Monitoring System thermocouples are located 6 inches above (Sensor 6) and 4.9 inches below (Sensor 7) the prescribed elevation of 30'-6.5". When water level is at the desired elevation of 30'-6.5", Sensor 6 will be dry and Sensor 7 will be wet. This condition corresponds to a reading of 33% of plenum per OPOP02-II-0002, RVWL Monitoring System, Addendum 1, RVWL Sensor Elevations.



EAL #2 Per NEI 99-01 Rev. 6, the RCS level indication should be approximately the top of active fuel (TAF). The RCS level which corresponds to the top of the active fuel is 26'-1". The nearest Reactor Vessel Water Level Monitoring System thermocouple to TAF is Sensor 8 at elevation 29'-2.7". Use of RVWL to approximate TAF; with the inherent gap of 37 inches between indicated level and actual level, is acceptable for the purposes of signaling that the threat to the public is reduced when CONTAINMENT CLOSURE is established.

EAL #3 As RCS level drops the dose rates above the core will rise. Area Radiation Monitors RE-8055 and RE-8099 are located on the 68'-0" elevation of the reactor containment building. Their locations are identified on drawing 9C129A81105. Their range (0.1 mR/hr to 10,000 mR/hr) is identified in Table 12.3.4-1 of Section 12 of the UFSAR. A rising trend on these monitors can be an indication that core uncover is occurring. Additionally, erratic source range monitor indications, or large level rises in the tanks listed can give further indication of core uncover.

The threshold value for radiation monitors RE-8055 and RE-8099 was based on Calculation STPNOC013-CALC-006 Rev.2. The calculated monitor response is 189 R/hr when RCS level is at the top of the active fuel. The high range of these monitors is 10 R/hr. The value of 9,000 mR/hr was selected to ensure that the threshold is readily assessable and within the calibrated range of the monitor. The threshold value of 9,000 mR/hr with the reactor head off corresponds to approximately 24 inches above the top of the active fuel; which provides an additional indication that RCS levels are near the point of fuel uncover. These monitor readings in conjunction with the other threshold values allow for an accurate assessment of the EAL.

Core uncover can be determined by the secondary indications listed in this EAL. The secondary indicators of inventory loss include a list of tanks/sumps found in OPOP04-RC-0003, Excessive RCS Leakage. Since other system leaks could raise levels in various tanks and sumps, the list has been limited to the tanks and sumps that would have the highest probability of indicating RCS leakage inside the Reactor Containment.

	0ERP01-ZV-IN01	Rev. 10	Page 152 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 138 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 153 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 139 of 159

ALERT	CA1
Initiating Condition: Loss of RCS inventory	
Emergency Action Levels (1 or 2) Operating Mode Applicability: 5, 6	

Notes:

- The Emergency Director should declare the ALERT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

Loss of RCS inventory as indicated by level less than 32 ft. 9 inch (+ 6 inches above hot leg centerline)

EAL-2

- a. RCS level cannot be monitored for 15 minutes or longer

AND

- b. UNPLANNED rise in **ANY** of the following sump or tank levels in Table C2 due to a loss of reactor vessel/RCS inventory.

Table C2: RCS Leakage
<ul style="list-style-type: none"> • Containment Normal Sump • Pressurizer Relief Tank (PRT) • Reactor Coolant Drain Tank (RCDT) • MAB Sumps 1 thru 4 • Containment Penetration Area Sump • SIS/CSS Pump Compartment Sump

	0ERP01-ZV-IN01	Rev. 10	Page 154 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 140 of 159

Basis:

This IC addresses conditions that are precursors to a loss of the ability to adequately cool irradiated fuel (i.e., a precursor to a challenge to the fuel clad barrier). This condition represents a potential substantial reduction in the level of plant safety.

CA1_B

EAL #1- A lowering of water level below elevation 32' - 9" indicates that operator actions have not been successful in restoring and maintaining reactor vessel/ water level. The heat-up rate of the coolant will rise as the available water inventory is reduced. A continuing reduction in water level will lead to core uncover. Although related, EAL #1 is concerned with the loss of RCS inventory and not the potential concurrent effects on systems needed for decay heat removal (e.g., loss of a Residual Heat Removal suction point). A rise in RCS temperature caused by a loss of decay heat removal capability is evaluated under IC CA3.

EAL #2- The inability to monitor reactor vessel/RCS level may be caused by instrumentation and/or power failures, or water level dropping below the range of available instrumentation. If water level cannot be monitored, operators may determine that an inventory loss is occurring by observing changes in sump and/or tank levels. Sump and/or tank level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the reactor vessel/RCS. The 15-minute duration for the loss of level indication was chosen because it is half of the EAL duration specified in IC CS1

If the reactor vessel/RCS inventory level continues to lower, then escalation to SITE AREA EMERGENCY would be via IC CS1.

EAL SELECTION BASES

CA1: EAL-1 Selection Basis:

EAL #1: The minimum RCS level at which an RHR pump can be started per 0POP02-RH-0001 is 32 feet 9 inches (+ 6 inches above hot leg centerline). If RCS inventory is reduced below this level, normal decay heat removal systems may not be available for core cooling. This threshold is not applicable when controlling reduced inventory evolutions such as, mid-loop operation or vacuum fill with RCS inventory stable. However, if while in mid-loop operation or vacuum fill, indications show an unplanned or uncontrolled loss of RCS inventory, then this threshold should be applied.

EAL #2: The tanks/sumps selected for this EAL were obtained from 0POP04-RC-0003, Excessive RCS Leakage. Since other system leaks could raise levels in various tanks and sumps, the list was limited to the tanks and sumps that would have the highest probability of indicating RCS leakage inside the Reactor Containment Building.

Although procedure 0POP04-RC-0003 is designated for use in modes 1-4, its logic is applicable to this EAL.

	0ERP01-ZV-IN01	Rev. 10	Page 155 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 141 of 159

UNUSUAL EVENT		CU1
Initiating Condition: UNPLANNED loss of RCS inventory for 15 minutes or longer		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: 5, 6	

Notes:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

UNPLANNED loss of reactor coolant results in RCS level below the procedurally required limit for 15 minutes or longer.

EAL-2

- a. RCS level cannot be monitored.

AND

- b. UNPLANNED rise in **ANY** of the following sump or tank levels in Table C2:

Table C2: RCS Leakage
<ul style="list-style-type: none"> Containment Normal Sump Pressurizer Relief Tank (PRT) Reactor Coolant Drain Tank (RCDT) MAB Sumps 1 thru 4 Containment Penetration Area Sump SIS/CSS Pump Compartment Sump

	0ERP01-ZV-IN01	Rev. 10	Page 156 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 142 of 159

Basis:

This IC addresses the inability to restore and maintain water level to a required minimum level (or the lower limit of a level band), or a loss of the ability to monitor RCS level concurrent with indications of coolant leakage. Either of these conditions is considered to be a potential degradation of the level of safety of the plant.



Refueling evolutions that lower RCS water inventory are carefully planned and controlled. An UNPLANNED event that results in water level decreasing below a procedurally required limit warrants the declaration of an UNUSUAL EVENT due to the reduced water inventory that is available to keep the core covered.

EAL #1- recognizes that the minimum required RCS level can change several times during the course of a refueling outage as different plant configurations and system lineups are implemented. This EAL is met if the minimum level, specified for the current plant conditions, cannot be maintained for 15 minutes or longer. The minimum level is specified in the applicable STP operating procedure.

The 15-minute threshold duration allows sufficient time for prompt operator actions to restore and maintain the expected water level. This criterion excludes transient conditions causing a brief lowering of water level.

EAL #2- addresses a condition where all means to determine RCS level have been lost. In this condition, operators may determine that an inventory loss is occurring by observing changes in sump and/or tank levels. Sump and/or tank level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the RCS

Continued loss of RCS inventory may result in escalation to the ALERT EMERGENCY CLASSIFICATION LEVEL via either IC CA1 or CA3.

EAL SELECTION BASES

EAL #1: RCS inventory is maintained above the reactor vessel flange (39'-3") during refueling outages per OPOP03-ZG-0007, Plant Cooldown. RCS level may be lowered below the vessel flange for specific purposes (e.g., head removal, mid-loop operations) as described in OPOP03-ZG-0009, Mid-Loop Operation. The 15 minute time frame allows for prompt operator actions to restore RCS level in the event of an UNPLANNED lowering of RCS level below the prescribed operating limit.

EAL #2: This EAL includes two conditions. The first condition is the inability to monitor RCS level and the second condition provides secondary indications that inventory loss may be occurring. The secondary indicators of inventory loss include a list of tanks/sumps found in OPOP04-RC-0003, Excessive RCS Leakage. Since other system leaks could rise levels in various tanks and sumps, the list has been limited to the tanks and sumps that would have the highest probability of indicating RCS leakage inside the Reactor Containment Building.

Although procedure OPOP04-RC-0003 is designated for use in modes 1-4, its logic is applicable to this EAL.

	0ERP01-ZV-IN01	Rev. 10	Page 157 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 143 of 159

ALERT		CA2
Initiating Condition: Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer		
Emergency Action Levels (1)	Operating Mode Applicability: 5, 6 and Defueled	

Notes:

- The Emergency Director should declare the ALERT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

Loss of **ALL** offsite **AND ALL** onsite AC Power to **ALL** three 4160V AC ESF Busses for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 158 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 144 of 159

Basis:

This IC addresses a total loss of AC power that compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink.



When in the cold shutdown, refueling, or defueled mode, this condition is not classified as a SITE AREA EMERGENCY because of the additional time available to restore an emergency bus to service. Additional time is available due to the reduced core decay heat load, and the lower temperatures and pressures in various plant systems. Thus, when in these modes, this condition represents an actual or potential substantial degradation of the level of safety of the plant.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC CS1 or RS1.

EAL SELECTION BASES

N/A

	0ERP01-ZV-IN01	Rev. 10	Page 159 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 145 of 159

UNUSUAL EVENT		CU2
Initiating Condition: Loss of ALL but one AC power source to emergency buses for 15 minutes or longer		
Emergency Action Levels (1)	Operating Mode Applicability: 5, 6 and Defueled	

Notes:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

- AC power capability to **ALL** three 4160V AC ESF Buses is reduced to a single power source for 15 minutes or longer.

AND

- ANY** additional single power source failure will result in loss of **ALL** AC power to SAFETY SYSTEMS.

	0ERP01-ZV-IN01	Rev. 10	Page 160 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 146 of 159

Basis:

This IC describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to SAFETY SYSTEMS. In this condition, the sole AC power source may be powering one, or more than one, train of safety-related equipment.

CU2_B

When in the cold shutdown, refueling, or defueled mode, this condition is not classified as an ALERT because of the additional time available to restore another power source to service. Additional time is available due to the reduced core decay heat load, and the lower temperatures and pressures in various plant systems. Thus, when in these modes, this condition is considered to be a potential degradation of the level of safety of the plant.

An “AC power source” is a source recognized in AOPs and EOPs, and capable of supplying required power to an emergency bus. Examples of this condition are presented below.

- A loss of all offsite power with a concurrent failure of all but one emergency power source (e.g., an onsite diesel generator).
- A loss of all offsite power and loss of all emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being fed from the unit main generator.
- A loss of emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being fed from an onsite or offsite power source.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

The subsequent loss of the remaining single power source would escalate the event to an ALERT in accordance with IC CA2.

EAL SELECTION BASES

The condition indicated by this EAL is the degradation of the offsite and onsite power systems such that any additional single failure would results in a loss of all AC power. This condition is an UNUSUAL EVENT during modes 5, 6 and Defueled because of the additional time available to restore power due to the reduced core decay heat load, and the lower temperatures and pressures in various plant systems. In modes 1-4, this condition is an ALERT as described in SA1.

	0ERP01-ZV-IN01	Rev. 10	Page 161 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 147 of 159

ALERT		CA3
Initiating Condition: Inability to maintain the plant in cold shutdown		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: 5, 6	

Notes:

- The Emergency Director should declare the ALERT promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

EAL-1

UNPLANNED rise in RCS temperature to greater than 200 °F (Tavg) for greater than the duration specified in Table C3.

Table C3: RCS Heat-up Duration Thresholds		
RCS Status	Containment Closure Status	Heat-up Duration
Intact (but not at reduced inventory)	Not applicable	60 minutes*
Not intact (or at reduced inventory)	Established	20 minutes*
	Not Established	0 minutes
* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, the EAL is not applicable.		

EAL-2

UNPLANNED RCS pressure rise greater than 10 psig. (This EAL does not apply during water-solid plant conditions.)

	0ERP01-ZV-IN01	Rev. 10	Page 162 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 148 of 159

Basis:

This IC addresses conditions involving a loss of decay heat removal capability or an addition of heat to the RCS in excess of that which can currently be removed. Either condition represents an actual or potential substantial degradation of the level of safety of the plant.

CA3_B

A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

EAL #1-The RCS Heat-up Duration Thresholds table addresses an rise in RCS temperature when CONTAINMENT CLOSURE is established but the RCS is not intact, or RCS inventory is reduced (e.g., mid-loop operation). The 20-minute criterion was included to allow time for operator action to address the temperature rise.

The RCS Heat-up Duration Thresholds table also addresses a rise in RCS temperature with the RCS intact. The status of CONTAINMENT CLOSURE is not crucial in this condition since the intact RCS is providing a high pressure barrier to a fission product release. The 60-minute time frame should allow sufficient time to address the temperature rise without a substantial degradation in plant safety.

Finally, in the case where there is a rise in RCS temperature, the RCS is not intact or is at reduced inventory and CONTAINMENT CLOSURE is not established, no heat-up duration is allowed (i.e., 0 minutes). This is because 1) the evaporated reactor coolant may be released directly into the Containment atmosphere and subsequently to the environment, and 2) there is reduced reactor coolant inventory above the top of irradiated fuel.

EAL #2- provides a pressure-based indication of RCS heat-up.

Escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC CS1 or RS1.

EAL SELECTION BASES

EAL #1: Table C3 was adopted from NEI 99-01, Rev. 6. This EAL addresses the concerns raised by Generic Letter 88-17, Loss of Decay Heat Removal. A number of phenomena such as pressurization, vortexing, steam generator U-tube draining, RCS level differences when operating at a mid-loop condition, decay heat removal system design, and level instrumentation problems can lead to conditions where decay heat removal is lost and core uncover can occur. NRC analyses show that there are sequences that can cause core uncover in 15 to 20 minutes, and severe core damage within an hour after decay heat removal is lost. The allowed time frames are consistent with the guidance provided by Generic Letter 88-17 and believed to be conservative given that a low pressure containment barrier to fission product release is established.

	0ERP01-ZV-IN01	Rev. 10	Page 163 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 149 of 159

EAL #2: An UNPLANNED RCS pressure rise greater than 10 psig provides a pressure-based indication of RCS heat-up. The pressure change, per NEI 99-01 Rev. 6, is the lowest change in pressure that can be accurately determined using installed instrumentation, but not less than 10 psig.

CA3_B

	0ERP01-ZV-IN01	Rev. 10	Page 164 of 179
Emergency Classification			
Addendum 1	Emergency Classification		Page 150 of 159

THIS PAGE INTENTIONALLY BLANK

	0ERP01-ZV-IN01	Rev. 10	Page 165 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 151 of 159

UNUSUAL EVENT		CU3
Initiating Condition: UNPLANNED rise in RCS temperature		
Emergency Action Levels (1 or 2)	Operating Mode Applicability: 5, 6	

Notes:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

UNPLANNED rise in RCS temperature to greater than 200 °F (Tavg).

EAL-2

Loss of **ALL** RCS temperature and RCS level indication for 15 minutes or longer.

	0ERP01-ZV-IN01	Rev. 10	Page 166 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 152 of 159

Basis:

This IC addresses an UNPLANNED rise in RCS temperature above the Technical Specification cold shutdown temperature limit, or the inability to determine RCS temperature and level, represents a potential degradation of the level of safety of the plant. If the RCS is not intact and CONTAINMENT CLOSURE is not established during this event, the Emergency Director should also refer to IC CA3.



A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

EAL #1- involves a loss of decay heat removal capability, or an addition of heat to the RCS in excess of that which can currently be removed, such that reactor coolant temperature cannot be maintained below the cold shutdown temperature limit specified in Technical Specifications. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation.

During an outage, the level in the reactor vessel will normally be maintained above the reactor vessel flange. Refueling evolutions that lower water level below the reactor vessel flange are carefully planned and controlled. A loss of forced decay heat removal at reduced inventory may result in a rapid rise in reactor coolant temperature depending on the time after shutdown.

EAL #2- reflects a condition where there has been a significant loss of instrumentation capability necessary to monitor RCS conditions and operators would be unable to monitor key parameters necessary to assure core decay heat removal. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication. Escalation to ALERT would be via IC CA1 based on an inventory loss or IC CA3 based on exceeding plant configuration-specific time criteria.

EAL SELECTION BASES

EAL #1: An UNPLANNED temperature rise above 200 °F would result in an UNPLANNED mode change due to the inability to control RCS temperature. Mode 4 (Hot Shutdown) would be entered when Tavg exceeds 200 °F.

EAL #2: N/A

	0ERP01-ZV-IN01	Rev. 10	Page 167 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 153 of 159

UNUSUAL EVENT		CU4
Initiating Condition: Loss of Vital DC power for 15 minutes or longer		
Emergency Action Levels (1)	Operating Mode Applicability: 5, 6	

Notes:

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

EAL-1

Indicated voltage is less than 105.5 VDC on required Vital DC buses for 15 minutes or longer

	0ERP01-ZV-IN01	Rev. 10	Page 168 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 154 of 159

Basis:



This IC addresses a loss of Vital DC power which compromises the ability to monitor and control operable SAFETY SYSTEMS when the plant is in the cold shutdown or refueling mode. In these modes, the core decay heat load has been significantly reduced, and coolant system temperatures and pressures are lower; these conditions extend the time available to restore a vital DC bus to service. Thus, this condition is considered to be a potential degradation of the level of safety of the plant.

As used in this EAL, “required” means the Vital DC buses necessary to support operation of the in-service, or operable, train or trains of SAFETY SYSTEM equipment. If Vital DC power Train A and C are both lost, the ability to monitor and control cold shutdown or refueling parameters using QDPS is lost and a declaration of an UNUSUAL EVENT would be warranted.

As another example, if Train A and C are out-of-service (inoperable) for scheduled outage maintenance work and Train B is in-service (operable), then a loss of Vital DC power to Train B for 15 minutes or longer would result in a loss of control of the operable SAFETY SYSTEM requiring the declaration of an UNUSUAL EVENT. In this scenario, a loss of Vital DC power to Train A and/or C for 15 minutes or longer while Vital DC power to Train B is available, would not warrant an emergency classification unless the loss of Train A and/or C Vital DC power would result in a loss of the ability to monitor or control the cold shutdown or refueling parameters necessary for Train B operation.

As another example, if Train C is out-of-service (inoperable) for scheduled outage maintenance work, with Train A in standby (operable) and Train B in-service (operable), then a loss of Vital DC power to Train B would result in a loss of control of an operable SAFETY SYSTEM. However, if Train A is still operable, then declaration of an UNUSUAL EVENT is not required. In this scenario, a loss of Vital DC power to Train A for 15 minutes or longer while Vital DC power to Train B is available, would not warrant an emergency classification unless the loss of Train A would result in a loss of the ability to monitor or control the cold shutdown or refueling parameters necessary for Train B operation.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Depending upon the event, escalation of the EMERGENCY CLASSIFICATION LEVEL would be via IC CA1 or CA3, or an IC in Recognition Category R.

EAL SELECTION BASES

The minimum voltage for Class 1E 125 VDC battery buses was determined in calculation 13-DJ-006, Rev. 3 to be 105.5 volts. At 105.5 volts or less, 0POP05-E0-EC00, Loss of All AC Power, directs the operators to open the battery output breakers.

	0ERP01-ZV-IN01	Rev. 10	Page 169 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 155 of 159

UNUSUAL EVENT		CU5
Initiating Condition: Loss of ALL onsite or offsite communications capabilities		
Emergency Action Levels (1 or 2 or 3)	Operating Mode Applicability: 5, 6 and Defueled	

Notes:

- None

EAL-1

Loss of **ALL** of the following Onsite communication methods in Table C4.

EAL-2

Loss of **ALL** of the following Offsite Response Organization (ORO) communication methods in Table C4.

EAL-3

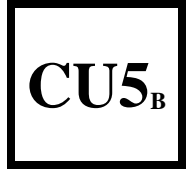
Loss of **ALL** of the following NRC communication methods in Table C4.

Table C4: Communications Methods			
METHOD	EAL-1 ONSITE	EAL-2 ORO	EAL-3 NRC
Plant PA system	X		
Plant Radios	X		
Plant telephone system	X	X	X
Satellite phones		X	X
Direct line from Control Rooms to Bay City		X	X
Microwave Lines to Houston		X	X
Security radio to Matagorda County		X	
Dedicated Ring-down lines		X	
ENS line			X

	0ERP01-ZV-IN01	Rev. 10	Page 170 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 156 of 159

Basis:

This IC addresses a significant loss of on-site or offsite communications capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to OROs and the NRC.



This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of on-site information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

EAL #1-addresses a total loss of the communications methods used in support of routine plant operations.

EAL #2-addresses a total loss of the communications methods used to notify all OROs of an emergency declaration. The OROs referred to here are Matagorda County Sheriff's Office, and Texas Department of Public Safety Disaster District in Pierce.

EAL #3-addresses a total loss of the communications methods used to notify the NRC of an emergency declaration.

EAL SELECTION BASES

Lines not included for offsite communications to ORO and NRC included links that would need relaying of information. Links were obtained from procedures 0PGP05-ZV-0011, Emergency Communications.

	0ERP01-ZV-IN01	Rev. 10	Page 171 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 157 of 159

ALERT	CA6
Initiating Condition: Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.	
Emergency Action Levels (1) Operating Mode Applicability: 5, 6	

Notes:

- None

EAL-1

- a. The occurrence of **ANY** of the following hazardous events in Table C5:

Table C5: Hazardous Events
<ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Predicted or actual breach of Main Cooling Reservoir retaining dike along the North Wall • Other events with similar hazard characteristics as determined by the Shift Manager

AND

- b. **EITHER** of the following:

1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.

OR

2. The event has caused **VISIBLE DAMAGE** to a SAFETY SYSTEM component or structure needed for the current operating mode.

	0ERP01-ZV-IN01	Rev. 10	Page 172 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 158 of 159

Basis:

This IC addresses a hazardous event that causes damage to a SAFETY SYSTEM, or a structure containing SAFETY SYSTEM components, needed for the current operating mode. This condition significantly reduces the margin to a loss or potential loss of a fission product barrier, and therefore represents an actual or potential substantial degradation of the level of safety of the plant.

CA6_B

EAL#1.b.1- addresses damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

EAL#1.b.2 addresses damage to a SAFETY SYSTEM component that is not in service/operation or readily apparent through indications alone, or to a structure containing SAFETY SYSTEM components. 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 would be via IC CS1 or RS1.

EAL SELECTION BASES

The listed hazards are taken directly from NEI 99-01, Rev. 6. The only additional hazard was the inclusion of the Main Cooling Reservoir since it is a credible hazard and analyzed in the STPEGS UFSAR (reference 2).

	0ERP01-ZV-IN01	Rev. 10	Page 173 of 179
Emergency Classification			
Addendum 1	Emergency Classification Tables		Page 159 of 159

END OF SECTION “C”

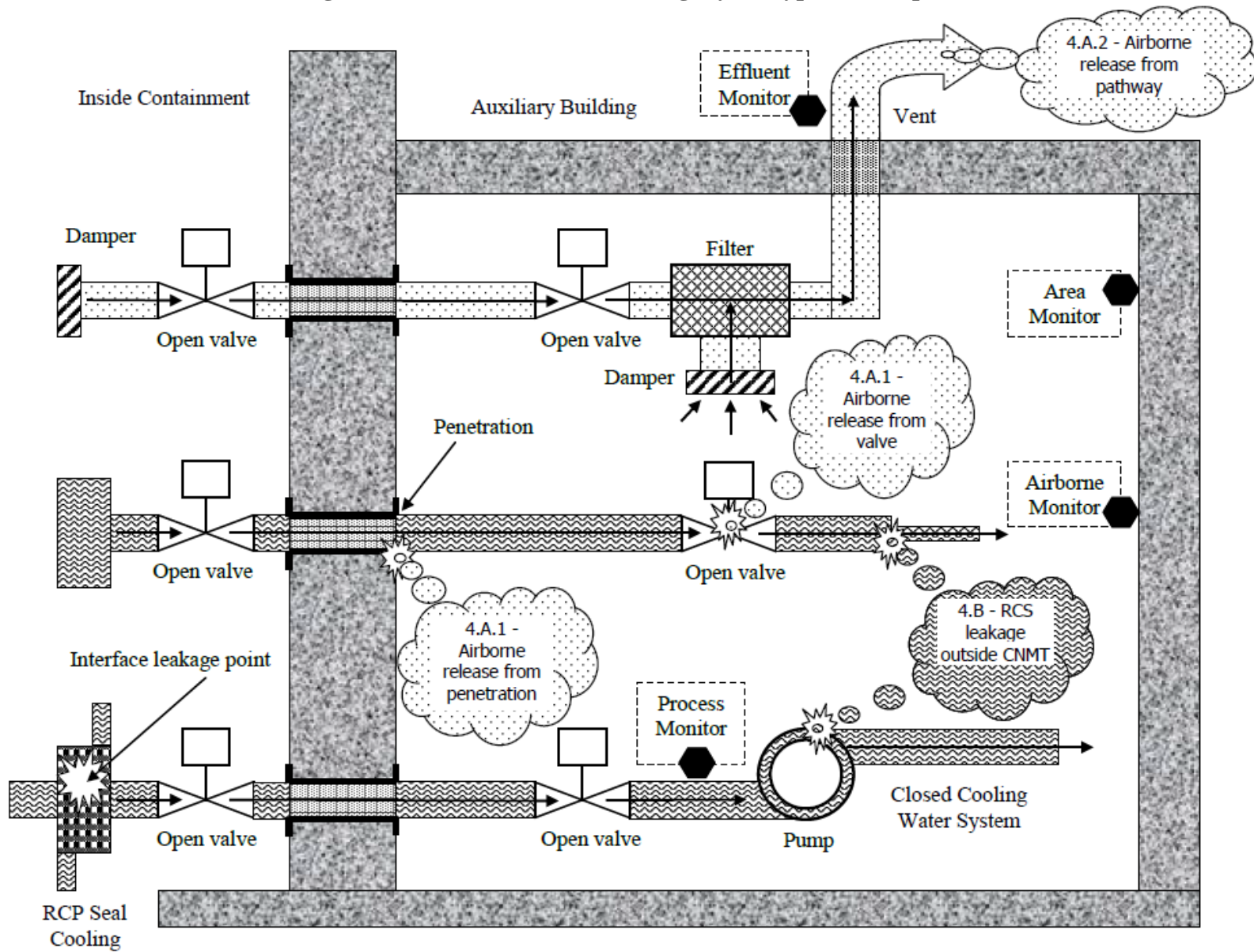
Emergency Classification

Addendum 3

Containment Integrity or Bypass Examples

Page 1 of 1

Figure F-4 PWR Containment Integrity or Bypass Examples



Emergency Classification

Addendum 4

Fission Product Barrier Chart

Page 1 of 1

F – FISSION PRODUCT BARRIER (MODES 1,2,3,4)		
GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT
FG1 – LOSS of ANY two barriers AND the LOSS or POTENTIAL LOSS of the third barrier. Clad RCS Cont	FS1 – LOSS or POTENTIAL LOSS of ANY two barriers. Clad RCS Cont	FA1 – ANY LOSS or ANY POTENTIAL LOSS of Fuel Clad or RCS BARRIER. Clad RCS

0ERP-ZV-IN01	Rev. 10	Page 176 of 179
EMERGENCY CLASSIFICATION		
Addendum 4	Fission Product Barrier Chart	Page 1 of 1

	Fuel Clad		RCS		Containment	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
1. RCS or SG Tube Leakage		A. Core Cooling – Orange entry conditions met	A. An automatic or manual ECCS (SI) actuation is required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube leakage.	A. Operation of a standby charging pump is required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube leakage. B. Integrity – Red entry conditions met	A. A leaking or RUPTURED SG is FAULTED outside of containment.	
2. Inadequate Heat Removal	A. Core Cooling – Red entry conditions met	A. Core Cooling – Orange entry conditions met OR B. Heat Sink – Red entry conditions met		A. Heat Sink – Red entry conditions met		A. Core Cooling – Red entry conditions met for 15 minutes or longer.
3. RCS Activity / Containment Radiation	A1. RCB Rad Monitor RT-8050 and RT-8051 greater than 2100 R/hr OR A2. HATCH MONITOR greater than 4200 mR/hr OR B. Sample analysis indicates that reactor coolant activity is greater than 300 µCi/gm dose equivalent I-131.		A1. RCB Rad Monitor RT-8050 and RT-8051 greater than 10 R/hr OR A2. HATCH MONITOR greater than 20 mR/hr			A1. RCB Rad Monitor RT-8050 and RT-8051 greater than 45,000 R/hr OR A2. HATCH MONITOR greater than 90,000 mR/hr
4. Containment Integrity or Bypass					A. Containment isolation is required AND EITHER of the following: 1. Containment integrity has been lost based on Emergency Director judgment. OR 2. UNISOLABLE pathway from the containment to the environment exists OR B. Indications of RCS leakage outside of containment.	A. Containment – Red entry conditions met OR B. Explosive mixture exists inside containment (H ₂ ≥ 4%) OR C1. Containment pressure greater than 9.5 psig AND C2. Less than one full train of Containment Spray is operating per design for 15 minutes or longer
5. Other Indications						
6. Emergency Director Judgment	ANY condition in the opinion of the Emergency Director that Indicates a Loss of the Fuel Clad Barrier.	ANY condition in the opinion of the Emergency Director that Indicates a Potential Loss of the Fuel Clad Barrier.	ANY condition in the opinion of the Emergency Director that Indicates a Loss of the RCS Barrier.	ANY condition in the opinion of the Emergency Director that Indicates a Potential Loss of the RCS Barrier.	ANY condition in the opinion of the Emergency Director that Indicates a Loss of the Containment Barrier.	ANY condition in the opinion of the Emergency Director that Indicates a Potential Loss of the Containment Barrier.

Emergency Classification

"S" - System Malfunction (Mode 1, 2, 3, 4)								
AC Power		Control Room Indications	Coolant Activity	RCS Leakage	RPS Failure	Communication	Containment Isolation	DC Power
General Emergency	300. Prolonged loss of ALL offsite and ALL onsite AC power to emergency buses.	Table 10: Plant Parameters • Reactor Power • RCS Level • RCS Pressure • Core Exit Temperature • Levels in at least two steam generators • Steam Generator Auxiliary Feed Water Flow	Table 12: Communications Methods METHOD • Plant PA system • Plant Radios • Plant telephone system • Satellite phones • Direct line from Control Rooms to Bay 2CV • Microwave links to Houston • Security radio to Montgomery County • Dedicated Ring-down lines (RDL line)	Table 13: Hazardous Events • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • Predicted or actual breach of Main Cooling Reservoir retaining dike along North wall. • Other events with similar hazard characteristics as determined by the Shift Manager	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.
	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.							
Site Area Emergency	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.
	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.							
Alert	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.
	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.							
Unusual Event	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.
	300. Loss of ALL offsite and ALL onsite AC power to emergency buses for 15 minutes or longer.							

0ERP01-ZV-IN01	Rev. 10	Page 177 of 179
EMERGENCY CLASSIFICATION		
Addendum 5	HOT MODES CHART	Page 1 of 1

NOTES		
1	CISL, CUS, CUS, CUS, CAL, CAL, HSL, SUL, SUL, SUL, CAL, SUL, SUL, SUL, SUL	The Emergency Director should declare the event promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.
2	CISL, CUS	The Emergency Director should declare the event promptly upon determining that 30 minutes has been exceeded, or will likely be exceeded.
3	RUS, RUS	The Emergency Director should declare the event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.
4	SUS	The Emergency Director should declare the event promptly upon determining that 4 hours has been exceeded, or will likely be exceeded.
5	RAL, RSL, RSL, HUA, CAL	The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
6	RAL, RSL, RSL	If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.
7	RUS	If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.
8	RUS, RAL, RSL, RSL	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.
9	RAL, RSL, RSL	The pre-calculated effluent monitor values presented in EALF should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.
10	RAL, HAS	If the equipment in the litted room or area was already inoperable or out-of-service before the event occurred, then no emergency classification is warranted.
11	RUS, RUS	EAL-1 is not applicable until the enhanced SFP level instrumentation is available for use.
12	RUS	EAL-14 does not apply to routine traffic impediments such as fog, snow, ice, or vehicle breakdowns.
13	RUS	A manual action is ANY operator action, or set of actions, which causes the control rods to be rapidly inserted into the core, and does not include manually driving control rods or implementation of boron injection strategies.
14	RAL	EAL-1 is not applicable until the enhanced SFP level instrumentation is available for use.

All Modes Chart

	DERPG-ZV-INGL	Rev. 10	Page 178 of 179
EMERGENCY CLASSIFICATION			
Addendum 6	ALL MODES CHART		Page 1 of 1

[illegible]

Emergency Classification

Addendum 7

Cold Modes Chart

C - COLD SHUTDOWN/REFUELING SYSTEM MALFUNCTIONS (Mode 5, 6, D)						0ERP01-ZV-IN01 Rev. 10 Page 179 of 179		
LOCA		AC POWER	MAINTAIN SHUTDOWN	DC POWER	COMMUNICATION	HAZARDS	EMERGENCY CLASSIFICATION	
General Emergency	CG1 Loss of RCS inventory affecting fuel clad integrity with containment challenged					General Emergency	Addendum 7 COLD MODES CHART Page 1 of 1	
	SEE NOTE 2 1a. RCS level is less than 0% of PLENUM for 30 minutes or longer. AND b. ANY indication from Table C1. 2a. RCS level cannot be monitored for 30 minutes or longer. AND b. Core uncover is indicated by ANY of the following: • Reactor Containment Building, 68"-O" Area Radiation Monitors RE-8055 or RE-8099 reading greater than 9,000 mR/hr OR • Erratic source range monitor indication. OR • UNPLANNED rise in ANY of the following sump or tank levels in Table C2 of sufficient magnitude to indicate core uncover. AND c. ANY indication from Table C1. Modes 5, 6 Only							
Site Area Emergency	CS1 Loss of RCS inventory affecting core decay heat removal capability.					Site Area Emergency	NOTES	
	SEE NOTE 2 1a. CONTAINMENT CLOSURE not established. AND b. RCS level is less than 33% of PLENUM. 2a. CONTAINMENT CLOSURE established AND b. RCS level less than 0% of PLENUM. 3a. RCS level cannot be monitored for 30 minutes or longer. AND b. Core uncover is indicated by ANY of the following: • Reactor Containment Building, 68"-O" Area Radiation Monitors RE-8055 or RE-8099 reading greater than 9,000 mR/hr OR • Erratic source range monitor indication. OR • UNPLANNED rise in ANY of the following sump or tank levels in Table C2 of sufficient magnitude to indicate core uncover. Modes 5, 6 Only							
Alert	CA1 Loss of RCS inventory					Alert	CA6 Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.	
	SEE NOTE 1 1. Loss of RCS inventory as indicated by level less than 32 ft. 9 inch (+6 inches above hot leg centerline) 2a. RCS level cannot be monitored for 15 minutes or longer. AND b. UNPLANNED rise in ANY of the following sump or tank levels in Table C2 due to a loss of reactor vessel/RCS inventory. Modes 5, 6 Only							
Unusual Event	CU1 UNPLANNED loss of RCS inventory for 15 minutes or longer.					Unusual Event	1a. The occurrence of ANY of the following hazardous events in Table C5. AND b. EITHER of the following: (1) Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode. OR (2) The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode. Modes 5, 6 Only	
	SEE NOTE 1 1. UNPLANNED loss of reactor coolant results in RCS level below the procedurally required limit for 15 minutes or longer. 2a. RCS level cannot be monitored AND b. UNPLANNED rise in ANY of the following sump or tank levels in Table C2. Modes 5, 6 Only							
		CU2 Loss of ALL but one AC power source to emergency buses for 15 minutes or longer.	CU3 UNPLANNED rise in RCS temperature.	CU4 Loss of Vital DC power for 15 minutes or longer.	CU5 Loss of ALL onsite or offsite communication methods in Table C4.			
		SEE NOTE 1 1a. AC power capability to ALL three 4160V AC ESF Buses is reduced to a single power source for 15 minutes or longer AND b. ANY additional single power source failure will result in loss of ALL AC power to SAFETY SYSTEMS.	SEE NOTE 1 1. UNPLANNED rise in RCS temperature to greater than 200 °F (Tavg). 2. Loss of ALL RCS temperature and RCS level indication for 15 minutes or longer.	SEE NOTE 1 1. Indicated voltage is less than 105.5 VDC on required Vital DC buses for 15 minutes or longer.	1. Loss of ALL of the following Onsite communication methods in Table C4. 2. Loss of ALL of the following Offsite Response Organization (ORO) communication methods in Table C4. 3. Loss of ALL of the following NRC communication methods in Table C4.			