

Attachment 4 to ULNRC-06488

Affected Pages of EIP-ZZ-00101 Addendum 2,
"Emergency Action Level Technical Bases Document,"
Proposed Revision 016
(Clean Copy)

(15 pages)

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

Maintain - Take appropriate action to hold the value of an identified parameter within specified limits.

Owner Controlled Area (OCA) - The fenced area contiguous to the Protected Area, designated by AmerenUE (Callaway Plant) to be controlled for security purposes (ref 4.1.6).

Projectile - An object directed toward a Nuclear Power Plant that could cause concern for its continued operability, reliability, or personnel safety.

Protected Area (PA) - An area encompassed by physical barriers and to which access is controlled. The Protected Area refers to the designated security area around the process buildings and is depicted in Drawing 8600-X-88100 Property-Site Layout, Owner Controlled Area and Surrounding Area (ref. 4.1.7).

RCS Intact - The RCS should be considered intact when the RCS pressure boundary is in its normal condition for the Cold Shutdown MODE of operation (e.g., no freeze seals or nozzle dams). The RCS is capable of being placed in an intact condition by Operator Action, i.e., pressurized to support natural circulation cooling.

Reduced Inventory - Plant condition when fuel is in the reactor vessel and Reactor Coolant System level is lower than 3 feet below the Reactor Vessel flange (< 64.0 in.) (ref. 4.1.13).

Refueling Pathway - The reactor refueling cavity, spent fuel pool and fuel transfer canal comprise the refueling pathway.

Restore - Take the appropriate action required to return the value of an identified parameter to the applicable limits.

Ruptured - The condition of a steam generator in which primary-to-secondary leakage is of sufficient magnitude to require a safety injection.

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 (as defined in 10CFR50.2):

Those structures, systems and components that are relied upon to remain functional during and following design basis events to assure:

- 1) The integrity of the reactor coolant pressure boundary;
- 2) The capability to shut down the reactor and maintain it in a safe shutdown condition;
- 3) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures.

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.

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Site Area Emergency - Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or hostile actions that result 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 Guidelines exposure levels beyond the site boundary.

Site Boundary - Exclusion Area Boundary is a synonymous term for Site Boundary. The Exclusion Area is defined as the area that encompasses the land surrounding the Plant to a radius of 1,200 meters (3,937 feet) from the midpoint of the Unit 1 Reactor Building and the canceled Unit 2 Reactor Building. Control of access to this is by virtue of ownership and in accordance with 10CFR100 (ref. 4.1.12).

Unisolable - An open or breached system line that cannot be isolated, remotely or locally.

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.

Unusual Event - Events are in process or have occurred which indicate a potential degradation in 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.

Valid - An indication, report, or condition, is considered to be valid when it is verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment.

Visible Damage - Damage to a SAFETY SYSTEM train 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 SAFETY SYSTEM train.

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6.0 CALLAWAY-TO-NEI 99-01 REV. 6 EAL CROSS-REFERENCE

This cross-reference is provided to facilitate association and location of a Callaway EAL within the NEI 99-01 IC/EAL identification scheme. Further information regarding the development of the Callaway EALs based on the NEI guidance can be found in the EAL Comparison Matrix.

Callaway	NEI 99-01 Rev. 6	
EAL	IC	Example EAL
RU1.1	AU1	1, 2
RU1.2	AU1	3
RU2.1	AU2	1
RA1.1	AA1	1
RA1.2	AA1	2
RA1.3	AA1	3
RA1.4	AA1	4
RA2.1	AA2	1
RA2.2	AA2	2
RA2.3	AA2	3
RA3.1	AA3	1
RA3.2	AA3	2
RS1.1	AS1	1
RS1.2	AS1	2
RS1.3	AS1	3
RS2.1	AS2	1
RG1.1	AG1	1
RG1.2	AG1	2
RG1.3	AG1	3
RG2.1	AG2	1
CU1.1	CU1	1
CU1.2	CU1	2
CU2.1	CU2	1
CU3.1	CU3	1
CU3.2	CU3	2
CU4.1	CU4	1

Callaway	NEI 99-01 Rev. 6	
EAL	IC	Example EAL
CU5.1	CU5	1, 2, 3
CA1.1	CA1	1
CA1.2	CA1	2
CA2.1	CA2	1
CA3.1	CA3	1, 2
CA6.1	CA6	1
CS1.1	CS1	1
CS1.2	CS1	2
CS1.3	CS1	3
CG1.1	CG1	1
CG1.2	CG1	2
FA1.1	FA1	1
FS1.1	FS1	1
FG1.1	FG1	1
HU1.1	HU1	1, 2, 3
HU2.1	HU2	1
HU3.1	HU3	1
HU3.2	HU3	2
HU3.3	HU3	3
HU3.4	HU3	4
HU4.1	HU4	1
HU4.2	HU4	2
HU4.3	HU4	3
HU4.4	HU4	4
HU7.1	HU7	1
HA1.1	HA1	1, 2

Callaway	NEI 99-01 Rev. 6	
EAL	IC	Example EAL
HA5.1	HA5	1
HA6.1	HA6	1
HA7.1	HA7	1
HS1.1	HS1	1
HS6.1	HS6	1
HS7.1	HS7	1
HG7.1	HG7	1
SU1.1	SU1	1
SU3.1	SU2	1
SU4.1	SU3	2
SU5.1	SU4	1, 2, 3
SU6.1	SU5	1
SU6.2	SU5	2
SU7.1	SU6	1, 2, 3
SU8.1	SU7	1, 2
SA1.1	SA1	1
SA3.1	SA2	1
SA6.1	SA5	1
SA9.1	SA9	1
SS1.1	SS1	1
SS2.1	SS8	1
SS6.1	SS5	1
SG1.1	SG1	1
SG1.2	SG8	1
EU1.1	E-HU1	1

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

7.0 ATTACHMENTS

7.1. Attachment 1, Emergency Action Level Technical Bases

7.2. Attachment 2, Fission Product Barrier Loss / Potential Loss Matrix and Bases

8.0 SUMMARY OF CHANGES

Page(s)	Section or Step Number	Description
21 22 112 187	Definitions CA6.1 Def. SA9.1 Def	Changed the definition of Visible Damage to: "Damage to a SAFETY SYSTEM train 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 SAFETY SYSTEM train." to help clarify the intent of visible damage.
25	6.0	Deleted HG1.1 from the Callaway to NEI cross reference chart.
69	EU1.1 Basis	Removed reference to HG1 from last sentence of basis.
111 & 186	CA6.1 & SA9.1	Reworded the EAL to better address the intent. The new wording reads: "The occurrence of any Table C-6 (S-5) hazardous event AND Event damage has caused indication of degraded performance on train of a SAFETY SYSTEM needed for the current operating MODE AND EITHER: <ul style="list-style-type: none"> Event damage has caused indications of degraded performance in a second train of a SAFETY SYSTEM needed for the current operating MODE. Event damage has resulted in VISIBLE DAMAGE to a second train of a SAFETY SYSTEM needed for the current operating MODE. <i>(Notes 11, 12)"</i> And along with the revised EAL text, the following notes were also added: Note 11: If the affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. Note 12: If the hazardous event only results in VISIBLE DAMAGE , with no indication of degraded performance to at least one train of a SAFETY SYSTEM, then this emergency classification is not warranted.

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

Page(s)	Section or Step Number	Description
113	CA6.1 Basis	<p>Removed the existing basis text following the bulleted steps and replaced with the following:</p> <p>"This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS needed for the current operating mode. In order to provide the appropriate context for consideration of an ALERT classification, the hazardous event must have caused indications of degraded SAFETY SYSTEM performance in one train, and there must be either indications of performance issues with the second SAFETY SYSTEM train or VISIBLE DAMAGE to the second train such that the potential exists for this second SAFETY SYSTEM train to have performance issues. In other words, in order for this EAL to be classified, the hazardous event must occur, at least one SAFETY SYSTEM train must have indications of degraded performance, and the second SAFETY SYSTEM train must have indications of degraded performance or VISIBLE DAMAGE such that the potential exists for performance issues. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has indications of degraded performance; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events.</p> <p>Indications of degraded performance 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.</p> <p>Operators will make a determination of VISIBLE DAMAGE 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. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.</p> <p>An event affecting equipment common to two or more safety systems or safety system trains (i.e., there are indications of degraded performance and/or VISIBLE DAMAGE affecting the common equipment) should be classified as an Alert. By affecting the operability or reliability of multiple system trains, the loss of the common equipment effectively meets the two train impact criteria that underlie the EALs and Bases. For example, this guidance would apply to a unit with a tank that is the water source for multiple safety injection systems or trains, such as a Refueling Water Storage Tank.</p> <p>An event that affects two trains of a safety system (e.g., one train has indications of degraded performance and the other VISIBLE DAMAGE) that also has one or more additional trains should be classified as an Alert. This approach maintains consistency with the two train impact criteria that underlie the EALs and Bases, and is warranted because the event was severe enough to affect the operability or reliability of two trains of a safety system despite plant design criteria associated with system and system train separation and protection. Such an event may have caused other plant impacts that are not immediately apparent. For example, this guidance would apply to a unit that has an Auxiliary/Emergency Feedwater system with three trains.</p> <p>Escalation of the emergency classification level would be via ICs CS1 or RS1."</p> <p>This was done to help clarify when the EAL should be called.</p>
115	HU1.1 Basis	Removed reference to HG1 from classifying HOSTILE ACTIONS..
120	HS1.1 Basis	Removed reference to HG1 and added all other General Emergency ICs.
	Old HG1.1	Deleted HG1.1 and associated reference material from bases.

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

Page(s)	Section or Step Number	Description
188	SA9.1 Basis	<p>Removed the existing basis text following the paragraph about a single faulted generator, and replaced with the following:</p> <p>"This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS needed for the current operating mode. In order to provide the appropriate context for consideration of an ALERT classification, the hazardous event must have caused indications of degraded SAFETY SYSTEM performance in one train, and there must be either indications of performance issues with the second SAFETY SYSTEM train or VISIBLE DAMAGE to the second train such that the potential exists for this second SAFETY SYSTEM train to have performance issues. In other words, in order for this EAL to be classified, the hazardous event must occur, at least one SAFETY SYSTEM train must have indications of degraded performance, and the second SAFETY SYSTEM train must have indications of degraded performance or VISIBLE DAMAGE such that the potential exists for performance issues. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has indications of degraded performance; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events.</p> <p>Indications of degraded performance 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.</p> <p>Operators will make a determination of VISIBLE DAMAGE 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. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.</p> <p>An event affecting equipment common to two or more safety systems or safety system trains (i.e., there are indications of degraded performance and/or VISIBLE DAMAGE affecting the common equipment) should be classified as an Alert. By affecting the operability or reliability of multiple system trains, the loss of the common equipment effectively meets the two train impact criteria that underlie the EALs and Bases. For example, this guidance would apply to a unit with a tank that is the water source for multiple safety injection systems or trains, such as a Refueling Water Storage Tank.</p> <p>An event that affects two trains of a safety system (e.g., one train has indications of degraded performance and the other VISIBLE DAMAGE) that also has one or more additional trains should be classified as an Alert. This approach maintains consistency with the two train impact criteria that underlie the EALs and Bases, and is warranted because the event was severe enough to affect the operability or reliability of two trains of a safety system despite plant design criteria associated with system and system train separation and protection. Such an event may have caused other plant impacts that are not immediately apparent. For example, this guidance would apply to a unit that has an Auxiliary/Emergency Feedwater system with three trains.</p> <p>Escalation of the emergency classification level would be via ICs FS1 or RS1."</p> <p>This was done to help clarify when the EAL should be called.</p>

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT**Attachment 1 - Emergency Action Level Technical Bases**

The existence of "damage" is determined by radiological survey. 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 **IC HS1**.

Callaway Basis Reference(s):

1. Certificate of Compliance No. 1040 Appendix A Technical Specifications for the HI-STORM UMAX Canister Storage System
2. NEI 99-01, E-HU1

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT**Attachment 1 - Emergency Action Level Technical Bases**

Category: C – Cold Shutdown / Refueling System Malfunction

Subcategory: 6 – Hazardous Event Affecting Safety Systems

Initiating Condition: Hazardous event affecting a SAFETY SYSTEM needed for the current operating MODE

EAL:**CA6.1 Alert**

The occurrence of **any** Table C-6 hazardous event

AND

Event damage has caused indication of degraded performance on one train of a SAFETY SYSTEM needed for the current operating MODE

AND EITHER:

- Event damage has caused indications of degraded performance in a second train of a SAFETY SYSTEM needed for the current operating MODE.
- Event damage has resulted in **VISIBLE DAMAGE** to a second train of a SAFETY SYSTEM needed for the current operating MODE.

(Notes 11, 12)

Note 11: If the affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.

Note 12: If the hazardous event only results in **VISIBLE DAMAGE**, with no indication of degraded performance to at least one train of a SAFETY SYSTEM, then this emergency classification is not warranted.

Table C-6 Hazardous Events

- EXPLOSION
- FIRE
- HIGH WINDS or tornado strike
- Internal or external FLOODING event
- Seismic event (earthquake)
- Other events with similar hazard characteristics as determined by the Emergency Coordinator

MODE Applicability:

5 - Cold Shutdown, 6 - Refueling

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT**Attachment 1 - Emergency Action Level Technical Bases****Definition(s):**

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 require a post-event inspection to determine if the attributes of an explosion are present.

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

FLOODING - A condition where water is entering a room or area faster than installed equipment is capable of removal, resulting in a rise of water level within the room or area.

HIGH WINDS - Winds in excess of 40 mph (18 m/s) sustained, or 58 mph (26 m/s) gusting.

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 (as defined in 10CFR50.2):

Those structures, systems and components that are relied upon to remain functional during and following design basis events to assure:

1. The integrity of the reactor coolant pressure boundary;
2. The capability to shut down the reactor and maintain it in a safe shutdown condition;
3. The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures.

VISIBLE DAMAGE - Damage to a SAFETY SYSTEM train 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 SAFETY SYSTEM train.

Basis:

- Annunciator 98D, OBE will illuminate if the seismic instrument detects ground motion in excess of the OBE threshold. OTO-SG-00001, Seismic Event provides the guidance for determining if an OBE earthquake threshold is exceeded and any required response actions (ref. 1).
- Internal FLOODING may be caused by events such as component failures, equipment misalignment, or outage activity mishaps (ref. 2).
- External flooding may be due to high rainfall. Callaway plant grade elevation is 840.0 ft. MSL. (ref. 3).
- Seismic Category I structures are analyzed to withstand a sustained, design wind velocity of at least 100 mph. (ref. 4).
- Areas containing functions and systems required for safe shutdown of the plant are identified by fire area (ref. 5).
- An explosion that degrades the performance of a SAFETY SYSTEM train or visibly damages a SAFETY SYSTEM component or structure would be classified under this EAL.

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT**Attachment 1 - Emergency Action Level Technical Bases**

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS needed for the current operating mode. In order to provide the appropriate context for consideration of an ALERT classification, the hazardous event must have caused indications of degraded SAFETY SYSTEM performance in one train, and there must be either indications of performance issues with the second SAFETY SYSTEM train or VISIBLE DAMAGE to the second train such that the potential exists for this second SAFETY SYSTEM train to have performance issues. In other words, in order for this EAL to be classified, the hazardous event must occur, at least one SAFETY SYSTEM train must have indications of degraded performance, and the second SAFETY SYSTEM train must have indications of degraded performance or VISIBLE DAMAGE such that the potential exists for performance issues. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has indications of degraded performance; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events.

Indications of degraded performance 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.

Operators will make a determination of VISIBLE DAMAGE 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. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

An event affecting equipment common to two or more safety systems or safety system trains (i.e., there are indications of degraded performance and/or VISIBLE DAMAGE affecting the common equipment) should be classified as an Alert. By affecting the operability or reliability of multiple system trains, the loss of the common equipment effectively meets the two-train impact criteria that underlie the EALs and Bases. For example, this guidance would apply to a unit with a tank that is the water source for multiple safety injection systems or trains, such as a Refueling Water Storage Tank.

An event that affects two trains of a safety system (e.g., one train has indications of degraded performance and the other VISIBLE DAMAGE) that also has one or more additional trains should be classified as an Alert. This approach maintains consistency with the two-train impact criteria that underlie the EALs and Bases, and is warranted because the event was severe enough to affect the operability or reliability of two trains of a safety system despite plant design criteria associated with system and system train separation and protection. Such an event may have caused other plant impacts that are not immediately apparent. For example, this guidance would apply to a unit that has an Auxiliary/Emergency Feedwater system with three trains.

Escalation of the emergency classification level would be via ICs CS1 or RS1.

Callaway Basis Reference(s):

1. OTO-SG-00001, Seismic Event
2. IPE Section 3.4.2.3 Results of the Vulnerability Screening
3. FSAR, Section 3.4 Water Level (Flood) Design Table 3.4-1 PMF, Groundwater, Reference, and Actual Plant Elevations
4. FSAR, Section 3.3.1.1 Design Wind Loadings
5. FSAR, Section 9.5.1 Fire Protection System
6. NEI 99-01, CA6

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT**Attachment 1 - Emergency Action Level Technical Bases**

Category: H – Hazards
Subcategory: 1 – Security
Initiating Condition: Confirmed SECURITY CONDITION or threat

EAL:**HU1.1 Unusual Event**

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

OR

Notification of a credible security threat directed at the site.

OR

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

MODE Applicability:

All

Definition(s):

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.

HOSTILE ACTION - An act toward Callaway 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 Callaway. 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).

Basis:

The security shift supervision is defined as the Security Shift Supervisor.

This EAL is based on the Callaway Plant Security Plan and DBT (ref. 1).

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, and HS1.**

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event (ref. 2, 3, 4). Classification of these events will initiate appropriate threat-related notifications to plant personnel and Offsite Response Organizations.

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

Attachment 1 - Emergency Action Level Technical Bases

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 Offsite Response Organization (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 should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Callaway Plant Security Plan and DBT (ref. 1).

Escalation of the emergency classification level would be via ICs RG1, RG2, SG1, SG2, FG1, and CG1.

Callaway Basis Reference(s):

1. Callaway Plant Security Plan and DBT (Safeguards)
2. EIP-ZZ-SK001, Response to Security Threat
3. SDP-CP-00003, Security Contingency Events
4. OTO-SK-00001, Plant Security Event – Hostile Intrusion
5. OTO-SK-00002, Plant Security Event - Aircraft Threat
6. NEI 99-01, HS1

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT**Attachment 1 - Emergency Action Level Technical Bases****Category:** S – System Malfunction**Subcategory:** 9 – Hazardous Event Affecting Safety Systems**Initiating Condition:** Hazardous event affecting a SAFETY SYSTEM needed for the current operating MODE**EAL:****SA9.1 Alert**The occurrence of **any** Table S-5 hazardous event**AND**

Event damage has caused indication of degraded performance on one train of a SAFETY SYSTEM needed for the current operating MODE

AND EITHER:

- Event damage has caused indications of degraded performance in a second train of a SAFETY SYSTEM needed for the current operating MODE.
- Event damage has resulted in VISIBLE DAMAGE to a second train of a SAFETY SYSTEM needed for the current operating MODE.

*(Notes 11, 12)**Note 11:* If the affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.*Note 12:* If the hazardous event only results in VISIBLE DAMAGE, with no indication of degraded performance to at least one train of a SAFETY SYSTEM, then this emergency classification is not warranted.**Table S-5 Hazardous Events**

- EXPLOSION
- FIRE
- HIGH WINDS or tornado strike
- Internal or external FLOODING event
- Seismic event (earthquake)
- Other events with similar hazard characteristics as determined by the Emergency Coordinator

MODE Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

Attachment 1 - Emergency Action Level Technical Bases

Definition(s):

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 require a post-event inspection to determine if the attributes of an explosion are present.

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Those structures, systems and components that are relied upon to remain functional during and following design basis events to assure:

1. The integrity of the reactor coolant pressure boundary;
2. The capability to shut down the reactor and maintain it in a safe shutdown condition;
3. The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures.

VISIBLE DAMAGE - Damage to a SAFETY SYSTEM train 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 SAFETY SYSTEM train.

Basis:

- Annunciator 98D, OBE will illuminate if the seismic instrument detects ground motion in excess of the OBE threshold. OTO-SG-00001, Seismic Event provides the guidance for determining if an OBE earthquake threshold is exceeded and any required response actions (ref. 1).
- Internal FLOODING may be caused by events such as component failures, equipment misalignment, or outage activity mishaps (ref. 2).
- External flooding may be due to high lake level. Callaway plant grade elevation is 840.0 ft. MSL. (ref. 3).
- Seismic Category I structures are analyzed to withstand a sustained, design wind velocity of at least 100 mph. (ref. 4).
- Areas containing functions and systems required for safe shutdown of the plant are identified by fire area (ref. 5).
- An explosion that degrades the performance of a SAFETY SYSTEM train or visibly damages a SAFETY SYSTEM component or structure would be classified under this EAL.

A single FAULTED steam generator would NOT require declaration per this EAL. Technical Specification Bases 3.7.4 explains that two intact Steam Generators are required for cooldown of the RCS and a third Steam Generator is assumed to be RUPTURED. If more than one Steam Generator is FAULTED, then this EAL is applicable.

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

Attachment 1 - Emergency Action Level Technical Bases

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS needed for the current operating mode. In order to provide the appropriate context for consideration of an ALERT classification, the hazardous event must have caused indications of degraded SAFETY SYSTEM performance in one train, and there must be either indications of performance issues with the second SAFETY SYSTEM train or VISIBLE DAMAGE to the second train such that the potential exists for this second SAFETY SYSTEM train to have performance issues. In other words, in order for this EAL to be classified, the hazardous event must occur, at least one SAFETY SYSTEM train must have indications of degraded performance, and the second SAFETY SYSTEM train must have indications of degraded performance or VISIBLE DAMAGE such that the potential exists for performance issues. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has indications of degraded performance; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events.

Indications of degraded performance 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.

Operators will make a determination of VISIBLE DAMAGE 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. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

An event affecting equipment common to two or more safety systems or safety system trains (i.e., there are indications of degraded performance and/or VISIBLE DAMAGE affecting the common equipment) should be classified as an Alert. By affecting the operability or reliability of multiple system trains, the loss of the common equipment effectively meets the two-train impact criteria that underlie the EALs and Bases. For example, this guidance would apply to a unit with a tank that is the water source for multiple safety injection systems or trains, such as a Refueling Water Storage Tank.

An event that affects two trains of a safety system (e.g., one train has indications of degraded performance and the other VISIBLE DAMAGE) that also has one or more additional trains should be classified as an Alert. This approach maintains consistency with the two-train impact criteria that underlie the EALs and Bases, and is warranted because the event was severe enough to affect the operability or reliability of two trains of a safety system despite plant design criteria associated with system and system train separation and protection. Such an event may have caused other plant impacts that are not immediately apparent. For example, this guidance would apply to a unit that has an Auxiliary/Emergency Feedwater system with three trains.

Escalation of the emergency classification level would be via ICs FS1 or RS1.

Callaway Basis Reference(s):

1. OTO-SG-00001, Seismic Event
2. IPE Section 3.4.2.3 Results of the Vulnerability Screening
3. FSAR, Section 3.4 Water Level (Flood) Design Table 3.4-1 PMF, Groundwater, Reference, and Actual Plant Elevations
4. FSAR, Section 3.3.1.1 Design Wind Loadings
5. FSAR, Section 9.5.1 Fire Protection System
6. NEI 99-01, SA9