Attachment 5 to ULNRC-06488

EAL Matrix from EIP-ZZ-00101 Addendum 1,
"Emergency Action Level Classification Matrix,"
Proposed Revision 009
(Clean Copy – Information Only)

(3 pages)

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
R Abnormal Rad Levels / Rad Effluent	**1** Rad Effluent	Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE. **RG1.1** *(Bases Pg. 50)* 1 2 3 4 5 6 DEF Reading on any Table R-1 effluent radiation monitor > column "GE" for ≥ 15 min. *(Notes 1, 2, 3, 4)* **RG1.2** *(Bases Pg. 52)* 1 2 3 4 5 6 DEF Dose assessment using actual meteorology indicates doses > 1000 mrem TEDE or 5000 mrem thyroid CDE at or beyond the SITE BOUNDARY. **RG1.3** *(Bases Pg. 54)* 1 2 3 4 5 6 DEF Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY: • Closed window dose rates > 1000 mR/hr expected to continue for ≥ 60 min. • Analyses of field survey samples indicate thyroid CDE > 5000 mrem for 60 min. of inhalation. *(Notes 1, 2)*	Release of gaseous radioactivity resulting in offsite dose greater than 100 mrem TEDE or 500 mrem thyroid CDE. **RS1.1** *(Bases Pg. 44)* 1 2 3 4 5 6 DEF Reading on any Table R-1 effluent radiation monitor > column "SAE" for ≥ 15 min. *(Notes 1, 2, 3, 4)* **RS1.2** *(Bases Pg. 46)* 1 2 3 4 5 6 DEF Dose assessment using actual meteorology indicates doses > 100 mrem TEDE or 500 mrem thyroid CDE at or beyond the SITE BOUNDARY. **RS1.3** *(Bases Pg. 48)* 1 2 3 4 5 6 DEF Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY: • Closed window dose rates > 100 mR/hr expected to continue for ≥ 60 min. • Analyses of field survey samples indicate thyroid CDE > 500 mrem for 60 min. of inhalation. *(Notes 1, 2)*	Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE. **RA1.1** *(Bases Pg. 36)* 1 2 3 4 5 6 DEF Reading on any Table R-1 effluent radiation monitor > column "ALERT" for ≥ 15 min. *(Notes 1, 2, 3, 4)* **RA1.2** *(Bases Pg. 38)* 1 2 3 4 5 6 DEF Dose assessment using actual meteorology indicates doses > 10 mrem TEDE or 50 mrem thyroid CDE at or beyond the SITE BOUNDARY. **RA1.3** *(Bases Pg. 40)* 1 2 3 4 5 6 DEF Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses > 10 mrem TEDE or 50 mrem thyroid CDE at or beyond the SITE BOUNDARY for 60 min. of exposure. *(Notes 1, 2)* **RA1.4** *(Bases Pg. 42)* 1 2 3 4 5 6 DEF Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY: • Closed window dose rates > 10 mR/hr expected to continue for ≥ 60 min. • Analyses of field survey samples indicate thyroid CDE > 50 mrem for 60 min. of inhalation. *(Notes 1, 2)*	Release of gaseous or liquid radioactivity greater than 2 times the ODCM limits for 60 minutes or longer. **RU1.1** *(Bases Pg. 32)* 1 2 3 4 5 6 DEF Reading on any Table R-1 effluent radiation monitor > column "UE" for ≥ 60 min. *(Notes 1, 2, 3)* **RU1.2** *(Bases Pg. 34)* 1 2 3 4 5 6 DEF Sample analyses for a gaseous or liquid release indicates a concentration or release rate > 2 x ODCM limits for ≥ 60 min. *(Notes 1, 2)*
	2 Irradiated Fuel Event	Spent fuel pool level cannot be restored to at least the top of the fuel racks for 60 minutes or longer. **RG2.1** *(Bases Pg. 63)* 1 2 3 4 5 6 DEF Spent fuel pool level cannot be restored to at least 12" as indicated on EC-LI-0059A or EC-LI-0060A for ≥ 60 min. *(Note 1)*	Spent fuel pool level at the top of the fuel racks. **RS2.1** *(Bases Pg. 62)* 1 2 3 4 5 6 DEF Lowering of spent fuel pool level to 12" as indicated on EC-LI-0059A or EC-LI-0060A.	Significant lowering of water level above, or damage to, irradiated fuel. **RA2.1** *(Bases Pg. 58)* 1 2 3 4 5 6 DEF Uncovery of irradiated fuel in the REFUELING PATHWAY. **RA2.2** *(Bases Pg. 59)* 1 2 3 4 5 6 DEF Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by any of the following: • Hi-Hi Alarm on Fuel Building exhaust monitors (GG-RE-27 or 28). • Manipulator crane radiation monitor (SD-RE-41) >100 mR/hr. • Fuel Pool Bridge Crane OR Spent Fuel Pool Area radiation monitor (SD-RE-37 or 38) > 30 mR/hr. **RA2.3** *(Bases Pg. 61)* 1 2 3 4 5 6 DEF Lowering of spent fuel pool level to 120" as indicated on EC-LI-0059A or EC-LI-0060A.	Unplanned loss of water level above irradiated fuel. **RU2.1** *(Bases Pg. 56)* 1 2 3 4 5 6 DEF UNPLANNED water level drop in the REFUELING PATHWAY as indicated by low water level alarm or indication (EC LI-0039A, EC LI-0039B, local observation of SFP level). **AND** UNPLANNED rise in corresponding area radiation levels as indicated by any Table R-2 radiation monitors.
	3 Area Radiation Levels			Radiation levels that IMPEDE access to equipment necessary for normal plant operations, cooldown or shutdown. **RA3.1** *(Bases Pg. 64)* 1 2 3 4 5 6 DEF Dose rate > 15 mR/hr in **EITHER** of the following areas • Control Room (SD-RE-33). • Central Alarm Station (by survey). **RA3.2** *(Bases Pg. 65)* 4 An UNPLANNED event results in radiation levels that prohibit or IMPEDE access to **EITHER** of the following. *(Note 5)* • North Electrical Penetration Room. *(Room 1410)* • South Electrical Penetration Room. *(Room 1409)*	
E ISFSI	**1** Confinement Boundary				Damage to a loaded cask CONFINEMENT BOUNDARY. **EU1.1** *(Bases Pg. 68)* 1 2 3 4 5 6 DEF Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading > **EITHER** of the following: • 60 mrem/hr (gamma + neutron) on the top of the closure lid of the Overpack/VVM. • 7,000 mrem/hr (gamma + neutron) on the side of the transfer cask.
H Hazards	**1** Security		HOSTILE ACTION within the PROTECTED AREA. **HS1.1** *(Bases Pg. 119)* 1 2 3 4 5 6 DEF A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervisor.	HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes. **HA1.1** *(Bases Pg. 117)* 1 2 3 4 5 6 DEF A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor. **OR** A validated notification from NRC of an aircraft attack threat within 30 min. of the site.	Confirmed SECURITY CONDITION or threat. **HU1.1** *(Bases Pg. 115)* 1 2 3 4 5 6 DEF A SECURITY CONDITION that does **not** involve a HOSTILE ACTION as reported by 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.
	2 Seismic Event				Seismic event greater than OBE level. **HU2.1** *(Bases Pg. 121)* 1 2 3 4 5 6 DEF Seismic event > OBE as indicated by Seismic Activity, Annunciator 93D.
	3 Natural or Tech. Hazard				Hazardous event. **HU3.1** *(Bases Pg. 123)* 1 2 3 4 5 6 DEF A tornado strike within the PROTECTED AREA. **HU3.2** *(Bases Pg. 124)* 1 2 3 4 5 6 DEF 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. **HU3.3** *(Bases Pg. 126)* 1 2 3 4 5 6 DEF 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). **HU3.4** *(Bases Pg. 127)* 1 2 3 4 5 6 DEF A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles. *(Note 7)*
	4 Fire				FIRE potentially degrading the level of safety of the plant. **HU4.1** *(Bases Pg. 128)* 1 2 3 4 5 6 DEF A FIRE is **not** extinguished within 15 min. of **any** of the following FIRE detection indications. *(Note 1)* • Report from the **field** (i.e., visual observation). • Receipt of multiple (more than 1) fire alarms or indications. • Field verification of a single fire alarm. **AND** The FIRE is located within **any** Table H-1 area. **HU4.2** *(Bases Pg. 131)* 1 2 3 4 5 6 DEF Receipt of a single fire alarm (i.e., **no** other indications of a FIRE). **AND** The fire alarm is indicating a FIRE within **any** Table H-1 area. **AND** The existence of a FIRE is **not** verified within 30 min. of alarm receipt. *(Note 1)* **HU4.3** *(Bases Pg. 134)* 1 2 3 4 5 6 DEF A FIRE within the plant PROTECTED AREA **not** extinguished within 60 min. of the initial report, alarm or indication. *(Note 1)* **HU4.4** *(Bases Pg. 135)* 1 2 3 4 5 6 DEF A FIRE within the plant PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.
	5 Hazardous Gases			Gaseous release IMPEDING access to equipment necessary for normal plant operations, cooldown or shutdown. **HA5.1** *(Bases Pg. 136)* 4 Release of a toxic, corrosive, asphyxiant or flammable gas that prohibits or IMPEDES access to **EITHER** of the following: *(Note 5)* • North Electrical Penetration Room. *(Room 1410)* • South Electrical Penetration Room. *(Room 1409)*	
	6 Control Room Evacuation		Inability to control a key safety function from outside the Control Room. **HS6.1** *(Bases Pg. 139)* 1 2 3 4 5 6 An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panel (ASP). **AND** Control of **any** of the following key safety functions is **not** re-established within 15 min. *(Note 1)*: • Reactivity control (MODE 1, 2 and 3 **only**). • Core cooling. • RCS heat removal.	Control Room evacuation resulting in transfer of plant control to alternate locations. **HA6.1** *(Bases Pg. 138)* 1 2 3 4 5 6 DEF An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panel (ASP).	
	7 Judgment	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of General Emergency. **HG7.1** *(Bases Pg. 146)* 1 2 3 4 5 6 DEF Other conditions exist which in the judgment of the Emergency Coordinator 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.	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of Site Area Emergency. **HS7.1** *(Bases Pg. 144)* 1 2 3 4 5 6 DEF Other conditions exist which in the judgment of the Emergency Coordinator 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.	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of an Alert. **HA7.1** *(Bases Pg. 142)* 1 2 3 4 5 6 DEF Other conditions exist which, in the judgment of the Emergency Coordinator, 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.	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of a UE. **HU7.1** *(Bases Pg. 141)* 1 2 3 4 5 6 DEF Other conditions exist which in the judgment of the Emergency Coordinator 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.

Table R-1 Effluent Monitor Classification Thresholds

	Release Point	Monitor	GE	SAE	Alert	UE
Gaseous	Unit Vent	GT-RE-21B	6.59E+7 µCi/sec	6.59E+6 µCi/sec	6.59E+5 µCi/sec	2 X Hi-Hi alarm
Gaseous	ASD Monitors (A/B/C/D)	AB-RE-111/ 112/113/114	12 mR/hr	1.2 mR/hr	—	—
Gaseous	TD AFW Steam Discharge	FC-RE-385	163 mR/hr	16.3 mR/hr	1.6 mR/hr	—
Gaseous	Radwaste Bldg Vent	GH-RE-10B	—	—	—	2 X Hi-Hi alarm
Liquid	Liquid Radwaste Discharge	HB-RE-18	—	—	—	2 X Hi-Hi alarm

Table R-2 Fuel Building & Containment Area Radiation Monitors

Fuel Building:
- SD-RE-34, Cask Handle Area Radiation
- SD-RE-35, New Fuel Storage Area Radiation
- SD-RE-36, New Fuel Storage Area Radiation
- SD-RE-37, Fuel Pool Bridge Crane Radiation
- SD-RE-38, Spent Fuel Pool Area Radiation

Containment:
- SD-RE-40, Personnel Access Hatch Area
- SD-RE-41, Manipulator Crane Radiation Monitor
- SD-RE-42, Containment Building Radiation
- GT-RE-59 Containment High Area Radiation Monitor
- GT-RE-60 Containment High Area Radiation Monitor

Table H-1 Fire Areas

- Area 5
- Auxiliary Building
- Aux Feedwater Pump Rooms
- Containment
- Control Building/Communications Corridor
- Diesel Generator Building
- ESW Pumphouse
- Fuel Building
- RWST
- UHS Cooling Tower

Notes

Note 1: The Emergency Coordinator should declare the event promptly upon determining that time limit has been exceeded, or will likely be exceeded.

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

Note 3: If the effluent flow past an effluent monitor is known to have stopped, indicating that the release path is isolated, the effluent monitor reading is no longer VALID for classification purposes.

Note 4: The pre-calculated effluent monitor values presented in EALs RA1.1, RS1.1 and RG1.1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

Note 5: 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.

Note 7: This EAL does not apply to routine traffic impediments such as fog, snow, ice, or vehicle breakdowns or accidents.

Modes: 1 Power Operation | 2 Startup | 3 Hot Standby | 4 Hot Shutdown | 5 Cold Shutdown | 6 Refueling | DEF Defueled

ALL CONDITIONS

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EIP-ZZ-00101 Addendum 1
Emergency Action Level Classification Matrix
Revision 009
Information Use

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
S System Malfunction	1 Loss of Emergency AC Power	Prolonged loss of **all** offsite and **all** onsite AC power to emergency buses. **SG1.1** *(Bases Pg. 157)* 1 2 3 4 Loss of **all** offsite and **all** onsite AC power to emergency 4.16KV buses NB01 and NB02. **AND EITHER:** • Restoration of at least one emergency bus in < 4 hours is **not** likely. *(Note 1)* • CSFST Core Cooling-**RED** Path conditions met.	Loss of **all** offsite and **all** onsite AC power to emergency buses for 15 minutes or longer. **SS1.1** *(Bases Pg. 155)* 1 2 3 4 Loss of **all** offsite and **all** onsite AC power to emergency 4.16KV buses NB01 and NB02 for ≥ 15 min. *(Note 1)*	Loss of **all but one** AC power source to emergency buses for 15 minutes or longer. **SA1.1** *(Bases Pg. 152)* 1 2 3 4 AC power capability, Table S-1, to emergency 4.16KV buses NB01 and NB02 reduced to a single power source for ≥ 15 min. *(Note 1)* **AND** **Any** additional single power source failure will result in loss of **all** AC power to SAFETY SYSTEMS.	Loss of **all** offsite AC power capability to emergency buses for 15 minutes or longer. **SU1.1** *(Bases Pg. 150)* 1 2 3 4 Loss of **all** offsite AC power capability, Table S-1, to emergency 4.16KV buses NB01 and NB02 for ≥ 15 min. *(Note 1)*
		Loss of **all** AC and vital DC power sources for 15 minutes or longer. **SG1.2** *(Bases Pg. 159)* 1 2 3 4 Loss of **all** offsite and **all** onsite AC power to emergency 4.16KV buses NB01 and NB02 for ≥ 15 min. **AND** Loss of **all** 125 VDC power based on battery bus voltage indications < 107 VDC on **all** vital DC buses NK01, NK03 (Division 1) and NK02, NK04 (Division 2) for ≥ 15 min. *(Note 1)*			
	2 Loss of Vital DC Power		Loss of **all** vital DC power for 15 minutes or longer. **SS2.1** *(Bases Pg. 162)* 1 2 3 4 Loss of **all** 125 VDC power based on battery bus voltage indications < 107 VDC on **all** vital DC buses NK01, NK03 (Division 1) and NK02, NK04 (Division 2) for ≥ 15 min. *(Note 1)*		
	3 Loss of Control Room Indications	**Table S-1 AC Power Supplies** **Offsite:** • Safeguards XFMR A or B via ESF LTC XFMR XNB01 • Startup XFMR XMR01 via ESF LTC XFMR XNB02 • Main XFMR XMA01 backfed via UAT XFMR XMA02 *(in-service)* • Alternate Emergency Power Supply *(in-service or stand-by alignment)* **Onsite:** • EDG NE01 • EDG NE02		UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress. **SA3.1** *(Bases Pg. 166)* 1 2 3 4 An UNPLANNED event results in the inability to monitor one or more Table S-2 parameters from within the Control Room for ≥ 15 min. *(Note 1)* **AND** **Any** significant transient is in progress, Table S-3.	UNPLANNED loss of Control Room indications for 15 minutes or longer. **SU3.1** *(Bases Pg. 164)* 1 2 3 4 An UNPLANNED event results in the inability to monitor one or more Table S-2 parameters from within the Control Room for ≥ 15 min. *(Note 1)*
	4 RCS Activity				Reactor coolant activity greater than Technical Specification allowable limits. **SU4.1** *(Bases Pg. 168)* 1 2 3 4 Sample analysis indicates RCS activity > Technical Specification 3.4.16 limits *(listed below)*: • > 60 µCi/gm Dose Equivalent I-131. **OR** • > 1.0 µCi/gm Dose Equivalent I-131 for a > 48 hr continuous period. **OR** • > 225 µCi/gm Dose Equivalent Xe-133 for a > 48 hr continuous period.
	5 RCS Leakage	**Table S-2 Safety System Parameters** • Reactor power • RCS level • RCS pressure • Core Exit T/C temperature • Level in at least one S/G • Auxiliary or emergency feedwater flow in at least one S/G			RCS leakage for 15 minutes or longer. **SU5.1** *(Bases Pg. 169)* 1 2 3 4 RCS unidentified or pressure boundary leakage > 10 gpm for ≥ 15 min. **OR** RCS identified leakage > 25 gpm for ≥ 15 min. **OR** Leakage from the RCS to a location outside containment > 25 gpm for ≥ 15 min. *(Note 1)*
	6 RTS Failure	**Table S-3 Significant Transients** *(Automatically or manually initiated)* • Reactor trip • Runback ≥ 25% thermal power • Electrical load rejection > 25% electrical load • ECCS actuation	Inability to shut down the reactor causing a challenge to core cooling or RCS heat removal. **SS6.1** *(Bases Pg. 179)* 1 An automatic or manual trip fails to shut down the reactor as indicated by reactor power ≥ 5%. **AND** **All** actions to shut down the reactor are **not** successful as indicated by reactor power ≥ 5%. **AND EITHER:** • CSFST Core Cooling-**RED** Path conditions met. • CSFST Heat Sink-**RED** Path conditions met.	Automatic or manual trip fails to shut down the reactor and subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor. **SA6.1** *(Bases Pg. 177)* 1 An automatic or manual trip fails to shut down the reactor as indicated by reactor power ≥ 5%. **AND** Manual trip actions taken at the reactor control console (SB-HS-1 or SB-HS-42) are **not** successful in shutting down the reactor as indicated by reactor power ≥ 5%. *(Note 8)*	Automatic or manual trip fails to shut down the reactor. **SU6.1** *(Bases Pg. 171)* 1 An automatic trip did **not** shut down the reactor as indicated by reactor power ≥ 5% after **any** RTS setpoint is exceeded. **AND** A subsequent automatic trip or manual trip action taken at the reactor control consoles (SB-HS-1 or SB-HS-42) is successful in shutting down the reactor as indicated by reactor power < 5%. *(Note 8)* **SU6.2** *(Bases Pg. 174)* 1 A manual trip did **not** shut down the reactor as indicated by reactor power ≥ 5% after **any** manual trip action was initiated. **AND** A subsequent automatic trip or manual trip action taken at the reactor control consoles (SB-HS-1 or SB-HS-42) is successful in shutting down the reactor as indicated by reactor power < 5%. *(Note 8)*
	7 Loss of Comm.	**Table S-4 Communications Methods** System / Onsite / ORO / NRC Gaitronics: X Plant Radios: X Plant Emergency Dedicated Phones: X Plant Telephone System: X / X / X ENS (Red Phone) Line: X / X Back-Up Radio System: X Sentry Notification System: X			Loss of **all** onsite or offsite communications capabilities. **SU7.1** *(Bases Pg. 181)* 1 2 3 4 Loss of **all** Table S-4 onsite communication methods. **OR** Loss of **all** Table S-4 ORO communication methods. **OR** Loss of **all** Table S-4 NRC communication methods.
	8 CMT Isolation Failure				Failure to isolate containment or loss of containment pressure control. **SU8.1** *(Bases Pg. 184)* 1 2 3 4 **Any** penetration is not isolated within 15 min. of a VALID containment isolation signal. **OR** Containment pressure > 27 psig with < one full train of containment depressurization equipment operating per design for ≥ 15 min. *(Notes 1, 9)*
	9 Hazardous Event Affecting Safety Systems	**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		Hazardous event affecting a SAFETY SYSTEM needed for the current operating MODE. **SA9.1** *(Bases Pg. 186)* 1 2 3 4 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)*	
F Fission Product Barrier Degradation		FG1.1 *(Bases Pg. 193)* 1 2 3 4 Loss of **any** two barriers. **AND** Loss or potential loss of third barrier (Table F-1).	FS1.1 *(Bases Pg. 192)* 1 2 3 4 Loss or potential loss of **any** two barriers (Table F-1).	FA1.1 *(Bases Pg. 191)* 1 2 3 4 **Any** loss or any potential loss of either Fuel Clad or RCS (Table F-1).	

Notes

Note 1: The Emergency Coordinator should declare the event promptly upon determining that time limit has been exceeded, or will likely be exceeded.

Note 8: A manual trip 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.

Note 9: One Containment Spray System train and one Containment Cooling System train comprise one full train of depressurization equipment.

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 indications of degraded performance to at least one train of a SAFETY SYSTEM, then this emergency classification is not warranted.

Table F-1 Fission Product Barrier Matrix

Category	Fuel Clad (FC) Barrier – Loss	Fuel Clad (FC) Barrier – Potential Loss	Reactor Coolant System (RCS) Barrier – Loss	Reactor Coolant System (RCS) Barrier – Potential Loss	Containment (CMT) Barrier – Loss	Containment (CMT) Barrier – Potential Loss
A RCS or SG Tube Leakage			1. An automatic or manual ECCS (SI) actuation required by **EITHER:** • UNISOLABLE RCS leakage. • SG tube RUPTURE. *(Bases Pg. 209)*	1. Operation of a standby charging pump is required by **EITHER:** • UNISOLABLE RCS leakage. • SG tube leakage. *(Bases Pg. 210)* 2. CSFST Integrity-**RED** Path conditions met. *(Bases Pg. 211)*	1. A leaking or RUPTURED SG is FAULTED outside of containment. *(Bases Pg. 221)*	
B Inadequate Heat Removal	1. CSFST Core Cooling-**RED** Path conditions met. *(Bases Pg. 198)*	1. CSFST Core Cooling-ORANGE Path conditions met. *(Bases Pg. 199)* 2. CSFST Heat Sink-**RED** Path conditions met. **AND** Heat sink required. *(Bases Pg. 200)*		1. CSFST Heat Sink-**RED** Path conditions met. **AND** Heat sink required. *(Bases Pg. 213)*		1. CSFST Core Cooling-**RED** Path conditions met. **AND** Restoration procedures not effective within 15 min. *(Note 1)* *(Bases Pg. 225)*
C CMT Radiation / RCS Activity	1. Containment radiation > 840 R/hr on GT-RE-59 (591) or GT-RE-60 (601). *(Bases Pg. 201)* 2. Dose equivalent I-131 coolant activity > 300 µCi/cc. *(Bases Pg. 202)* 3. CVCS letdown radiation > 2.50E+01 µCi/ml on SJ-RE-01 (016). *(Bases Pg. 203)*		1. Containment radiation > 59 R/hr on GT-RE-59 (591) or GT-RE-60 (601). *(Bases Pg. 215)*			1. Containment radiation > 14,000 R/hr on GT-RE-59 (591) or GT-RE-60 (601). *(Bases Pg. 227)*
D CMT Integrity or Bypass					1. Containment isolation is required **AND EITHER:** • Containment integrity has been lost based on Emergency Coordinator judgment. • UNISOLABLE pathway from containment to the environment exists. *(Bases Pg. 228)* 2. Indications of RCS leakage outside of containment. *(Bases Pg. 230)*	1. CSFST Containment-**RED** Path conditions met. *(Bases Pg. 233)* 2. Containment hydrogen concentration ≥ 4%. *(Bases Pg. 234)* 3. Containment pressure > 27 psig with < one full train of Containment depressurization equipment operating per design for ≥ 15 min. *(Note 1, 9)* *(Bases Pg. 236)*
E Judgment	1. **Any** condition in the opinion of the Emergency Coordinator that indicates loss of the Fuel Clad barrier. *(Bases Pg. 207)*	1. **Any** condition in the opinion of the Emergency Coordinator that indicates potential loss of the Fuel Clad barrier. *(Bases Pg. 208)*	1. **Any** condition in the opinion of the Emergency Coordinator that indicates loss of the RCS barrier. *(Bases Pg. 219)*	1. **Any** condition in the opinion of the Emergency Coordinator that indicates potential loss of the RCS barrier. *(Bases Pg. 220)*	1. **Any** condition in the opinion of the Emergency Coordinator that indicates loss of the Containment barrier. *(Bases Pg. 239)*	1. **Any** condition in the opinion of the Emergency Coordinator that indicates potential loss of the Containment barrier. *(Bases Pg. 239)*

Modes: 1 Power Operation; 2 Startup; 3 Hot Standby; 4 Hot Shutdown; 5 Cold Shutdown; 6 Refueling; DEF Defueled

HOT CONDITIONS (RCS > 200°F)

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EIP-ZZ-00101 Addendum 1
Emergency Action Level Classification Matrix
Revision 009
Information Use

C — Cold SD/ Refueling System Malfunction

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
1 RCS Level	Loss of RCS inventory affecting fuel clad integrity with Containment challenged.	Loss of RCS inventory affecting core decay heat removal capability.	Loss of RCS inventory.	UNPLANNED loss of RCS inventory for 15 minutes or longer.
	CG1.1 *(Bases Pg. 86)* [5] [6] RVLIS Pumps Off < 65% (Top of Fuel) for ≥ 30 min. *(Note 1)* **AND** **Any** Containment Challenge indication, Table C-2.	**CS1.1** *(Bases Pg. 79)* [5] [6] With CONTAINMENT CLOSURE **not** established, RVLIS Pumps Off < 72%.	**CA1.1** *(Bases Pg. 75)* [5] [6] Loss of RCS inventory as indicated by Reactor Vessel level < bottom of RCS hot leg ID (RVLIS Pumps Off < 73%).	**CU1.1** *(Bases Pg. 71)* [5] [6] UNPLANNED loss of reactor coolant results in RCS level less than a required lower limit for ≥ 15 min. *(Note 1)*
	CG1.2 *(Bases Pg. 90)* [5] [6] RCS level **cannot** be monitored for ≥ 30 min. *(Note 1)* **AND** Core uncovery is indicated by **any** of the following • UNPLANNED increase in **any** Table C-1 sump/tank level of sufficient magnitude to indicate core uncovery. • Manipulator crane radiation monitor SD-RE-41 > 10,000 mR/hr. • Erratic Source Range Monitor indication. **AND** **Any** Containment Challenge indication Table C-2.	**CS1.2** *(Bases Pg. 81)* [5] [6] With CONTAINMENT CLOSURE established RVLIS Pumps Off < 65% (Top of Fuel). **CS1.3** *(Bases Pg. 83)* [5] [6] RCS water level cannot be monitored for ≥ 30 min. *(Note 1)* **AND** Core uncovery is indicated by **any** of the following • UNPLANNED increase in **any** Table C-1 sump/tank level of sufficient magnitude to indicate core uncovery. • Manipulator crane radiation monitor SD-RE-41 > 10 000 mR/hr. • Erratic Source Range Monitor indication.	**CA1.2** *(Bases Pg. 77)* [5] [6] RCS water level cannot be monitored for ≥ 15 min. *(Note 1)* **AND EITHER** • UNPLANNED increase in **any** Table C-1 Sump / Tank level. • Visual observation of UNISOLABLE RCS leakage.	**CU1.2** *(Bases Pg. 73)* [5] [6] RCS water level cannot be monitored. **AND EITHER:** • UNPLANNED increase in **any** Table C-1 sump/tank level due to a loss of RCS inventory. • Visual observation of UNISOLABLE RCS leakage.
2 Loss of Emergency AC Power			Loss of **all** offsite and **all** onsite AC power to emergency buses for 15 minutes or longer.	Loss of **all** but one AC power source to emergency buses for 15 minutes or longer.
			CA2.1 *(Bases Pg. 97)* [5] [6] [DEF] Loss of **all** offsite and **all** onsite AC power capability, Table C-3, to emergency 4.16KV buses NB01 and NB02 for ≥ 15 min. *(Note 1)*	**CU2.1** *(Bases Pg. 94)* [5] [6] [DEF] AC power capability, Table C-3, to emergency 4.16KV buses NB01 and NB02 reduced to a single power source for ≥ 15 min. *(Note 1)* **AND** **Any** additional single power source failure will result in loss of **all** AC power to SAFETY SYSTEMS.
3 RCS Temp.			Inability to maintain plant in cold shutdown.	Unplanned increase in RCS temperature.
			CA3.1 *(Bases Pg. 103)* [5] [6] UNPLANNED increase in RCS temperature to > 200°F for > Table C-4 duration. *(Notes 1, 10)* **OR** UNPLANNED RCS pressure increase > 10 psig. *(This EAL does not apply during water-solid plant conditions.)*	**CU3.1** *(Bases Pg. 99)* [5] [6] UNPLANNED increase in RCS temperature to > 200 F. *(Note 10)* **CU3.2** *(Bases Pg. 101)* [5] [6] Loss of **all** RCS temperature and RCS level indication for ≥ 15 min. *(Note 1)*
4 Loss of Vital DC Power				Loss of Vital DC power for 15 minutes or longer.
				CU4.1 *(Bases Pg. 106)* [5] [6] < 107 VDC bus voltage indications on Technical Specification **required** 125 VDC buses for ≥ 15 min. *(Note 1)*
5 Loss of Comm.				Loss of **all** onsite or offsite communications capabilities.
				CU5.1 *(Bases Pg. 108)* [5] [6] [DEF] Loss of **all** Table C-5 onsite communication methods. **OR** Loss of **all** Table C-5 ORO communication methods. **OR** Loss of **all** Table C-5 NRC communication methods.
6 Hazardous Event Affecting Safety Systems			Hazardous event affecting a SAFETY SYSTEM needed for the current operating MODE.	
			CA6.1 *(Bases Pg. 111)* [5] [6] 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)*	

Table C-1 Sumps/Tanks
- Containment Sumps
- Containment Normal Sumps
- Containment Instrument Sump
- PRT
- RCDT
- Auxiliary Building Sump

Table C-2 Containment Challenge Indications
- CONTAINMENT CLOSURE **not** established *(Note 6)*
- Containment hydrogen concentration ≥ 4%
- Unplanned rise in Containment pressure

Table C-3 AC Power Sources

Offsite:
- Safeguards XMFR A or B via ESF LTC XMFR XNB01
- Startup XMFR XMR01 via ESF LTC XMFR XNB02
- Main XMFR XMA01 backfed via UAT XMFR XMA02 *(in-service)*
- Alternate Emergency Power Supply *(in-service or stand-by alignment)*

Onsite:
- EDG NE01
- EDG NE02

Table C-4 RCS Reheat Duration Thresholds

RCS Status	Containment Closure Status	Heat-up Duration
RCS INTACT (but **not** REDUCED INVENTORY)	N/A	60 min. *
RCS **Not** INTACT **OR** REDUCED INVENTORY	established	20 min. *
	not established	0 min.

* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced the EAL is not applicable

Table C-5 Communications Methods

System	Onsite	ORO	NRC
Gaitronics	X		
Plant Radios	X		
Plant Emergency Dedicated Phones	X		
Plant Telephone System	X	X	X
ENS (Red Phone) Line		X	X
Back-Up Radio System		X	
Sentry Notification System		X	

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

Notes

Note 1: The Emergency Coordinator should declare the event promptly upon determining that time limit has been exceeded, or will likely be exceeded.

Note 6: If CONTAINMENT CLOSURE is re-established prior to exceeding the 30-minute time limit, declaration of a General Emergency is not required.

Note 10: Begin monitoring hot condition EALs concurrently for any new event or condition not related to the loss of decay heat removal.

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 warrented .

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

Modes: [1] Power Operation [2] Startup [3] Hot Standby [4] Hot Shutdown [5] Cold Shutdown [6] Refueling [DEF] Defueled

COLD CONDITIONS (RCS ≤ 200°F)

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