EAL- HOT MODES 1, 2, 3 & 4

R — Abnorm. Rad Levels / Rad Effluent

R1 — Rad Effluent

RG — General Emergency

RG1 Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE

1 2 3 4 5 6 NM

RG1.1
Reading on **any** Table R-1 effluent radiation monitor > column "GE" for ≥ 15 min. (Notes 1, 2, 3, 4)

RG1.2
Dose assessment using actual meteorology indicates doses > 1,000 mrem TEDE or 5,000 mrem thyroid CDE at or beyond the SITE BOUNDARY (Note 4)

RG1.3
Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY:
- Closed window dose rates > 1,000 mR/hr expected to continue for ≥ 60 min.
- Analyses of field survey samples indicate thyroid CDE > 5,000 mrem for 60 min. of inhalation.

(Notes 1, 2)

RS — Site Area Emergency

RS1 Release of gaseous radioactivity resulting in offsite dose greater than 100 mrem TEDE or 500 mrem thyroid CDE

1 2 3 4 5 6 NM

RS1.1
Reading on **any** Table R-1 effluent radiation monitor > column "SAE" for ≥ 15 min. (Notes 1, 2, 3, 4)

RS1.2
Dose assessment using actual meteorology indicates doses > 100 mrem TEDE or 500 mrem thyroid CDE at or beyond the SITE BOUNDARY (Note 4)

RS1.3
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)

A — Alert

RA1 Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE

1 2 3 4 5 6 NM

RA1.1
Reading on **any** Table R-1 effluent radiation monitor > column "ALERT" for ≥ 15 min. (Notes 1, 2, 3, 4)

RA1.2
Dose assessment using actual meteorology indicates doses > 10 mrem TEDE or 50 mrem thyroid CDE at or beyond the SITE BOUNDARY (Note 4)

RA1.3
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
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)

U — Unusual Event

RU1 Release of gaseous or liquid radioactivity greater than 2 times the SLC limits for 60 minutes or longer

1 2 3 4 5 6 NM

RU1.1
Reading on **any** Table R-1 effluent radiation monitor > column "UE" for ≥ 60 min. (Notes 1, 2, 3)

RU1.2
Sample analysis for a gaseous or liquid release indicates a concentration or release rate > 2 x SLC limits for ≥ 60 min. (Notes 1, 2)

R2 — Irradiated Fuel Event

RG — General Emergency

RG2 Spent fuel pool level cannot be restored to at least the top of the fuel racks for 60 minutes or longer

1 2 3 4 5 6 NM

RG2.1
Spent fuel pool level cannot be restored to > -25 ft. (746 ft. ele.) (KFP5350 or NVPG6530) for ≥ 60 min. (Note 1)

RS — Site Area Emergency

RS2 Spent fuel pool level at the top of the fuel racks

1 2 3 4 5 6 NM

RS2.1
Spent fuel pool level ≤ -25 ft. (746 ft. ele.) (KFP5350 or NVPG6530)

A — Alert

RA2 Significant lowering of water level above, or damage to, irradiated fuel

1 2 3 4 5 6 NM

RA2.1
Uncovery of irradiated fuel in the REFUELING PATHWAY

RA2.2
Damage to irradiated fuel resulting in a release of radioactivity
AND
A Trip 2 radiation alarm on **any** of the following radiation monitor indications:
- 1EMF17 (2EMF4) Spent Fuel Building Refueling Bridge
- 1EMF16 (2EMF3) Containment Building Refueling Bridge (Mode 6)
- 1EMF42 (2EMF42) Fuel Building Ventilation
- 1EMF39 (2EMF39) Containment Gas

RA2.3
Spent fuel pool level ≤ -15 ft. (756 ft. ele.) (KFP5350 or NVPG6530)

U — Unusual Event

RU2 Unplanned loss of water level above irradiated fuel

1 2 3 4 5 6 NM

RU2.1
UNPLANNED water level drop in the REFUELING PATHWAY as indicated by low water level alarm or indication
AND
UNPLANNED rise in corresponding area radiation levels as indicated by **EITHER** of the following radiation monitors:
- 1EMF17 (2EMF4) Spent Fuel Building Refueling Bridge
- 1EMF16 (2EMF3) Containment Building Refueling Bridge (Mode 6)

Table R-1 Effluent Monitor Classification Thresholds

	Release Point	Monitor	GE	SAE	Alert	UE
Gaseous	Unit Vent Noble Gas Low	1(2)EMF36L	--------	--------	4.85E+6 cpm	3.10E+3 cpm
Gaseous	Unit Vent Noble Gas High	1(2)EMF36H	2.61E+4 cpm	2.61E+3 cpm	2.70E+2 cpm	--------
Liquid	Liquid Waste Effluent Line High	EMF49H	--------	--------	--------	2.15E+2 cpm
Liquid	CVUCDT High	1(2)EMF44H	--------	--------	--------	4.29E+2 cpm

R3 — Area Rad Levels

A — Alert

RA3 Radiation levels that IMPEDE access to equipment necessary for normal plant operations, cooldown or shutdown

1 2 3 4 5 6 NM

RA3.1
Dose rates > 15 mR/hr in **EITHER** of the following areas:
Control Room (1EMF12)
OR
Central Alarm Station (by survey)

RA3.2
An UNPLANNED event results in radiation levels that prohibit or IMPEDE access to **any** Table R-2 rooms or areas (Note 5)

Table R-2 Safe Operation & Shutdown Rooms/Areas

Bldg. Elevation	Unit 1 Room/Area	Unit 2 Room/Area	Modes
Auxiliary 716'	P/C, RHole, near 1NI-185, Outside CAD 212	ABPC thru CAD Door, FF59	4
Auxiliary 750'	800 (1EMXA)	820 (2EMXA)	3, 4
	803 (1ETA)	805 (2ETA)	3, 4
Auxiliary 733'	702 (Elec. Pene.)	713 (Elec. Pene.)	3
	722 (1EMXB-1)	724 (2EMXB-1)	3, 4
	705 (1ETB)	716 (2ETB)	3, 4

H — Hazards

H1 — Security

HS — Site Area Emergency

HS1 HOSTILE ACTION within the Protected Area

1 2 3 4 5 6 NM

HS1.1
A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervision

A — Alert

HA1 HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes

1 2 3 4 5 6 NM

HA1.1
A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervision

HA1.2
A validated notification from NRC of an aircraft attack threat within 30 min. of the site

U — Unusual Event

HU1 Confirmed SECURITY CONDITION or threat

1 2 3 4 5 6 NM

HU1.1
A SECURITY CONDITION that does **not** involve a HOSTILE ACTION as reported by Security Shift Supervision

HU1.2
Notification of a credible security threat directed at the site

HU1.3
A validated notification from the NRC providing information of an aircraft threat

H2 — Seismic Event

A — Alert

None

U — Unusual Event

HU2 Seismic event greater than OBE levels

1 2 3 4 5 6 NM

HU2.1
Seismic event > OBE as indicated by OBE EXCEEDED alarm on 1AD-13, E7

[Refer to EAL CA6.1 OR SA9.1 for escalation due to seismic event]

H3 — Natural or Tech. Hazard

A — Alert

None

[Refer to EAL CA6.1 OR SA9.1 for escalation due to natural or technological hazard]

U — Unusual Event

HU3 Hazardous event

1 2 3 4 5 6 NM

HU3.1
A tornado strike within the PROTECTED AREA

HU3.2
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

HU3.3
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)

HU3.4
A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles (Note 7)

H4 — Fire

A — Alert

[Refer to EAL CA6.1 OR SA9.1 for escalation due to FIRE]

Table H-1 Fire Areas
- Containment
- Auxiliary Building
- Diesel Generator Rooms
- FWST
- Dog Houses
- Standby Shutdown Facility (SSF)

None

U — Unusual Event

HU4 FIRE potentially degrading the level of safety of the plant

1 2 3 4 5 6 NM

HU4.1
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
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
A FIRE within the plant PROTECTED AREA not extinguished within 60 min. of the initial report, alarm or indication (Note 1)

HU4.4
A FIRE within the plant PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish

H5 — Hazardous Gases

A — Alert

HA5 Gaseous release IMPEDING access to equipment necessary for normal plant operations, cooldown or shutdown

3 4

HA5.1
Release of a toxic, corrosive, asphyxiant or flammable gas into **any** Table H-2 rooms or areas
AND
Entry into the room or area is prohibited or IMPEDED (Note 5)

Table H-2 Safe Operation & Shutdown Rooms/Areas

Bldg. Elevation	Unit 1 Room/Area	Unit 2 Room/Area	Modes
Auxiliary 716'	P/C, RHole, near 1NI-185, Outside CAD 212	ABPC thru CAD Door, FF59	4
Auxiliary 750'	800 (1EMXA)	820 (2EMXA)	3, 4
	803 (1ETA)	805 (2ETA)	3, 4
Auxiliary 733'	702 (Elec. Pene.)	713 (Elec. Pene.)	3
	722 (1EMXB-1)	724 (2EMXB-1)	3, 4
	705 (1ETB)	716 (2ETB)	3, 4

U — Unusual Event

None

H6 — Control Room Evacuation

MNS

HS — Site Area Emergency

HS6 Inability to control a key safety function from outside the Control Room

1 2 3 4 5 6

HS6.1
An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panels or Standby Shutdown Facility (SSF)
AND
Control of **any** of the following key safety functions is not reestablished within 15 min. (Note 1):
- Reactivity (Modes 1, 2 and 3 **only**)
- Core Cooling
- NCS heat removal

A — Alert

HA6 Control Room evacuation resulting in transfer of plant control to alternate locations

1 2 3 4 5 6 NM

HA6.1
An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panels or Standby Shutdown Facility (SSF)

U — Unusual Event

None

H7 — EC Judgment

HG — General Emergency

HG7 Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of a General Emergency

1 2 3 4 5 6 NM

HG7.1
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

HS — Site Area Emergency

HS7 Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of a Site Area Emergency

1 2 3 4 5 6 NM

HS7.1
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.

A — Alert

HA7 Other conditions exist that in the judgment of the Emergency Coordinator warrant declaration of an Alert

1 2 3 4 5 6 NM

HA7.1
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.

U — Unusual Event

HU7 Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of a UE

1 2 3 4 5 6 NM

HU7.1
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.

E — ISFSI

U — Unusual Event

EU1 Damage to a loaded cask CONFINEMENT BOUNDARY

1 2 3 4 5 6 NM

EU1.1
Damage to a loaded canister CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading on the surface of a loaded spent fuel cask > **any** Table E-1 dose limit

Table E-1 ISFSI Dose Limits

NAC Magnastor	NAC UMS	Transnuclear (TN-32)
- 190 mrem/hr (gamma) on the side of the cask (excludes air inlet/outlet ports)	- 100 mrem/hr (neutron + gamma) on the side of the cask	- 120 mrem/hr (gamma) or 20 mrem/hr (neutron) on top of the cask
- 10 mrem/hr (neutron) on the side of the cask (excludes air inlet/outlet ports)	- 100 mrem/hr (neutron + gamma) on the top of the cask	- 340 mrem/hr (gamma) or 40 mrem/hr (neutron) on the sides of the radial neutron shield
- 900 mrem/hr (neutron + gamma) on the top of the cask (excludes air inlet/outlet ports)	- 200 mrem/hr (neutron + gamma) at air inlets and outlets	- 560 mrem/hr (gamma) or 280 mrem/hr (neutron) on the side surfaces above the radial neutron shield region
		- 220 mrem/hr (gamma) or 400 mrem/hr (neutron) on the side surfaces below the radial neutron shield region

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

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

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: In the absence of reliable NCS temperature indication caused by the loss of decay heat removal capability, classification should be based on the NCS pressure increase criteria when in Mode 5 or based on time to boil data when in Mode 6.

Note 10: If the loss of containment cooling threshold is exceeded due to loss of both trains of VX-CARF, this EAL only applies if at least one train of VX-CARF is not operating, per design, after the 10 minute actuation delay for greater than or equal to 15 minutes.

Note 11: If the affected SAFETY SYSTEM 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 resulted in VISIBLE DAMAGE, with no indications of degraded performance to at least one train of a SAFETY SYTSEM, then this emergency classification is not warranted.

Modes: 1 Power Operations | 2 Startup | 3 Hot Standby | 4 Hot Shutdown | 5 Cold Shutdown | 6 Refuel | NM No Mode

DUKE ENERGY

McGuire Nuclear Station
Classification of Emergency
FAD-MC-EP-EAL-WALLCHARTS Rev 003

S — System Malfunct.

S1 — Loss of Essential AC Power

SG — General Emergency

SG1 Prolonged loss of **all** offsite and **all** onsite AC power to essential buses

1 2 3 4

SG1.1
Loss of **all** offsite and **all** onsite AC power capability to essential 4160V buses 1(2)ETA and 1(2)ETB
AND EITHER:
- Restoration of at least one essential bus in < 4 hours is **not** likely (Note 1)
- Core Cooling RED PATH conditions met

SG1 Loss of **all** essential AC and vital DC power sources for 15 minutes or longer

1 2 3 4

SG1.2
Loss of **all** offsite and **all** onsite AC power capability to essential 4160V buses 1(2)ETA and 1(2)ETB for ≥ 15 min.
AND
Loss of **all** 125 VDC power based on battery bus voltage indications < 105 VDC on **both** vital DC buses EVDA and EVDD for ≥ 15 min. (Note 1)

SS — Site Area Emergency

SS1 Loss of **all** offsite and **all** onsite AC power to essential buses for 15 minutes or longer

1 2 3 4

SS1.1
Loss of **all** offsite and **all** onsite AC power capability to essential 4160V buses 1(2)ETA and 1(2)ETB for ≥ 15 min. (Note 1)

SA — Alert

SA1 Loss of **all but one** AC power source to essential buses for 15 minutes or longer

1 2 3 4

SA1.1
AC power capability, Table S-1, to essential 4160V buses 1(2)ETA and 1(2)ETB 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

Table S-1 AC Power Sources

Offsite
- ATC (Train A)
- SATA (Train A)
- ATD (Train B)
- SATB (Train B)

Onsite
- D/G 1(2) A (Train A)
- D/G 1(2) B (Train B

SU — Unusual Event

SU1 Loss of **all** offsite AC power capability to essential buses for 15 minutes or longer

1 2 3 4

SU1.1
Loss of **all** offsite AC power capability, Table S-1, to essential 4160V buses 1(2)ETA and 1(2)ETB for ≥ 15 min. (Note 1)

S2 — Loss of Vital DC Power

SS — Site Area Emergency

SS2 Loss of all vital DC power for 15 minutes or longer

1 2 3 4

SS2.1
Loss of **all** 125 VDC power based on battery bus voltage indications < 105 VDC on **both** vital DC buses EVDA and EVDD for ≥ 15 min. (Note 1)

SA — Alert

None

SU — Unusual Event

None

S3 — Loss of CR Indications

SA — Alert

SA3 UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress

1 2 3 4

SA3.1
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

Table S-3 Significant Transients
- Reactor trip
- Runback > 25% thermal power
- Electrical load rejection > 25% electrical load
- Safety injection actuation

SU — Unusual Event

SU3 UNPLANNED loss of Control Room indications for 15 minutes or longer

1 2 3 4

SU3.1
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)

S4 — NCS Activity

SA — Alert

None

SU — Unusual Event

SU4 NCS activity greater than Technical Specification allowable limits

1 2 3 4

SU4.1
NCS activity > **any** of the following Technical Specification 3.4.16 limits:
- Dose Equivalent I-131 > 1.0 µCi/gm for > 48 hrs.
- Dose Equivalent I-131 > 60 µCi/gm
- Dose Equivalent Xe-133 > 280 µCi/gm

Table S-2 Safety System Parameters
- Reactor power
- NCS level
- NCS pressure
- Core exit T/C temperature
- Level in at least one S/G
- Auxiliary feed flow in at least one S/G

S5 — NCS Leakage

SA — Alert

None

SU — Unusual Event

SU5 NCS leakage for 15 minutes or longer

1 2 3 4

SU5.1
NCS unidentified or pressure boundary leakage > 10 gpm for ≥ 15 min.
OR
NCS identified leakage > 25 gpm for ≥ 15 min.
OR
Leakage from the NCS to a location outside containment > 25 gpm for ≥ 15 min. (Note 1)

S6 — RPS Failure

SS — Site Area Emergency

SS6 Inability to shut down the reactor causing a challenge to core cooling or NCS heat removal

1

SS6.1
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:
- Core Cooling RED PATH conditions met
- Heat Sink RED PATH conditions met

SA — Alert

SA6 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

1

SA6.1
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 (manual reactor trip switches or turbine manual trip) are **not** successful in shutting down the reactor as indicated by reactor power ≥ 5% (Note 8)

SU — Unusual Event

SU6 Automatic or manual trip fails to shut down the reactor

1

SU6.1
An automatic trip did **not** shut down the reactor as indicated by reactor power ≥ 5% after **any** RPS setpoint is exceeded
AND
A subsequent automatic trip or manual trip action taken at the reactor control console (manual reactor trip switches or turbine manual trip) is successful in shutting down the reactor as indicated by reactor power < 5% (Note 8)

SU6.2
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 console (manual reactor trip switches or turbine manual trip) is successful in shutting down the reactor as indicated by reactor power < 5% (Note 8)

S7 — Loss of Comm.

SU — Unusual Event

SU7 Loss of **all** onsite or offsite communications capabilities

1 2 3 4

SU7.1
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

Table S-4 Communication Methods

System	Onsite	ORO	NRC
Public Address	X		
Internal Telephones	X		
Onsite Radios	X		
DEMNET		X	
Offsite Radio System		X	
Commercial Telephones		X	X
NRC Emergency Telecommunications System (ETS)			X

S8 — CMT Failure

SU — Unusual Event

SU8 Failure to isolate containment or loss of containment pressure control

1 2 3 4

SU8.1
EITHER:
Any penetration is **not** isolated within 15 min. of a VALID containment isolation signal (Note 1)
OR
Containment pressure > 3 psig with **EITHER** a failure of both trains of NS **OR** failure of both trains of VX-CARF for ≥ 15 min. (Notes 1, 10)

Table S-5 Hazardous Events
- Seismic event (earthquake)
- Internal or external FLOODING event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

S9 — Hazardous Event Affecting Safety Systems

SA — Alert

SA9 Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode

1 2 3 4

SA9.1
The occurrence of **any** Table S-5 hazardous event
AND
- Event damage has caused indications of degraded performance on one train of a SAFETY SYSTEM needed for the current operating mode

AND EITHER one of the following:
- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM needed for the current operating mode.
- Event damage has resulted in VISIBLE DAMAGE to the second train of the SAFETY SYSTEM needed for the current operating mode

(Note 11, 12)

SU — Unusual Event

None

MNS

Table F-2 Containment Radiation - R/hr (EMF51A & B)

Time After S/D (Hrs)	FC Loss	NCS Loss	CMT Potential Loss
0 - 1	550	8.8	5500
1 - 2	400	8.4	4000
2 - 8	160	7.0	1600
>8	100	6.2	1000

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

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

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: In the absence of reliable NCS temperature indication caused by the loss of decay heat removal capability, classification should be based on the NCS pressure increase criteria when in Mode 5 or based on time to boil data when in Mode 6.

Note 10: If the loss of containment cooling threshold is exceeded due to loss of both trains of VX-CARF, this EAL only applies if at least one train of VX-CARF is not operating, per design, after the 10 minute actuation delay for greater than or equal to 15 minutes.

Note 11: If the affected SAFETY SYSTEM 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 resulted in VISIBLE DAMAGE, with no indications of degraded performance to at least one train of a SAFETY SYTSEM, then this emergency classification is not warranted.

F — Fission Product Barriers

FG — General Emergency

FG1.1 1 2 3 4

Loss of **any** two barriers
AND
Loss **OR** potential loss of third barrier (Table F-1)

FS — Site Area Emergency

FS1.1 1 2 3 4

Loss **OR** potential loss of **any** two barriers (Table F-1)

FA — Alert

FA1.1 1 2 3 4

Any loss **OR any** potential loss of either Fuel Clad or NCS (Table F-1)

Table F-1 Fission Product Barrier Threshold Matrix

	Fuel Clad (FC) Barrier		Reactor Coolant System (NCS) Barrier		Containment (CMT) Barrier	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
A. NCS or SG Tube Leakage	None	None	1. An automatic or manual ECCS (SI) actuation required by **EITHER**: • UNISOLABLE NCS leakage • SG tube RUPTURE	1. Operation of a standby charging pump is required by **EITHER**: • UNISOLABLE NCS leakage • SG tube leakage 2. Integrity-RED PATH conditions met	1. A leaking or RUPTURED SG is FAULTED outside of containment	None
B. Inadequate Heat Removal	1. Core Cooling-RED PATH conditions met	1. Core Cooling-ORANGE PATH conditions met 2. Heat Sink-RED PATH conditions met **AND** Heat Sink is required	None	1. Heat Sink-RED PATH conditions met **AND** Heat Sink is required	None	1. Core Cooling-RED PATH conditions met **AND** Restoration procedures **not** effective within 15 min. (Note 1)
C. CMT Radiation / NCS Activity	1. EMF51A/B > Table F-2 column "FC Loss" 2. Dose equivalent I-131 coolant activity > 300 µCi/gm	None	1. EMF51A/B > Table F-2 column "NCS Loss"	None	None	1. EMF51A/B > Table F-2 column "CMT Potential Loss"
D. CMT Integrity or Bypass	None	None	None	None	1. Containment isolation is required **AND EITHER** • Containment integrity has been lost based on EC judgment • UNISOLABLE pathway from Containment to the environment exists 2. Indications of NCS leakage outside of containment	1. Containment-RED PATH conditions met 2. Containment hydrogen concentration > 6% 3. Containment pressure > 3 psig with **EITHER** a failure of both trains of NS **OR** failure of both trains of VX-CARF for ≥ 15 min. (Notes 1, 10)
E. EC Judgment	1. **Any** condition in the opinion of the Emergency Coordinator that indicates loss of the fuel clad barrier	1. **Any** condition in the opinion of the Emergency Coordinator that indicates potential loss of the fuel clad barrier	1. **Any** condition in the opinion of the Emergency Coordinator that indicates loss of the NCS barrier	1. **Any** condition in the opinion of the Emergency Coordinator that indicates potential loss of the NCS barrier	1. **Any** condition in the opinion of the Emergency Coordinator that indicates loss of the containment barrier	1. **Any** condition in the opinion of the Emergency Coordinator that indicates potential loss of the containment barrier

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
R Abnorm. Rad Levels / Rad Effluent	1 Rad Effluent	RG1 Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE 1 2 3 4 5 6 NM **RG1.1** Reading on **any** Table R-1 effluent radiation monitor > column "GE" for ≥ 15 min. (Notes 1, 2, 3, 4) **RG1.2** Dose assessment using actual meteorology indicates doses > 1,000 mrem TEDE or 5,000 mrem thyroid CDE at or beyond the SITE BOUNDARY (Note 4) **RG1.3** Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY: - Closed window dose rates > 1,000 mR/hr expected to continue for ≥ 60 min. - Analyses of field survey samples indicate thyroid CDE > 5,000 mrem for 60 min. of inhalation. (Notes 1, 2)	RS1 Release of gaseous radioactivity resulting in offsite dose greater than 100 mrem TEDE or 500 mrem thyroid CDE 1 2 3 4 5 6 NM **RS1.1** Reading on **any** Table R-1 effluent radiation monitor > column "SAE" for ≥ 15 min. (Notes 1, 2, 3, 4) **RS1.2** Dose assessment using actual meteorology indicates doses > 100 mrem TEDE or 500 mrem thyroid CDE at or beyond the SITE BOUNDARY (Note 4) **RS1.3** 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)	RA1 Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE 1 2 3 4 5 6 NM **RA1.1** Reading on **any** Table R-1 effluent radiation monitor > column "ALERT" for ≥ 15 min. (Notes 1, 2, 3, 4) **RA1.2** Dose assessment using actual meteorology indicates doses > 10 mrem TEDE or 50 mrem thyroid CDE at or beyond the SITE BOUNDARY (Note 4) **RA1.3** 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** 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)	RU1 Release of gaseous or liquid radioactivity greater than 2 times the SLC limits for 60 minutes or longer 1 2 3 4 5 6 NM **RU1.1** Reading on **any** Table R-1 effluent radiation monitor > column "UE" for ≥ 60 min. (Notes 1, 2, 3) **RU1.2** Sample analysis for a gaseous or liquid release indicates a concentration or release rate > 2 x SLC limits for ≥ 60 min. (Notes 1, 2)
	2 Irradiated Fuel Event	RG2 Spent fuel pool level cannot be restored to at least the top of the fuel racks for 60 minutes or longer 1 2 3 4 5 6 NM **RG2.1** Spent fuel pool level cannot be restored to > -25 ft. (746 ft. ele.) (KFP5350 or NVPG6530) for ≥ 60 min. (Note 1)	RS2 Spent fuel pool level at the top of the fuel racks 1 2 3 4 5 6 NM **RS2.1** Spent fuel pool level ≤ -25 ft. (746 ft. ele.) (KFP5350 or NVPG6530)	RA2 Significant lowering of water level above, or damage to, irradiated fuel 1 2 3 4 5 6 NM **RA2.1** Uncovery of irradiated fuel in the REFUELING PATHWAY **RA2.2** Damage to irradiated fuel resulting in a release of radioactivity **AND** A Trip 2 radiation alarm on **any** of the following radiation monitor indications: - 1EMF17 (2EMF4) Spent Fuel Building Refueling Bridge - 1EMF16 (2EMF3) Containment Building Refueling Bridge (Mode 6) - 1EMF42 (2EMF42) Fuel Building Ventilation - 1EMF39 (2EMF39) Containment Gas **RA2.3** Spent fuel pool level ≤ -15 ft. (756 ft. ele.) (KFP5350 or NVPG6530)	RU2 Unplanned loss of water level above irradiated fuel 1 2 3 4 5 6 NM **RU2.1** UNPLANNED water level drop in the REFUELING PATHWAY as indicated by low water level alarm or indication **AND** UNPLANNED rise in corresponding area radiation levels as indicated by **EITHER** of the following radiation monitors: - 1EMF17 (2EMF4) Spent Fuel Building Refueling Bridge - 1EMF16 (2EMF3) Containment Building Refueling Bridge (Mode 6)
	3 Area Rad Levels	**Table R-1 Effluent Monitor Classification Thresholds** Gaseous: Unit Vent Noble Gas Low — Release Point: 1(2)EMF36L; GE: --------; SAE: --------; Alert: 4.85E+6 cpm; UE: 3.10E+3 cpm Gaseous: Unit Vent Noble Gas High — Release Point: 1(2)EMF36H; GE: 2.61E+4 cpm; SAE: 2.61E+3 cpm; Alert: 2.70E+2 cpm; UE: -------- Liquid: Liquid Waste Effluent Line High — Release Point: EMF49H; GE: --------; SAE: --------; Alert: --------; UE: 2.15E+2 cpm Liquid: CVUCDT High — Release Point: 1(2)EMF44H; GE: --------; SAE: --------; Alert: --------; UE: 4.29E+2 cpm **Table R-2 Safe Operation & Shutdown Rooms/Areas** Bldg. Elevation / Unit 1 Room/Area / Unit 2 Room/Area / Modes Auxiliary 716' — P/C, RHole, near 1NI-185, Outside CAD 212 — ABPC thru CAD Door, FF59 — 4 Auxiliary 750' — 800 (1EMXA), 803 (1ETA) — 820 (2EMXA), 805 (2ETA) — 3, 4 Auxiliary 733' — 702 (Elec. Pene.), 722 (1EMXB-1), 705 (1ETB) — 713 (Elec. Pene.), 724 (2EMXB-1), 716 (2ETB) — 3, 4		RA3 Radiation levels that IMPEDE access to equipment necessary for normal plant operations, cooldown or shutdown 1 2 3 4 5 6 NM **RA3.1** Dose rates > 15 mR/hr in **EITHER** of the following areas: Control Room (1EMF12) **OR** Central Alarm Station (by survey) **RA3.2** An UNPLANNED event results in radiation levels that prohibit or IMPEDE access to **any** Table R-2 rooms or areas (Note 5)	None
H Hazards	1 Security	None	HS1 HOSTILE ACTION within the Protected Area 1 2 3 4 5 6 NM **HS1.1** A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervision	HA1 HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes 1 2 3 4 5 6 NM **HA1.1** A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervision **HA1.2** A validated notification from NRC of an aircraft attack threat within 30 min. of the site	HU1 Confirmed SECURITY CONDITION or threat 1 2 3 4 5 6 NM **HU1.1** A SECURITY CONDITION that does **not** involve a HOSTILE ACTION as reported by the Security Shift Supervision **HU1.2** Notification of a credible security threat directed at the site **HU1.3** A validated notification from the NRC providing information of an aircraft threat
	2 Seismic Event	None	None	None **[Refer to EAL CA6.1 OR SA9.1 for escalation due to seismic event]**	HU2 Seismic event greater than OBE levels 1 2 3 4 5 6 NM **HU2.1** Seismic event > OBE as indicated by OBE EXCEEDED alarm on 1AD-13, E7
	3 Natural or Tech. Hazard	None	None	None **[Refer to EAL CA6.1 OR SA9.1 for escalation due to natural or technological hazard]**	HU3 Hazardous event 1 2 3 4 5 6 NM **HU3.1** A tornado strike within the PROTECTED AREA **HU3.2** 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 **HU3.3** 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) **HU3.4** 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	None **[Refer to EAL CA6.1 OR SA9.1 for escalation due to FIRE]**	**Table H-1 Fire Areas** - Containment - Auxiliary Building - Diesel Generator Rooms - FWST - Dog Houses - Standby Shutdown Facility (SSF)	None	HU4 FIRE potentially degrading the level of safety of the plant 1 2 3 4 5 6 NM **HU4.1** 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** 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** A FIRE within the plant PROTECTED AREA not extinguished within 60 min. of the initial report, alarm or indication (Note 1) **HU4.4** A FIRE within the plant PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish
	5 Hazardous Gases	**Table H-2 Safe Operation & Shutdown Rooms/Areas** Bldg. Elevation / Unit 1 Room/Area / Unit 2 Room/Area / Modes Auxiliary 716' — P/C, RHole, near 1NI-185, Outside CAD 212 — ABPC thru CAD Door, FF59 — 4 Auxiliary 750' — 800 (1EMXA), 803 (1ETA) — 820 (2EMXA), 805 (2ETA) — 3, 4 Auxiliary 733' — 702 (Elec. Pene.), 722 (1EMXB-1), 705 (1ETB) — 713 (Elec. Pene.), 724 (2EMXB-1), 716 (2ETB) — 3, 4		HA5 Gaseous release IMPEDING access to equipment necessary for normal plant operations, cooldown or shutdown 3 4 **HA5.1** Release of a toxic, corrosive, asphyxiant or flammable gas into **any** Table H-2 rooms or areas **AND** Entry into the room or area is prohibited or IMPEDED (Note 5)	None
	6 Control Room Evacuation	MNS	HS6 Inability to control a key safety function from outside the Control Room 1 2 3 4 5 6 **HS6.1** An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panels or Standby Shutdown Facility (SSF) **AND** Control of **any** of the following key safety functions is not reestablished within 15 min. (Note 1): - Reactivity (Modes 1, 2 and 3 **only**) - Core Cooling - NCS heat removal	HA6 Control Room evacuation resulting in transfer of plant control to alternate locations 1 2 3 4 5 6 NM **HA6.1** An event has resulted in plant control being transferred from the Control Room to the Auxiliary Shutdown Panels or Standby Shutdown Facility (SSF)	None
	7 EC Judgment	HG7 Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of a General Emergency 1 2 3 4 5 6 NM **HG7.1** 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	HS7 Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of a Site Area Emergency 1 2 3 4 5 6 NM **HS7.1** 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.	HA7 Other conditions exist that in the judgment of the Emergency Coordinator warrant declaration of an Alert 1 2 3 4 5 6 NM **HA7.1** 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.	HU7 Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of a UE 1 2 3 4 5 6 NM **HU7.1** 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.
E ISFSI					EU1 Damage to a loaded cask CONFINEMENT BOUNDARY 1 2 3 4 5 6 NM **EU1.1** Damage to a loaded canister CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading on the surface of a loaded spent fuel cask > **any** Table E-1 dose limit

Table E-1 ISFSI Dose Limits

NAC Magnastor	NAC UMS	Transnuclear (TN-32)
- 190 mrem/hr (gamma) on the side of the cask (excludes air inlet/outlet ports) - 10 mrem/hr (neutron) on the side of the cask (excludes air inlet/outlet ports) - 900 mrem/hr (neutron + gamma) on the top of the cask (excludes air inlet/outlet ports)	- 100 mrem/hr (neutron + gamma) on the side of the cask - 100 mrem/hr (neutron + gamma) on the top of the cask - 200 mrem/hr (neutron + gamma) at air inlets and outlets	- 120 mrem/hr (gamma) or 20 mrem/hr (neutron) on top of the cask - 340 mrem/hr (gamma) or 40 mrem/hr (neutron) on the sides of the radial neutron shield - 560 mrem/hr (gamma) or 280 mrem/hr (neutron) on the side surfaces above the radial neutron shield region - 220 mrem/hr (gamma) or 400 mrem/hr (neutron) on the side surfaces below the radial neutron shield region

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

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

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: In the absence of reliable NCS temperature indication caused by the loss of decay heat removal capability, classification should be based on the NCS pressure increase criteria when in Mode 5 or based on time to boil data when in Mode 6.

Note 10: If the loss of containment cooling threshold is exceeded due to loss of both trains of VX-CARF, this EAL only applies if at least one train of VX-CARF is not operating, per design, after the 10 minute actuation delay for greater than or equal to 15 minutes.

Note 11: If the affected SAFETY SYSTEM 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 resulted in VISIBLE DAMAGE, with no indications of degraded performance to at least one train of a SAFETY SYTSEM, then this emergency classification is not warranted.

Modes: 1 Power Operations; 2 Startup; 3 Hot Standby; 4 Hot Shutdown; 5 Cold Shutdown; 6 Refuel; NM No Mode

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McGuire Nuclear Station
Classification of Emergency
FAD-MC-EP-EAL-WALLCHARTS Rev 003

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
C Cold SD/ Refuel System Malfunct.	1 NCS Level	CG1 Loss of NCS inventory affecting fuel clad integrity with containment challenged 5 6 **CG1.1** NCS 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-6 sump or tank level due to a loss of NCS inventory - Visual observation of UNISOLABLE NCS leakage - Reactor Building Refueling Bridge Monitor 1EMF16 (2EMF3) reading > 9,000 mR/hr - Erratic Source Range or Wide Range Flux Monitor indication **AND** **Any** Containment Challenge indication, Table C-1	CS1 Loss of NCS inventory affecting core decay heat removal capability 5 6 **CS1.1** NCS 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-6 sump or tank level due to a loss of NCS inventory - Visual observation of unisolable NCS leakage - Reactor Building Refueling Bridge Monitor 1EMF16 (2EMF3) reading > 9000 mR/hr (Mode 6) - Erratic Source Range or Wide Range Flux Monitor indication	CA1 Loss of NCS inventory 5 6 **CA1.1** Loss of NCS inventory as indicated by NCS water level < 5 in. above hotleg centerline **CA1.2** NCS water level cannot be monitored for ≥ 15 min. (Note 1) **AND EITHER** - UNPLANNED increase in **any** Table C-6 sump or tank level due to a loss of NCS inventory - Visual observation of unisolable NCS leakage	CU1 UNPLANNED loss of NCS inventory for 15 minutes or longer 5 6 **CU1.1** UNPLANNED loss of reactor coolant results in NCS water level less than a required lower limit for ≥ 15 min. (Note 1) **CU1.2** NCS water level cannot be monitored **AND EITHER** - UNPLANNED increase in **any** Table C-6 sump or tank level due to a loss of NCS inventory - Visual observation of unisolable NCS leakage
	2 Loss of Essential AC Power	**Table C-1 Containment Challenge Indications** - CONTAINMENT CLOSURE **not** established (Note 6) - Containment hydrogen concentration > 6% - UNPLANNED rise in containment pressure **Table C-6 Sumps/Tanks** - NCDT - PRT - CFAE sump - ND/NS sump - RHT - WDT - WEFT - SRST **Table C-2 AC Power Sources** **Offsite** - ATC (Train A) - SATA (Train A) - ATD (Train B) - SATB (Train B) **Onsite** - D/G 1(2) A (Train A) - D/G 1(2) B (Train B)		CA2 Loss of **all** offsite and **all** onsite AC power to essential buses for 15 minutes or longer 5 6 NM **CA2.1** Loss of **all** offsite and **all** onsite AC power capability to essential 4160V buses 1(2)ETA and 1(2)ETB for ≥ 15 min. (Note 1)	CU2 Loss of all but one AC power source to essential buses for 15 minutes or longer 5 6 NM **CU2.1** AC power capability, Table C-2, to essential 4160V buses 1(2)ETA and 1(2)ETB 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 NCS Temp.	**Table C-3 NCS Heat-up Duration Thresholds** NCS Status / Containment Closure Status / Heat-up Duration Intact (but **not** reduced inventory) — N/A — 60 min.* **Not** intact **OR** At reduced inventory — established — 20 min.* **not** established — 0 min. * If an NCS heat removal system is in operation within this time frame and NCS temperature is being reduced, the EAL is **not** applicable		CA3 Inability to maintain plant in cold shutdown 5 6 **CA3.1** UNPLANNED increase in NCS temperature to > 200°F for > Table C-3 duration (Notes 1,9) **OR** UNPLANNED NCS pressure increase > 20 psig due to a loss of NCS cooling (this does **not** apply during water-solid plant conditions)	CU3 UNPLANNED increase in NCS temperature 5 6 **CU3.1** UNPLANNED increase in NCS temperature to > 200°F due to loss of decay heat removal capability **CU3.2** Loss of **all** NCS temperature and NCS level indication for ≥ 15 min. (Note 1)
	4 Loss of Vital DC Power	None			CU4 Loss of Vital DC power for 15 minutes or longer 5 6 **CU4.1** < 105 VDC bus voltage indications on Technical Specification **required** 125 VDC buses for ≥ 15 min. (Note 1)
	5 Loss of Comm.	None	None	**Table C-4 Communication Methods** System / Onsite / ORO / NRC Public Address — X Internal Telephones — X Onsite Radios — X DEMNET — ORO: X Offsite Radio System — ORO: X Commercial Telephones — ORO: X; NRC: X NRC Emergency Telecommunications System (ETS) — NRC: X	CU5 Loss of **all** onsite or offsite communications capabilities 5 6 NM **CU5.1** Loss of **all** Table C-4 onsite communication methods **OR** Loss of **all** Table C-4 ORO communication methods **OR** Loss of **all** Table C-4 NRC communication methods
	6 Hazardous Event Affecting Safety Systems	None	**Table C-5 Hazardous Events** - Seismic event (earthquake) - Internal or external FLOODING event - High winds or tornado strike - FIRE - EXPLOSION - Other events with similar hazard characteristics as determined by the Shift Manager	CA6 Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode 5 6 **CA6.1** The occurrence of **any** Table C-5 hazardous event **AND** - Event damage has caused indications of degraded performance on one train of a SAFETY SYSTEM needed for the current operating mode **AND EITHER** one of the following: - Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM needed for the current operating mode. - Event damage has resulted in VISIBLE DAMAGE to the second train of the SAFETY SYSTEM needed for the current operating mode (Note 11, 12)	None

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

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

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: In the absence of reliable NCS temperature indication caused by the loss of decay heat removal capability, classification should be based on the NCS pressure increase criteria when in Mode 5 or based on time to boil data when in Mode 6.

Note 10: If the loss of containment cooling threshold is exceeded due to loss of both trains of VX-CARF, this EAL only applies if at least one train of VX-CARF is not operating, per design, after the 10 minute actuation delay for greater than or equal to 15 minutes.

Note 11: If the affected SAFETY SYSTEM 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 resulted in VISIBLE DAMAGE, with no indications of degraded performance to at least one train of a SAFETY SYTSEM, then this emergency classification is not warranted.

Date & Time of Shutdown

_____ Date _____ Time

MNS

EAL Identifier

XXX.X

Category (R, H, E, C, S, F) — Sequential number within subcategory/classification

Emergency classification (G, S, A, U) — Subcategory number (1 if no subcategory)

EAL - COLD MODES 5, 6 & No Mode