		General Emergency	Site Area Emergency	Alert	Unusual Event
R Abnorm. Rad Release / Rad Effluent	1 Offsite Rad Conditions	None	**RS1.1** 1 2 3 4 D **ANY** monitor reading > Table R-1 "SAE" column for ≥ 15 min. (Note 1) • Do **not** delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RS1.2)	**RA1.1** 1 2 3 4 D **ANY** gaseous monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) **RA1.2** 1 2 3 4 D **ANY** liquid monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) **RA1.3** 1 2 3 4 D Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)	**RU1.1** 1 2 3 4 D **ANY** gaseous monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2) **RU1.2** 1 2 3 4 D **ANY** liquid monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2) **RU1.3** 1 2 3 4 D Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)
		RG1.2 1 2 3 4 D Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY **RG1.3** 1 2 3 4 D Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) **OR** Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	**RS1.2** 1 2 3 4 D Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY **RS1.3** 1 2 3 4 D Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) **OR** Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	None None	None None
	2 Onsite Rad Conditions & Spent Fuel Events	**Table R-1 Effluent Monitor Classification Thresholds** GASEOUS: Stack (RN 10A/B) — GE N/A, SAE N/A, ALERT 3.0E4 cps, UE 300 cps GASEOUS: EC Vent — GE N/A, SAE 300 mRem/hr, ALERT 30 mRem/hr, UE 10 mRem/hr LIQUID: SW Effluent — GE N/A, SAE N/A, ALERT 90,000 cpm, UE 900 cpm LIQUID: RW Discharge — GE N/A, SAE N/A, ALERT 200 x batch, UE 2 x batch		**RA2.1** 1 2 3 4 D Alarm on **ANY** of the following radiation monitors due to damage to irradiated fuel or loss of water level: • ARM 18 (West end of shield wall) • ARM 25 (Rx building - east wall) • ARM 29 (Refuel bridge (LOW RANGE)) • Refuel Bridge (HIGH RANGE) • Reactor Building Vent Radiation Monitor **RA2.2** 1 2 3 4 D A water level drop in a reactor refueling pathway that will result in irradiated fuel becoming uncovered	**RU2.1** 1 2 3 4 D UNPLANNED water level drop in a reactor refueling pathway as indicated by inability to restore and maintain SFP level > low water level alarm (Note 3) **AND** Area radiation monitor reading rise on **ANY** of the following: • ARM 18 (West end of shield wall) • ARM 25 (Rx building - east wall) • ARM 29 (Refuel bridge (LOW RANGE)) • Refuel Bridge (HIGH RANGE) **RU2.2** 1 2 3 4 D UNPLANNED area radiation readings rise by a factor of 1,000 over NORMAL LEVELS
	3 CR/CAS Rad	None	None	**RA3.1** 1 2 3 4 D Dose rates > 15 mRem/hr in **EITHER** of the following areas requiring continuous occupancy to maintain plant safety functions: Control Room **OR** CAS	

H Hazards & Other Conditions Affecting Plant Safety	1 Natural or Destructive Phenomena	**Table H-1 Safe Shutdown Areas**
		• Reactor Building (including Primary Containment)
		• Control Room
		• Screenhouse
		• Turbine Building
		  • Battery Rooms
		  • Battery Board Rooms
		  • Cable Spreading Room
		  • Main Steam Isolation Valve Room
		  • Diesel Generator Engine and Board Rooms
		• Security
		  • Central Alarm Station
		  • Secondary Alarm Station
		  • Security Uninterruptible Power Supply Room
		
		Notes
		1. The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time
		2. The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.
		3. If loss of water level in the refueling pathway occurs while in Mode 3, 4 or D, consider classification under EALs CU3.1, CU3.2 or CU3.3
		4. The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.
		5. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should **not** be declared as it will have **no** adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.
				HA1.1 1 2 3 4 D
				NMP-2 seismic instrumentation indicates > 0.075 g
				AND
				Earthquake confirmed by **ANY** of the following:
				• Earthquake felt in plant
				• JAFNPP seismic instrumentation
				• Control Room indication of degraded performance of systems required for the safe shutdown of the plant
				HA1.2 1 2 3 4 D
				Tornado striking
				OR
				Sustained high winds > 90 mph resulting in **EITHER**:
				VISIBLE DAMAGE to **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area
				OR
				Control Room indication of degraded performance of **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area
				HA1.3 1 2 3 4 D
				Internal flooding resulting in **EITHER**:
				An electrical shock hazard that precludes access to operate or monitor **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area
				OR
				Control Room indication of degraded performance of **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area
				HA1.4 1 2 3 4 D
				Turbine failure-generated PROJECTILEs resulting in **EITHER**:
				VISIBLE DAMAGE to or penetration of **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area
				OR
				Control Room indication of degraded performance of **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area
				HA1.5 1 2 3 4 D
				Lake water level > 254 ft
				OR
				Intake water level < 236 ft
				HA1.6 1 2 3 4 D
				Vehicle crash resulting in **EITHER**:
				VISIBLE DAMAGE to **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area
				OR
				Control Room indication of degraded performance of **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area
					HU1.1 1 2 3 4 D
					Seismic event identified by **ANY two** of the following:
					• Annunciator H2-1-6 SEISMIC DETECTION EQUIPMENT EVENT indicates seismic event detected
					• Confirmation of earthquake received on NMP-2 or JAFNPP seismic instrumentation
					• Earthquake felt in plant
					HU1.2 1 2 3 4 D
					Tornado striking within PROTECTED AREA boundary
					OR
					Sustained high winds > 90 mph
					HU1.3 1 2 3 4 D
					Internal flooding that has the potential to affect **ANY** SAFETY-RELATED STRUCTURE, SYSTEM, OR COMPONENT required by Technical Specifications for the current operating mode in **ANY** Table H-1 area
					HU1.4 1 2 3 4 D
					Turbine failure resulting in **ANY** of the following:
					• Casing penetration
					• Damage to turbine seals
					• Damage to generator seals
					HU1.5 1 2 3 4 D
					Lake water level > 248.2 ft
					OR
					Intake water level < 238.8 ft

	2 Fire or Explosion	None	None	**HA2.1** 1 2 3 4 D FIRE or EXPLOSION resulting in **EITHER**: VISIBLE DAMAGE to **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area **OR** Control Room indication of degraded performance of **ANY** SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within **ANY** Table H-1 area	**HU2.1** 1 2 3 4 D FIRE **not** extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in **ANY** Table H-1 area, RadWaste Solidification and Storage Bldg. or Security West Bldg (Note 4) **HU2.2** 1 2 3 4 D EXPLOSION of sufficient force to damage permanent structures or equipment within the PROTECTED AREA
	3 Hazardous Gas	None	None	**HA3.1** 1 2 3 4 D Access to **ANY** Table H-1 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shutdown the reactor (Note 5)	**HU3.1** 1 2 3 4 D Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS **HU3.2** 1 2 3 4 D Recommendation by local, county or state officials to evacuate or shelter site personnel based on an offsite event
	4 Security	**HG4.1** 1 2 3 4 D A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions **HG4.2** 1 2 3 4 D A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems **AND** IMMINENT fuel damage is likely	**HS4.1** 1 2 3 4 D A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor	**HA4.1** 1 2 3 4 D A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by the Security Site Supervisor **OR** A validated notification from NRC of an AIRLINER attack threat within 30 min. of the site	**HU4.1** 1 2 3 4 D A SECURITY CONDITION that does **not** involve a HOSTILE ACTION as reported by the Security Site Supervisor **OR** A credible site-specific security threat notification **OR** A validated notification from NRC providing information of an aircraft threat
	5 Control Room Evacuation	None	**HS5.1** 1 2 3 4 D Control Room evacuation has been initiated **AND** Control of the plant **cannot** be established within 15 min.	**HA5.1** 1 2 3 4 D Control Room evacuation has been initiated	None
	6 Judgment	**HG6.1** 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) offsite for more than the immediate site area	**HS6.1** 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. **ANY** releases are **not** expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	**HA6.1** 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. **ANY** releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)	**HU6.1** 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. **No** releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs
E ISFSI		None	None	None	**EU1.1** 1 2 3 4 D Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by measured dose rates > then **ANY** of the following: • 400 mRem/hr at 3 feet from the HSM surface • 100 mRem/hr outside HSM door on centerline • 20 mRem/hr end shield wall exterior

		General Emergency	Site Area Emergency	Alert	Unusual Event
C Cold SD/ Refuel System Malfunct.	1 Loss of AC Power	**Table C-1 AC Power Sources** Onsite: • DG102 • DG103 Offsite: • T-101N • T-101S • T-10 backfed from offsite through T-1 or T-2 (**only** if already aligned)		**CA1.1** 3 4 D Loss of **all** offsite and **all** onsite AC power, Table C-1, to 4.16 kV emergency buses for ≥ 15 min. (Note 4)	**CU1.1** 3 4 D AC power capability to 4.16 kV emergency buses reduced to a single power source, Table C-1, for ≥ 15 min. (Note 4) **AND** **ANY** additional single power source failure will result in a loss of **all** 4.16 kV emergency bus power
	2 Loss of DC Power			None	**CU2.1** 3 4 < 106 VDC on **required** 125 VDC buses (Battery board 11, Battery board 12) for ≥ 15 min. (Note 4)
	3 RPV Water Level	**CG3.1** 3 4 RPV water level < -84 in. for ≥ 30 min. (Note 4) **AND** **ANY** Containment Challenge Indication, Table C-3 **CG3.2** 3 4 RPV water level **cannot** be monitored with core uncovery indicated by **ANY** of the following for ≥ 30 min. (Note 4): • **ANY** UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication **AND** **ANY** Containment Challenge Indication, Table C-3	**CS3.1** 3 4 With CONTAINMENT CLOSURE **not** established, RPV water level < -1 in. **CS3.2** 3 4 With CONTAINMENT CLOSURE established, RPV water level < -84 in. **CS3.3** 3 4 RPV water level **cannot** be monitored for ≥ 30 min. (Note 4) with a loss of RPV inventory as indicated by **ANY** of the following: • **ANY** UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	**CA3.1** 3 4 RPV water level < +5 in. **OR** RPV water level **cannot** be monitored for ≥ 15 min. with **ANY** UNPLANNED RPV leakage indication, Table C-2 (Note 4)	**CU3.1** 3 RCS leakage results in the inability to maintain or restore RPV water level > +53 in. for ≥ 15 min. (Note 4) **CU3.2** 4 UNPLANNED RPV water level drop below **EITHER** of the following for ≥ 15 min. (Note 4): • 0 ft Flange Level (RPV flange) • RPV water level band (when the RPV water level band is established below the RPV flange) **CU3.3** 4 RPV water level **cannot** be monitored with a loss of RPV inventory as indicated by **ANY** UNPLANNED RPV leakage indication, Table C-2
		Table C-2 RPV Leakage Indications • Drywell equipment drain tank level rise • Drywell floor drain tank level rise • Reactor building equipment sump level rise • Reactor Building floor drain sump level rise • Torus water level rise • UNPLANNED rise in RPV make-up rate • Observation of UNISOLABLE RCS leakage			
	4 RCS Temp.	**Table C-3 Containment Challenge Indications** • CONTAINMENT CLOSURE **not** established • Explosive mixture exists inside Primary Containment (H_2 ≥ 6% and O_2 ≥ 5%) • UNPLANNED rise in Primary Containment pressure • RB area radiation > 8 R/hr		**CA4.1** 3 4 An UNPLANNED event results in **EITHER**: RCS temperature > 212°F for > Table C-4 duration **OR** RPV pressure increase > 10 psi due to an UNPLANNED loss of decay heat removal capability	**CU4.1** 3 4 Unplanned event results in RCS temperature > 212°F **CU4.2** 3 4 Loss of **all** RCS temperature and RPV water level indication for ≥ 15 min. (Note 4)
	5 Inadvertent Criticality				**CU5.1** 3 4 An UNPLANNED sustained positive period observed on nuclear instrumentation
	6 Comm.	**Table C-4 RCS Reheat Duration Thresholds** * If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, the EAL is **not** applicable RCS Status: INTACT — CONTAINMENT CLOSURE Status: N/A — Duration: 60 min.* RCS Status: **Not** INTACT — CONTAINMENT CLOSURE Status: Established — Duration: 20 min.* RCS Status: **Not** INTACT — CONTAINMENT CLOSURE Status: **Not** established — Duration: 0 min.	**Table C-5 Communications Systems** System — Onsite (internal) — Offsite (external) PBX (normal dial telephones) — X — X Gaitronics — X Hand-Held Portable Radio (station radio) — X Control Room installed satellite phones (non portable) — X ENS — X RECS — X		**CU6.1** 3 4 D Loss of **all** Table C-5 onsite (internal) communication methods affecting the ability to perform routine operations **OR** Loss of **all** Table C-5 offsite (external) communication methods affecting the ability to perform offsite notifications

EAL Identifier

XXX.X

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

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

Modes: 1 Power Operation | 2 Hot Shutdown | 3 Cold Shutdown | 4 Refuel | D Defueled

Constellation Energy
Nine Mile Point Nuclear Station Unit 1

EPIP-EP-001
Attachment 1
EAL Matrix Unit 1
Page 2 of 2

Approved: _____ Director, Emergency Planning _____ Date

MODE 3, 4 or D

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