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100 - 100 - EMERGENCY DIRECTOR/CONTROL ROOM: EMERGENCY PLAN-POSITION SPECIFIC PROCEDURE

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A045

EMERGENCY CLASSIFICATION

CHECK ☑

1.0 TIMING OF CLASSIFICATION

☐ 1.1 **UNUSUAL EVENT**

An **UNUSUAL EVENT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.2 **ALERT**

An **ALERT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.3 **SITE AREA EMERGENCY**

A **SITE AREA EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.4 **GENERAL EMERGENCY**

A **GENERAL EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

CLASSIFICATION OF EMERGENCY CONDITIONS

USE OF EMERGENCY CLASSIFICATION MATRIX

NOTE: CONFIRM THAT INDICATORS AND/OR ALARMS REFLECT ACTUAL CONDITIONS PRIOR TO TAKING ACTION BASED ON THE INDICATOR OR ALARM.

The matrix is worded in a manner that assumes parameter values indicated are the actual conditions present in the plant.

The matrix is designed to make it possible to precisely classify an abnormal occurrence into the proper emergency classification based on detailed Emergency Action Level (EAL) descriptions. It is impossible to anticipate every abnormal occurrence. Therefore, before classifying any abnormal occurrence based on the EALs in the matrix, one should verify that the general conditions prevalent in-plant and offsite meet the general class description of the emergency classification. In addition, prior to classification, one should be aware of the ramifications in-plant and particularly offsite of that classification. Special consideration of offsite consequences should be made prior to declaring a **GENERAL EMERGENCY.**

CLASS DESCRIPTIONS

UNUSUAL EVENT - Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT - Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY - Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY - Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

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1 - AIRCRAFT/TRAIN ACTIVITY

UNUSUAL EVENT

EAL# 1.1 Aircraft crash or train derailment onsite as indicated by:

Visual observation or notification received by control room operator.

ALERT

EAL# 1.2 Aircraft or missile strikes a station structure as indicated by:

Direct observation or notification received by control room operator.

SITE AREA EMERGENCY

EAL# 1.3 Severe damage to safe shutdown equipment from aircraft crash or missile impact when not in cold shutdown, determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 1.4 None.

2 - CONTROL ROOM EVACUATION

UNUSUAL EVENT

EAL# 2.1 None.

ALERT

EAL# 2.2 Control Room evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Establishment of control of shutdown systems from local stations.

SITE AREA EMERGENCY

EAL# 2.3 Delayed Control Room Evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Shutdown systems control at local stations not established within 15 minutes.

GENERAL EMERGENCY

EAL# 2.4 None.

3 - FUEL CLADDING DEGRADATION

UNUSUAL EVENT

EAL# 3.1 Core degradation as indicated by:

(A *or* B)

A. Valid Off-gas Pre-treatment Monitor high radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Reactor coolant activity, determined by sample analysis greater than or equal to 2 µCi/cc of I-131 equivalent.

ALERT

EAL# 3.2 Severe fuel cladding degradation as indicated by:

(A *or* B *or* C *or* D)

A. Valid Off-gas Pre-treatment monitor High-High radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Valid Reactor coolant activity greater than 300 µCi/cc of equivalent I-131, as determined by sample analysis.

or

C. Valid Main Steam Line High radiation trip annunciation or indication on Panel 1C651 (2C651).

or

D. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 200 R/hr. (An 8R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

SITE AREA EMERGENCY

EAL# 3.3 Severely degraded core as indicated by:

(A *or* B)

A. Reactor coolant activity greater than 1,000 µCi/cc of equivalent I-131 as determined by sample analysis.

or

B. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

GENERAL EMERGENCY

EAL# 3.4.a Fuel cladding degradation. Loss of 2 out of 3 fission product barriers (fuel cladding and reactor coolant pressure boundary) with potential loss of the third barrier (primary containment) as indicated by:

(A *or* B)

A. (1 *and* 2)
   1. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

   and

   2. (a *or* b *or* c)
      a. Containment pressure greater than 40.4 PSIG, indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential for loss of containment (e.g. anchorage or penetration failure, a crack in containment concrete at tendon).

      or

      c. Other indications of potential or actual loss of primary containment.

or

B. (1 *and* 2)
   1. Reactor coolant activity greater than 1,000 µCi/cc of equivalent I-131 as determined by sample analysis.

   and

   2. Actual or potential failure of reactor coolant isolation valves to isolate a coolant leak outside containment as determined by valve position indication on Panel 1C601 (2C601) or visual inspection.

OR

EAL# 3.4.b Core melt as indicated by:

(A *and* B)

A. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 2000 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

and

B. Containment high pressure indication or annunciation on Panel 1C601 (2C601).

4 - GENERAL

UNUSUAL EVENT

EAL# 4.1 Plant conditions exist that warrant increased awareness on the part of plant operating staff or state and/or local offsite authorities as indicated by:

Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT

EAL# 4.2 Other plant conditions exist that warrant precautionary activation of PP&L, State, County, and local emergency centers as indicated by:

Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY

EAL# 4.3 Other plant conditions exist that warrant activation of emergency centers and monitoring teams or a precautionary notification to the public near the site as indicated by:

Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY

EAL# 4.4 Other plant conditions exist, from whatever, source, that make release of large amounts of radioactivity in a short time period available as indicated by:

Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

5.- INJURED/CONTAMINATED PERSONNEL

UNUSUAL EVENT

EAL# 5.1 Transportation of externally contaminated injured individual from site to offsite medical facility as deemed appropriate by Shift Supervisor.

ALERT

EAL# 5.2 None.

SITE AREA EMERGENCY

EAL# 5.3 None.

GENERAL EMERGENCY

EAL# 5.4 None.

6 - IN-PLANT HIGH RADIATION

UNUSUAL EVENT

EAL# 6.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which are not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or for multiple isotopes where

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \ldots \frac{C_N}{DAC_N} \geq 500$$

ALERT

EAL# 6.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe degradation in the control of radioactive material as indicated by:

Area Radiation Monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

SITE AREA EMERGENCY

EAL# 6.3 None.

GENERAL EMERGENCY

EAL# 6.4 None.

7 - LOSS OF AC POWER

UNUSUAL EVENT

EAL# 7.1 Loss of offsite power **or** loss of all onsite AC power supplies as indicated by:

(A *or* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
or
B. Failure of all diesel generators to start or synchronize to the emergency buses by indication or annunciation on Panel 0C653.

ALERT

EAL# 7.2 Loss of all offsite power **and** all onsite AC power supplies as indicated by:

(A *and* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
and
B. Failure of all diesel generators to start or synchronize to the emergency buses by annunciation or indication on Panel 0C653.

SITE AREA EMERGENCY

EAL# 7.3 Loss of all offsite power and loss of all onsite AC power supplies for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Loss of offsite power.
and
B. Failure of **all** diesel generators to startup or synchronize to the emergency buses by indication or annunciation on 0C653.
and
C. The above conditions exist for greater than 15 minutes.

GENERAL EMERGENCY

EAL# 7.4 None.

8 - LOSS OF CONTROL ROOM ALARMS AND ANNUNCIATORS

UNUSUAL EVENT

EAL# 8.1 None.

ALERT

EAL# 8.2 Loss of all control room annunciators as indicated by:

In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

SITE AREA EMERGENCY

EAL# 8.3 All annunciators lost and plant transient initiated while annunciators are lost as indicated by:

(A *and* B)

A. In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

and

B. (1 *or* 2 *or* 3 *or* 4)

1. Low-Low reactor water level indication on Panel 1C651 (2C651) followed by ECCS initiation on Panel 1C601 (2C601).

or

2. Reactor coolant temperature change greater than 100°F per hour indication on recorder TR-1R006 on Panel 1C007 (2C007) (Reactor Building elevation 683').

or

3. High reactor pressure indication on Panel 1C651 (2C651) and followed by scram indication on Panel 1C651 (2C651).

or

4. Any indication that transient has occurred or is in progress.

GENERAL EMERGENCY

EAL# 8.4 None.

9 - LOSS OF DC POWER

UNUSUAL EVENT

EAL# 9.1 None.

ALERT

EAL# 9.2 Loss of onsite vital DC power as indicated by:

(A *and* B)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).

NOTE: Buses are not tripped on undervoltage condition.

SITE AREA EMERGENCY

EAL# 9.3 Loss of all vital onsite DC power sustained for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).
and
C. The above condition exists for greater than 15 minutes.

NOTE: Buses are not tripped on undervoltage condition.

GENERAL EMERGENCY

EAL# 9.4 None.

10 - LOSS OF DECAY HEAT REMOVAL CAPABILITY

UNUSUAL EVENT

EAL# 10.1 None.

ALERT

EAL# 10.2 Inability to remove decay heat while in plant condition 4, inability to maintain the plant in cold shutdown as indicated by:

Inability to maintain reactor coolant temperature less than 200°F with the reactor mode switch in shutdown; exception is when testing per Special Test Exception TS 3.10.1 which allows maximum temperature of 212°F.

SITE AREA EMERGENCY

EAL# 10.3 Inability to remove decay heat while the plant is shutdown as indicated by:

(A *and* B *and* C)
A. Reactor Mode switch in shutdown.
and
B. Reactor Coolant System temperature greater than 200°F and rising.
and
C. Suppression Pool temperature greater than 120°F and rising.

GENERAL EMERGENCY

EAL# 10.4 Inability to remove decay heat while the plant is shutdown with possible release of large amounts of radioactivity as indicated by:

(A *and* B *and* C)
A. Reactor mode switch in shutdown.
and
B. Reactor coolant system temperature greater than 200°F and rising.
and
C. Suppression pool temperature greater than 290°F indicated on the computer output (MAT 12,13,14,15 or 16).

11 - LOSS OF REACTIVITY CONTROL

UNUSUAL EVENT

EAL# 11.1 Inadvertent Criticality as indicated by:

Unexpected increasing neutron flux indication on Panel 1C651 (2C651).

ALERT

EAL# 11.2 Failure of the Reactor Protection System or the Alternate Rod Insertion System to initiate and complete a scram that brings the reactor subcritical as indicated by:

(A *or* B) *and* (C *and* D *and* E)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B) as indicated by annunciators and trip status lights on Panel 1C651 (2C651).

or

B. Trip of both trip systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Failure of control rods to insert, confirmed by the full core display indication on Panel 1C651 (2C651) or process computer indications.

and

D. Failure to bring the reactor subcritical confirmed by neutron count rate on the neutron monitoring indication on Panel 1C651 (2C651).

and

E. Reactor power >5% as indicated on Panel 1C651 (2C651).

(CONTINUED ON NEXT PAGE)

11 - LOSS OF REACTIVITY CONTROL (continued)

SITE AREA EMERGENCY

EAL# 11.3 Loss of functions needed to bring the reactor subcritical and loss of ability to bring the reactor to cold shutdown as indicated by:

(A *and* B *and* C *and* D)

A. Inability to insert sufficient control rods to bring the reactor subcritical as indicated by count rate on the neutron monitoring instrumentation on Panel 1C651 (2C651).

and

B. (1 *or* 2)
   Failure of both loops of standby liquid control to inject into the vessel indicated by:
   1. Low pump discharge pressure indication on Panel 1C601 (2C601).

   or

   2. Low flow indication on Panel 1C601 (2C601).

and

C. Reactor coolant temperature greater than 200°F, indicated on Panel 1C651 (2C651).

and

D. Reactor power >5% indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 11.4 Loss of functions needed to bring the reactor subcritical and transient in progress that makes release of large amounts of radioactivity in a short period possible as indicated by:

(A *or* B) *and* (C *and* D)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B), indicated by annunciation or trip status lights on Panel 1C651 (2C651).

or

B. Trip of both systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Loss of SLC system capability to inject, indicated by instrumentation on Panel 1C601 (2C601).

and

D. Reactor power greater than 25% of rated, indicated on Panel 1C651 (2C651).

12 - LOSS OF REACTOR VESSEL INVENTORY

UNUSUAL EVENT

EAL# 12.1 Valid initiation of an Emergency Core Cooling System (ECCS) System as indicated by:

(A *or* B)

A. Initiation of an ECCS System **and** low, low, low reactor water level (-129) annunciation or indication on Panel 1C651 (2C651).

or

B. Initiation of an ECCS System **and** High Drywell Pressure annunciation or indication on Panel 1C601 (2C601).

ALERT

EAL# 12.2 Reactor coolant system leak rate greater than 50 gpm as indicated by:

(A *or* B)

A. Drywell floor drain sump A or B Hi-Hi alarm on Panel 1C601 (2C601) **and** 2 or more drywell floor drain pumps continuously running as indicated on Panel 1C601 (2C601).

or

B. Other estimates of Reactor coolant system leakage indicating greater than 50 gpm.

SITE AREA EMERGENCY

EAL# 12.3 Known loss of coolant accident greater than make-up capacity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

(CONTINUED ON NEXT PAGE)

12 - LOSS OF REACTOR VESSEL INVENTORY (continued)

GENERAL EMERGENCY

EAL# 12.4.a Loss of coolant accident with possibility of imminent release of large amounts of radioactivity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than 20 minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

OR

EAL# 12.4.b Loss of Reactor Vessel inventory. Loss of 2 out of 3 fission product barriers (fuel cladding & reactor coolant pressure boundary) with potential loss of the third barrier (primary containment), as indicated by:

(A *or* B)

A. (1 *and* 2 *and* 3)
   1. High drywell pressure annunciation or indication on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c)
      a. Containment pressure exceeds 40.4 PSIG as indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential or actual loss of containment (e.g. anchorage or penetration failure).

      or

      c. Containment isolation valve(s) fail to close as indicated by valve position indication on Panel 1C601 (2C601).

   and

   3. Reactor Vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

or

B. (1 *and* 2)
   1. Failure of reactor pressure vessel isolation valves to isolate coolant break outside containment as indicated by valve position indication on Panel 1C601 (2C601) or visual inspection.

   and

   2. Reactor vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

13 - NATURAL PHENOMENA

UNUSUAL EVENT

EAL# 13.1 Natural phenomenon occurrence as indicated by:

(A *or* B *or* C)
A. Tornado impact on site.
or
B. Hurricane impact on site.
or
C. Earthquake detected by seismic instrumentation systems on Panel 0C696.

ALERT

EAL# 13.2 Natural Phenomenon Occurrence as indicated by:

(A *or* B *or* C)
A. Tornado with reported wind velocities greater than 200 mph impacting on site.*
or
B. Reported hurricane or sustained winds greater than 70 mph.*
or
C. Earthquake at greater than operating basis earthquake (OBE) levels as indicated on Panel 0C696.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

(CONTINUED ON NEXT PAGE)

13 - NATURAL PHENOMENA (continued)

SITE AREA EMERGENCY

EAL# 13.3 Severe natural phenomenon occurrence, with plant not in cold shutdown, as indicated by:

(A *and* B)
A. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).
and
B. (1 *or* 2 *or* 3)
1. Reported hurricane or sustained winds greater than 80 mph.*

or

2. Earthquake with greater than Safe Shutdown Earthquake (SSE) levels as indicated on Panel 0C696.

or

3. Tornado with reported wind velocities greater than 220 mph impacting on site.*

GENERAL EMERGENCY

EAL# 13.4 None.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

14 - ONSITE FIRE/EXPLOSION

UNUSUAL EVENT

EAL# 14.1 Significant fire within the plant as indicated by:

(A *and* B)
A. Activation of fire brigade by Shift Supervisor.
and
B. Duration of fire longer than 15 minutes after time of notification.

OR

Explosion inside security protected area, with no significant damage to station facilities, as indicated by:

Visual observation or notification received by control room operator and Shift Supervisor evaluation.

ALERT

EAL# 14.2 On-site Fire/Explosion as indicated by:

(A *or* B)
A. Fire lasting more than 15 minutes and fire is in the vicinity of equipment required for safe shutdown of the plant and the fire is damaging or is threatening to damage the equipment due to heat, smoke, flame, or other hazard.
or
B. (1 *and* 2)
Explosion damage to facility affecting plant operation as determined by:
1. Direct observation or notification received by control room operator.
and
2. Shift Supervisor observation.

(CONTINUED ON NEXT PAGE)

14 - ONSITE FIRE/EXPLOSION (continued)

SITE AREA EMERGENCY

EAL# 14.3 Damage to safe shutdown equipment due to fire or explosion has occurred when plant is not in cold shutdown, and damage is causing or threatens malfunction of equipment required for safe shutdown of the plant as determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 14.4 None.

15 - RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

EAL# 15.1.a Radiological gaseous effluents exceed 2 times the Technical Requirement Limits for 60 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+6 µCi/min., **or**
   2. I-131 >2.08E+2 µCi/min., **or**
   3. Particulate >1.54E+3 µCi/min., **or**

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1000 mrem/year whole body, **or**
   2. Noble gases >6000 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3000 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.1.b Radiological liquid effluents exceed Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent exceeding Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

ALERT

EAL# 15.2.a Radiological gaseous effluents exceed 200 times the Technical Requirement Limits for 15 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+8 µCi/min., **or**
   2. I-131 >2.08E+4 µCi/min., **or**
   3. Particulate >1.54E+5 µCi/min.

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1.0E+5 mrem/year whole body, **or**
   2. Noble gases >6.0E+5 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3.0E+5 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.2.b Radiological liquid effluents exceed 10 times Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent release exceeding 10 times Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

SITE AREA EMERGENCY

EAL# 15.3 Radiological effluent corresponds to greater than 50 mrem W.B.[1] or 250 mrem thyroid[2] for a half-hour or 500 mrem W.B.[1] or 2500 mrem thyroid[2] for 2 minutes at the emergency plan boundary as indicated by:

OR

Emergency plan boundary dose is projected to exceed 500 mrem W.B. [1] within 1 hour as indicated by:

(A *or* B)

A. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or

   2. Field monitoring data onsite or offsite.

or

B. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or

   2. Field monitoring data onsite or offsite

(CONTINUED ON NEXT PAGE)

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

15 - RADIOLOGICAL EFFLUENT (continued)

GENERAL EMERGENCY

EAL# 15.4 Radiological effluent release corresponds to 1 rem whole body[1] or 5 rem[2] thyroid at the emergency plan boundary as indicated by:
OR
Offsite doses are projected to exceed 1 rem whole body[1] or 5 rem thyroid[2] due to the event as indicated by:

(A *or* B)
A. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

or
B. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

16 - SECURITY EVENT

UNUSUAL EVENT

EAL# 16.1 Security threat or attempted entry or attempted sabotage as indicated by:

(A *or* B *or* C)

A. A report from Security of a security threat, attempted entry, or attempted sabotage of the owner controlled area adjacent to the site.

or

B. Any attempted act of sabotage which is deemed legitimate in the judgment of the SHIFT SUPERVISOR/EMERGENCY DIRECTOR, and affects plant operation.

or

C. A site specific credible security threat notification.

ALERT

EAL# 16.2 Ongoing Security Compromise as indicated by:

(A *or* B)

A. A report from Security that a security compromise is at the site but no penetration of protected areas has occurred.

or

B. Any act of sabotage which results in an actual or potential substantial degradation of the level of safety of the plant as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

SITE AREA EMERGENCY

EAL# 16.3 An ongoing adversary event threatens imminent loss of physical control of plant as indicated by:

(A *or* B)

A. Report from Security that the security of the plant vital area is threatened by unauthorized (forcible) entry into the protected area.

or

B. Any act of sabotage which results in actual or likely major failures of plant functions needed for protection of the public as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

(CONTINUED ON NEXT PAGE)

16 - SECURITY EVENT (continued)

GENERAL EMERGENCY

EAL# 16.4 Loss of physical control of facilities as indicated by:

(A *or* B)

A. Report from Security that a loss of physical control of plant vital areas has occurred.

or

B. Any act of sabotage which results in imminent significant cladding failure or fuel melting with a potential for loss of containment integrity or the potential for release of significant amounts of radioactivity in a short time as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

17 - SPENT FUEL RELATED INCIDENT

UNUSUAL EVENT

EAL# 17.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which is not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or full multiple isotopes where

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \ldots \frac{C_N}{DAC_N} \geq 500$$

ALERT

EAL# 17.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe fuel handling accident as indicated by:

Refuel floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

17 - SPENT FUEL RELATED INCIDENT (continued)

SITE AREA EMERGENCY

EAL# 17.3.a Major damage to irradiated fuel with actual or clear potential for significant release of radioactive material to the environment as indicated by:

(A *and* B)
A. Dropping, bumping, or otherwise rough handling of a new **OR** irradiated fuel bundle with irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

OR
EAL# 17.3.b Damage to irradiated fuel due to uncontrolled decrease in the fuel pool level to below the level of the fuel as indicated by:

(A *and* B)
A. (1 *or* 2)
1. Uncovering of irradiated fuel confirmation by verification of significant leakage from spent fuel pool.
or
2. Visual observation of water level below irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

GENERAL EMERGENCY

EAL# 17.4 None.

18 - STEAM LINE BREAK

UNUSUAL EVENT

EAL# 18.1 None.

ALERT

EAL# 18.2 MSIV malfunction causing leakage as indicated by:

(A *and* B)
A. Valid MSIV closure signal or indication on Panel 1C601 (2C601).
and
B. (1 *or* 2)
1. Valid Main Steam Line flow indication on Panel 1C652 (2C652).
or
2. Valid Main Steam Line radiation indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY

EAL# 18.3 Steam line break occurs outside of containment without isolation as indicated by:

(A *or* B *or* C *or* D)

A. (1 *and* 2)
   1. Failure of both MSIVs in the line with the leak to close as indicated by position indication on Panel 1C601 (2C601).

   and

   2. (a *or* b)
      a. High MSL flow annunciation on Panel 1C601 (2C601) or indication on Panel 1C652 (2C652).

      or

      b. Other indication of main steam leakage outside containment.

or

B. (1 *and* 2)
   1. Failure of RCIC steam isolation valves HV-F008 and HV-F007 to close as indicated on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c *or* d *or* e *or* f)
      a. RCIC steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

      or

      b. RCIC equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

      or

      c. RCIC steamline high flow annunciation on Panel 1C601 (2C601).

      or

      d. RCIC steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

      or

      e. RCIC turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

      or

      f. Other indication of steam leakage from the RCIC system.

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY (continued)

or

C. (1 *and* 2)

1. Failure of HPCI steam isolation valves HV-F002 and HV-F003 to close as indicated by position indicator on Panel 1C601 (2C601).

and

2. (a *or* b *or* c *or* d *or* e *or* f)
   a. HPCI steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

   or

   b. HPCI equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

   or

   c. HPCI steamline high flow annunciation on Panel 1C601 (2C601).

   or

   d. HPCI steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

   or

   e. HPCI turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

   or

   f. Other indication of steam leakage from the HPCI system.

or

D. Any other un-isolatable steam line breaks.

GENERAL EMERGENCY

EAL# 18.4 None.

19 - TOXIC/FLAMMABLE GASES

UNUSUAL EVENT

EAL# 19.1 Nearby or onsite release of potentially harmful quantifies of toxic or flammable material as indicated by:

Visual observation or notification received by the control room operator.

ALERT

EAL# 19.2 Entry of toxic or flammable gases into the facility, with subsequent habitability problem as indicated by:

Visual observation, direct measurement, or notification received by the control room operator.

SITE AREA EMERGENCY

EAL# 19.3 Toxic or flammable gases enter vital areas, restricting access and restricted access constitutes a safety problem, as determined by:

(A *and* B)
A. Shift Supervisor's evaluation.
and
B. Visual observation, direct measurement, or notification received by control room operator.

GENERAL EMERGENCY

EAL# 19.4 None.

20 - TECHNICAL SPECIFICATION SAFETY LIMIT

UNUSUAL EVENT

EAL# 20.1 Abnormal occurrences which result in operator complying with any of the Technical Specification SAFETY LIMIT ACTION statements indicated by:

(A *or* B *or* C *or* D)
A. Exceeding THERMAL POWER, low pressure or low flow safety limit 2.1.1.1.
or
B. Exceeding THERMAL POWER, high pressure and high flow safety limit 2.1.1.2.
or
C. Exceeding REACTOR VESSEL WATER LEVEL safety limit 2.1.1.3.
or
D. Exceeding REACTOR COOLANT SYSTEM PRESSURE safety limit 2.1.2.

ALERT

EAL# 20.2 None.

SITE AREA EMERGENCY

EAL# 20.3 None.

GENERAL EMERGENCY

EAL# 20.4 None.

21 – DRY FUEL STORAGE

UNUSUAL EVENT

EAL# 21.1.a. Situations are occurring or have occurred during the transport of the irradiated spent fuel to the onsite storage facility, which jeopardize the integrity of the spent fuel or its container as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

OR

EAL# 21.1.b. Situations are occurring or have occurred at the irradiated spent fuel storage facility, which jeopardize the integrity of the dry cask storage system as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

ALERT

EAL# 21.2 None.

SITE AREA EMERGENCY

EAL# 21.3 None.

GENERAL EMERGENCY

EAL# 21.4 None.

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EMERGENCY CLASSIFICATION

CHECK ☑

1.0 TIMING OF CLASSIFICATION

☐ 1.1 **UNUSUAL EVENT**

An **UNUSUAL EVENT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.2 **ALERT**

An **ALERT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.3 **SITE AREA EMERGENCY**

A **SITE AREA EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.4 **GENERAL EMERGENCY**

A **GENERAL EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

CLASSIFICATION OF EMERGENCY CONDITIONS

USE OF EMERGENCY CLASSIFICATION MATRIX

NOTE: CONFIRM THAT INDICATORS AND/OR ALARMS REFLECT ACTUAL CONDITIONS PRIOR TO TAKING ACTION BASED ON THE INDICATOR OR ALARM.

The matrix is worded in a manner that assumes parameter values indicated are the actual conditions present in the plant.

The matrix is designed to make it possible to precisely classify an abnormal occurrence into the proper emergency classification based on detailed Emergency Action Level (EAL) descriptions. It is impossible to anticipate every abnormal occurrence. Therefore, before classifying any abnormal occurrence based on the EALs in the matrix, one should verify that the general conditions prevalent in-plant and offsite meet the general class description of the emergency classification. In addition, prior to classification, one should be aware of the ramifications in-plant and particularly offsite of that classification. Special consideration of offsite consequences should be made prior to declaring a **GENERAL EMERGENCY.**

CLASS DESCRIPTIONS

UNUSUAL EVENT - Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT - Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY - Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY - Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

CATEGORY INDEX TO THE MATRIX FOR THE CLASSIFICATION OF EMERGENCY CONDITIONS TABLE OF CONTENTS

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1 - AIRCRAFT/TRAIN ACTIVITY

UNUSUAL EVENT

EAL# 1.1 Aircraft crash or train derailment onsite as indicated by:

Visual observation or notification received by control room operator.

ALERT

EAL# 1.2 Aircraft or missile strikes a station structure as indicated by:

Direct observation or notification received by control room operator.

SITE AREA EMERGENCY

EAL# 1.3 Severe damage to safe shutdown equipment from aircraft crash or missile impact when not in cold shutdown, determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 1.4 None.

2 - CONTROL ROOM EVACUATION

UNUSUAL EVENT

EAL# 2.1 None.

ALERT

EAL# 2.2 Control Room evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Establishment of control of shutdown systems from local stations.

SITE AREA EMERGENCY

EAL# 2.3 Delayed Control Room Evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Shutdown systems control at local stations not established within 15 minutes.

GENERAL EMERGENCY

EAL# 2.4 None.

3 - FUEL CLADDING DEGRADATION

UNUSUAL EVENT

EAL# 3.1 Core degradation as indicated by:

(A *or* B)

A. Valid Off-gas Pre-treatment Monitor high radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Reactor coolant activity, determined by sample analysis greater than or equal to 2 μCi/cc of I-131 equivalent.

ALERT

EAL# 3.2 Severe fuel cladding degradation as indicated by:

(A *or* B *or* C *or* D)

A. Valid Off-gas Pre-treatment monitor High-High radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Valid Reactor coolant activity greater than 300 μCi/cc of equivalent I-131, as determined by sample analysis.

or

C. Valid Main Steam Line High radiation trip annunciation or indication on Panel 1C651 (2C651).

or

D. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 200 R/hr. (An 8R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

SITE AREA EMERGENCY

EAL# 3.3 Severely degraded core as indicated by:

(A *or* B)

A. Reactor coolant activity greater than 1,000 µCi/cc of equivalent I-131 as determined by sample analysis.

or

B. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

GENERAL EMERGENCY

EAL# 3.4.a Fuel cladding degradation. Loss of 2 out of 3 fission product barriers (fuel cladding and reactor coolant pressure boundary) with potential loss of the third barrier (primary containment) as indicated by:

(A *or* B)

A. (1 *and* 2)
   1. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

   and

   2. (a *or* b *or* c)
      a. Containment pressure greater than 40.4 PSIG, indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential for loss of containment (e.g. anchorage or penetration failure, a crack in containment concrete at tendon).

      or

      c. Other indications of potential or actual loss of primary containment.

or

B. (1 *and* 2)
   1. Reactor coolant activity greater than 1,000 µCi/cc of equivalent I-131 as determined by sample analysis.

   and

   2. Actual or potential failure of reactor coolant isolation valves to isolate a coolant leak outside containment as determined by valve position indication on Panel 1C601 (2C601) or visual inspection.

OR

EAL# 3.4.b Core melt as indicated by:

(A *and* B)

A. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 2000 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

and

B. Containment high pressure indication or annunciation on Panel 1C601 (2C601).

4 - GENERAL

UNUSUAL EVENT

EAL# 4.1 Plant conditions exist that warrant increased awareness on the part of plant operating staff or state and/or local offsite authorities as indicated by:

Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT

EAL# 4.2 Other plant conditions exist that warrant precautionary activation of PP&L, State, County, and local emergency centers as indicated by:

Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY

EAL# 4.3 Other plant conditions exist that warrant activation of emergency centers and monitoring teams or a precautionary notification to the public near the site as indicated by:

Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY

EAL# 4.4 Other plant conditions exist, from whatever, source, that make release of large amounts of radioactivity in a short time period available as indicated by:

Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

5.- INJURED/CONTAMINATED PERSONNEL

UNUSUAL EVENT

EAL# 5.1 Transportation of externally contaminated injured individual from site to offsite medical facility as deemed appropriate by Shift Supervisor.

ALERT

EAL# 5.2 None.

SITE AREA EMERGENCY

EAL# 5.3 None.

GENERAL EMERGENCY

EAL# 5.4 None.

6 - IN-PLANT HIGH RADIATION

UNUSUAL EVENT

EAL# 6.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which are not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or for multiple isotopes where

$$\frac{C_A}{DAC_A}+\frac{C_B}{DAC_B}+\frac{C_C}{DAC_C}\ldots\frac{C_N}{DAC_N}\geq 500$$

ALERT

EAL# 6.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe degradation in the control of radioactive material as indicated by:

Area Radiation Monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

SITE AREA EMERGENCY

EAL# 6.3 None.

GENERAL EMERGENCY

EAL# 6.4 None.

7 - LOSS OF AC POWER

UNUSUAL EVENT

EAL# 7.1 Loss of offsite power **or** loss of all onsite AC power supplies as indicated by:

(A *or* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
or
B. Failure of all diesel generators to start or synchronize to the emergency buses by indication or annunciation on Panel 0C653.

ALERT

EAL# 7.2 Loss of all offsite power **and** all onsite AC power supplies as indicated by:

(A *and* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
and
B. Failure of all diesel generators to start or synchronize to the emergency buses by annunciation or indication on Panel 0C653.

SITE AREA EMERGENCY

EAL# 7.3 Loss of all offsite power and loss of all onsite AC power supplies for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Loss of offsite power.
and
B. Failure of **all** diesel generators to startup or synchronize to the emergency buses by indication or annunciation on 0C653.
and
C. The above conditions exist for greater than 15 minutes.

GENERAL EMERGENCY

EAL# 7.4 None.

8 - LOSS OF CONTROL ROOM ALARMS AND ANNUNCIATORS

UNUSUAL EVENT

EAL# 8.1 None.

ALERT

EAL# 8.2 Loss of all control room annunciators as indicated by:

In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

SITE AREA EMERGENCY

EAL# 8.3 All annunciators lost and plant transient initiated while annunciators are lost as indicated by:

(A *and* B)

A. In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

and

B. (1 *or* 2 *or* 3 *or* 4)
   1. Low-Low reactor water level indication on Panel 1C651 (2C651) followed by ECCS initiation on Panel 1C601 (2C601).

   or

   2. Reactor coolant temperature change greater than 100°F per hour indication on recorder TR-1R006 on Panel 1C007 (2C007) (Reactor Building elevation 683').

   or

   3. High reactor pressure indication on Panel 1C651 (2C651) and followed by scram indication on Panel 1C651 (2C651).

   or

   4. Any indication that transient has occurred or is in progress.

GENERAL EMERGENCY

EAL# 8.4 None.

9 - LOSS OF DC POWER

UNUSUAL EVENT

EAL# 9.1 None.

ALERT

EAL# 9.2 Loss of onsite vital DC power as indicated by:

(A *and* B)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).

NOTE: Buses are not tripped on undervoltage condition.

SITE AREA EMERGENCY

EAL# 9.3 Loss of all vital onsite DC power sustained for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).
and
C. The above condition exists for greater than 15 minutes.

NOTE: Buses are not tripped on undervoltage condition.

GENERAL EMERGENCY

EAL# 9.4 None.

10 - LOSS OF DECAY HEAT REMOVAL CAPABILITY

UNUSUAL EVENT

EAL# 10.1 None.

ALERT

EAL# 10.2 Inability to remove decay heat while in plant condition 4, inability to maintain the plant in cold shutdown as indicated by:

Inability to maintain reactor coolant temperature less than 200°F with the reactor mode switch in shutdown; exception is when testing per Special Test Exception TS 3.10.1 which allows maximum temperature of 212°F.

SITE AREA EMERGENCY

EAL# 10.3 Inability to remove decay heat while the plant is shutdown as indicated by:

(A *and* B *and* C)
A. Reactor Mode switch in shutdown.
and
B. Reactor Coolant System temperature greater than 200°F and rising.
and
C. Suppression Pool temperature greater than 120°F and rising.

GENERAL EMERGENCY

EAL# 10.4 Inability to remove decay heat while the plant is shutdown with possible release of large amounts of radioactivity as indicated by:

(A *and* B *and* C)
A. Reactor mode switch in shutdown.
and
B. Reactor coolant system temperature greater than 200°F and rising.
and
C. Suppression pool temperature greater than 290°F indicated on the computer output (MAT 12,13,14,15 or 16).

11 - LOSS OF REACTIVITY CONTROL

UNUSUAL EVENT

EAL# 11.1 Inadvertent Criticality as indicated by:

Unexpected increasing neutron flux indication on Panel 1C651 (2C651).

ALERT

EAL# 11.2 Failure of the Reactor Protection System or the Alternate Rod Insertion System to initiate and complete a scram that brings the reactor subcritical as indicated by:

(A *or* B) *and* (C *and* D *and* E)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B) as indicated by annunciators and trip status lights on Panel 1C651 (2C651).

or

B. Trip of both trip systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Failure of control rods to insert, confirmed by the full core display indication on Panel 1C651 (2C651) or process computer indications.

and

D. Failure to bring the reactor subcritical confirmed by neutron count rate on the neutron monitoring indication on Panel 1C651 (2C651).

and

E. Reactor power >5% as indicated on Panel 1C651 (2C651).

(CONTINUED ON NEXT PAGE)

11 - LOSS OF REACTIVITY CONTROL (continued)

SITE AREA EMERGENCY

EAL# 11.3 Loss of functions needed to bring the reactor subcritical and loss of ability to bring the reactor to cold shutdown as indicated by:

(A *and* B *and* C *and* D)

A. Inability to insert sufficient control rods to bring the reactor subcritical as indicated by count rate on the neutron monitoring instrumentation on Panel 1C651 (2C651).

and

B. (1 *or* 2)
   Failure of both loops of standby liquid control to inject into the vessel indicated by:
   1. Low pump discharge pressure indication on Panel 1C601 (2C601).

   or

   2. Low flow indication on Panel 1C601 (2C601).

and

C. Reactor coolant temperature greater than 200°F, indicated on Panel 1C651 (2C651).

and

D. Reactor power >5% indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 11.4 Loss of functions needed to bring the reactor subcritical and transient in progress that makes release of large amounts of radioactivity in a short period possible as indicated by:

(A *or* B) *and* (C *and* D)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B), indicated by annunciation or trip status lights on Panel 1C651 (2C651).

or

B. Trip of both systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Loss of SLC system capability to inject, indicated by instrumentation on Panel 1C601 (2C601).

and

D. Reactor power greater than 25% of rated, indicated on Panel 1C651 (2C651).

12 - LOSS OF REACTOR VESSEL INVENTORY

UNUSUAL EVENT

EAL# 12.1 Valid initiation of an Emergency Core Cooling System (ECCS) System as indicated by:

(A *or* B)

A. Initiation of an ECCS System **and** low, low, low reactor water level (-129) annunciation or indication on Panel 1C651 (2C651).

or

B. Initiation of an ECCS System **and** High Drywell Pressure annunciation or indication on Panel 1C601 (2C601).

ALERT

EAL# 12.2 Reactor coolant system leak rate greater than 50 gpm as indicated by:

(A *or* B)

A. Drywell floor drain sump A or B Hi-Hi alarm on Panel 1C601 (2C601) **and** 2 or more drywell floor drain pumps continuously running as indicated on Panel 1C601 (2C601).

or

B. Other estimates of Reactor coolant system leakage indicating greater than 50 gpm.

SITE AREA EMERGENCY

EAL# 12.3 Known loss of coolant accident greater than make-up capacity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

(CONTINUED ON NEXT PAGE)

12 - LOSS OF REACTOR VESSEL INVENTORY (continued)

GENERAL EMERGENCY

EAL# 12.4.a Loss of coolant accident with possibility of imminent release of large amounts of radioactivity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than 20 minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

OR

EAL# 12.4.b Loss of Reactor Vessel inventory. Loss of 2 out of 3 fission product barriers (fuel cladding & reactor coolant pressure boundary) with potential loss of the third barrier (primary containment), as indicated by:

(A *or* B)

A. (1 *and* 2 *and* 3)
   1. High drywell pressure annunciation or indication on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c)
      a. Containment pressure exceeds 40.4 PSIG as indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential or actual loss of containment (e.g. anchorage or penetration failure).

      or

      c. Containment isolation valve(s) fail to close as indicated by valve position indication on Panel 1C601 (2C601).

   and

   3. Reactor Vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

or

B. (1 *and* 2)
   1. Failure of reactor pressure vessel isolation valves to isolate coolant break outside containment as indicated by valve position indication on Panel 1C601 (2C601) or visual inspection.

   and

   2. Reactor vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

13 - NATURAL PHENOMENA

UNUSUAL EVENT

EAL# 13.1 Natural phenomenon occurrence as indicated by:

(A *or* B *or* C)
A. Tornado impact on site.
or
B. Hurricane impact on site.
or
C. Earthquake detected by seismic instrumentation systems on Panel 0C696.

ALERT

EAL# 13.2 Natural Phenomenon Occurrence as indicated by:

(A *or* B *or* C)
A. Tornado with reported wind velocities greater than 200 mph impacting on site.*
or
B. Reported hurricane or sustained winds greater than 70 mph.*
or
C. Earthquake at greater than operating basis earthquake (OBE) levels as indicated on Panel 0C696.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

(CONTINUED ON NEXT PAGE)

13 - NATURAL PHENOMENA (continued)

SITE AREA EMERGENCY

EAL# 13.3 Severe natural phenomenon occurrence, with plant not in cold shutdown, as indicated by:

(A *and* B)
A. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).
and
B. (1 *or* 2 *or* 3)
1. Reported hurricane or sustained winds greater than 80 mph.*
or
2. Earthquake with greater than Safe Shutdown Earthquake (SSE) levels as indicated on Panel 0C696.
or
3. Tornado with reported wind velocities greater than 220 mph impacting on site.*

GENERAL EMERGENCY

EAL# 13.4 None.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

14 - ONSITE FIRE/EXPLOSION

UNUSUAL EVENT

EAL# 14.1 Significant fire within the plant as indicated by:

(A *and* B)
A. Activation of fire brigade by Shift Supervisor.
and
B. Duration of fire longer than 15 minutes after time of notification.

OR

Explosion inside security protected area, with no significant damage to station facilities, as indicated by:

Visual observation or notification received by control room operator and Shift Supervisor evaluation.

ALERT

EAL# 14.2 On-site Fire/Explosion as indicated by:

(A *or* B)
A. Fire lasting more than 15 minutes and fire is in the vicinity of equipment required for safe shutdown of the plant and the fire is damaging or is threatening to damage the equipment due to heat, smoke, flame, or other hazard.
or
B. (1 *and* 2)
Explosion damage to facility affecting plant operation as determined by:
1. Direct observation or notification received by control room operator.
and
2. Shift Supervisor observation.

(CONTINUED ON NEXT PAGE)

14 - ONSITE FIRE/EXPLOSION (continued)

SITE AREA EMERGENCY

EAL# 14.3 Damage to safe shutdown equipment due to fire or explosion has occurred when plant is not in cold shutdown, and damage is causing or threatens malfunction of equipment required for safe shutdown of the plant as determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 14.4 None.

15 - RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

EAL# 15.1.a Radiological gaseous effluents exceed 2 times the Technical Requirement Limits for 60 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+6 µCi/min., **or**
   2. I-131 >2.08E+2 µCi/min., **or**
   3. Particulate >1.54E+3 µCi/min., **or**

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1000 mrem/year whole body, **or**
   2. Noble gases >6000 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3000 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.1.b Radiological liquid effluents exceed Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent exceeding Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

ALERT

EAL# 15.2.a Radiological gaseous effluents exceed 200 times the Technical Requirement Limits for 15 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+8 µCi/min., **or**
   2. I-131 >2.08E+4 µCi/min., **or**
   3. Particulate >1.54E+5 µCi/min.

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1.0E+5 mrem/year whole body, **or**
   2. Noble gases >6.0E+5 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3.0E+5 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.2.b Radiological liquid effluents exceed 10 times Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent release exceeding 10 times Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

SITE AREA EMERGENCY

EAL# 15.3 Radiological effluent corresponds to greater than 50 mrem W.B.[1] or 250 mrem thyroid[2] for a half-hour or 500 mrem W.B.[1] or 2500 mrem thyroid[2] for 2 minutes at the emergency plan boundary as indicated by:

OR

Emergency plan boundary dose is projected to exceed 500 mrem W.B. [1] within 1 hour as indicated by:

(A *or* B)

A. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite.

or

B. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite

(CONTINUED ON NEXT PAGE)

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

15 - RADIOLOGICAL EFFLUENT (continued)

GENERAL EMERGENCY

EAL# 15.4 Radiological effluent release corresponds to 1 rem whole body[1] or 5 rem[2] thyroid at the emergency plan boundary as indicated by:
OR
Offsite doses are projected to exceed 1 rem whole body[1] or 5 rem thyroid[2] due to the event as indicated by:

(A *or* B)
A. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

or
B. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

16 - SECURITY EVENT

UNUSUAL EVENT

EAL# 16.1 Security threat or attempted entry or attempted sabotage as indicated by:

(A *or* B *or* C)

A. A report from Security of a security threat, attempted entry, or attempted sabotage of the owner controlled area adjacent to the site.

or

B. Any attempted act of sabotage which is deemed legitimate in the judgment of the SHIFT SUPERVISOR/EMERGENCY DIRECTOR, and affects plant operation.

or

C. A site specific credible security threat notification.

ALERT

EAL# 16.2 Ongoing Security Compromise as indicated by:

(A *or* B)

A. A report from Security that a security compromise is at the site but no penetration of protected areas has occurred.

or

B. Any act of sabotage which results in an actual or potential substantial degradation of the level of safety of the plant as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

SITE AREA EMERGENCY

EAL# 16.3 An ongoing adversary event threatens imminent loss of physical control of plant as indicated by:

(A *or* B)

A. Report from Security that the security of the plant vital area is threatened by unauthorized (forcible) entry into the protected area.

or

B. Any act of sabotage which results in actual or likely major failures of plant functions needed for protection of the public as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

(CONTINUED ON NEXT PAGE)

16 - SECURITY EVENT (continued)

GENERAL EMERGENCY

EAL# 16.4 Loss of physical control of facilities as indicated by:

(A *or* B)

A. Report from Security that a loss of physical control of plant vital areas has occurred.

or

B. Any act of sabotage which results in imminent significant cladding failure or fuel melting with a potential for loss of containment integrity or the potential for release of significant amounts of radioactivity in a short time as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

17 - SPENT FUEL RELATED INCIDENT

UNUSUAL EVENT

EAL# 17.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which is not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or full multiple isotopes where

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \ldots \frac{C_N}{DAC_N} \geq 500$$

ALERT

EAL# 17.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe fuel handling accident as indicated by:

Refuel floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

17 - SPENT FUEL RELATED INCIDENT (continued)

SITE AREA EMERGENCY

EAL# 17.3.a Major damage to irradiated fuel with actual or clear potential for significant release of radioactive material to the environment as indicated by:

(A *and* B)
A. Dropping, bumping, or otherwise rough handling of a new **OR** irradiated fuel bundle with irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

OR
EAL# 17.3.b Damage to irradiated fuel due to uncontrolled decrease in the fuel pool level to below the level of the fuel as indicated by:

(A *and* B)
A. (1 *or* 2)
1. Uncovering of irradiated fuel confirmation by verification of significant leakage from spent fuel pool.
or
2. Visual observation of water level below irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

GENERAL EMERGENCY

EAL# 17.4 None.

18 - STEAM LINE BREAK

UNUSUAL EVENT

EAL# 18.1 None.

ALERT

EAL# 18.2 MSIV malfunction causing leakage as indicated by:

(A *and* B)
A. Valid MSIV closure signal or indication on Panel 1C601 (2C601).
and
B. (1 *or* 2)
1. Valid Main Steam Line flow indication on Panel 1C652 (2C652).
or
2. Valid Main Steam Line radiation indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY

EAL# 18.3 Steam line break occurs outside of containment without isolation as indicated by:

(A *or* B *or* C *or* D)

A. (1 *and* 2)
   1. Failure of both MSIVs in the line with the leak to close as indicated by position indication on Panel 1C601 (2C601).

   and

   2. (a *or* b)
      a. High MSL flow annunciation on Panel 1C601 (2C601) or indication on Panel 1C652 (2C652).

      or

      b. Other indication of main steam leakage outside containment.

or

B. (1 *and* 2)
   1. Failure of RCIC steam isolation valves HV-F008 and HV-F007 to close as indicated on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c *or* d *or* e *or* f)
      a. RCIC steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

      or

      b. RCIC equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

      or

      c. RCIC steamline high flow annunciation on Panel 1C601 (2C601).

      or

      d. RCIC steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

      or

      e. RCIC turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

      or

      f. Other indication of steam leakage from the RCIC system.

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY (continued)

or

C. (1 *and* 2)

1. Failure of HPCI steam isolation valves HV-F002 and HV-F003 to close as indicated by position indicator on Panel 1C601 (2C601).

and

2. (a *or* b *or* c *or* d *or* e *or* f)
   a. HPCI steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

   or

   b. HPCI equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

   or

   c. HPCI steamline high flow annunciation on Panel 1C601 (2C601).

   or

   d. HPCI steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

   or

   e. HPCI turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

   or

   f. Other indication of steam leakage from the HPCI system.

or

D. Any other un-isolatable steam line breaks.

GENERAL EMERGENCY

EAL# 18.4 None.

19 - TOXIC/FLAMMABLE GASES

UNUSUAL EVENT

EAL# 19.1 Nearby or onsite release of potentially harmful quantifies of toxic or flammable material as indicated by:

Visual observation or notification received by the control room operator.

ALERT

EAL# 19.2 Entry of toxic or flammable gases into the facility, with subsequent habitability problem as indicated by:

Visual observation, direct measurement, or notification received by the control room operator.

SITE AREA EMERGENCY

EAL# 19.3 Toxic or flammable gases enter vital areas, restricting access and restricted access constitutes a safety problem, as determined by:

(A *and* B)
A. Shift Supervisor's evaluation.
and
B. Visual observation, direct measurement, or notification received by control room operator.

GENERAL EMERGENCY

EAL# 19.4 None.

20 - TECHNICAL SPECIFICATION SAFETY LIMIT

UNUSUAL EVENT

EAL# 20.1 Abnormal occurrences which result in operator complying with any of the Technical Specification SAFETY LIMIT ACTION statements indicated by:

(A *or* B *or* C *or* D)
A. Exceeding THERMAL POWER, low pressure or low flow safety limit 2.1.1.1.
or
B. Exceeding THERMAL POWER, high pressure and high flow safety limit 2.1.1.2.
or
C. Exceeding REACTOR VESSEL WATER LEVEL safety limit 2.1.1.3.
or
D. Exceeding REACTOR COOLANT SYSTEM PRESSURE safety limit 2.1.2.

ALERT

EAL# 20.2 None.

SITE AREA EMERGENCY

EAL# 20.3 None.

GENERAL EMERGENCY

EAL# 20.4 None.

21 – DRY FUEL STORAGE

UNUSUAL EVENT

EAL# 21.1.a. Situations are occurring or have occurred during the transport of the irradiated spent fuel to the onsite storage facility, which jeopardize the integrity of the spent fuel or its container as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

OR

EAL# 21.1.b. Situations are occurring or have occurred at the irradiated spent fuel storage facility, which jeopardize the integrity of the dry cask storage system as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

ALERT

EAL# 21.2 None.

SITE AREA EMERGENCY

EAL# 21.3 None.

GENERAL EMERGENCY

EAL# 21.4 None.

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EMERGENCY CLASSIFICATION

CHECK ☑

1.0 TIMING OF CLASSIFICATION

☐ 1.1 **UNUSUAL EVENT**

An **UNUSUAL EVENT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.2 **ALERT**

An **ALERT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.3 **SITE AREA EMERGENCY**

A **SITE AREA EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.4 **GENERAL EMERGENCY**

A **GENERAL EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

CLASSIFICATION OF EMERGENCY CONDITIONS

USE OF EMERGENCY CLASSIFICATION MATRIX

NOTE: CONFIRM THAT INDICATORS AND/OR ALARMS REFLECT ACTUAL CONDITIONS PRIOR TO TAKING ACTION BASED ON THE INDICATOR OR ALARM.

The matrix is worded in a manner that assumes parameter values indicated are the actual conditions present in the plant.

The matrix is designed to make it possible to precisely classify an abnormal occurrence into the proper emergency classification based on detailed Emergency Action Level (EAL) descriptions. It is impossible to anticipate every abnormal occurrence. Therefore, before classifying any abnormal occurrence based on the EALs in the matrix, one should verify that the general conditions prevalent in-plant and offsite meet the general class description of the emergency classification. In addition, prior to classification, one should be aware of the ramifications in-plant and particularly offsite of that classification. Special consideration of offsite consequences should be made prior to declaring a **GENERAL EMERGENCY.**

CLASS DESCRIPTIONS

UNUSUAL EVENT - Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT - Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY - Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY - Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

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1 - AIRCRAFT/TRAIN ACTIVITY

UNUSUAL EVENT

EAL# 1.1 Aircraft crash or train derailment onsite as indicated by:

Visual observation or notification received by control room operator.

ALERT

EAL# 1.2 Aircraft or missile strikes a station structure as indicated by:

Direct observation or notification received by control room operator.

SITE AREA EMERGENCY

EAL# 1.3 Severe damage to safe shutdown equipment from aircraft crash or missile impact when not in cold shutdown, determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 1.4 None.

2 - CONTROL ROOM EVACUATION

UNUSUAL EVENT

EAL# 2.1 None.

ALERT

EAL# 2.2 Control Room evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Establishment of control of shutdown systems from local stations.

SITE AREA EMERGENCY

EAL# 2.3 Delayed Control Room Evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Shutdown systems control at local stations not established within 15 minutes.

GENERAL EMERGENCY

EAL# 2.4 None.

3 - FUEL CLADDING DEGRADATION

UNUSUAL EVENT

EAL# 3.1 Core degradation as indicated by:

(A *or* B)

A. Valid Off-gas Pre-treatment Monitor high radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Reactor coolant activity, determined by sample analysis greater than or equal to 2 μCi/cc of I-131 equivalent.

ALERT

EAL# 3.2 Severe fuel cladding degradation as indicated by:

(A *or* B *or* C *or* D)

A. Valid Off-gas Pre-treatment monitor High-High radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Valid Reactor coolant activity greater than 300 μCi/cc of equivalent I-131, as determined by sample analysis.

or

C. Valid Main Steam Line High radiation trip annunciation or indication on Panel 1C651 (2C651).

or

D. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 200 R/hr. (An 8R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

SITE AREA EMERGENCY

EAL# 3.3 Severely degraded core as indicated by:

(A *or* B)

A. Reactor coolant activity greater than 1,000 µCi/cc of equivalent I-131 as determined by sample analysis.

or

B. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

GENERAL EMERGENCY

EAL# 3.4.a Fuel cladding degradation. Loss of 2 out of 3 fission product barriers (fuel cladding and reactor coolant pressure boundary) with potential loss of the third barrier (primary containment) as indicated by:

(A *or* B)

A. (1 *and* 2)
   1. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

   and

   2. (a *or* b *or* c)
      a. Containment pressure greater than 40.4 PSIG, indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential for loss of containment (e.g. anchorage or penetration failure, a crack in containment concrete at tendon).

      or

      c. Other indications of potential or actual loss of primary containment.

or

B. (1 *and* 2)
   1. Reactor coolant activity greater than 1,000 μCi/cc of equivalent I-131 as determined by sample analysis.

   and

   2. Actual or potential failure of reactor coolant isolation valves to isolate a coolant leak outside containment as determined by valve position indication on Panel 1C601 (2C601) or visual inspection.

OR

EAL# 3.4.b Core melt as indicated by:

(A *and* B)

A. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 2000 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

and

B. Containment high pressure indication or annunciation on Panel 1C601 (2C601).

4 - GENERAL

UNUSUAL EVENT

EAL# 4.1 Plant conditions exist that warrant increased awareness on the part of plant operating staff or state and/or local offsite authorities as indicated by:

Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT

EAL# 4.2 Other plant conditions exist that warrant precautionary activation of PP&L, State, County, and local emergency centers as indicated by:

Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY

EAL# 4.3 Other plant conditions exist that warrant activation of emergency centers and monitoring teams or a precautionary notification to the public near the site as indicated by:

Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY

EAL# 4.4 Other plant conditions exist, from whatever, source, that make release of large amounts of radioactivity in a short time period available as indicated by:

Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

5.- INJURED/CONTAMINATED PERSONNEL

UNUSUAL EVENT

EAL# 5.1 Transportation of externally contaminated injured individual from site to offsite medical facility as deemed appropriate by Shift Supervisor.

ALERT

EAL# 5.2 None.

SITE AREA EMERGENCY

EAL# 5.3 None.

GENERAL EMERGENCY

EAL# 5.4 None.

6 - IN-PLANT HIGH RADIATION

UNUSUAL EVENT

EAL# 6.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which are not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or for multiple isotopes where

$$\frac{C_A}{DAC_A}+\frac{C_B}{DAC_B}+\frac{C_C}{DAC_C}\ldots\frac{C_N}{DAC_N}\geq 500$$

ALERT

EAL# 6.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe degradation in the control of radioactive material as indicated by:

Area Radiation Monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

SITE AREA EMERGENCY

EAL# 6.3 None.

GENERAL EMERGENCY

EAL# 6.4 None.

7 - LOSS OF AC POWER

UNUSUAL EVENT

EAL# 7.1 Loss of offsite power **or** loss of all onsite AC power supplies as indicated by:

(A *or* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
or
B. Failure of all diesel generators to start or synchronize to the emergency buses by indication or annunciation on Panel 0C653.

ALERT

EAL# 7.2 Loss of all offsite power **and** all onsite AC power supplies as indicated by:

(A *and* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
and
B. Failure of all diesel generators to start or synchronize to the emergency buses by annunciation or indication on Panel 0C653.

SITE AREA EMERGENCY

EAL# 7.3 Loss of all offsite power and loss of all onsite AC power supplies for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Loss of offsite power.
and
B. Failure of **all** diesel generators to startup or synchronize to the emergency buses by indication or annunciation on 0C653.
and
C. The above conditions exist for greater than 15 minutes.

GENERAL EMERGENCY

EAL# 7.4 None.

8 - LOSS OF CONTROL ROOM ALARMS AND ANNUNCIATORS

UNUSUAL EVENT

EAL# 8.1 None.

ALERT

EAL# 8.2 Loss of all control room annunciators as indicated by:

In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

SITE AREA EMERGENCY

EAL# 8.3 All annunciators lost and plant transient initiated while annunciators are lost as indicated by:

(A *and* B)

A. In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

and

B. (1 *or* 2 *or* 3 *or* 4)
   1. Low-Low reactor water level indication on Panel 1C651 (2C651) followed by ECCS initiation on Panel 1C601 (2C601).

   or

   2. Reactor coolant temperature change greater than 100°F per hour indication on recorder TR-1R006 on Panel 1C007 (2C007) (Reactor Building elevation 683').

   or

   3. High reactor pressure indication on Panel 1C651 (2C651) and followed by scram indication on Panel 1C651 (2C651).

   or

   4. Any indication that transient has occurred or is in progress.

GENERAL EMERGENCY

EAL# 8.4 None.

9 - LOSS OF DC POWER

UNUSUAL EVENT

EAL# 9.1 None.

ALERT

EAL# 9.2 Loss of onsite vital DC power as indicated by:

(A *and* B)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).

NOTE: Buses are not tripped on undervoltage condition.

SITE AREA EMERGENCY

EAL# 9.3 Loss of all vital onsite DC power sustained for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).
and
C. The above condition exists for greater than 15 minutes.

NOTE: Buses are not tripped on undervoltage condition.

GENERAL EMERGENCY

EAL# 9.4 None.

10 - LOSS OF DECAY HEAT REMOVAL CAPABILITY

UNUSUAL EVENT

EAL# 10.1 None.

ALERT

EAL# 10.2 Inability to remove decay heat while in plant condition 4, inability to maintain the plant in cold shutdown as indicated by:

Inability to maintain reactor coolant temperature less than 200°F with the reactor mode switch in shutdown; exception is when testing per Special Test Exception TS 3.10.1 which allows maximum temperature of 212°F.

SITE AREA EMERGENCY

EAL# 10.3 Inability to remove decay heat while the plant is shutdown as indicated by:

(A *and* B *and* C)
A. Reactor Mode switch in shutdown.
and
B. Reactor Coolant System temperature greater than 200°F and rising.
and
C. Suppression Pool temperature greater than 120°F and rising.

GENERAL EMERGENCY

EAL# 10.4 Inability to remove decay heat while the plant is shutdown with possible release of large amounts of radioactivity as indicated by:

(A *and* B *and* C)
A. Reactor mode switch in shutdown.
and
B. Reactor coolant system temperature greater than 200°F and rising.
and
C. Suppression pool temperature greater than 290°F indicated on the computer output (MAT 12,13,14,15 or 16).

11 - LOSS OF REACTIVITY CONTROL

UNUSUAL EVENT

EAL# 11.1 Inadvertent Criticality as indicated by:

Unexpected increasing neutron flux indication on Panel 1C651 (2C651).

ALERT

EAL# 11.2 Failure of the Reactor Protection System or the Alternate Rod Insertion System to initiate and complete a scram that brings the reactor subcritical as indicated by:

(A *or* B) *and* (C *and* D *and* E)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B) as indicated by annunciators and trip status lights on Panel 1C651 (2C651).

or

B. Trip of both trip systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Failure of control rods to insert, confirmed by the full core display indication on Panel 1C651 (2C651) or process computer indications.

and

D. Failure to bring the reactor subcritical confirmed by neutron count rate on the neutron monitoring indication on Panel 1C651 (2C651).

and

E. Reactor power >5% as indicated on Panel 1C651 (2C651).

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11 - LOSS OF REACTIVITY CONTROL (continued)

SITE AREA EMERGENCY

EAL# 11.3 Loss of functions needed to bring the reactor subcritical and loss of ability to bring the reactor to cold shutdown as indicated by:

(A *and* B *and* C *and* D)

A. Inability to insert sufficient control rods to bring the reactor subcritical as indicated by count rate on the neutron monitoring instrumentation on Panel 1C651 (2C651).

and

B. (1 *or* 2)
   Failure of both loops of standby liquid control to inject into the vessel indicated by:
   1. Low pump discharge pressure indication on Panel 1C601 (2C601).

   or

   2. Low flow indication on Panel 1C601 (2C601).

and

C. Reactor coolant temperature greater than 200°F, indicated on Panel 1C651 (2C651).

and

D. Reactor power >5% indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 11.4 Loss of functions needed to bring the reactor subcritical and transient in progress that makes release of large amounts of radioactivity in a short period possible as indicated by:

(A *or* B) *and* (C *and* D)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B), indicated by annunciation or trip status lights on Panel 1C651 (2C651).

or

B. Trip of both systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Loss of SLC system capability to inject, indicated by instrumentation on Panel 1C601 (2C601).

and

D. Reactor power greater than 25% of rated, indicated on Panel 1C651 (2C651).

12 - LOSS OF REACTOR VESSEL INVENTORY

UNUSUAL EVENT

EAL# 12.1 Valid initiation of an Emergency Core Cooling System (ECCS) System as indicated by:

(A *or* B)

A. Initiation of an ECCS System **and** low, low, low reactor water level (-129) annunciation or indication on Panel 1C651 (2C651).

or

B. Initiation of an ECCS System **and** High Drywell Pressure annunciation or indication on Panel 1C601 (2C601).

ALERT

EAL# 12.2 Reactor coolant system leak rate greater than 50 gpm as indicated by:

(A *or* B)

A. Drywell floor drain sump A or B Hi-Hi alarm on Panel 1C601 (2C601) **and** 2 or more drywell floor drain pumps continuously running as indicated on Panel 1C601 (2C601).

or

B. Other estimates of Reactor coolant system leakage indicating greater than 50 gpm.

SITE AREA EMERGENCY

EAL# 12.3 Known loss of coolant accident greater than make-up capacity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

(CONTINUED ON NEXT PAGE)

12 - LOSS OF REACTOR VESSEL INVENTORY (continued)

GENERAL EMERGENCY

EAL# 12.4.a Loss of coolant accident with possibility of imminent release of large amounts of radioactivity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than 20 minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

OR

EAL# 12.4.b Loss of Reactor Vessel inventory. Loss of 2 out of 3 fission product barriers (fuel cladding & reactor coolant pressure boundary) with potential loss of the third barrier (primary containment), as indicated by:

(A *or* B)

A. (1 *and* 2 *and* 3)
   1. High drywell pressure annunciation or indication on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c)
      a. Containment pressure exceeds 40.4 PSIG as indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential or actual loss of containment (e.g. anchorage or penetration failure).

      or

      c. Containment isolation valve(s) fail to close as indicated by valve position indication on Panel 1C601 (2C601).

   and

   3. Reactor Vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

or

B. (1 *and* 2)
   1. Failure of reactor pressure vessel isolation valves to isolate coolant break outside containment as indicated by valve position indication on Panel 1C601 (2C601) or visual inspection.

   and

   2. Reactor vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

13 - NATURAL PHENOMENA

UNUSUAL EVENT

EAL# 13.1 Natural phenomenon occurrence as indicated by:

(A *or* B *or* C)
A. Tornado impact on site.
or
B. Hurricane impact on site.
or
C. Earthquake detected by seismic instrumentation systems on Panel 0C696.

ALERT

EAL# 13.2 Natural Phenomenon Occurrence as indicated by:

(A *or* B *or* C)
A. Tornado with reported wind velocities greater than 200 mph impacting on site.*
or
B. Reported hurricane or sustained winds greater than 70 mph.*
or
C. Earthquake at greater than operating basis earthquake (OBE) levels as indicated on Panel 0C696.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

(CONTINUED ON NEXT PAGE)

13 - NATURAL PHENOMENA (continued)

SITE AREA EMERGENCY

EAL# 13.3 Severe natural phenomenon occurrence, with plant not in cold shutdown, as indicated by:

(A *and* B)
A. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).
and
B. (1 *or* 2 *or* 3)
1. Reported hurricane or sustained winds greater than 80 mph.*
or
2. Earthquake with greater than Safe Shutdown Earthquake (SSE) levels as indicated on Panel 0C696.
or
3. Tornado with reported wind velocities greater than 220 mph impacting on site.*

GENERAL EMERGENCY

EAL# 13.4 None.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

14 - ONSITE FIRE/EXPLOSION

UNUSUAL EVENT

EAL# 14.1 Significant fire within the plant as indicated by:

(A *and* B)
A. Activation of fire brigade by Shift Supervisor.
and
B. Duration of fire longer than 15 minutes after time of notification.

OR

Explosion inside security protected area, with no significant damage to station facilities, as indicated by:

Visual observation or notification received by control room operator and Shift Supervisor evaluation.

ALERT

EAL# 14.2 On-site Fire/Explosion as indicated by:

(A *or* B)
A. Fire lasting more than 15 minutes and fire is in the vicinity of equipment required for safe shutdown of the plant and the fire is damaging or is threatening to damage the equipment due to heat, smoke, flame, or other hazard.
or
B. (1 *and* 2)
Explosion damage to facility affecting plant operation as determined by:
1. Direct observation or notification received by control room operator.
and
2. Shift Supervisor observation.

(CONTINUED ON NEXT PAGE)

14 - ONSITE FIRE/EXPLOSION (continued)

SITE AREA EMERGENCY

EAL# 14.3 Damage to safe shutdown equipment due to fire or explosion has occurred when plant is not in cold shutdown, and damage is causing or threatens malfunction of equipment required for safe shutdown of the plant as determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 14.4 None.

15 - RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

EAL# 15.1.a Radiological gaseous effluents exceed 2 times the Technical Requirement Limits for 60 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+6 µCi/min., **or**
   2. I-131 >2.08E+2 µCi/min., **or**
   3. Particulate >1.54E+3 µCi/min., **or**

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1000 mrem/year whole body, **or**
   2. Noble gases >6000 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3000 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.1.b Radiological liquid effluents exceed Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent exceeding Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

ALERT

EAL# 15.2.a Radiological gaseous effluents exceed 200 times the Technical Requirement Limits for 15 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+8 µCi/min., **or**
   2. I-131 >2.08E+4 µCi/min., **or**
   3. Particulate >1.54E+5 µCi/min.

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1.0E+5 mrem/year whole body, **or**
   2. Noble gases >6.0E+5 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3.0E+5 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.2.b Radiological liquid effluents exceed 10 times Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent release exceeding 10 times Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

SITE AREA EMERGENCY

EAL# 15.3 Radiological effluent corresponds to greater than 50 mrem W.B.[1] or 250 mrem thyroid[2] for a half-hour or 500 mrem W.B.[1] or 2500 mrem thyroid[2] for 2 minutes at the emergency plan boundary as indicated by:

OR

Emergency plan boundary dose is projected to exceed 500 mrem W.B. [1] within 1 hour as indicated by:

(A *or* B)

A. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite.

or

B. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite

(CONTINUED ON NEXT PAGE)

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

15 - RADIOLOGICAL EFFLUENT (continued)

GENERAL EMERGENCY

EAL# 15.4 Radiological effluent release corresponds to 1 rem whole body[1] or 5 rem[2] thyroid at the emergency plan boundary as indicated by:
OR
Offsite doses are projected to exceed 1 rem whole body[1] or 5 rem thyroid[2] due to the event as indicated by:

(A *or* B)
A. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

or
B. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

16 - SECURITY EVENT

UNUSUAL EVENT

EAL# 16.1 Security threat or attempted entry or attempted sabotage as indicated by:

(A *or* B *or* C)

A. A report from Security of a security threat, attempted entry, or attempted sabotage of the owner controlled area adjacent to the site.

or

B. Any attempted act of sabotage which is deemed legitimate in the judgment of the SHIFT SUPERVISOR/EMERGENCY DIRECTOR, and affects plant operation.

or

C. A site specific credible security threat notification.

ALERT

EAL# 16.2 Ongoing Security Compromise as indicated by:

(A *or* B)

A. A report from Security that a security compromise is at the site but no penetration of protected areas has occurred.

or

B. Any act of sabotage which results in an actual or potential substantial degradation of the level of safety of the plant as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

SITE AREA EMERGENCY

EAL# 16.3 An ongoing adversary event threatens imminent loss of physical control of plant as indicated by:

(A *or* B)

A. Report from Security that the security of the plant vital area is threatened by unauthorized (forcible) entry into the protected area.

or

B. Any act of sabotage which results in actual or likely major failures of plant functions needed for protection of the public as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

(CONTINUED ON NEXT PAGE)

16 - SECURITY EVENT (continued)

GENERAL EMERGENCY

EAL# 16.4 Loss of physical control of facilities as indicated by:

(A *or* B)

A. Report from Security that a loss of physical control of plant vital areas has occurred.

or

B. Any act of sabotage which results in imminent significant cladding failure or fuel melting with a potential for loss of containment integrity or the potential for release of significant amounts of radioactivity in a short time as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

17 - SPENT FUEL RELATED INCIDENT

UNUSUAL EVENT

EAL# 17.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which is not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or full multiple isotopes where

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \ldots \frac{C_N}{DAC_N} \geq 500$$

ALERT

EAL# 17.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe fuel handling accident as indicated by:

Refuel floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

17 - SPENT FUEL RELATED INCIDENT (continued)

SITE AREA EMERGENCY

EAL# 17.3.a Major damage to irradiated fuel with actual or clear potential for significant release of radioactive material to the environment as indicated by:

(A *and* B)
A. Dropping, bumping, or otherwise rough handling of a new **OR** irradiated fuel bundle with irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

OR
EAL# 17.3.b Damage to irradiated fuel due to uncontrolled decrease in the fuel pool level to below the level of the fuel as indicated by:

(A *and* B)
A. (1 *or* 2)
1. Uncovering of irradiated fuel confirmation by verification of significant leakage from spent fuel pool.
or
2. Visual observation of water level below irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

GENERAL EMERGENCY

EAL# 17.4 None.

18 - STEAM LINE BREAK

UNUSUAL EVENT

EAL# 18.1 None.

ALERT

EAL# 18.2 MSIV malfunction causing leakage as indicated by:

(A *and* B)
A. Valid MSIV closure signal or indication on Panel 1C601 (2C601).
and
B. (1 *or* 2)
1. Valid Main Steam Line flow indication on Panel 1C652 (2C652).
or
2. Valid Main Steam Line radiation indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY

EAL# 18.3 Steam line break occurs outside of containment without isolation as indicated by:

(A *or* B *or* C *or* D)

A. (1 *and* 2)
   1. Failure of both MSIVs in the line with the leak to close as indicated by position indication on Panel 1C601 (2C601).

   and

   2. (a *or* b)
      a. High MSL flow annunciation on Panel 1C601 (2C601) or indication on Panel 1C652 (2C652).

      or

      b. Other indication of main steam leakage outside containment.

or

B. (1 *and* 2)
   1. Failure of RCIC steam isolation valves HV-F008 and HV-F007 to close as indicated on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c *or* d *or* e *or* f)
      a. RCIC steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

      or

      b. RCIC equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

      or

      c. RCIC steamline high flow annunciation on Panel 1C601 (2C601).

      or

      d. RCIC steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

      or

      e. RCIC turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

      or

      f. Other indication of steam leakage from the RCIC system.

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY (continued)

or

C. (1 *and* 2)

1. Failure of HPCI steam isolation valves HV-F002 and HV-F003 to close as indicated by position indicator on Panel 1C601 (2C601).

and

2. (a *or* b *or* c *or* d *or* e *or* f)
   a. HPCI steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

   or

   b. HPCI equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

   or

   c. HPCI steamline high flow annunciation on Panel 1C601 (2C601).

   or

   d. HPCI steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

   or

   e. HPCI turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

   or

   f. Other indication of steam leakage from the HPCI system.

or

D. Any other un-isolatable steam line breaks.

GENERAL EMERGENCY

EAL# 18.4 None.

19 - TOXIC/FLAMMABLE GASES

UNUSUAL EVENT

EAL# 19.1 Nearby or onsite release of potentially harmful quantifies of toxic or flammable material as indicated by:

Visual observation or notification received by the control room operator.

ALERT

EAL# 19.2 Entry of toxic or flammable gases into the facility, with subsequent habitability problem as indicated by:

Visual observation, direct measurement, or notification received by the control room operator.

SITE AREA EMERGENCY

EAL# 19.3 Toxic or flammable gases enter vital areas, restricting access and restricted access constitutes a safety problem, as determined by:

(A *and* B)
A. Shift Supervisor's evaluation.
and
B. Visual observation, direct measurement, or notification received by control room operator.

GENERAL EMERGENCY

EAL# 19.4 None.

20 - TECHNICAL SPECIFICATION SAFETY LIMIT

UNUSUAL EVENT

EAL# 20.1 Abnormal occurrences which result in operator complying with any of the Technical Specification SAFETY LIMIT ACTION statements indicated by:

(A *or* B *or* C *or* D)
A. Exceeding THERMAL POWER, low pressure or low flow safety limit 2.1.1.1.
or
B. Exceeding THERMAL POWER, high pressure and high flow safety limit 2.1.1.2.
or
C. Exceeding REACTOR VESSEL WATER LEVEL safety limit 2.1.1.3.
or
D. Exceeding REACTOR COOLANT SYSTEM PRESSURE safety limit 2.1.2.

ALERT

EAL# 20.2 None.

SITE AREA EMERGENCY

EAL# 20.3 None.

GENERAL EMERGENCY

EAL# 20.4 None.

21 – DRY FUEL STORAGE

UNUSUAL EVENT

EAL# 21.1.a. Situations are occurring or have occurred during the transport of the irradiated spent fuel to the onsite storage facility, which jeopardize the integrity of the spent fuel or its container as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

OR

EAL# 21.1.b. Situations are occurring or have occurred at the irradiated spent fuel storage facility, which jeopardize the integrity of the dry cask storage system as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

ALERT

EAL# 21.2 None.

SITE AREA EMERGENCY

EAL# 21.3 None.

GENERAL EMERGENCY

EAL# 21.4 None.

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Affected Unit _____ Control No. _____

PROTECTIVE ACTION RECOMMENDATION FORM
SUSQUEHANNA STEAM ELECTRIC STATION

☐ This is a Drill ☐ This is **NOT** a Drill Preparer: _____

The EMERGENCY CLASSIFICATION is:

☐ Unusual Event ☐ Alert ☐ Site Area Emergency ☐ General Emergency

Basis: EAL # _____

This represents:

☐ Initial Classification ☐ Escalation ☐ Reduction ☐ No Change in the Classification Status

Emergency Action(s) implemented onsite:

☐ None
☐ Local Area Evacuation
☐ Site Accountability
☐ Evacuation of non-essential personnel
☐ KI to onsite personnel
☐ Other _____

Bases: _____

The PROTECTIVE ACTION RECOMMENDATION is:

☐ No Protective Action Recommendation Required

☐ **Evacuate** 0-2 miles and **Shelter** 2-10 miles	☐ Relocation
☐ **Evacuate** 0-10 miles	☐ Control of Access
	☐ Contamination Controls/Decon
☐ Divert Danville Drinking Water*	☐ Other

*Expected arrival of release at Danville: _____

This represents: ☐ Initial ☐ Change ☐ No Change in the Protective Action Recommendation

The BASIS for the Protective Action Recommendation is:

Plant Status

_____

_____

Radioactive Release: ☐ Monitored ☐ Unmonitored

Status	Airborne	Liquid
< Tech Requirements Limit (Routine)	☐	☐
≥ Tech Requirements Limit (Event Related)	☐	☐

Note: TRM Limits (μCi/min): Noble Gas 8.51E+5; Iodine 1.04E+2; Particulate 7.72 E+2 (Airborne releases)

Data measured in the field confirm release rate estimations: ☐ Yes ☐ No

Weather Conditions: Wind Speed _____ Wind Direction _____

_____

Dose Projections: ☐ TEDE > 1 rem or thyroid CDE > 5 rem at 2 miles
☐ TEDE > 1 rem or thyroid CDE > 5 rem at EPB
☐ TEDE ≤ 1 rem and thyroid CDE ≤ 5 rem at EPB

_____

Other:

_____

Approval: _____ **Date/Time:** _____

Emergency Director or Recovery Manager approval required if change in Classification or Protective Action Recommendation.
RPC or DASU approval if no change in the Classification or Protective Action Recommendation.

Transmittal: ☐ Verbal ☐ Electronic ☐ Both

Communicated To:

NAME	AGENCY	DATE/TIME

EMERGENCY CLASSIFICATION

CHECK ☑

1.0 TIMING OF CLASSIFICATION

☐ 1.1 **UNUSUAL EVENT**

An **UNUSUAL EVENT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.2 **ALERT**

An **ALERT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.3 **SITE AREA EMERGENCY**

A **SITE AREA EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.4 **GENERAL EMERGENCY**

A **GENERAL EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

CLASSIFICATION OF EMERGENCY CONDITIONS

USE OF EMERGENCY CLASSIFICATION MATRIX

NOTE: CONFIRM THAT INDICATORS AND/OR ALARMS REFLECT ACTUAL CONDITIONS PRIOR TO TAKING ACTION BASED ON THE INDICATOR OR ALARM.

The matrix is worded in a manner that assumes parameter values indicated are the actual conditions present in the plant.

The matrix is designed to make it possible to precisely classify an abnormal occurrence into the proper emergency classification based on detailed Emergency Action Level (EAL) descriptions. It is impossible to anticipate every abnormal occurrence. Therefore, before classifying any abnormal occurrence based on the EALs in the matrix, one should verify that the general conditions prevalent in-plant and offsite meet the general class description of the emergency classification. In addition, prior to classification, one should be aware of the ramifications in-plant and particularly offsite of that classification. Special consideration of offsite consequences should be made prior to declaring a **GENERAL EMERGENCY.**

CLASS DESCRIPTIONS

UNUSUAL EVENT - Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT - Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY - Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY - Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

CATEGORY INDEX TO THE MATRIX FOR THE CLASSIFICATION OF EMERGENCY CONDITIONS
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1 - AIRCRAFT/TRAIN ACTIVITY

UNUSUAL EVENT

EAL# 1.1 Aircraft crash or train derailment onsite as indicated by:

Visual observation or notification received by control room operator.

ALERT

EAL# 1.2 Aircraft or missile strikes a station structure as indicated by:

Direct observation or notification received by control room operator.

SITE AREA EMERGENCY

EAL# 1.3 Severe damage to safe shutdown equipment from aircraft crash or missile impact when not in cold shutdown, determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 1.4 None.

2 - CONTROL ROOM EVACUATION

UNUSUAL EVENT

EAL# 2.1 None.

ALERT

EAL# 2.2 Control Room evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Establishment of control of shutdown systems from local stations.

SITE AREA EMERGENCY

EAL# 2.3 Delayed Control Room Evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Shutdown systems control at local stations not established within 15 minutes.

GENERAL EMERGENCY

EAL# 2.4 None.

3 - FUEL CLADDING DEGRADATION

UNUSUAL EVENT

EAL# 3.1 Core degradation as indicated by:

(A *or* B)

A. Valid Off-gas Pre-treatment Monitor high radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Reactor coolant activity, determined by sample analysis greater than or equal to 2 μCi/cc of I-131 equivalent.

ALERT

EAL# 3.2 Severe fuel cladding degradation as indicated by:

(A *or* B *or* C *or* D)

A. Valid Off-gas Pre-treatment monitor High-High radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Valid Reactor coolant activity greater than 300 μCi/cc of equivalent I-131, as determined by sample analysis.

or

C. Valid Main Steam Line High radiation trip annunciation or indication on Panel 1C651 (2C651).

or

D. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 200 R/hr. (An 8R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

SITE AREA EMERGENCY

EAL# 3.3 Severely degraded core as indicated by:

(A *or* B)

A. Reactor coolant activity greater than 1,000 μCi/cc of equivalent I-131 as determined by sample analysis.

or

B. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

GENERAL EMERGENCY

EAL# 3.4.a Fuel cladding degradation. Loss of 2 out of 3 fission product barriers (fuel cladding and reactor coolant pressure boundary) with potential loss of the third barrier (primary containment) as indicated by:

(A *or* B)

A. (1 *and* 2)

1. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

and

2. (a *or* b *or* c)
   a. Containment pressure greater than 40.4 PSIG, indicated on Panel 1C601 (2C601).

   or

   b. A visual inspection of the containment indicates a potential for loss of containment (e.g. anchorage or penetration failure, a crack in containment concrete at tendon).

   or

   c. Other indications of potential or actual loss of primary containment.

or

B. (1 *and* 2)

1. Reactor coolant activity greater than 1,000 μCi/cc of equivalent I-131 as determined by sample analysis.

and

2. Actual or potential failure of reactor coolant isolation valves to isolate a coolant leak outside containment as determined by valve position indication on Panel 1C601 (2C601) or visual inspection.

OR

EAL# 3.4.b Core melt as indicated by:

(A *and* B)

A. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 2000 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

and

B. Containment high pressure indication or annunciation on Panel 1C601 (2C601).

4 - GENERAL

UNUSUAL EVENT

EAL# 4.1 Plant conditions exist that warrant increased awareness on the part of plant operating staff or state and/or local offsite authorities as indicated by:

Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT

EAL# 4.2 Other plant conditions exist that warrant precautionary activation of PP&L, State, County, and local emergency centers as indicated by:

Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY

EAL# 4.3 Other plant conditions exist that warrant activation of emergency centers and monitoring teams or a precautionary notification to the public near the site as indicated by:

Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY

EAL# 4.4 Other plant conditions exist, from whatever, source, that make release of large amounts of radioactivity in a short time period available as indicated by:

Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

5.- INJURED/CONTAMINATED PERSONNEL

UNUSUAL EVENT

EAL# 5.1 Transportation of externally contaminated injured individual from site to offsite medical facility as deemed appropriate by Shift Supervisor.

ALERT

EAL# 5.2 None.

SITE AREA EMERGENCY

EAL# 5.3 None.

GENERAL EMERGENCY

EAL# 5.4 None.

6 - IN-PLANT HIGH RADIATION

UNUSUAL EVENT

EAL# 6.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which are not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or for multiple isotopes where

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \ldots \frac{C_N}{DAC_N} \geq 500$$

ALERT

EAL# 6.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe degradation in the control of radioactive material as indicated by:

Area Radiation Monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

SITE AREA EMERGENCY

EAL# 6.3 None.

GENERAL EMERGENCY

EAL# 6.4 None.

7 - LOSS OF AC POWER

UNUSUAL EVENT

EAL# 7.1 Loss of offsite power **or** loss of all onsite AC power supplies as indicated by:

(A *or* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
or
B. Failure of all diesel generators to start or synchronize to the emergency buses by indication or annunciation on Panel 0C653.

ALERT

EAL# 7.2 Loss of all offsite power **and** all onsite AC power supplies as indicated by:

(A *and* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
and
B. Failure of all diesel generators to start or synchronize to the emergency buses by annunciation or indication on Panel 0C653.

SITE AREA EMERGENCY

EAL# 7.3 Loss of all offsite power and loss of all onsite AC power supplies for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Loss of offsite power.
and
B. Failure of **all** diesel generators to startup or synchronize to the emergency buses by indication or annunciation on 0C653.
and
C. The above conditions exist for greater than 15 minutes.

GENERAL EMERGENCY

EAL# 7.4 None.

8 - LOSS OF CONTROL ROOM ALARMS AND ANNUNCIATORS

UNUSUAL EVENT

EAL# 8.1 None.

ALERT

EAL# 8.2 Loss of all control room annunciators as indicated by:

In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

SITE AREA EMERGENCY

EAL# 8.3 All annunciators lost and plant transient initiated while annunciators are lost as indicated by:

(A *and* B)

A. In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

and

B. (1 *or* 2 *or* 3 *or* 4)
   1. Low-Low reactor water level indication on Panel 1C651 (2C651) followed by ECCS initiation on Panel 1C601 (2C601).

   or

   2. Reactor coolant temperature change greater than 100°F per hour indication on recorder TR-1R006 on Panel 1C007 (2C007) (Reactor Building elevation 683').

   or

   3. High reactor pressure indication on Panel 1C651 (2C651) and followed by scram indication on Panel 1C651 (2C651).

   or

   4. Any indication that transient has occurred or is in progress.

GENERAL EMERGENCY

EAL# 8.4 None.

9 - LOSS OF DC POWER

UNUSUAL EVENT

EAL# 9.1 None.

ALERT

EAL# 9.2 Loss of onsite vital DC power as indicated by:

(A *and* B)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).

NOTE: Buses are not tripped on undervoltage condition.

SITE AREA EMERGENCY

EAL# 9.3 Loss of all vital onsite DC power sustained for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).
and
B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).
and
C. The above condition exists for greater than 15 minutes.

NOTE: Buses are not tripped on undervoltage condition.

GENERAL EMERGENCY

EAL# 9.4 None.

10 - LOSS OF DECAY HEAT REMOVAL CAPABILITY

UNUSUAL EVENT

EAL# 10.1 None.

ALERT

EAL# 10.2 Inability to remove decay heat while in plant condition 4, inability to maintain the plant in cold shutdown as indicated by:

Inability to maintain reactor coolant temperature less than 200°F with the reactor mode switch in shutdown; exception is when testing per Special Test Exception TS 3.10.1 which allows maximum temperature of 212°F.

SITE AREA EMERGENCY

EAL# 10.3 Inability to remove decay heat while the plant is shutdown as indicated by:

(A *and* B *and* C)
A. Reactor Mode switch in shutdown.
and
B. Reactor Coolant System temperature greater than 200°F and rising.
and
C. Suppression Pool temperature greater than 120°F and rising.

GENERAL EMERGENCY

EAL# 10.4 Inability to remove decay heat while the plant is shutdown with possible release of large amounts of radioactivity as indicated by:

(A *and* B *and* C)
A. Reactor mode switch in shutdown.
and
B. Reactor coolant system temperature greater than 200°F and rising.
and
C. Suppression pool temperature greater than 290°F indicated on the computer output (MAT 12,13,14,15 or 16).

11 - LOSS OF REACTIVITY CONTROL

UNUSUAL EVENT

EAL# 11.1 Inadvertent Criticality as indicated by:

Unexpected increasing neutron flux indication on Panel 1C651 (2C651).

ALERT

EAL# 11.2 Failure of the Reactor Protection System or the Alternate Rod Insertion System to initiate and complete a scram that brings the reactor subcritical as indicated by:

(A *or* B) *and* (C *and* D *and* E)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B) as indicated by annunciators and trip status lights on Panel 1C651 (2C651).

or

B. Trip of both trip systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Failure of control rods to insert, confirmed by the full core display indication on Panel 1C651 (2C651) or process computer indications.

and

D. Failure to bring the reactor subcritical confirmed by neutron count rate on the neutron monitoring indication on Panel 1C651 (2C651).

and

E. Reactor power >5% as indicated on Panel 1C651 (2C651).

(CONTINUED ON NEXT PAGE)

11 - LOSS OF REACTIVITY CONTROL (continued)

SITE AREA EMERGENCY

EAL# 11.3 Loss of functions needed to bring the reactor subcritical and loss of ability to bring the reactor to cold shutdown as indicated by:

(A *and* B *and* C *and* D)

A. Inability to insert sufficient control rods to bring the reactor subcritical as indicated by count rate on the neutron monitoring instrumentation on Panel 1C651 (2C651).

and

B. (1 *or* 2)
   Failure of both loops of standby liquid control to inject into the vessel indicated by:
   1. Low pump discharge pressure indication on Panel 1C601 (2C601).

   or

   2. Low flow indication on Panel 1C601 (2C601).

and

C. Reactor coolant temperature greater than 200°F, indicated on Panel 1C651 (2C651).

and

D. Reactor power >5% indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 11.4 Loss of functions needed to bring the reactor subcritical and transient in progress that makes release of large amounts of radioactivity in a short period possible as indicated by:

(A *or* B) *and* (C *and* D)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B), indicated by annunciation or trip status lights on Panel 1C651 (2C651).

or

B. Trip of both systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Loss of SLC system capability to inject, indicated by instrumentation on Panel 1C601 (2C601).

and

D. Reactor power greater than 25% of rated, indicated on Panel 1C651 (2C651).

12 - LOSS OF REACTOR VESSEL INVENTORY

UNUSUAL EVENT

EAL# 12.1 Valid initiation of an Emergency Core Cooling System (ECCS) System as indicated by:

(A *or* B)

A. Initiation of an ECCS System **and** low, low, low reactor water level (-129) annunciation or indication on Panel 1C651 (2C651).

or

B. Initiation of an ECCS System **and** High Drywell Pressure annunciation or indication on Panel 1C601 (2C601).

ALERT

EAL# 12.2 Reactor coolant system leak rate greater than 50 gpm as indicated by:

(A *or* B)

A. Drywell floor drain sump A or B Hi-Hi alarm on Panel 1C601 (2C601) **and** 2 or more drywell floor drain pumps continuously running as indicated on Panel 1C601 (2C601).

or

B. Other estimates of Reactor coolant system leakage indicating greater than 50 gpm.

SITE AREA EMERGENCY

EAL# 12.3 Known loss of coolant accident greater than make-up capacity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

(CONTINUED ON NEXT PAGE)

12 - LOSS OF REACTOR VESSEL INVENTORY (continued)

GENERAL EMERGENCY

EAL# 12.4.a Loss of coolant accident with possibility of imminent release of large amounts of radioactivity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than 20 minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

OR

EAL# 12.4.b Loss of Reactor Vessel inventory. Loss of 2 out of 3 fission product barriers (fuel cladding & reactor coolant pressure boundary) with potential loss of the third barrier (primary containment), as indicated by:

(A *or* B)

A. (1 *and* 2 *and* 3)
   1. High drywell pressure annunciation or indication on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c)
      a. Containment pressure exceeds 40.4 PSIG as indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential or actual loss of containment (e.g. anchorage or penetration failure).

      or

      c. Containment isolation valve(s) fail to close as indicated by valve position indication on Panel 1C601 (2C601).

   and

   3. Reactor Vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

or

B. (1 *and* 2)
   1. Failure of reactor pressure vessel isolation valves to isolate coolant break outside containment as indicated by valve position indication on Panel 1C601 (2C601) or visual inspection.

   and

   2. Reactor vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

13 - NATURAL PHENOMENA

UNUSUAL EVENT

EAL# 13.1 Natural phenomenon occurrence as indicated by:

(A *or* B *or* C)
A. Tornado impact on site.
or
B. Hurricane impact on site.
or
C. Earthquake detected by seismic instrumentation systems on Panel 0C696.

ALERT

EAL# 13.2 Natural Phenomenon Occurrence as indicated by:

(A *or* B *or* C)
A. Tornado with reported wind velocities greater than 200 mph impacting on site.*
or
B. Reported hurricane or sustained winds greater than 70 mph.*
or
C. Earthquake at greater than operating basis earthquake (OBE) levels as indicated on Panel 0C696.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

(CONTINUED ON NEXT PAGE)

13 - NATURAL PHENOMENA (continued)

SITE AREA EMERGENCY

EAL# 13.3 Severe natural phenomenon occurrence, with plant not in cold shutdown, as indicated by:

(A *and* B)
A. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).
and
B. (1 *or* 2 *or* 3)
1. Reported hurricane or sustained winds greater than 80 mph.*

or

2. Earthquake with greater than Safe Shutdown Earthquake (SSE) levels as indicated on Panel 0C696.

or

3. Tornado with reported wind velocities greater than 220 mph impacting on site.*

GENERAL EMERGENCY

EAL# 13.4 None.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

14 - ONSITE FIRE/EXPLOSION

UNUSUAL EVENT

EAL# 14.1 Significant fire within the plant as indicated by:

(A *and* B)
A. Activation of fire brigade by Shift Supervisor.
and
B. Duration of fire longer than 15 minutes after time of notification.

OR

Explosion inside security protected area, with no significant damage to station facilities, as indicated by:

Visual observation or notification received by control room operator and Shift Supervisor evaluation.

ALERT

EAL# 14.2 On-site Fire/Explosion as indicated by:

(A *or* B)
A. Fire lasting more than 15 minutes and fire is in the vicinity of equipment required for safe shutdown of the plant and the fire is damaging or is threatening to damage the equipment due to heat, smoke, flame, or other hazard.
or
B. (1 *and* 2)
Explosion damage to facility affecting plant operation as determined by:
1. Direct observation or notification received by control room operator.
and
2. Shift Supervisor observation.

(CONTINUED ON NEXT PAGE)

14 - ONSITE FIRE/EXPLOSION (continued)

SITE AREA EMERGENCY

EAL# 14.3 Damage to safe shutdown equipment due to fire or explosion has occurred when plant is not in cold shutdown, and damage is causing or threatens malfunction of equipment required for safe shutdown of the plant as determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 14.4 None.

15 - RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

EAL# 15.1.a Radiological gaseous effluents exceed 2 times the Technical Requirement Limits for 60 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+6 µCi/min., **or**
   2. I-131 >2.08E+2 µCi/min., **or**
   3. Particulate >1.54E+3 µCi/min., **or**

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1000 mrem/year whole body, **or**
   2. Noble gases >6000 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3000 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.1.b Radiological liquid effluents exceed Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent exceeding Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

ALERT

EAL# 15.2.a Radiological gaseous effluents exceed 200 times the Technical Requirement Limits for 15 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+8 µCi/min., **or**
   2. I-131 >2.08E+4 µCi/min., **or**
   3. Particulate >1.54E+5 µCi/min.

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1.0E+5 mrem/year whole body, **or**
   2. Noble gases >6.0E+5 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3.0E+5 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.2.b Radiological liquid effluents exceed 10 times Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent release exceeding 10 times Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

SITE AREA EMERGENCY

EAL# 15.3 Radiological effluent corresponds to greater than 50 mrem W.B.[1] or 250 mrem thyroid[2] for a half-hour or 500 mrem W.B.[1] or 2500 mrem thyroid[2] for 2 minutes at the emergency plan boundary as indicated by:

OR

Emergency plan boundary dose is projected to exceed 500 mrem W.B. [1] within 1 hour as indicated by:

(A *or* B)

A. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite.

or

B. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite

(CONTINUED ON NEXT PAGE)

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

15 - RADIOLOGICAL EFFLUENT (continued)

GENERAL EMERGENCY

EAL# 15.4 Radiological effluent release corresponds to 1 rem whole body[1] or 5 rem[2] thyroid at the emergency plan boundary as indicated by:

OR

Offsite doses are projected to exceed 1 rem whole body[1] or 5 rem thyroid[2] due to the event as indicated by:

(A *or* B)

A. Dose projections based on:
   (1 *or* 2 *or* 3)
   1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
   or
   2. Field monitoring data onsite or offsite.
   or
   3. In-plant conditions.

or

B. Dose projections based on:
   (1 *or* 2 *or* 3)
   1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
   or
   2. Field monitoring data onsite or offsite.
   or
   3. In-plant conditions.

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

16 - SECURITY EVENT

UNUSUAL EVENT

EAL# 16.1 Security threat or attempted entry or attempted sabotage as indicated by:

(A *or* B *or* C)

A. A report from Security of a security threat, attempted entry, or attempted sabotage of the owner controlled area adjacent to the site.

or

B. Any attempted act of sabotage which is deemed legitimate in the judgment of the SHIFT SUPERVISOR/EMERGENCY DIRECTOR, and affects plant operation.

or

C. A site specific credible security threat notification.

ALERT

EAL# 16.2 Ongoing Security Compromise as indicated by:

(A *or* B)

A. A report from Security that a security compromise is at the site but no penetration of protected areas has occurred.

or

B. Any act of sabotage which results in an actual or potential substantial degradation of the level of safety of the plant as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

SITE AREA EMERGENCY

EAL# 16.3 An ongoing adversary event threatens imminent loss of physical control of plant as indicated by:

(A *or* B)

A. Report from Security that the security of the plant vital area is threatened by unauthorized (forcible) entry into the protected area.

or

B. Any act of sabotage which results in actual or likely major failures of plant functions needed for protection of the public as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

(CONTINUED ON NEXT PAGE)

16 - SECURITY EVENT (continued)

GENERAL EMERGENCY

EAL# 16.4 Loss of physical control of facilities as indicated by:

(A *or* B)

A. Report from Security that a loss of physical control of plant vital areas has occurred.

or

B. Any act of sabotage which results in imminent significant cladding failure or fuel melting with a potential for loss of containment integrity or the potential for release of significant amounts of radioactivity in a short time as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

17 - SPENT FUEL RELATED INCIDENT

UNUSUAL EVENT

EAL# 17.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which is not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or full multiple isotopes where

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \ldots \frac{C_N}{DAC_N} \geq 500$$

ALERT

EAL# 17.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe fuel handling accident as indicated by:

Refuel floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

17 - SPENT FUEL RELATED INCIDENT (continued)

SITE AREA EMERGENCY

EAL# 17.3.a Major damage to irradiated fuel with actual or clear potential for significant release of radioactive material to the environment as indicated by:

(A *and* B)
A. Dropping, bumping, or otherwise rough handling of a new **OR** irradiated fuel bundle with irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

OR
EAL# 17.3.b Damage to irradiated fuel due to uncontrolled decrease in the fuel pool level to below the level of the fuel as indicated by:

(A *and* B)
A. (1 *or* 2)
1. Uncovering of irradiated fuel confirmation by verification of significant leakage from spent fuel pool.
or
2. Visual observation of water level below irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

GENERAL EMERGENCY

EAL# 17.4 None.

18 - STEAM LINE BREAK

UNUSUAL EVENT

EAL# 18.1 None.

ALERT

EAL# 18.2 MSIV malfunction causing leakage as indicated by:

(A *and* B)
A. Valid MSIV closure signal or indication on Panel 1C601 (2C601).
and
B. (1 *or* 2)
1. Valid Main Steam Line flow indication on Panel 1C652 (2C652).
or
2. Valid Main Steam Line radiation indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY

EAL# 18.3 Steam line break occurs outside of containment without isolation as indicated by:

(A *or* B *or* C *or* D)

A. (1 *and* 2)
   1. Failure of both MSIVs in the line with the leak to close as indicated by position indication on Panel 1C601 (2C601).

   and

   2. (a *or* b)
      a. High MSL flow annunciation on Panel 1C601 (2C601) or indication on Panel 1C652 (2C652).

      or

      b. Other indication of main steam leakage outside containment.

or

B. (1 *and* 2)
   1. Failure of RCIC steam isolation valves HV-F008 and HV-F007 to close as indicated on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c *or* d *or* e *or* f)
      a. RCIC steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

      or

      b. RCIC equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

      or

      c. RCIC steamline high flow annunciation on Panel 1C601 (2C601).

      or

      d. RCIC steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

      or

      e. RCIC turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

      or

      f. Other indication of steam leakage from the RCIC system.

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY (continued)

or

C. (1 *and* 2)
   1. Failure of HPCI steam isolation valves HV-F002 and HV-F003 to close as indicated by position indicator on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c *or* d *or* e *or* f)
      a. HPCI steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

      or

      b. HPCI equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

      or

      c. HPCI steamline high flow annunciation on Panel 1C601 (2C601).

      or

      d. HPCI steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

      or

      e. HPCI turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

      or

      f. Other indication of steam leakage from the HPCI system.

or

D. Any other un-isolatable steam line breaks.

GENERAL EMERGENCY

EAL# 18.4 None.

19 - TOXIC/FLAMMABLE GASES

UNUSUAL EVENT

EAL# 19.1 Nearby or onsite release of potentially harmful quantifies of toxic or flammable material as indicated by:

Visual observation or notification received by the control room operator.

ALERT

EAL# 19.2 Entry of toxic or flammable gases into the facility, with subsequent habitability problem as indicated by:

Visual observation, direct measurement, or notification received by the control room operator.

SITE AREA EMERGENCY

EAL# 19.3 Toxic or flammable gases enter vital areas, restricting access and restricted access constitutes a safety problem, as determined by:

(A *and* B)
A. Shift Supervisor's evaluation.
and
B. Visual observation, direct measurement, or notification received by control room operator.

GENERAL EMERGENCY

EAL# 19.4 None.

20 - TECHNICAL SPECIFICATION SAFETY LIMIT

UNUSUAL EVENT

EAL# 20.1 Abnormal occurrences which result in operator complying with any of the Technical Specification SAFETY LIMIT ACTION statements indicated by:

(A *or* B *or* C *or* D)

A. Exceeding THERMAL POWER, low pressure or low flow safety limit 2.1.1.1.

or

B. Exceeding THERMAL POWER, high pressure and high flow safety limit 2.1.1.2.

or

C. Exceeding REACTOR VESSEL WATER LEVEL safety limit 2.1.1.3.

or

D. Exceeding REACTOR COOLANT SYSTEM PRESSURE safety limit 2.1.2.

ALERT

EAL# 20.2 None.

SITE AREA EMERGENCY

EAL# 20.3 None.

GENERAL EMERGENCY

EAL# 20.4 None.

21 – DRY FUEL STORAGE

UNUSUAL EVENT

EAL# 21.1.a. Situations are occurring or have occurred during the transport of the irradiated spent fuel to the onsite storage facility, which jeopardize the integrity of the spent fuel or its container as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

OR

EAL# 21.1.b. Situations are occurring or have occurred at the irradiated spent fuel storage facility, which jeopardize the integrity of the dry cask storage system as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

ALERT

EAL# 21.2 None.

SITE AREA EMERGENCY

EAL# 21.3 None.

GENERAL EMERGENCY

EAL# 21.4 None.

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EMERGENCY CLASSIFICATION

CHECK ☑

1.0 TIMING OF CLASSIFICATION

☐ 1.1 **UNUSUAL EVENT**

An **UNUSUAL EVENT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.2 **ALERT**

An **ALERT** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.3 **SITE AREA EMERGENCY**

A **SITE AREA EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

☐ 1.4 **GENERAL EMERGENCY**

A **GENERAL EMERGENCY** shall be declared within 15 minutes of having information necessary to make a declaration.

CLASSIFICATION OF EMERGENCY CONDITIONS

USE OF EMERGENCY CLASSIFICATION MATRIX

NOTE: CONFIRM THAT INDICATORS AND/OR ALARMS REFLECT ACTUAL CONDITIONS PRIOR TO TAKING ACTION BASED ON THE INDICATOR OR ALARM.

The matrix is worded in a manner that assumes parameter values indicated are the actual conditions present in the plant.

The matrix is designed to make it possible to precisely classify an abnormal occurrence into the proper emergency classification based on detailed Emergency Action Level (EAL) descriptions. It is impossible to anticipate every abnormal occurrence. Therefore, before classifying any abnormal occurrence based on the EALs in the matrix, one should verify that the general conditions prevalent in-plant and offsite meet the general class description of the emergency classification. In addition, prior to classification, one should be aware of the ramifications in-plant and particularly offsite of that classification. Special consideration of offsite consequences should be made prior to declaring a **GENERAL EMERGENCY.**

CLASS DESCRIPTIONS

UNUSUAL EVENT - Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT - Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY - Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY - Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

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1 - AIRCRAFT/TRAIN ACTIVITY

UNUSUAL EVENT

EAL# 1.1 Aircraft crash or train derailment onsite as indicated by:

Visual observation or notification received by control room operator.

ALERT

EAL# 1.2 Aircraft or missile strikes a station structure as indicated by:

Direct observation or notification received by control room operator.

SITE AREA EMERGENCY

EAL# 1.3 Severe damage to safe shutdown equipment from aircraft crash or missile impact when not in cold shutdown, determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 1.4 None.

2 - CONTROL ROOM EVACUATION

UNUSUAL EVENT

EAL# 2.1 None.

ALERT

EAL# 2.2 Control Room evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Establishment of control of shutdown systems from local stations.

SITE AREA EMERGENCY

EAL# 2.3 Delayed Control Room Evacuation as indicated by:

(A *and* B)
A. Initiation of control room evacuation procedures.
and
B. Shutdown systems control at local stations not established within 15 minutes.

GENERAL EMERGENCY

EAL# 2.4 None.

3 - FUEL CLADDING DEGRADATION

UNUSUAL EVENT

EAL# 3.1 Core degradation as indicated by:

(A *or* B)

A. Valid Off-gas Pre-treatment Monitor high radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Reactor coolant activity, determined by sample analysis greater than or equal to 2 µCi/cc of I-131 equivalent.

ALERT

EAL# 3.2 Severe fuel cladding degradation as indicated by:

(A *or* B *or* C *or* D)

A. Valid Off-gas Pre-treatment monitor High-High radiation alarm annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).

or

B. Valid Reactor coolant activity greater than 300 µCi/cc of equivalent I-131, as determined by sample analysis.

or

C. Valid Main Steam Line High radiation trip annunciation or indication on Panel 1C651 (2C651).

or

D. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 200 R/hr. (An 8R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

SITE AREA EMERGENCY

EAL# 3.3 Severely degraded core as indicated by:

(A *or* B)

A. Reactor coolant activity greater than 1,000 µCi/cc of equivalent I-131 as determined by sample analysis.

or

B. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

(CONTINUED ON NEXT PAGE)

3 - FUEL CLADDING DEGRADATION (continued)

GENERAL EMERGENCY

EAL# 3.4.a Fuel cladding degradation. Loss of 2 out of 3 fission product barriers (fuel cladding and reactor coolant pressure boundary) with potential loss of the third barrier (primary containment) as indicated by:

(A *or* B)

A. (1 *and* 2)
   1. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 400 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

   and

   2. (a *or* b *or* c)
      a. Containment pressure greater than 40.4 PSIG, indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential for loss of containment (e.g. anchorage or penetration failure, a crack in containment concrete at tendon).

      or

      c. Other indications of potential or actual loss of primary containment.

or

B. (1 *and* 2)
   1. Reactor coolant activity greater than 1,000 µCi/cc of equivalent I-131 as determined by sample analysis.

   and

   2. Actual or potential failure of reactor coolant isolation valves to isolate a coolant leak outside containment as determined by valve position indication on Panel 1C601 (2C601) or visual inspection.

OR

EAL# 3.4.b Core melt as indicated by:

(A *and* B)

A. Valid containment post accident monitor indication on Panel 1C601 (2C601) greater than 2000 R/hr. (An 8 R/hr correction factor must be added manually to the indication to offset a downscale error if primary containment temperature exceeds 225 degrees Fahrenheit. Reference EC-079-0521.)

and

B. Containment high pressure indication or annunciation on Panel 1C601 (2C601).

4 - GENERAL

UNUSUAL EVENT

EAL# 4.1 Plant conditions exist that warrant increased awareness on the part of plant operating staff or state and/or local offsite authorities as indicated by:

Events that are occurring or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

ALERT

EAL# 4.2 Other plant conditions exist that warrant precautionary activation of PP&L, State, County, and local emergency centers as indicated by:

Events that are occurring or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY

EAL# 4.3 Other plant conditions exist that warrant activation of emergency centers and monitoring teams or a precautionary notification to the public near the site as indicated by:

Events that are occurring or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except inside the emergency planning boundary.

GENERAL EMERGENCY

EAL# 4.4 Other plant conditions exist, from whatever, source, that make release of large amounts of radioactivity in a short time period available as indicated by:

Events that are occurring or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Expectation is that releases will exceed EPA Protective Action Guideline exposure levels beyond the emergency planning boundary.

5.- INJURED/CONTAMINATED PERSONNEL

UNUSUAL EVENT

EAL# 5.1 Transportation of externally contaminated injured individual from site to offsite medical facility as deemed appropriate by Shift Supervisor.

ALERT

EAL# 5.2 None.

SITE AREA EMERGENCY

EAL# 5.3 None.

GENERAL EMERGENCY

EAL# 5.4 None.

6 - IN-PLANT HIGH RADIATION

UNUSUAL EVENT

EAL# 6.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which are not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or for multiple isotopes where

$$\frac{C_A}{DAC_A}+\frac{C_B}{DAC_B}+\frac{C_C}{DAC_C}\ldots\frac{C_N}{DAC_N}\geq 500$$

ALERT

EAL# 6.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe degradation in the control of radioactive material as indicated by:

Area Radiation Monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

SITE AREA EMERGENCY

EAL# 6.3 None.

GENERAL EMERGENCY

EAL# 6.4 None.

7 - LOSS OF AC POWER

UNUSUAL EVENT

EAL# 7.1 Loss of offsite power **or** loss of all onsite AC power supplies as indicated by:

(A *or* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
or
B. Failure of all diesel generators to start or synchronize to the emergency buses by indication or annunciation on Panel 0C653.

ALERT

EAL# 7.2 Loss of all offsite power **and** all onsite AC power supplies as indicated by:

(A *and* B)
A. Loss of power to Startup Transformer 10 **and** 20 annunciation or indication on Panel 0C653.
and
B. Failure of all diesel generators to start or synchronize to the emergency buses by annunciation or indication on Panel 0C653.

SITE AREA EMERGENCY

EAL# 7.3 Loss of all offsite power and loss of all onsite AC power supplies for greater than 15 minutes as indicated by:

(A *and* B *and* C)
A. Loss of offsite power.
and
B. Failure of **all** diesel generators to startup or synchronize to the emergency buses by indication or annunciation on 0C653.
and
C. The above conditions exist for greater than 15 minutes.

GENERAL EMERGENCY

EAL# 7.4 None.

8 - LOSS OF CONTROL ROOM ALARMS AND ANNUNCIATORS

UNUSUAL EVENT

EAL# 8.1 None.

ALERT

EAL# 8.2 Loss of all control room annunciators as indicated by:

In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

SITE AREA EMERGENCY

EAL# 8.3 All annunciators lost and plant transient initiated while annunciators are lost as indicated by:

(A *and* B)

A. In the opinion of the Shift Supervisor, all Control Room annunciators and the Plant Process Computer are lost, or insufficient annunciators are available to safely operate the unit(s) without supplemental observation of plant systems.

and

B. (1 *or* 2 *or* 3 *or* 4)

1. Low-Low reactor water level indication on Panel 1C651 (2C651) followed by ECCS initiation on Panel 1C601 (2C601).

or

2. Reactor coolant temperature change greater than 100°F per hour indication on recorder TR-1R006 on Panel 1C007 (2C007) (Reactor Building elevation 683').

or

3. High reactor pressure indication on Panel 1C651 (2C651) and followed by scram indication on Panel 1C651 (2C651).

or

4. Any indication that transient has occurred or is in progress.

GENERAL EMERGENCY

EAL# 8.4 None.

9 - LOSS OF DC POWER

UNUSUAL EVENT

EAL# 9.1 None.

ALERT

EAL# 9.2 Loss of onsite vital DC power as indicated by:

(A *and* B)

A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).

and

B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).

NOTE: Buses are not tripped on undervoltage condition.

SITE AREA EMERGENCY

EAL# 9.3 Loss of all vital onsite DC power sustained for greater than 15 minutes as indicated by:

(A *and* B *and* C)

A. Less than 210 volts on the 250 VDC main distribution Panel buses, 1D652 (2D652) **and** 1D662 (2D662) as indicated by trouble alarms on Panel 1C651 (2C651).

and

B. Less than 105 volts on the 125 VDC main distribution buses 1D612 (2D612), 1D622 (2D622), 1D632 (2D632), **and** 1D642 (2D642) as indicated by trouble alarms on Panel 1C651 (2C651).

and

C. The above condition exists for greater than 15 minutes.

NOTE: Buses are not tripped on undervoltage condition.

GENERAL EMERGENCY

EAL# 9.4 None.

10 - LOSS OF DECAY HEAT REMOVAL CAPABILITY

UNUSUAL EVENT

EAL# 10.1 None.

ALERT

EAL# 10.2 Inability to remove decay heat while in plant condition 4, inability to maintain the plant in cold shutdown as indicated by:

Inability to maintain reactor coolant temperature less than 200°F with the reactor mode switch in shutdown; exception is when testing per Special Test Exception TS 3.10.1 which allows maximum temperature of 212°F.

SITE AREA EMERGENCY

EAL# 10.3 Inability to remove decay heat while the plant is shutdown as indicated by:

(A *and* B *and* C)
A. Reactor Mode switch in shutdown.
and
B. Reactor Coolant System temperature greater than 200°F and rising.
and
C. Suppression Pool temperature greater than 120°F and rising.

GENERAL EMERGENCY

EAL# 10.4 Inability to remove decay heat while the plant is shutdown with possible release of large amounts of radioactivity as indicated by:

(A *and* B *and* C)
A. Reactor mode switch in shutdown.
and
B. Reactor coolant system temperature greater than 200°F and rising.
and
C. Suppression pool temperature greater than 290°F indicated on the computer output (MAT 12,13,14,15 or 16).

11 - LOSS OF REACTIVITY CONTROL

UNUSUAL EVENT

EAL# 11.1 Inadvertent Criticality as indicated by:

Unexpected increasing neutron flux indication on Panel 1C651 (2C651).

ALERT

EAL# 11.2 Failure of the Reactor Protection System or the Alternate Rod Insertion System to initiate and complete a scram that brings the reactor subcritical as indicated by:

(A *or* B) *and* (C *and* D *and* E)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B) as indicated by annunciators and trip status lights on Panel 1C651 (2C651).

or

B. Trip of both trip systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Failure of control rods to insert, confirmed by the full core display indication on Panel 1C651 (2C651) or process computer indications.

and

D. Failure to bring the reactor subcritical confirmed by neutron count rate on the neutron monitoring indication on Panel 1C651 (2C651).

and

E. Reactor power >5% as indicated on Panel 1C651 (2C651).

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11 - LOSS OF REACTIVITY CONTROL (continued)

SITE AREA EMERGENCY

EAL# 11.3 Loss of functions needed to bring the reactor subcritical and loss of ability to bring the reactor to cold shutdown as indicated by:

(A *and* B *and* C *and* D)

A. Inability to insert sufficient control rods to bring the reactor subcritical as indicated by count rate on the neutron monitoring instrumentation on Panel 1C651 (2C651).

and

B. (1 *or* 2)
   Failure of both loops of standby liquid control to inject into the vessel indicated by:
   1. Low pump discharge pressure indication on Panel 1C601 (2C601).

   or

   2. Low flow indication on Panel 1C601 (2C601).

and

C. Reactor coolant temperature greater than 200°F, indicated on Panel 1C651 (2C651).

and

D. Reactor power >5% indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 11.4 Loss of functions needed to bring the reactor subcritical and transient in progress that makes release of large amounts of radioactivity in a short period possible as indicated by:

(A *or* B) *and* (C *and* D)

A. Trip of at least one sub-channel in each trip system (RPS A and RPS B), indicated by annunciation or trip status lights on Panel 1C651 (2C651).

or

B. Trip of both systems (ARI A and ARI B) as indicated by annunciators on Panel 1C601 (2C601).

and

C. Loss of SLC system capability to inject, indicated by instrumentation on Panel 1C601 (2C601).

and

D. Reactor power greater than 25% of rated, indicated on Panel 1C651 (2C651).

12 - LOSS OF REACTOR VESSEL INVENTORY

UNUSUAL EVENT

EAL# 12.1 Valid initiation of an Emergency Core Cooling System (ECCS) System as indicated by:

(A *or* B)

A. Initiation of an ECCS System **and** low, low, low reactor water level (-129) annunciation or indication on Panel 1C651 (2C651).

or

B. Initiation of an ECCS System **and** High Drywell Pressure annunciation or indication on Panel 1C601 (2C601).

ALERT

EAL# 12.2 Reactor coolant system leak rate greater than 50 gpm as indicated by:

(A *or* B)

A. Drywell floor drain sump A or B Hi-Hi alarm on Panel 1C601 (2C601) **and** 2 or more drywell floor drain pumps continuously running as indicated on Panel 1C601 (2C601).

or

B. Other estimates of Reactor coolant system leakage indicating greater than 50 gpm.

SITE AREA EMERGENCY

EAL# 12.3 Known loss of coolant accident greater than make-up capacity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

(CONTINUED ON NEXT PAGE)

12 - LOSS OF REACTOR VESSEL INVENTORY (continued)

GENERAL EMERGENCY

EAL# 12.4.a Loss of coolant accident with possibility of imminent release of large amounts of radioactivity as indicated by:

Water level below (and failure to return to) top of active fuel for greater than 20 minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

OR

EAL# 12.4.b Loss of Reactor Vessel inventory. Loss of 2 out of 3 fission product barriers (fuel cladding & reactor coolant pressure boundary) with potential loss of the third barrier (primary containment), as indicated by:

(A *or* B)

A. (1 *and* 2 *and* 3)
   1. High drywell pressure annunciation or indication on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c)
      a. Containment pressure exceeds 40.4 PSIG as indicated on Panel 1C601 (2C601).

      or

      b. A visual inspection of the containment indicates a potential or actual loss of containment (e.g. anchorage or penetration failure).

      or

      c. Containment isolation valve(s) fail to close as indicated by valve position indication on Panel 1C601 (2C601).

   and

   3. Reactor Vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

or

B. (1 *and* 2)
   1. Failure of reactor pressure vessel isolation valves to isolate coolant break outside containment as indicated by valve position indication on Panel 1C601 (2C601) or visual inspection.

   and

   2. Reactor vessel level drops below (and fails to return to) top of active fuel for greater than three minutes as indicated on fuel zone level indicator on Panel 1C601 (2C601).

13 - NATURAL PHENOMENA

UNUSUAL EVENT

EAL# 13.1 Natural phenomenon occurrence as indicated by:

(A *or* B *or* C)
A. Tornado impact on site.
or
B. Hurricane impact on site.
or
C. Earthquake detected by seismic instrumentation systems on Panel 0C696.

ALERT

EAL# 13.2 Natural Phenomenon Occurrence as indicated by:

(A *or* B *or* C)
A. Tornado with reported wind velocities greater than 200 mph impacting on site.*
or
B. Reported hurricane or sustained winds greater than 70 mph.*
or
C. Earthquake at greater than operating basis earthquake (OBE) levels as indicated on Panel 0C696.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

(CONTINUED ON NEXT PAGE)

13 - NATURAL PHENOMENA (continued)

SITE AREA EMERGENCY

EAL# 13.3 Severe natural phenomenon occurrence, with plant not in cold shutdown, as indicated by:

(A *and* B)
A. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).
and
B. (1 *or* 2 *or* 3)
1. Reported hurricane or sustained winds greater than 80 mph.*
or
2. Earthquake with greater than Safe Shutdown Earthquake (SSE) levels as indicated on Panel 0C696.
or
3. Tornado with reported wind velocities greater than 220 mph impacting on site.*

GENERAL EMERGENCY

EAL# 13.4 None.

* **Telephone numbers for the National Weather Bureau are located in the Emergency Telephone Directory.**

14 - ONSITE FIRE/EXPLOSION

UNUSUAL EVENT

EAL# 14.1 Significant fire within the plant as indicated by:

(A *and* B)
A. Activation of fire brigade by Shift Supervisor.
and
B. Duration of fire longer than 15 minutes after time of notification.

OR

Explosion inside security protected area, with no significant damage to station facilities, as indicated by:

Visual observation or notification received by control room operator and Shift Supervisor evaluation.

ALERT

EAL# 14.2 On-site Fire/Explosion as indicated by:

(A *or* B)
A. Fire lasting more than 15 minutes and fire is in the vicinity of equipment required for safe shutdown of the plant and the fire is damaging or is threatening to damage the equipment due to heat, smoke, flame, or other hazard.
or
B. (1 *and* 2)
Explosion damage to facility affecting plant operation as determined by:
1. Direct observation or notification received by control room operator.
and
2. Shift Supervisor observation.

(CONTINUED ON NEXT PAGE)

14 - ONSITE FIRE/EXPLOSION (continued)

SITE AREA EMERGENCY

EAL# 14.3 Damage to safe shutdown equipment due to fire or explosion has occurred when plant is not in cold shutdown, and damage is causing or threatens malfunction of equipment required for safe shutdown of the plant as determined by:

(A *and* B *and* C)
A. Direct observation or notification received by control room operator.
and
B. Shift Supervisor evaluation.
and
C. Reactor Coolant Temperature greater than 200°F as indicated on Panel 1C651 (2C651).

GENERAL EMERGENCY

EAL# 14.4 None.

15 - RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

EAL# 15.1.a Radiological gaseous effluents exceed 2 times the Technical Requirement Limits for 60 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+6 µCi/min., **or**
   2. I-131 >2.08E+2 µCi/min., **or**
   3. Particulate >1.54E+3 µCi/min., **or**

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1000 mrem/year whole body, **or**
   2. Noble gases >6000 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3000 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.1.b Radiological liquid effluents exceed Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent exceeding Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

ALERT

EAL# 15.2.a Radiological gaseous effluents exceed 200 times the Technical Requirement Limits for 15 minutes or longer as indicated by:

(A *or* B)

A. Valid Building Vent Stack Monitoring System (SPING) indications on Panel 0C630 or 0C677.
   1. Noble gases >1.70E+8 µCi/min., **or**
   2. I-131 >2.08E+4 µCi/min., **or**
   3. Particulate >1.54E+5 µCi/min.

or

B. Confirmed sample analyses for gaseous releases indicating total site release rates exceed:
   1. Noble gases >1.0E+5 mrem/year whole body, **or**
   2. Noble gases >6.0E+5 mrem/year skin, **or**
   3. I-131, I-133, H-3, and particulates with half-lives >8 days >3.0E+5 mrem/year to any organ (inhalation pathways only).

OR

EAL# 15.2.b Radiological liquid effluents exceed 10 times Technical Requirement Limits for instantaneous release as indicated by:

Report of radiological liquid effluent release exceeding 10 times Technical Requirement Limits. This includes effluent sources such as Service Water or RHR Service Water Loops A or B.

(CONTINUED ON NEXT PAGE)

15 - RADIOLOGICAL EFFLUENT (continued)

SITE AREA EMERGENCY

EAL# 15.3 Radiological effluent corresponds to greater than 50 mrem W.B.[1] or 250 mrem thyroid[2] for a half-hour or 500 mrem W.B.[1] or 2500 mrem thyroid[2] for 2 minutes at the emergency plan boundary as indicated by:

OR

Emergency plan boundary dose is projected to exceed 500 mrem W.B. [1] within 1 hour as indicated by:

(A *or* B)

A. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite.

or

B. Dose projections based on:
   (1 *or* 2)
   1. Building vent stack monitoring system indications on Panel 0C630 or 0C677.

   or
   2. Field monitoring data onsite or offsite

(CONTINUED ON NEXT PAGE)

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

15 - RADIOLOGICAL EFFLUENT (continued)

GENERAL EMERGENCY

EAL# 15.4 Radiological effluent release corresponds to 1 rem whole body[1] or 5 rem[2] thyroid at the emergency plan boundary as indicated by:
OR
Offsite doses are projected to exceed 1 rem whole body[1] or 5 rem thyroid[2] due to the event as indicated by:

(A *or* B)
A. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

or
B. Dose projections based on:
(1 *or* 2 *or* 3)
1. Building Vent Stack Monitoring System indication on Panel 0C630 or 0C677.
or
2. Field monitoring data onsite or offsite.
or
3. In-plant conditions.

(1) The sum of the Effective Dose Equivalent resulting from the exposure to external sources and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the early phase.

(2) Committed Dose Equivalent to the thyroid from radioiodine.

16 - SECURITY EVENT

UNUSUAL EVENT

EAL# 16.1 Security threat or attempted entry or attempted sabotage as indicated by:

(A *or* B *or* C)

A. A report from Security of a security threat, attempted entry, or attempted sabotage of the owner controlled area adjacent to the site.

or

B. Any attempted act of sabotage which is deemed legitimate in the judgment of the SHIFT SUPERVISOR/EMERGENCY DIRECTOR, and affects plant operation.

or

C. A site specific credible security threat notification.

ALERT

EAL# 16.2 Ongoing Security Compromise as indicated by:

(A *or* B)

A. A report from Security that a security compromise is at the site but no penetration of protected areas has occurred.

or

B. Any act of sabotage which results in an actual or potential substantial degradation of the level of safety of the plant as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

SITE AREA EMERGENCY

EAL# 16.3 An ongoing adversary event threatens imminent loss of physical control of plant as indicated by:

(A *or* B)

A. Report from Security that the security of the plant vital area is threatened by unauthorized (forcible) entry into the protected area.

or

B. Any act of sabotage which results in actual or likely major failures of plant functions needed for protection of the public as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

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16 - SECURITY EVENT (continued)

GENERAL EMERGENCY

EAL# 16.4 Loss of physical control of facilities as indicated by:

(A *or* B)

A. Report from Security that a loss of physical control of plant vital areas has occurred.

or

B. Any act of sabotage which results in imminent significant cladding failure or fuel melting with a potential for loss of containment integrity or the potential for release of significant amounts of radioactivity in a short time as judged by the SHIFT SUPERVISOR/EMERGENCY DIRECTOR.

17 - SPENT FUEL RELATED INCIDENT

UNUSUAL EVENT

EAL# 17.1 Unanticipated or unplanned concentrations of airborne activity exist in normally accessible areas, which is not due to planned maintenance activities, as indicated by:

Concentrations exceed 500 times the DAC values of 10CFR20 Appendix B, Table I values for a single isotope, or full multiple isotopes where

$$\frac{C_A}{DAC_A}+\frac{C_B}{DAC_B}+\frac{C_C}{DAC_C}\ldots\frac{C_N}{DAC_N}\geq 500$$

ALERT

EAL# 17.2 Unexpected in-plant high radiation levels or airborne contamination which indicates a severe fuel handling accident as indicated by:

Refuel floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

17 - SPENT FUEL RELATED INCIDENT (continued)

SITE AREA EMERGENCY

EAL# 17.3.a Major damage to irradiated fuel with actual or clear potential for significant release of radioactive material to the environment as indicated by:

(A *and* B)
A. Dropping, bumping, or otherwise rough handling of a new **OR** irradiated fuel bundle with irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor reading 1000 times normal annunciation on Panel 1C601 (2C601) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

OR
EAL# 17.3.b Damage to irradiated fuel due to uncontrolled decrease in the fuel pool level to below the level of the fuel as indicated by:

(A *and* B)
A. (1 *or* 2)
1. Uncovering of irradiated fuel confirmation by verification of significant leakage from spent fuel pool.
or
2. Visual observation of water level below irradiated fuel in the pool.
and
B. (1 *or* 2)
1. Refueling floor area radiation monitor annunciation on Panel 1C651 (2C651) or indication on Panel 1C600 (2C600).
or
2. Reactor Building vent stack monitoring system high radiation annunciation or indication on Panel 0C630 or 0C677.

GENERAL EMERGENCY

EAL# 17.4 None.

18 - STEAM LINE BREAK

UNUSUAL EVENT

EAL# 18.1 None.

ALERT

EAL# 18.2 MSIV malfunction causing leakage as indicated by:

(A *and* B)
A. Valid MSIV closure signal or indication on Panel 1C601 (2C601).
and
B. (1 *or* 2)
1. Valid Main Steam Line flow indication on Panel 1C652 (2C652).
or
2. Valid Main Steam Line radiation indication on Panel 1C600 (2C600).

(CONTINUED ON NEXT PAGE)

18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY

EAL# 18.3 Steam line break occurs outside of containment without isolation as indicated by:

(A *or* B *or* C *or* D)

A. (1 *and* 2)
   1. Failure of both MSIVs in the line with the leak to close as indicated by position indication on Panel 1C601 (2C601).

   and

   2. (a *or* b)
      a. High MSL flow annunciation on Panel 1C601 (2C601) or indication on Panel 1C652 (2C652).

      or

      b. Other indication of main steam leakage outside containment.

or

B. (1 *and* 2)
   1. Failure of RCIC steam isolation valves HV-F008 and HV-F007 to close as indicated on Panel 1C601 (2C601).

   and

   2. (a *or* b *or* c *or* d *or* e *or* f)
      a. RCIC steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

      or

      b. RCIC equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

      or

      c. RCIC steamline high flow annunciation on Panel 1C601 (2C601).

      or

      d. RCIC steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

      or

      e. RCIC turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

      or

      f. Other indication of steam leakage from the RCIC system.

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18 - STEAM LINE BREAK (continued)

SITE AREA EMERGENCY (continued)

or

C. (1 *and* 2)

1. Failure of HPCI steam isolation valves HV-F002 and HV-F003 to close as indicated by position indicator on Panel 1C601 (2C601).

and

2. (a *or* b *or* c *or* d *or* e *or* f)
   a. HPCI steamline pipe routing area high temperature annunciation on Panel 1C601 (2C601), or indication on Panel 1C614 (2C614).

   or

   b. HPCI equipment area high temperature annunciation on Panel 1C601 (2C601) or indication on Panel 1C614 (2C614).

   or

   c. HPCI steamline high flow annunciation on Panel 1C601 (2C601).

   or

   d. HPCI steamline tunnel ventilation high delta temperature annunciation on Panel 1C601 (2C601).

   or

   e. HPCI turbine exhaust diaphragm high pressure annunciation on Panel 1C601 (2C601).

   or

   f. Other indication of steam leakage from the HPCI system.

or

D. Any other un-isolatable steam line breaks.

GENERAL EMERGENCY

EAL# 18.4 None.

19 - TOXIC/FLAMMABLE GASES

UNUSUAL EVENT

EAL# 19.1 Nearby or onsite release of potentially harmful quantifies of toxic or flammable material as indicated by:

Visual observation or notification received by the control room operator.

ALERT

EAL# 19.2 Entry of toxic or flammable gases into the facility, with subsequent habitability problem as indicated by:

Visual observation, direct measurement, or notification received by the control room operator.

SITE AREA EMERGENCY

EAL# 19.3 Toxic or flammable gases enter vital areas, restricting access and restricted access constitutes a safety problem, as determined by:

(A *and* B)
A. Shift Supervisor's evaluation.
and
B. Visual observation, direct measurement, or notification received by control room operator.

GENERAL EMERGENCY

EAL# 19.4 None.

20 - TECHNICAL SPECIFICATION SAFETY LIMIT

UNUSUAL EVENT

EAL# 20.1 Abnormal occurrences which result in operator complying with any of the Technical Specification SAFETY LIMIT ACTION statements indicated by:

(A *or* B *or* C *or* D)
A. Exceeding THERMAL POWER, low pressure or low flow safety limit 2.1.1.1.
or
B. Exceeding THERMAL POWER, high pressure and high flow safety limit 2.1.1.2.
or
C. Exceeding REACTOR VESSEL WATER LEVEL safety limit 2.1.1.3.
or
D. Exceeding REACTOR COOLANT SYSTEM PRESSURE safety limit 2.1.2.

ALERT

EAL# 20.2 None.

SITE AREA EMERGENCY

EAL# 20.3 None.

GENERAL EMERGENCY

EAL# 20.4 None.

21 – DRY FUEL STORAGE

UNUSUAL EVENT

EAL# 21.1.a. Situations are occurring or have occurred during the transport of the irradiated spent fuel to the onsite storage facility, which jeopardize the integrity of the spent fuel or its container as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

OR

EAL# 21.1.b. Situations are occurring or have occurred at the irradiated spent fuel storage facility, which jeopardize the integrity of the dry cask storage system as indicated by:

(A *or* B)

A. Radiological readings exceed 2 R/hour at the external surface of any transfer cask or horizontal storage module.

or

B. Radiological readings exceed 1 R/hour one foot away from the external surface of any transfer cask or horizontal storage module.

ALERT

EAL# 21.2 None.

SITE AREA EMERGENCY

EAL# 21.3 None.

GENERAL EMERGENCY

EAL# 21.4 None.