ATTACHMENT 3 TO AEP:NRC:1192

DONALD C. COOK NUCLEAR PLANT

E-PLAN CLASSIFICATION vs
NUMARC/NESP-007
DEVIATION BASIS DOCUMENT

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# INTRODUCTION, PURPOSE and ORGANIZATION

## INTRODUCTION

Donald C. Cook Nuclear Plant has proposed a revision to its Emergency Plan to incorporate guidance from NUMARC/NESP-007, Revision 2 (January 1992), "Methodology for Development of Emergency Action Levels." The NUMARC guidance was developed to replace the guidance for development of Emergency Action Levels (EALs) contained in NUREG-0654/FEMA-REP-1 (Revision 1), "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" that was issued November 1980. The NUMARC methodology was used to develop a set of generic EAL guidelines, together with the basis, so that they could be used and adapted by each utility in a consistent manner. The NRC has endorsed use of the NUMARC methodology as an acceptable alternative method to NUREG-0654 for developing plant-specific EALs in Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 3, August 1992. This Regulatory Guide further states that: "Licensees may use either NUREG-0654/FEMA-REP-1 or NUMARC/NESP-007 in developing their EAL scheme but may not use portions of both methodologies."

The major differences between NUMARC guidance and NUREG-0654 guidance are:

1. Events that are explicitly covered under 10CFR50.72 as one-hour or four-hour reports are not in the Unusual Event class. This means that items such as contaminated injured person transported off-site, partial communications losses, meteorological measurement losses, shutdown within the requirements of technical specifications, and inadvertent actuation of ECCS are no longer treated as emergencies.

2. Precursor conditions are explicitly included in the Unusual Event class.

3. Conditions such as fire, explosion, gas releases, flooding, seiche, tornado, or earthquake can be directly escalated only up to the Alert classification. Escalation to Site Area Emergency or General Emergency is based on degraded system response as would be determined by fission product barrier, loss of AC power, or projected effluent release EALs.

4. Event sequences such as LOCA and steam generator tube rupture are addressed by determining their level of challenge to each of the three primary fission product barriers -fuel clad, reactor coolant system, and the containment. The level of challenge is determined in accordance with the Emergency Operating Procedures (EOPs) using symptoms, Critical Safety Function Status Tree status, and required entry into EOPs. This allows the operations crew to readily recognize the corresponding emergency classification and allows for ready escalation to Site Area Emergency or General Emergency as conditions may worsen. The fission product barriers are included in the Cook Plant "Barriers" Emergency Condition Category (ECC).

## PURPOSE

This deviation document was developed to address the following needs:

1. To provide clear documentation of NUMARC guidance and how it was applied in the development of Cook Plant upgraded EALs.

2. To provide justification of any exceptions or additions to NUMARC guidance as it is applied to the Cook Plant.

3. To facilitate the regulatory approval of the upgraded EALs that is required under 10CFR50 Appendix E.

## DEFINITIONS

**Critical Safety Function (CSF)** - Subcriticality, core cooling, heat sink, pressure-temperature-stress (RCS integrity), containment, and RCS inventory as monitored in accordance with the Emergency Operating Procedures.

**Critical Safety Function Status Tree (CSFST)** - The method by which level of challenge to each CSF is determined in accordance with the Emergency Operating Procedures.

**Emergency Action Level (EAL)** - A pre-determined, site-specific, observable threshold for a plant initiating Condition that places the plant in a given emergency class. An EAL can be an instrument reading; an equipment status indicator; a measurable parameter (onsite or offsite); a discrete, observable event; results of analyses; entry into specific emergency operating procedures; or another phenomenon which, if it occurs, indicates entry into a particular emergency class.

**Emergency Condition Category (ECC)** - A grouping of Initiating Conditions or EALs, recognizable to the Site Emergency Coordinator, applying to the same area of concern and that can logically lead to escalating the emergency class.

**Emergency Classification Level** - These are taken from 10CFR50 Appendix E. They are in escalating order: (Notification of) Unusual Event, Alert, Site Area Emergency, and General Emergency.

**Fission Product Barrier** - One of the three principal barriers to uncontrolled release of radionuclides, *i.e.*, fuel clad, reactor coolant system (RCS), and the containment building (CNTMT).

**Initiating Condition (IC)** - One of a predetermined subset of nuclear power plant conditions where either the potential exists for a radiological emergency, or such an emergency has occurred.

**Loss (of a fission product barrier)** - Severe challenge to a fission product barrier sufficient to consider that barrier incapable of performing its safety function.

**Moderate Earthquake** - Earthquake that is readily felt but does not cause observable damage to plant structures.

**Potential Loss (of a fission product barrier)** - Challenge to a fission product barrier sufficient to consider that barrier degraded in its ability to perform its safety function.

**Protected Area** - That area of D.C. Cook which is enclosed within the security fence. Entry to the protected area is via one of the guard islands and requires a security badge.

**Recognition Category** - A logical and convenient grouping of ECCs used to quickly eliminate non-applicable ICs or EALs from consideration during Emergency Classification.

**Safe Shutdown Area** - Selected areas within the Protected Area that may be occupied for the security or safe shutdown of the units. The safe shutdown area is:

- Control rooms
- Central alarm station
- Containment buildings in Modes 5 and 6
- The following areas if a Control Room must be evacuated
  - The diesel generator rooms
  - The 4KV rooms
  - Vicinity of all Local Shutdown Stations.

**Safe Shutdown Equipment** - Selected components deemed necessary to place and maintain a unit in Hot Shutdown with capability to establish and maintain Cold Shutdown as described in Safe-Shutdown Capability Assessment, Proposed Modifications and Evaluations (AEPSC), Rev. 1 - 1986. In brief, the safe shutdown equipment can be described as:

- The RCS makeup path from the RWST via the CCPs and BIT injection lines.
- The secondary heat sink consisting of the CST, all three AFW pumps, associated AFW valves, the SGs, the SGSVs, and the SG safeties and PORVs.
- The CCW system.
- The ESW system including alternate supply to AFW.
- The RHR system.
- The diesel generators and the emergency AC buses.
- The CRIDs and most CRID-powered instrumentation.
- The DC distribution system including batteries and battery chargers.
- All Local Shutdown Stations.
- Unit crossties for BIT flow, RCP seal injection, CSTs and AFW.

**Severe Earthquake** - Earthquake that causes observable damage to plant structures.

**Transient** - A condition (1) beyond the expected steady-state fluctuations in temperature, pressure, power level, or water level, (2) beyond the normal manipulations of the Control Room operating crew, and (3) that would be expected to require actuation of fast-acting automatic control or protection systems to bring the reactor to a new safe, steady-state condition.

**Valid** - Means justified. Valid <indications> are obtained from instruments that are considered operable and have been otherwise independently verified, *e.g.*, by observation of initiating damage, by confirmation of an event by outside agencies, or by redundant instruments. Valid SI is an actuation either automatic or manual in response to an event that causes loss or shrinkage of RCS inventory or loss of secondary inventory.

Vital Area - Selected areas within the Protected Area that contain equipment necessary for the security or safe shutdown of the units. The vital areas are:

- Control rooms
- Control room and auxiliary cable vaults
- Containment buildings
- Diesel Generator rooms
- Auxiliary feedwater pump rooms
- Essential service water pump rooms
- Spent fuel pool area
- Electrical equipment rooms
- UPS battery and inverter rooms
- Central alarm station

## ORGANIZATION

The deviation information is organized in the following manner:

- Generic IC Identifier and Description
  NOTE: The IC identifier (i.e. AU1) contains Emergency Classification Level information in the second letter. U in the example stands for UE.

- Equivalent E-Plan IC Description

- Basis for IC Deviation

- Generic Example EAL(s)
  Note: NUMARC/NESP-007 frequently provides more than one example EAL. When more than one is provided, logic phrasing is used to describe whether all EALs are suggested or whether at least one EAL should be chosen. This document will list all example EALs from NUMARC/NESP-007.

- 12-PMP 2080.EPP.101 EAL(s)

- Basis for EAL Deviation from NUMARC/NESP-007 suggestions and explanations why any generic EAL was not chosen for modification as a D.C. Cook EAL.

There are not actual EALs for the Fission Product Barrier Recognition Category. In this recognition category there are symptoms of LOSS or POTENTIAL LOSS of each barrier. For this recognition category, the deviation information will consist of NUMARC/NESP-007 generic symptoms and the equivalent Cook symptoms.

Recognition Category: **Abnormal Rad Levels/Radiological Effluents**

Generic IC: AU1: Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds Two Times the Radiological Technical Specifications for 60 Minutes or Longer.

Cook IC: Unplanned effluent release greater than 2 x Technical Specification 3/4.11 limits lasting at least 60 minutes[1].

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):

1. A valid reading on one or more of the following monitors that exceeds the "value shown" (site specific monitors) indicates that the release may have exceeded the above criterion and indicates the need to assess the release with (site specific procedure):
   (site specific list)
   NOTE: If the monitor reading(s) is sustained for longer than 60 minutes and the required assessments cannot be completed within this period, then the declaration must be based on the valid reading.
2. Confirmed sample analyses for gaseous or liquid releases indicates concentrations or release rates with a release duration of 60 minutes or longer in excess of two times (site-specific technical specifications).
3. Valid reading on perimeter radiation monitoring system greater than 0.10 mR/hr above normal background for 60 minutes [for sites having telemetered perimeter monitors.]
4. Valid indication on automatic real-time dose assessment capability greater than (site-specific value) for 60 minutes or longer [for sites having such capability].

Cook EAL(s): ECC: R-1 Effluents (UE)
Unplanned radioactive release lasting more than 60 minutes[1] at 2 times the high alarm setpoint on VRS-1505 or VRS-2505.
**Modes: ALL**

EAL Deviation:

Instead of placing an assessment requirement within the ECC Table, we have elected to incorporate the NOTE requirement into the EAL. This keeps the initial classification scheme simple. In addition, the instrument values used are above the high alarm setpoints which means actions will be in progress to identify and terminate the source of the gaseous radioactivity.

Generic EALs 2, 3, and 4 were not used. Generic EAL#2 involves analyses of samples. The control room personnel are not required to review these sample results for technical specification compliance, so inclusion of this comparison as an EAL is not beneficial based on our procedures for controlling radioactive effluents. Generic EAL#3 and EAL#4 are not applicable since we have neither a perimeter monitoring system nor a real-time dose assessment capability.

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[1] If the starting time of the release is unknown, the 60-minute time limit is not applicable and an event declaration should be made as soon as release rate has been confirmed to be above the threshold value.

## ABNORMAL RADIATION/RADIOLOGICAL EFFLUENTS/FUEL DAMAGE

Generic IC: AU2: Unexpected Increase In Plant Radiation Levels or Airborne Concentration.

Cook IC: Unexpected increase in plant radiation levels.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):

1. (Site-specific) Indication of uncontrolled water level decrease in the reactor refueling cavity with all irradiated fuel assemblies remaining covered by water.
2. Uncontrolled water level decrease in the spent fuel pool and fuel transfer canal with all irradiated fuel assemblies remaining covered by water.
3. (Site-specific) radiation reading for irradiated fuel in dry storage.
4. Valid direct area radiation monitor readings increases by a factor of 1000 over normal[1] levels.

Cook EAL(s): ECC: R-2 In-Plant Rad Levels (UE)

- Unexpected radiation levels of:
  - >2.5 mr/hr in either Control Room or the Central Alarm Station
  - >15 mr/hr in Spent Fuel area
- An uncontrolled water level decrease in an area holding irradiated fuel assemblies outside the reactor vessel.

**Modes: ALL**

EAL Deviation:

Generic EAL#3 was not used because we do not have dry storage of irradiated fuel. Generic EAL#1 and EAL#2 were incorporated into one EAL. Instead of using increases of 1000x normal levels, we have elected to use fixed values for simplicity. Radiation increases in the plant do not affect safe operation unless a continuously manned area is affected. There are only three areas that are continuously manned: both control rooms and security's central alarm station. If radiation levels increase in these areas the most probable cause will be a release of radioactive gas which will be evaluated using the Effluents ECC. However, this EAL will cover any event involving the loss of control of a radioactive source such as a radiography device. The 15 mr/hr limit for the spent fuel area provides a reasonable level to identify the loss of water level event before irradiated fuel is uncovered.

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[1] Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value.

Generic IC: SU4: Fuel Clad Degradation.

Cook IC: Any indication of fuel clad damage in active fuel.

IC Deviation: This IC has been moved from the Systems Recognition Category to the Recognition Category for Abnormal Radiation/Radiological Effluents/Fuel Damage. Since the fuel clad is not a "system" but damage to the clad is associated with abnormal radiological conditions, the category change was made for consistency.

Applicable Generic EAL(s):
1. (Site-specific) radiation monitor readings indicating fuel clad degradation greater than Technical Specification allowable limits.
2. (Site-specific) coolant sample activity value indicating fuel clad degradation greater than Technical Specification allowable limits.

Cook EAL(s): ECC: R-3 Fuel Damage (UE)
Any indication of fuel clad damage:
- RCS activity >1.0 $\mu$Ci/gram I-131 Dose Equivalent for >48 Hours
- RCS activity >100/$\bar{E}$ $\mu$Ci/gram

**Modes: ALL**

EAL Deviation:
Cook no longer has a failed fuel detector, so generic EAL#1 is not applicable and no other equivalent site specific EAL is available.

Generic IC: AA1: Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds 200 Times the Radiological Technical Specifications for 15 Minutes or Longer.

Cook IC: Unplanned effluent release lasting at least 15 minutes[1] that results in a projected site boundary dose rate greater than 10 mrem/hr.

IC Deviation:

Due to our short North-South site boundary, 200x the technical specification limits would exceed the threshold for a site area emergency declaration. Our criteria of 10 mrem/hr at the site boundary provides adequate margin against unnecessary Alert declaration while providing some time margin to the Site Area Emergency threshold. The 10 mrem/hr is also specifically mentioned in generic EAL#3 as a valid limit for site boundary dose rate if a perimeter monitoring system was available.

Applicable Generic EAL(s):

1. A valid reading on one or more of the following monitors that exceeds the value shown indicates that the release may have exceeded the above criterion and indicates the need to assess the release with (site specific procedure):
   (site specific list)
   NOTE: If the monitor reading(s) is sustained for longer than 15 minutes and the required assessments cannot be completed within this period, then the declaration must be based on the valid reading.
2. Confirmed sample analyses for gaseous or liquid releases indicates concentrations or release rates in excess of (200 x site-specific technical specifications) for 15 minutes or longer.
3. Valid reading on perimeter radiation monitoring system greater than 10.0 mR/hr sustained for 15 minutes [for sites having telemetered perimeter monitors.]
4. Valid indication on automatic real-time dose assessment capability greater than (200 x site-specific Technical Specifications value) for 15 minutes or longer [for sites having such capability].

Cook EAL(s): ECC: R-1 Effluents (Alert)
Unplanned radioactive release lasting more than 15 minutes at $>4.0 \times 10^{-3}$ $\mu$Ci/cc on VRS-1505 or VRS-2505.
**Modes: ALL**

EAL Deviation:

As previously discussed in deviation for Generic EAL: AU1, instead of placing an assessment requirement within the ECC Table, we have elected to incorporate the NOTE requirement into the EAL. This keeps the initial classification scheme simple. In addition, the instrument values used are above the high alarm setpoints which means actions will be in progress to identify and terminate the source of the gaseous radioactivity. Also as previously discussed, the threshold value was back calculated from a 10 mrem/hr site boundary dose rate using average site meteorology of 4.5 mph wind speed and Pasquill category D. Generic EALs #2 and #4 were not used since the 200x T.S. limit is not part of our IC.

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[1] If the starting time of the release is unknown, the 60 minute time limit is not applicable and an event declaration should be made as soon as release rate has been confirmed to be above the threshold value.

Generic IC: AA2: Major Damage to Irradiated Fuel or Loss of Water Level that Has or Will Result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel.

Cook ICs: R-2: Loss of water level that can uncover irradiated fuel outside the reactor vessel.
R-3: Major damage to irradiated fuel.

IC Deviation: The generic IC was split for inclusion into 2 ECCs. There is no deviation in intent as both parts of the generic IC are included into our classification scheme.

Applicable Generic EAL(s):

1. A (site-specific setpoint) alarm on one or more of the following radiation monitors: (site-specific monitors)
   - Refuel floor area radiation monitor
   - Fuel handling building ventilation monitor
   - Fuel bridge area radiation monitor
2. Report of visual observation of irradiated fuel uncovered.
3. Water level less than (site-specific) feet for the Reactor Refueling Cavity that will result in irradiated fuel uncovery.
4. Water level less than (site-specific) feet for the Spent Fuel Pool and Fuel Transfer Canal that will result in irradiated fuel uncovery.

Cook EAL(s): ECC: R-2 In-Plant Rad Levels

- Unplanned decrease in water level that results in uncovery of an irradiated fuel assembly outside the reactor vessel.

**Modes: ALL**

ECC: R-3 Fuel Damage (Alert)

- Visual indication of damage to an irradiated fuel assembly AND valid high alarm on ANY of the following:
- ERS-1301/1401/2301/2401
- ERS-1305/1405/2305/2405
- VRS-1501/2501

**Modes: ALL**

EAL Deviation:

Generic EAL#1 is not used since there are not area monitors in all regions where fuel uncovery can occur. Generic EAL#2 "Reports of visible damage" was modified to require confirmation via valid gas/particulate monitor alarms that clad damage has occurred in order to escalate to the Alert level. Generic EALs #3 and #4 do not define loss of water level in terms of feet because remote level measuring systems do not exist. Instead, loss of water level is defined as actual uncovery of a fuel assembly which is equivalent to the generic EALs.

Generic IC: AA3: Release of Radioactive Material or Increases in Radiation Levels Within the Facility that Impedes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown.

Cook IC: Radiation increases that impede safe operation.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):

1. Valid (site-specific) radiation monitor readings greater than 15 mr/hr in areas requiring continuous occupancy to maintain safety functions:
   - (site specific list)
2. Valid (site-specific) radiation monitor readings greater than (site-specific) values in areas requiring infrequent access to maintain plant safety functions.
   - (site specific list)

   NOTE: The Emergency Director should determine the cause of the increase in radiation levels and review other ICs for applicability.

Cook EAL(s): ECC: R-2 In-Plant Rad Levels (Alert)

- Unexpected radiation levels of:
  - >15 mr/hr in either Control Room or the Central Alarm Station
  - >100 mr/hr general area in Auxiliary building hallways

**Modes: ALL**

EAL Deviation: **No significant deviation.**

Generic IC: AS1: Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mR Whole Body or 500 mR Child Thyroid for the Actual or Projected Duration of the Release.

Cook IC: Projected site boundary dose greater than 100 mrem TEDE or 500 mrem CDE. -OR- Field survey results indicate site boundary dose rate greater than 100 mrem/hr $\beta$-$\gamma$ during the release.

IC Deviation:

We are using TEDE and CDE terminology. If at any time during an accident, the site boundary dose rate exceeds 100 mrem/hr, we believe it is in the public interest to declare a site area emergency.

Applicable Generic EAL(s):

1. A valid reading on one or more of the following monitors that exceeds or is expected to exceed the value shown indicates that the release may have exceeded the above criterion and indicates the need to assess the release with (site-specific procedure).
   (site-specific list)
   NOTE: If the monitor reading(s) is sustained for longer than 15 minutes and the required assessments can not be completed within this period, then the declaration must be made based on the valid reading.
2. A valid reading sustained for 15 minutes or longer on perimeter radiation monitoring system greater than 100 mr/hr.
3. Valid dose assessment capability indicates dose consequences greater than 100 mR whole body or 500 mR child thyroid.
4. Field survey results indicate site boundary dose rates exceeding 100 mr/hr expected to continue for more than one hours; or analyses of field survey samples indicate child thyroid dose commitment of 500 mr for one hour of inhalation.

Cook EAL(s): ECC: R-1 Effluents (SAE)
Projected site boundary dose greater than 100 mrem TEDE or 500 mrem CDE. -OR- Field survey results indicate site boundary dose rate greater than 100 mrem/hr $\beta$-$\gamma$ during the release.
**Modes: ALL**

EAL Deviation:

Generic EAL#1 is not used. Following any major accident, the SEC will begin an initial dose assessment if indication of gaseous effluent exist. When the EOF is manned, they will assume dose assessment duties. During the initial stages of an accident, the SEC will not be able to complete a dose assessment within the first 15 minutes as required by Generic IC#1. This could result in the declaration of a site area emergency. Because of our location on Lake Michigan, the wind direction is critical to evacuation planning. Thus an arbitrary 15 minute limit based on a radiation monitor reading alone is not in the best interest of the public for a site area emergency declaration. However, we will declare a site area emergency if the dose RATE at an inland location on the site boundary exceeds 100 mrem/hr. This could result in an early evacuation if an event of this seriousness occurs. Note that this declaration is a result of the dose assessment methodology and evacuation recommendations would be available at the same time. EAL#2 was not used because we do not have a perimeter monitoring system.

Generic IC: AG1: Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 1000 mR Whole Body or 5000 mR Child Thyroid for the Actual or Projected Duration of the Release Using Actual Meteorology.

Cook IC: Projected site boundary dose greater than 1000 mrem TEDE or 5000 mrem CDE. -OR- Field survey results indicate site boundary dose rate greater than 1000 mrem/hr $\beta$-$\gamma$ during the release.

IC Deviation:

We are using TEDE and CDE terminology. If at any time during an accident, the site boundary dose rate exceeds 1000 mrem/hr, we believe it is in the public interest to declare a general emergency.

Applicable Generic EAL(s):

1. A valid reading on one or more of the following monitors that exceeds or is expected to exceed the value shown indicates that the release may have exceeded the above criterion and indicates the need to assess the release with (site-specific procedure).
   (site-specific list)
   NOTE: If the monitor reading(s) is sustained for longer than 15 minutes and the required assessments can not be completed within this period, then the declaration must be made based on the valid reading.
2. A valid reading sustained for 15 minutes or longer on perimeter radiation monitoring system greater than 1000 mr/hr.
3. Valid dose assessment capability indicates dose consequences greater than 1000 mR whole body or 5000 mR child thyroid.
4. Field survey results indicate site boundary dose rates exceeding 1000 mr/hr expected to continue for more than one hours; or analyses of field survey samples indicate child thyroid dose commitment of 5000 mr for one hour of inhalation.

Cook EAL(s): ECC: R-1 Effluents (GE)
Projected site boundary dose greater than 1000 mrem TEDE or 5000 mrem CDE. -OR-
Field survey results indicate site boundary dose rate greater than 1000 mrem/hr $\beta$-$\gamma$ during the release.
**Modes: ALL**

EAL Deviation:

Generic EAL#1 is not used. Following any major accident, the SEC will begin an initial dose assessment if indication of gaseous effluent exist. When the EOF is manned, they will assume dose assessment duties. During the initial stages of an accident, the SEC will not be able to complete a dose assessment within the first 15 minutes as required by Generic IC#1. This could result in the declaration of a general emergency. Because of our location on Lake Michigan, the wind direction is critical to evacuation planning. Thus an arbitrary 15 minute limit based on a radiation monitor reading alone is not in the best interest of the public for a general emergency declaration. However, we will declare a general emergency if the dose RATE at an inland location on the site boundary exceeds 1000 mrem/hr. This will result in an early evacuation if an event of this seriousness occurs. Note that this declaration is a result of the dose assessment methodology and evacuation recommendations would be available at the same time. EAL#2 was not used because we do not have a perimeter monitoring system.

Recognition Category: **System Malfunctions**

Generic IC: SU1: Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes.

Cook IC: Loss of all offsite power to AC emergency buses for >15 minutes.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
The following conditions exist:
- Loss of power to (site-specific) transformers for greater than 15 minutes.
  **AND**
- At least (site-specific) emergency generators are supplying power to emergency busses.

Cook EAL(s): ECC: S-2 Loss of AC Power (UE)
NEITHER Switchyard NOR 69 KV power supplies available for >15 minutes.
**Modes: 1,2,3,4,5**

EAL Deviation:
There is no need to extend this to "DEFUELED" since our spent fuel cooling is redundant between units. Added IC/EAL to ECC: S-4 to address the loss of spent fuel cooling. There was no need to state that the DGs are supplying the emergency buses since coincident failure of the DGs is clearly recognizable as a loss of all AC power which is separately classified.

Generic IC: SU2: Inability to Reach Required Shutdown Within Technical Specification Limits.

Cook IC: Unit is NOT placed in required MODE within Technical Specification LCO action time limit.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
Plant is not brought to required operating mode within (site-specific) Technical Specifications LCO Action Statement Time.

Cook EAL(s): ECC: S-7 Technical Specifications (UE)
Unit is NOT placed in required MODE within Technical Specification LCO action time limit.
**Modes: 1,2,3,4**

EAL Deviation: **No significant deviation.**

Generic IC: SU3: Unplanned Loss of Most or All Safety System Annunciation or Indication in the Control Room for Greater Than 15 Minutes.

Cook IC: Unplanned loss of all control room annunciators for >15 minutes BUT SPDS or PPC is operable.

IC Deviation:
Deleted reference to loss of "most" annunciators and loss of all or most indicators. The loss of "most" annunciators is not plausible with our design. The only single failure that affects a majority of the annunciators will cause the loss of "ALL" annunciators. Loss of indications was deleted from this IC because a major loss of indication (CRIDs) will also render the compensatory non-alarming indications inoperable (SPDS/PPC) because loss of the CRIDs will disable input to these systems also.

Applicable Generic EAL(s):
All of the following conditions exist:
- Loss of most or all (site-specific) annunciators associated with safety systems for greater than 15 minutes.
- Compensatory non-alarming indications are available.
- In the opinion of the Shift Supervisor, the loss of the annunciators or indicators requires increased surveillance to safely operate the unit(s).
- Annunciator or Indicator loss does not result from planned action.

Cook EAL(s): ECC: S-5 Loss of Annunciators or Indicators (UE)
Unplanned loss all control room annunciators for >15 minutes BUT SPDS or PPC is OPERABLE.
**Modes: 1,2,3,4**

EAL Deviation:
Deleted requirement for SS to make a judgement on the need for increased surveillance to safely operate without additional personnel because we believe at this time that increased surveillance will always be necessary.

Generic IC: SU5: RCS Leakage.

Cook IC: Any of the following:
- Pressure Boundary leakage > 10 GPM
- Unidentified leakage > 10 GPM
- Identified leakage > 25 GPM
- SG tube leakage > 10 GPM

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
The following conditions exist:
- Unidentified or pressure boundary leakage greater than 10 gpm.
  OR
- Identified leakage greater than 25 gpm.

Cook EAL(s): ECC: S-6 RCS Leakage (UE)
Any of the following:
- Pressure Boundary leakage > 10 GPM
- Unidentified leakage > 10 GPM
- Identified leakage > 25 GPM
- SG tube leakage > 10 GPM

**Modes: 1,2,3,4,5**

EAL Deviation:
Added SG tube leakage to the EAL to force an Unusual Event declaration on small SG tube leaks. This was done to meet the intent of the Fission Product Barrier Table - Containment Loss symptom of SG secondary side release with Primary-to-Secondary leakage.

Generic IC: SU6: Unplanned Loss of All Onsite or Offsite Communication Capabilities.

Cook IC: Unplanned loss of all onsite OR offsite communication capabilities.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
Either of the following conditions exist:

- Loss of all (site-specific list) onsite communication capability affecting the ability to perform routine operations.
  **OR**
- Loss of all (site-specific list) offsite communications capability.

Cook EAL(s): ECC: S-8 Loss of Communication Systems
Unplanned loss of ALL onsite electronic communication capabilities:

- Telephone
- Page system
- Radios

OR
Unplanned loss of ALL offsite electronic communication capabilities:

- Telephone (offsite)
- Microwave transmission
- NRC phone
- Load dispatch line
- Cellular telephones of PM and APMs

**Modes: ALL**

EAL Deviation: **No Significant Deviation**

Generic IC: SU7: Unplanned Loss of Required DC Power During Cold Shutdown or Refueling Mode for Greater Than 15 Minutes.

Cook IC: Unplanned loss[1] of all vital DC power in Modes 5 or 6 for greater than 15 minutes.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
Either of the following conditions exist:
- Unplanned loss of Vital DC power to required DC busses based on (site-specific) bus voltage indications.
  **AND**
- Failure to restore power to at least one required DC bus within 15 minutes from the time of loss.

Cook EAL(s): ECC: S-3 Loss of DC Power
Unplanned loss[1] of 250V DC buses AB AND CD for >15 minutes.
**Modes: 5,6**

EAL Deviation: **No significant deviation.**

Generic IC: N/A

Cook IC: Unplanned loss of any function needed to maintain cold shutdown in Modes 5 or 6.
Unplanned loss of cooling to the spent fuel pool for greater than 60 minutes in any Mode.

IC Deviation: Added these ICs at the UE level to provide precursors for generic IC SA3.

Applicable Generic EAL(s): None

Cook EAL(s): Unplanned loss of shutdown cooling for greater than 15 minutes in Modes 5 or 6.
Unplanned loss of SFP cooling for greater than 60 minutes in ALL modes.

EAL Deviation: Added these EALs at the UE level to provide precursors for generic IC SA3.

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[1] A DC bus is lost for the purpose of E-Plan classification whenever battery voltage is less than 210vdc.

Generic IC: SA1: Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses During Cold Shutdown or Refueling Mode.

Cook IC: Complete loss of all AC emergency buses for >15 minutes in Modes 5 or 6.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
The following condition exist:

- Loss of power to (site-specific) transformers.
  **AND**
- Failure of (site-specific) emergency generators to supply power to emergency busses.
  **AND**
- Failure to restore power to at least one emergency bus within 15 minutes from the time of loss of both offsite and onsite AC power.

Cook EAL(s): ECC: S-2 Loss of AC Power (Alert)

- Complete loss of all AC emergency buses for >15 minutes in Modes 5 or 6.

**Modes: 5,6**

EAL Deviation:
The generic EAL was not used because loss of all AC power is a specific EOP event that is readily recognized by all licensed personnel.

Generic IC: SA2: Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was Successful.

Cook IC: ATWS terminated by manual reactor trip from the control room.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
(Site-specific) indication(s) exist that indicate that reactor protection system setpoint was exceeded and automatic scram did not occur, and a successful manual scram occurred.

Cook EAL(s): ECC: S-1 ATWS (Alert)
ATWS terminated by manual reactor trip from the control room.
**Modes: 1,2**

EAL Deviation:
Did not include site-specific indications of an ATWS. Recognition of ATWS is an immediate action of the EOPs and does not need to have specific indications called out in the EAL.

Generic IC: SA3: Inability to Maintain Plant in Cold Shutdown.

Cook IC: Inability to maintain RCS temperature less than 200°F in Modes 5 or 6.
Inability to maintain spent fuel pool temperature less than 200°F in all Modes.
Inadvertent criticality in Modes 3, 4, 5 or 6.
Inadvertent criticality with a concurrent loss of RCS boration capability in Modes 3-6. [SAE only]

IC Deviation:
These ICs are included in an ECC titled "Loss of Shutdown Functions". To maintain the plant in cold shutdown, it is necessary to keep RCS temperatures below 200°F and maintain adequate shutdown margin. Cook ICs #1 and #3 are clearly tied to the definition of "cold shutdown". Loss of spent fuel pool cooling was added to address deletion of "DEFUELING" from SA1. Coverage of an inadvertent criticality is provided by two ICs and should not be confused with an ATWS. A loss of reactivity control that results in criticality exceeds the threshold of the generic IC. However, a dilution or xenon decay event does not cause a rapid power excursion and can be terminated by prompt initiation of boration per T.S. LCO action requirements. Since fuel clad damage is unlikely, this IC exists at the Alert level. If inadvertent criticality occurs with a concurrent loss of boron control, the second IC prompts a Site Area Emergency declaration due to the increased potential for fuel clad damage.

Applicable Generic EAL(s):
The following conditions exist:
- Loss of (site-specific) Technical Specification required function to maintain cold shutdown.
  **AND**
- Temperature increase that either:
  - Exceeds Technical Specification cold shutdown temperature limit
    **OR**
  - Results in uncontrolled temperature rise approaching cold shutdown Technical Specification limit.

Cook EAL(s): ECC: S-4 Loss of Shutdown Functions
Any of the following:
- Loss of shutdown cooling AND RCS temperature is increasing in an uncontrolled manner and expected to exceed 200°F in Modes 5 or 6.
- Loss of spent fuel pool cooling AND spent fuel pool temperature is increasing in an uncontrolled manner and expected to exceed 200°F in all Modes.
- Inadvertent criticality in Modes 3, 4, 5 or 6. [Alert only]
- Inadvertent criticality with a concurrent loss of RCS boration capability in Modes 3-6. [SAE only]

EAL Deviation:
Eliminated the direct tie between loss of a function AND RCS temperature increase above 200°F for the loss of CCW and the inadvertent criticality. For more information see IC deviation section.

Generic IC: SA4: Unplanned Loss of Most or All Safety System Annunciation or Indication in Control Room with either (1) a Significant Transient in Progress, or (2) Compensatory Non-Alarming Indicators are Unavailable.

Cook IC:
- Unplanned loss of all control room annunciators for >15 minutes **-AND-**
  Either:
  - A transient is in progress.
  - SPDS and PPC are INOPERABLE.
- Unplanned loss of three CRIDs.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
The following conditions exist:
- Loss of most or all (site-specific) annunciators associated with safety systems for greater than 15 minutes.
- In the opinion of the Shift Supervisor, the loss of the annunciators or indicators requires increased surveillance to safely operate the unit(s).
- Annunciator or Indicator loss does not result from planned action.
- Either of the following:
  - A significant plant transient is in progress.
    OR
  - Compensatory non-alarming indications are unavailable.

Cook EAL(s): ECC: S-5 Loss of Annunciators or Indicators (Alert)
- Unplanned loss of three CRIDs.
- Unplanned loss of all control room annunciators for >15 minutes with either:
  - A transient is in progress.
  - SPDS and PPC are INOPERABLE.

**Modes: 1,2,3,4**

EAL Deviation:
Deleted requirement for SS to make a judgement on the need for increased surveillance to safely operate without additional personnel because we believe at this time that increased surveillance will always be necessary.

Generic IC: SA5: AC Power Capability to Essential Busses Reduced to a Single Power Source for Greater Than 15 Minutes such that Any Additional Single Failure Would Result in Station Blackout.

Cook IC: Any AC power alignment for >15 minutes that could allow a single failure to cause a loss of all AC power.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
The following conditions exist:

- Loss of power to (site-specific) transformers for greater than 15 minutes.
  **AND**
- Onsite power capability has been degraded to one (train of) emergency bus(ses) powered from a single onsite power supply due to the loss of:
  (Site-specific list)

Cook EAL(s): ECC: S-2 Loss of AC Power (Alert)
Any AC power alignment for >15 minutes that could allow a single failure to cause a loss of all AC power.
**Modes: 1,2,3,4**

EAL Deviation:
The Cook EAL does not attempt to list all the combinations of power supply losses nor does it limit the single AC source to an onsite power supply.

Generic IC: SS1: Loss of All Offsite Power and Loss of All Onsite AC Power.

Cook IC: Complete loss of power to AC emergency buses for >15 minutes in Modes 1, 2, 3 or 4.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
Loss of all offsite and onsite AC power as indicated by:

- Loss of power to (site-specific) transformers.
  **AND**
- Failure of (site-specific) emergency generators to supply power to emergency busses.
  **AND**
- Failure to restore power to at least one emergency bus within (site-specific) minutes from the time of loss of both offsite and onsite AC power.

Cook EAL(s): ECC: S-2 Loss of AC Power (SAE)
Complete loss of all AC emergency buses for > 15 minutes.
**Modes: 1,2,3,4**

EAL Deviation:
The generic EAL was not used because loss of all AC power is a specific EOP event that is readily recognized by all licensed personnel.

Generic IC: SS2: Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was NOT Successful.

Cook IC: ATWS NOT terminated by manual reactor trip from the control room.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
(Site-specific) Indications exist that automatic and manual scram were not successful.

Cook EAL(s): ECC: S-1 ATWS (SAE)
ATWS NOT terminated by manual reactor trip from the control room.
**Mode: 1**

EAL Deviation: **No significant deviation.**

Generic IC: SS3: Loss of All Vital DC Power.

Cook IC: Unplanned loss[1] of all vital DC power for >15 minutes.

IC Deviation:
The generic guidance calls for this EAL to be the threshold to a site area emergency because loss of all DC power compromises ability to monitor and control plant safety functions and prolonged loss of all DC power will cause core uncovery and the loss of containment integrity when there is significant decay heat and sensible heat in the reactor system. However, at Cook, a total loss of DC power does not cause the loss of control room indications since our CRID inverters use AC power as the normal supply backed-up by DC power. In addition, the loss of DC power will cause containment isolation which isolates containment from its normal cooling system, but the operators can locally reopen the containment isolation valves as long as control air is available. Since a total loss of DC power does not stop normal charging nor create an unisolable RCS leak path, there is no potential loss of RCS barrier or fuel clad barrier. Therefore, Cook does NOT use this IC for declaration of a Site Area Emergency. Instead, if the loss of vital DC power occurs in Modes 1 through 4, we will declare an ALERT condition because there will be a complete failure of automatic actuation for all safeguards equipment with a concurrent loss of all control room annunciators. In addition, if the unit is in Mode 1, the loss of DC power will cause a rapid cooldown of the RCS due to failure of the automatic turbine trip systems.

Applicable Generic EAL(s):
Loss of all Vital DC power based on (site-specific) bus voltage indications for greater than 15 minutes.

Cook EAL(s): ECC: S-3 Loss of DC Power (Alert)
Unplanned loss[1] of 250V DC buses AB AND CD for >15 minutes.
**Modes: 1,2,3,4**

EAL Deviation: **No significant deviation.**

Generic IC: SS4: Complete Loss of Function Needed to Achieve or Maintain Hot Shutdown.

Cook IC: Loss of secondary heat sink in Mode 3.
Loss of BOTH CCW trains for greater than 15 minutes in Modes 1, 2, 3 or 4. [Alert only]
Loss of BOTH CCW trains AND RCP seal injection flow for greater than 15 minutes in Modes 1-4.
Inadvertent criticality in Modes 3, 4, 5 or 6. [Alert only]
Inadvertent criticality with a concurrent loss of RCS boration capability in Modes 3-6.

IC Deviation:
These ICs are included in an ECC titled "Loss of Shutdown Functions". The generic IC is very broad and if loosely interpreted it could result in declaration of a Site Area Emergency for many events. For example, we can not maintain hot shutdown conditions with a failure of ALL pressurizer heaters. However, this event does not represent a sufficiently serious threat to public safety to warrant a Site Area

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[1] A DC bus is lost for the purpose of E-Plan classification whenever battery voltage is less than 210vdc.

Emergency declaration. Therefore, we have elected to cover selected failures to maintain hot shutdown conditions. All other instances will be covered by SEC Judgement.

The loss of secondary heat sink in Mode 3 is equivalent to loss of the ultimate heat sink as discussed in the basis for generic IC SS4. This is also equivalent to a SAE as described on the Fission Product Barrier table under both fuel clad and RCS barriers.

Coverage of loss of CCW is provided by two ICs. Within a few minutes, a total loss of CCW results in the loss of all forced circulation in the RCS, a loss of ultimate heat sink if using ECCS in the recirculation mode, and the potential loss of all high-head ECCS pumps (if operating). This condition is covered under T.S. 3.0.3 and requires entry into Mode 5 which can NOT be completed due to the nature of the failure. Since this event results in a significant loss of capability, we believe it warrants an ALERT declaration. If the loss of CCW results in a loss of RCP seal injection (which is very likely), then the RCP seals will start leaking as they would during a Loss of All AC Power event. The leak rate would approach 80 gpm after 10-15 minutes. Because of its similarity to a loss of all AC event, we believe that this condition should be classified as a Site Area Emergency.

Coverage of an inadvertent criticality is provided by two ICs and should not be confused with an ATWS. A loss of reactivity control that results in criticality exceeds the threshold of the generic IC. However, a dilution or xenon decay event does not cause a rapid power excursion and can be terminated by prompt initiation of boration per T.S. LCO action requirements. Since fuel clad damage is unlikely, this IC exists at the Alert level. If inadvertent criticality occurs with a concurrent loss of boron control, the second IC prompts a Site Area Emergency declaration due to the increased potential for fuel clad damage.

Applicable Generic EAL(s):
Complete loss of any (site-specific) function required for hot shutdown.

Cook EAL(s): ECC: S-4 Loss of Shutdown Functions

- Inability to feed any SG AND all wide range SG levels <29% in Mode 3.
- Loss of both CCW trains for >15 minutes in Modes 1-4. [Alert only]
- Loss of BOTH CCW trains and RCP seal injection flow for greater than 15 minutes in Modes 1-4.
- Inadvertent criticality as indicated by sustained positive startup rate in Modes 3-6. [Alert only]
- Inadvertent criticality with a concurrent loss of RCS boration capability in Modes 3-6.

EAL Deviation:
Refer to the IC deviation section.

Generic IC: SS5: Loss of Water Level That Has or Will Uncover Fuel in the Reactor Vessel.

Cook IC: Loss of shutdown cooling with imminent core uncovery in Modes 5 or 6.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
Loss of Reactor Vessel Water Level as indicated by:
- Loss of all decay heat removal cooling as determined by (site-specific) procedure.
  **AND**
- (Site-specific) indicators that the core is or will be uncovered.

Cook EAL(s): ECC: S-4 Loss of Shutdown Functions (SAE)
Loss of shutdown cooling with reactor vessel water level decreasing and expected to drop below 613 ft 6 inches.
**Modes: 5,6**

EAL Deviation: **No significant deviation.**

Generic IC: SS6: Inability to Monitor a Significant Transient in Progress.

Cook IC: Inability to monitor a significant transient in progress.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
The following conditions exist:
- Loss of (site-specific) annunciators associated with safety systems.
- Compensatory non-alarming indications are unavailable.
- Indications needed to monitor (site-specific) safety functions are unavailable.
- Transient in progress.

Cook EAL(s): ECC: S-5 Loss of Annunciators or Indicators (SAE)
- Loss of ALL control room annunciators AND loss of three CRIDs.
- Loss of ALL CRIDs.

**Modes: 1,2,3,4**

EAL Deviation:
The most likely cause of a significant loss of annunciators is a failure in the DC power supply to the annunciators. In modes 1 or 2, this loss of DC power is probably going to initiate a significant transient i.e. Reactor trip or safety injection. Combined with the loss of a majority of the CRIDs (instrument power supplies) which results in a significant loss of instrumentation, meets the intent of the generic EALs. The loss of all vital instrument power will result in enough spurious alarms to render any valid alarms unusable. Thus, this event also meets the intent of the generic EALs.

Generic IC: SG1: Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power.

Cook IC: Complete loss of all AC emergency buses for >4 hours in Modes 1, 2, 3 or 4.
Complete loss of all AC emergency buses with severe challenge to core cooling.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
Loss of all offsite and onsite AC power as indicated by:

- Loss of power to (site-specific) transformers.
  **AND**
- Failure of (site-specific) emergency generators to supply power to emergency busses.
  **AND**
- At least one of the following conditions exist:
  - Restoration of at least one emergency bus within (site-specific) hours is NOT likely.
    **OR**
  - (Site-specific) indication of continuing degradation of core cooling based on fission product barrier monitoring.

Cook EAL(s): ECC: S-2 Loss of AC Power (GE)
Complete loss of all AC emergency buses AND EITHER of the following:

- Restoration of one AC emergency bus is NOT likely within 4 hours.
- Core Cooling CSFST - ORANGE

**Mode: 1,2,3,4**

EAL Deviation:
Instead of monitoring the fission product barrier table, we have elected to use the Core Cooling CSFST - ORANGE as the threshold for a general emergency. This parameter is on the fission product barrier table and must be exceeded in order to have the potential for a source term large enough to justify a general emergency declaration. The 4 hours threshold is from our Station Blackout coping study.

Generic IC: SG2: Failure of Reactor Protection System to Complete an Automatic Scram and Manual Scram Was NOT Successful and There is Indication of an Extreme Challenge to the Ability to Cool the Core.

Cook IC: ATWS with extreme challenge to core cooling or heat sink safety functions.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):

- (Site-specific) Indications exist that automatic and manual scram were not successful.
  **AND**
- Either of the following:
  - (Site-specific) Indications exist that the core cooling is extremely challenged.
    **OR**
  - (Site-specific) Indication exists that heat removal is extremely challenged.

Cook EAL(s): ECC: S-1 ATWS (GE)
Subcriticality CSFST - RED -AND-
EITHER of the following conditions:

- Core Cooling CSFST - RED
- Heat Sink CSFST - RED

**Mode: 1**

EAL Deviation: **No significant deviation.**

## NATURAL/DESTRUCTIVE PHENOMENA

Recognition Category: **Natural/Destructive Phenomena**

Generic IC: HU1: Natural or Destructive Phenomena Occurring Within the Protected Area.

Cook ICs:
- Moderate earthquake
- Wind speeds within the Protected Area or at the RMB that exceed the design limits for safety-related components or major structures[1].
- Lake level oscillation of greater than 5 feet (seiche)
- Valid indication of plant flooding with potential to affect unit operation
- A vehicle crash within the Protected Area OR at the RMB that causes significant damage.
- An unexpected explosion within the Protected Area or at the RMB
- Turbine casing failure
- Main generator hydrogen seal failure while the generator is pressurized with hydrogen

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
1. (Site-specific) method indicates felt earthquake.
2. Report by plant personnel of tornado striking within protected area.
3. Assessment by the control room that an event has occurred.
4. Vehicle crash into plant structures or systems within protected area boundary.
5. Report by plant personnel of an unanticipated explosion within protected area boundary resulting in visible damage to permanent structure or equipment.
6. Report of turbine failure resulting in casing penetration or damage to turbine or generator seals.
7. (Site-specific) occurrences.

Cook EAL(s): **ALL MODES**

| | | |
|---|---|---|
| ECC: N-1 | Earthquake | Earthquake is readily felt but does not cause observable damage to plant structures. |
| ECC: N-2 | High Winds | A tornado touches down within the Protected Area OR at the RMB. -OR- Sustained wind speed >90 mph. |
| ECC: N-3 | Seiche | Screen house lake level oscillation >5 feet NOT due to switching CW pumps. |
| ECC: N-4 | Flooding | Valid indication of plant flooding with potential to affect unit operation. |
| ECC: N-5 | Vehicle Crash | A vehicle crash within the Protected Area involving a safety system required for the current operating mode or a system containing radioactive material. -OR- A vehicle crash at the RMB that involves a sealed radioactive material storage container. |
| ECC: N-6 | Explosion | An unexpected explosion within the Protected Area OR at the RMB. |
| ECC: N-7 | Equipment or Structural Failure | Turbine casing failure. -OR- Main generator hydrogen seal failure while the generator is pressurized with hydrogen. |

EAL Deviation:
This IC has been restructured as a Cook-Specific Recognition Category titled: "Natural/Destructive Phenomena. This recognition category has been subdivided into 7 ECCs. Each of these ECCs then have at least one EAL in the UE and Alert ECLs. This arrangement was created to simplify the classification process for the Shift Supervisor serving as SEC.

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[1] Plant structures refer to the containments, auxiliary buildings, radioactive material building (RMB), ESW enclosures, AFW pump rooms, RWST and CST.

## NATURAL/DESTRUCTIVE PHENOMENA

Generic IC: HA1: Natural or Destructive Phenomena Occurring Within Plant Vital Area.

Cook IC:
- Severe earthquake
- Visible damage to plant structures[1].
- Lake level oscillation of greater than 8 feet (seiche)
- Valid indication of plant flooding that has affected ANY safe shutdown system
- A vehicle crash within a Vital Area affecting the operability of safety systems required for the current operating mode.
- An explosion within a Vital Area affecting the operability of safety systems required for the current operating mode.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
1. (Site-specific) method indicates Seismic Event greater than Operating Basis Earthquake (OBE).
2. Tornado or high winds striking plant vital areas: Tornado or high winds greater than (site-specific) mph strike within protected area boundary.
3. Reports of visible structural damage on selected plant structures. (e.g. Reactor building, Intake building, Ultimate Heat Sink, Refueling Water Storage Tank, Diesel Generator building, Turbine Building, Condensate Storage Tank, Control Room, Other (Site-specific) Structures)
4. (Site-specific) indications in the control room.
5. Vehicle crash affecting plant vital areas.
6. Turbine failure generated missiles result in any visible structural damage to or penetration of any (Site-specific) plant areas.
7. (Site-specific) occurrences.

Cook EAL(s): **ALL MODES**

| | | |
|---|---|---|
| ECC: N-1 | Earthquake | Earthquake causes observable damage to plant structures. |
| ECC: N-2 | High Winds | Visible damage to plant structures. |
| ECC: N-3 | Seiche | Screen house lake level oscillation >8 feet NOT due to switching CW pumps. |
| ECC: N-4 | Flooding | Valid indication of plant flooding that has affected ANY safe shutdown system. |
| ECC: N-5 | Vehicle Crash | A vehicle crash within a Vital Area affecting the operability of safety systems required for the current operating mode or causing the release of radioactive material. |
| ECC: N-6 | Explosion | An explosion within a Vital Area affecting the operability of safety systems required for the current operating mode. |
| ECC: N-7 | Equipment or Structural Failure | Visible damage to plant structures. |

EAL Deviation:
This IC has been restructured as a Cook-Specific Recognition Category titled: "Natural/Destructive Phenomena. This recognition category has been subdivided into 7 ECCs. Each of these ECCs then have at least one EAL in the UE and Alert ECLs. This arrangement was created to simplify the classification process for the Shift Supervisor serving as SEC.

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[1] Plant structures refers to the containments, auxiliary buildings, radioactive material building (RMB), ESW enclosures, AFW pump rooms, RWSTs and CSTs.

Recognition Category: **Hazards and Other Conditions Affecting Plant Safety**

Generic IC: HU2: Fire Within Protected Area Boundary Not Extinguished Within 15 Minutes of Detection.

Cook IC: Fire within the Protected Area or RMB NOT extinguished within 15 minutes of detection.

IC Deviation: We have expanded the scope of the fire area from selected sites within the Protected Area to include all of the Protected Area plus the Radioactive Material Building. Since the Radioactive Material Building is not within the Protected Area, the IC had to be reworded for consistency.

Applicable Generic EAL(s):
Fire in buildings or areas contiguous to any of the following (site-specific) areas not extinguished within 15 minutes of control room notification or verification of a control room alarm:
- (Site-specific) list

Cook EAL(s): ECC: H-1 Fire (UE)
Fire within the Protected Area or RMB NOT extinguished within 15 minutes of detection.
**Modes: ALL**

EAL Deviation:
We have expanded the scope of the fire area from selected sites within the Protected Area to include all of the Protected Area plus the Radioactive Material Building. Since this area encompasses all of the suggested areas, the Cook EAL provides at least the same level of public protection as the generic EAL.

Generic IC: HU3: Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant.

Cook IC: Release of toxic or flammable gases within or near the site boundaries deemed detrimental to safe operation.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
1. Report or detection of toxic or flammable gases that could enter the site area boundary in amounts that can affect normal operation of the plant.
2. Report by Local, County or State officials for potential evacuation of site personnel based on offsite event.

Cook EAL(s): ECC: H-2 Toxic or Flammable Gases (UE)
- Release of toxic or flammable gases within or near site boundary that may affect normal plant operation.
- Report by recognized authority of need for partial site evacuation because of off-site toxic gas release.

**Modes: ALL**

EAL Deviation: **No significant deviation.**

Generic IC: HU4: Confirmed Security Event Which Indicates a Potential Degradation in the Level of Safety of the Plant.

Cook IC: Confirmed security event which indicates a potential degradation in the level of plant safety.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
1. Bomb device discovered within plant Protected Area and outside plant Vital Area.
2. Other security events as determined from (Site-specific) Safeguards Contingency Plan.

Cook EAL(s): ECC: H-3 Security Events (UE)
- Bomb device discovered within the Protected Area or Radioactive Material Building.
- Other security events which represent a potential degradation in the level of safety of the plant.

**Modes: ALL**

EAL Deviation: **No significant deviation.**

Generic IC: HU5: Other Conditions Existing Which In the Judgement of the Emergency Director Warrant Declaration of an Unusual Event.

Cook IC: **None**

IC Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Applicable Generic EAL(s):
Other conditions exist which in the judgment of the Emergency Director indicate a potential degradation of the level of safety of the plant.

Cook EAL(s):
The following statement is contained within the body of the Emergency Classification procedure:

- In the judgement of the SEC, conditions which indicate a potential degradation of the level of safety of the plant warrant a declaration of an Unusual Event.

EAL Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Generic IC: HA2: Fire or Explosion Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown.

Cook IC: Fire affecting the operability of safety systems required for the current operating mode.

IC Deviation: Deleted reference to explosion since that event is covered in the Natural/Destructive Phenomena recognition category. Those systems needed to establish safe shutdown are included in those systems that are covered by Technical Specifications for the current operating mode.

Applicable Generic EAL(s):
The following conditions exist:

- Fire or explosion in any of the following (site-specific) areas:
  - (Site-specific list)
    **AND**
- Affected system parameter indications show degraded performance or plant personnel report visible damage to permanent structures or equipment within the specified area.

Cook EAL(s): ECC: H-1 Fire (Alert)
Fire affecting the operability of safety systems required for the current operating mode.
**Modes: ALL**

EAL Deviation:
Deleted reference to explosion since that event is covered in the Natural/Destructive Phenomena recognition category. Instead of listing specific areas or systems, the EAL remains generic to allow the SEC to determine what equipment is needed in each Operating Mode. In general, those systems needed to establish safe shutdown are included in those systems that are covered by Technical Specifications for the current operating mode.

Generic IC: HA3: Release of Toxic or Flammable Gases Within a Facility Structure which Jeopardizes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown.

Cook IC: Toxic or flammable gases in an area required for safe operation or shutdown of a unit.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
- Report or detection of toxic gases within a Facility Structure in concentration that will be life threatening to plant personnel.
- Report or detection of flammable gases within a Facility Structure in concentrations that will affect the safe operation of the plant.

Cook EAL(s): ECC: H-2 Toxic or Flammable Gases (Alert)
- Toxic gas in an area required for safe operation or shutdown of a unit in concentration that will be life threatening to plant personnel.
- Flammable gas in an area required for safe operation or shutdown of a unit in concentration near flammability limit.

**Modes: ALL**

EAL Deviation: **No significant deviation.**

Generic IC: HA4: Security Event in Plant Protected Area.

Cook IC: Security event in Protected Area.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
- Intrusion into plant protected area by a hostile force.
- Other security events as determined from (site-specific) Safeguards Contingency Plan.

Cook EAL(s): ECC: H-3 Security Events (Alert)
- Intrusion into the Protected Area by a hostile force.
- Other security events which indicate that plant safety systems may be degraded.

**Modes: ALL**

EAL Deviation: **No significant deviation.**

Generic IC: HA5: Control Room Evacuation Has Been Initiated.

Cook IC: Control Room evacuation has been initiated.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
Entry into (site-specific) procedure for control room evacuation.

Cook EAL(s): ECC: H-4 Control Room Evacuation (Alert)
Control Room evacuation has been initiated.
**Modes: ALL**

EAL Deviation:
We sometimes use portions of the Emergency Remote Shutdown procedure at times other than Control Room Evacuation. Therefore, instead of entry into OHP 4025 series, we will use the IC wording. There is no change in intent.

Generic IC: HA6: Other Conditions Existing Which in the Judgement of the Emergency Director Warrant Declaration of an Alert.

Cook IC: **None**

IC Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Applicable Generic EAL(s):
Other conditions exist which in the judgment of the Emergency Director indicate that plant safety systems may be degraded and that increased monitoring of plant functions is warranted.

Cook EAL(s):
The following statement is contained within the body of the Emergency Classification procedure:

- In the judgement of the SEC, conditions which indicate that plant safety systems may be degraded AND that increased monitoring of plant functions is needed warrant a declaration of an Alert.

EAL Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Generic IC: HS1: Security Event in Plant Vital Area.

Cook IC: Security event in Vital Area.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
- Intrusion into plant vital area by a hostile force.
- Other security events as determined from (site-specific) Safeguards Contingency Plan.

Cook EAL(s): ECC: H-3 Security Events (SAE)
- Intrusion into any Vital Area by a hostile force.
- Other security events which indicate likely or actual failure of plant safety systems intended for protection of the public.

**Modes: ALL**

EAL Deviation: **No significant deviation.**

Generic IC: HS2: Control Room Evacuation Has Been Initiated and Plant Control Cannot be Established.

Cook IC: Control Room evacuation has been initiated AND plant control cannot be established.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
The following conditions exist:
- Control Room evacuation has been initiated.
  **AND**
- Control of the plant cannot be established per (site-specific) procedure with (site-specific) minutes.

Cook EAL(s): ECC: H-4 Control Room Evacuation (SAE)
Control Room evacuation has been initiated AND the Shift Supervisor determines that RCS inventory control has NOT been established after 15 minutes.
**Modes: ALL**

EAL Deviation:
Defined control of the plant in definite terms for ease of classification.

Generic IC: HS3: Other Conditions Existing Which In the Judgement of the Emergency Director Warrant Declaration of a Site Area Emergency.

Cook IC: **None**

IC Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Applicable Generic EAL(s):
Other conditions exist which in the judgment of the Emergency Director indicate actual or likely major failures of plant functions needed for protection of the public.

Cook EAL(s):
The following statement is contained within the body of the Emergency Classification procedure:
- In the judgement of the SEC, conditions which indicate likely or actual major failures of plant functions needed for the protection of the public warrant a declaration of a Site Area Emergency.

EAL Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Generic IC: HG1: Security Event Resulting in Loss of Ability to Reach and Maintain Cold Shutdown.

Cook IC: Security event resulting in loss of ability to reach and maintain cold shutdown.

IC Deviation: **No significant deviation.**

Applicable Generic EAL(s):
- Loss of physical control of the control room due to security event.
- Loss of physical control of the remote shutdown capability due to security event.

Cook EAL(s): ECC: H-3 Security Events (GE)
- Imminent loss of physical control of a control room due to a security event.
- Imminent loss of physical control of a unit's remote shutdown capability due to a security event.

**Modes: ALL**

EAL Deviation:
We expanded the generic EAL to address imminent or anticipated loss of physical control as well as actual loss of physical control.

Generic IC: HG2: Other Conditions Existing Which In the Judgement of the Emergency Director Warrant Declaration of a General Emergency.

Cook IC: **None**

IC Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Applicable Generic EAL(s):
Other conditions exist which in the judgment of the Emergency Director indicate (1) actual or imminent substantial core degradation with potential for loss of containment, or (2) potential for uncontrolled radionuclide releases. These releases can reasonably be expected to exceed EPA PAG plume exposure level outside the site boundary.

Cook EAL(s):
The following statement is contained within the body of the Emergency Classification procedure:

- In the judgement of the SEC, conditions which indicate an actual or imminent substantial core degradation with potential for loss of containment from EITHER unit warrant a declaration of a General Emergency.

EAL Deviation:
This criterion applies all the time, so it has been incorporated into the body of the implementing procedure "12-PMP 2080.EPP.101, Emergency Classification". Instructions in the procedure direct the SEC to determine classification from the Recognition Category tables AND from judgement for every event with the highest classification prevailing.

Recognition Category: **Fission Product Barriers**

FUEL CLAD EAL #1: Critical Safety Function Status
- LOSS: Core Cooling - RED
- POTENTIAL: Core Cooling - ORANGE
  Heat Sink - RED

Cook EAL(s):
- LOSS: Core Cooling - RED
- POTENTIAL: Core Cooling - ORANGE
  Heat Sink CSF - RED **-AND-** Wide range level in at least 3 SGs is <29% (<43% for adverse containment).

EAL Deviation:
Secondary heat sink is not lost unless both flow capability and actual SG level are lost. According to ERG FR-H.1 Background documents, the SGs will continue to act as an adequate heat sink until wide range level is lost. We elect to transfer to feed and bleed cooling if three out of four SGs have less than the indicated wide range level. This EOP event is an easily recognized threshold for declaring a potential loss of the fuel clad barrier and provides a better criteria then that specified in the generic symptom list.

FUEL CLAD EAL #2: Primary Coolant Activity Level
- LOSS: Coolant Activity GREATER THAN (site-specific value)
- POTENTIAL LOSS: <none>

Cook EAL(s):
- LOSS: RCS activity level >300 $\mu$Ci/cc I-131 equivalent.
- POTENTIAL LOSS: <none>

EAL Deviation: **No significant deviation.**

FUEL CLAD EAL #3: Core Exit Thermocouple Readings
- LOSS: GREATER THAN (site-specific) degree F
- POTENTIAL LOSS: GREATER THAN (site-specific) degree F

Cook EAL(s): **NOT USED**

EAL Deviation:
This generic symptom is encompassed by Core Cooling critical safety function status tree monitoring.

FUEL CLAD EAL #4: Reactor Vessel Water Level
LOSS: <none>
POTENTIAL LOSS: Level LESS than (site-specific) value

Cook EAL(s): **NOT USED**

EAL Deviation:
This generic symptom is encompassed by Core Cooling critical safety function status tree monitoring.

FUEL CLAD EAL #5: Containment Radiation Monitoring
LOSS: Containment Rad monitor reading GREATER THAN (site-specific) R/hr
POTENTIAL LOSS: <none>

Cook EAL(s):
LOSS: Containment area radiation >200 R/hr within first 90 minutes after accident:
- VRS-1310/1410 (U1)
- VRS-2310/2410 (U2)

POTENTIAL LOSS: <none>

EAL Deviation:
We have applied a time limit on the use of containment radiation monitors because the radiation levels for a given amount of fuel damage will be constantly decreasing with time. In order to prevent the SS/SEC from having to refer to a time-plot of radiation vs fuel damage, we have limited the viability of this symptom and used the lowest radiation reading within that time frame associated with the level of core damage assumed in the generic guidance. Therefore this symptom is not used on the Fission Product Barrier table associated with ICs.

FUEL CLAD EAL #6: Other (Site-Specific) Indications
LOSS: (Site-Specific) as applicable
POTENTIAL LOSS: (Site-Specific) as applicable

Cook EAL(s):
LOSS: At least 5% clad damage.
POTENTIAL LOSS: <none>

EAL Deviation: **No significant deviation.**

## FISSION PRODUCT BARRIERS

FUEL CLAD EAL #7: Emergency Director Judgement

LOSS: Any condition in the opinion of the Emergency Director that indicates LOSS of the fuel clad barrier

POTENTIAL LOSS: Any condition in the opinion of the Emergency Director that indicates POTENTIAL LOSS of the fuel clad barrier

Cook EAL(s):

LOSS: SEC Judgement

POTENTIAL LOSS: SEC Judgement

EAL Deviation: **No significant deviation**

RCS EAL #1: Critical Safety Function Status

LOSS: <none>

POTENTIAL LOSS: RCS Integrity - RED
Heat Sink - RED

Cook EAL(s):

LOSS: <none>

POTENTIAL: Core Cooling - RED
Heat Sink CSF - RED **-AND-** Wide range level in at least 3 SGs is <29% (<43% for adverse containment).

EAL Deviation:
Secondary heat sink is not lost unless both flow capability and actual SG level are lost. According to ERG FR-H.1 Background documents, the SGs will continue to act as an adequate heat sink until wide range level is lost. We elect to transfer to feed and bleed cooling if three out of four SGs have less than the indicated wide range level. This EOP event is an easily recognized threshold for declaring a potential loss of the fuel clad barrier and provides a better criteria then that specified in the generic symptom list.

RCS EAL #2: RCS Leak Rate

LOSS: GREATER THAN available makeup capacity as indicated by a loss of RCS subcooling.

POTENTIAL LOSS: Unisolable leak exceeding the capacity of one charging pump in the normal charging mode.

Cook EAL(s):

LOSS: RCS subcooling <30°F AND can NOT be restored.

POTENTIAL LOSS: ECCS operating in SI mode AND SI is not diagnosed as "inadvertent".

EAL Deviation:

On the loss EAL, we added the caveat that subcooling can not be restored. This allows some leeway in those circumstances where the EOPs direct minimizing subcooling for some mitigating action. For the potential loss EAL, we have substituted ECCS operating in any SI mode because during accident mitigation, the leak rate varies with RCS pressure. If possible, we will perform SI termination or SI reduction, to normal charging. Since this is a normal action in the EOPs, it is familiar to the SS/SECs and provides a threshold equivalent to that proposed in the generic guidance.

RCS EAL #3: SG Tube Rupture

LOSS: (Site-specific) Indication that a SG is ruptured and has a non-isolable secondary line break or (site-specific) indication that a SG is ruptured and a prolonged release of contaminated secondary coolant is occurring from the affected SG to the environment.

POTENTIAL LOSS: Site-specific indication that a SG is ruptured and the primary-to-secondary leak rate exceeds the capacity of one charging pump in the normal charging mode.

Cook EAL(s):

LOSS: ANY SG is BOTH RUPTURED and FAULTED

POTENTIAL LOSS: <none>

EAL Deviation:

Our loss EAL relies on operator knowledge of the meaning of RUPTURED and FAULTED as used in the EOPs. Based on these meanings, our loss EAL is equivalent to the generic EAL. We do not have a potential loss EAL for SG tube rupture because the potential loss EAL associated with RCS leak rate completely covers the event proposed by the generic EAL.

RCS EAL #4: Containment Radiation Monitoring

LOSS: Containment rad monitor reading GREATER THAN (site-specific) R/hr.

POTENTIAL LOSS: <none>

Cook EAL(s):

LOSS: Containment area radiation >10 R/hr within first 90 minutes after accident:
- VRS-1310/1410 (U1)
- VRS-2310/2410 (U2)

POTENTIAL LOSS: <none>

EAL Deviation:

We have applied a time limit on the use of containment radiation monitors because the radiation levels for a given amount of fuel damage will be constantly decreasing with time. In order to prevent the SS/SEC from having to refer to a time-plot of radiation vs fuel damage, we have limited the viability of this symptom and used the lowest radiation reading within that time frame associated with the level of core damage assumed in the generic guidance. Therefore this symptom is not used on the Fission Product Barrier table associated with ICs.

RCS EAL #5: Other (Site-Specific) Indications

LOSS: (Site-Specific) as applicable

POTENTIAL LOSS: (Site-Specific) as applicable

Cook EAL(s):

LOSS: ECCS operating in any SI RECIRCULATION MODE.

POTENTIAL LOSS: <none>

EAL Deviation: **No significant deviation.**

RCS EAL #6: Emergency Director Judgement

LOSS: Any condition in the opinion of the Emergency Director that indicates LOSS of the RCS barrier

POTENTIAL LOSS: Any condition in the opinion of the Emergency Director that indicates POTENTIAL LOSS of the RCS barrier

Cook EAL(s):

LOSS: SEC Judgement

POTENTIAL LOSS: SEC Judgement

EAL Deviation: **No significant deviation**

CONTAINMENT EAL #1: Critical Safety Function Status

LOSS: <none>
POTENTIAL LOSS: Containment - RED

Cook EAL(s):

LOSS: <none>
POTENTIAL LOSS: Containment CSFST - RED

EAL Deviation: **No significant deviation.**

CONTAINMENT EAL #2: Containment Pressure

LOSS: Rapid unexplained decrease following initial increase.
OR
Containment pressure or sump level response not consistent with LOCA conditions.

POTENTIAL LOSS: (Site-specific) PSIG and increasing.
OR
Explosive mixture exists.
OR
Containment pressure greater than containment depressurization setpoint and less than one full train of depressurization equipment operating.

Cook EAL(s):

LOSS: <none>
POTENTIAL LOSS: Containment pressure/sump level response NOT consistent with expected conditions.
OR
CNTMT $H_2$ >4%

EAL Deviation:
We do not use a loss EAL because the symptoms described in the generic guidance may occur due to activation of our ice condenser. For example, during a small break LOCA, the ice condenser doors may not open because the leak rate may be too small. However, at some time during the event, the doors may open and cause a rapid containment pressure drop. With SEC judgement, the SEC may elected to call this trend a loss of containment which provides the same symptomatic coverage that a discrete loss EAL would provide. By the same argument, the containment sump level response is also variable and is not used as a discrete symptom of containment loss. However, both loss EALs were combined and retained as potential loss symptom: "Containment pressure/sump level response NOT consistent with expected conditions." The potential loss EALs associated with pressure are adequately covered by the Containment CSFST -RED condition.

CONTAINMENT EAL #3: Containment Isolation Valve Status after Containment Isolation
LOSS: Valve(s) not closed and downstream pathway to the environment exists.
POTENTIAL LOSS: <none>

Cook EAL(s):
LOSS: Following Phase A (or B) Isolation - ANY flowpath on FR-Z.1 Attachment A (or B) NOT Isolated AND a downstream pathway to the environment exists.
POTENTIAL LOSS: <none>

EAL Deviation: **No significant deviation.**

CONTAINMENT EAL #4: SG Secondary Side Release with Primary to Secondary Leakage
LOSS: Release of secondary side to atmosphere with primary to secondary leakage greater than technical specification allowable.
POTENTIAL LOSS: <none>

Cook EAL(s):
LOSS: SG is RUPTURED AND the ruptured SG has known steam flow outside the containment for greater than 30 minutes.
POTENTIAL LOSS: <none>

EAL Deviation: **No significant deviation.**

CONTAINMENT EAL #5: Significant Radioactive Inventory in Containment
LOSS: <none>
POTENTIAL LOSS: Containment rad monitor reading GREATER THAN (site-specific) R/hr.

Cook EAL(s):
LOSS: <none>
POTENTIAL LOSS: Containment area radiation >1000 R/hr within first 90 minutes after accident:
- VRS-1310/1410 (U1)
- VRS-2310/2410 (U2)

EAL Deviation:
We have applied a time limit on the use of containment radiation monitors because the radiation levels for a given amount of fuel damage will be constantly decreasing with time. In order to prevent the SS/SEC from having to refer to a time-plot of radiation vs fuel damage, we have limited the viability of this symptom and used the lowest radiation reading within that time frame associated with the level of core damage assumed in the generic guidance. Therefore this symptom is not used on the Fission Product Barrier table associated with ICs.

CONTAINMENT EAL #6: Core Exit Thermocouple Readings

LOSS: <none>

POTENTIAL LOSS: Core exit thermocouples in excess of 1200°F and restoration procedures not effective within 15 minutes; or, core exit thermocouples in excess of 700°F with reactor vessel level below the top of active fuel and restoration procedures are not effective within 15 minutes.

Cook EAL(s):

LOSS: <none>

POTENTIAL LOSS: Core Cooling CSFST - RED AND core temperature does NOT decrease within 15 minutes.

EAL Deviation:

There is no significant deviation because the Core Cooling CSFST - RED is equivalent to the event described in the generic EAL.

CONTAINMENT EAL #7: Other (Site-Specific) Indications

LOSS: (Site-Specific) as applicable

POTENTIAL LOSS: (Site-Specific) as applicable

Cook EAL(s):

LOSS: <none>

POTENTIAL LOSS: >20% clad damage.

EAL Deviation: **No significant deviation.**

CONTAINMENT EAL #8: Emergency Director Judgement

LOSS: Any condition in the opinion of the Emergency Director that indicates LOSS of the containment barrier

POTENTIAL LOSS: Any condition in the opinion of the Emergency Director that indicates POTENTIAL LOSS of the containment barrier

Cook EAL(s):

LOSS: SEC Judgement

POTENTIAL LOSS: SEC Judgement

EAL Deviation: **No significant deviation.**