

ATTACHMENT 1

Response to the Request for Additional Information

**License Amendment Request to Adopt Emergency Action Level Schemes
Pursuant to NEI 99-01, Revision 6, *"Development of Emergency Action
Levels for Non-Passive Reactors"***

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By letter dated May 31, 2017 (Reference 1), Exelon Generation Company, LLC (Exelon) submitted a License Amendment Request (LAR) to support changes to the Emergency Plans for Calvert Cliffs Nuclear Power Plant (CCNPP), Nine Mile Point Nuclear Station (NMP), and R. E. Ginna Nuclear Power Plant (Ginna). Specifically, the proposed changes involve revising the Emergency Plans for the affected facilities to adopt the Nuclear Energy Institute's (NEI's) revised Emergency Action Level (EAL) schemes described in NEI 99-01, Revision 6, *"Development of Emergency Action Levels for Non-Passive Reactors,"* which have been endorsed by the NRC as documented in an NRC letter dated March 28, 2013 (ML2346A463).

Appendix E, Section IV.B.2, of 10 CFR 50 stipulates that a licensee desiring to change its entire EAL scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change. The currently approved Emergency Plan EAL schemes for the cited facilities are based on the guidance established in NEI 99-01, Revision 5, *"Methodology for Development of Emergency Action Levels."* Exelon is proposing to adopt the EAL schemes based on the latest NRC-endorsed guidance, as incorporated in NEI 99-01, Revision 6.

In a U.S. Nuclear Regulatory Commission (NRC) electronic mail message dated November 27, 2017 (Reference 2), the NRC indicated that it had reviewed the information submitted in the Reference 1 letter pertaining to the proposed LAR and requested additional clarifying information to support its continued review. The Reference 2 electronic mail message contained a number of NRC questions, which were further discussed during a December 6, 2017, teleconference between Exelon and NRC representatives. Subsequently, by letter dated December 12, 2017 (Reference 3), the NRC formally issued its Request for Additional Information (RAI) related to the amendment request and requested a response by January 31, 2018.

The questions in the Reference 3 letter are identified below followed by Exelon's response.

RESPONSE TO NRC QUESTIONS

RAI-1 (CCNPP, Ginna, NMP-1, NMP-2)

Section 4.3, "Instrumentation Used for EALs," of NEI 99-01 states: "Scheme developers should ensure that specific values used as EAL setpoints are within the calibrated range of the referenced instrumentation...."

Confirm that all setpoints and indications used in the CCNPP, Ginna, NMP-1, and NMP-2 EAL schemes are within the calibrated ranges of the stated instrumentation and that the resolution of the instrumentation is appropriate for the setpoint/indication.

Response

As part of Exelon's EAL scheme change process each threshold that is derived from plant instrumentation has been verified to be within the instrument's range in accordance with Procedure EP-AA-120-F-08, "Emergency Action Level (EAL) Numerical Change."

RAI-2 (CCNPP, Ginna, NMP-1, NMP-2)

Section 4.7, "EAL/Threshold References to AOP [Abnormal Operating Procedure] and EOP [Emergency Operating Procedure] Setpoints/Criteria," of NEI 99-01 states:

As reflected in the generic guidance, the criteria/values used in several EALs and fission product barrier thresholds may be drawn from a plant's AOPs and EOPs. This approach is intended to maintain good alignment between operational diagnoses and emergency classification assessments. Developers should verify that appropriate administrative controls are in place to ensure that a subsequent change to an AOP or EOP is screened to determine if an evaluation pursuant to 10 CFR 50.54(q) is required.

Describe the administrative controls used at CCNPP, Ginna, NMP-1, and NMP-2 to ensure that a subsequent change to an AOP or EOP is screened to determine if an evaluation pursuant to 10 CFR 50.54(q) is required.

Response

Exelon's 50.59 Resource Manual includes the following:

Section 7.7, EMERGENCY PLAN GUIDANCE, GUIDANCE FOR DETERMINING POTENTIAL IMPACT TO THE EXELON NUCLEAR EMERGENCY PLAN

The following list of processes, systems, equipment, and facilities are "Important to Emergency Preparedness" and should be reviewed when performing plant system, equipment, facility, or procedural changes. Changes to processes, systems, equipment and facilities "Important to Emergency Preparedness" need to be evaluated in accordance with 10 CFR 50.54(q) to determine Emergency Plan impacts and to determine if EP documents need revision, or if prior NRC approval is required if the proposed changes result in a decrease in Emergency Plan effectiveness. Changes to the Emergency Plan are controlled by Reference 4 in Appendix 7.8. Contact the EP Manager to arrange necessary EP evaluations and reviews. Specifically noted as a process Important to EP requiring evaluation under 50.54(q) are:

- Change to Emergency Operating Procedures (EOP) or Abnormal Operating Procedure (AOP) setpoints used in classifying emergencies, i.e., Emergency Action Levels (EALs).

RAI-3 (CCNPP)

The proposed CCNPP EALs RG1, RS1, RA1, and RU1 include threshold values that use the sum of the Unit 1 and Unit 2 wide range noble gas monitor (WRNGM) readings. During the NRC staff's audit of calculations (ADAMS Accession No. ML17194B082), the staff noted that the flow rates for the CCNPP Unit 1 and Unit 2 main vent stacks are different, but the calculation used only the higher flow rate. This could result in unwarranted protective recommendations for CCNPP Unit 2.

Describe how the WRNGM threshold values for CCNPP EALs RG1, RS1, RA1, and RU1 were determined, including any differences between the parameters for Units 1 and 2. Justify the use of parameters for just one unit (e.g., stack flow rate) when the other unit is different. Explain how appropriate protective action recommendations can be made for each unit, if only the parameters for one unit are used in the calculation. Alternatively, provide revised EALs based on the specific parameters for each unit.

Response

The site requires a combined (summation) of Unit 1 and Unit 2 release rates for threshold determination since the site's boundary (where the threshold is measured) is the same for both units. The ventilation source for both units are not isolated from each other and as such the higher flow rate was chosen. In computation EP-EAL-0635 the flow rate is first used to divide then the same flow rate is used to multiply so any flow rate that is chosen will effectively be canceled out. The Protective Action Recommendation (PAR) determination would not be affected by the flow rate used.

RAI-4 (NMP-1)

The proposed NMP-1 EALs RS1 and RG1 do not include an EAL based on site-specific instrumentation setpoints. However, the current NMP-1 EALs RU1, RA1, and RS1 include emergency condenser vent radiation monitor readings.

- a. Identify the instrumentation available at NMP-1 to perform dose assessments for events that include site area emergency and general emergency classifications.*
- b. Explain why the instrumentation available to perform dose assessment at NMP-1 cannot be used to provide site-specific setpoints that could be used as threshold values for a site area emergency or a general emergency.*
- c. Provide justification that supports the removal of the emergency condenser vent radiation monitor readings from NMP-1 EALs RU1, RA1, and RS1. Alternatively, revise these EALs to include the emergency condenser vent radiation monitor readings consistent with the current NMP-1 EALs.*

Response

- a. The Main Stack high range and low range monitors are the only effluent monitors used in dose assessment. There is also a Main Stack teletector that has local read-out only. The drywell radiation monitors can be used in the dose assessment program as an alternative means to provide dose assessment.
- b. The Main Stack high and low range monitors, when using the NEI 99-01, Revision 6 allowed methodology and the Offsite Dose Calculation Manual (ODCM) provided X/Q (dispersion factor), do not provide enough range to display the Site Area Emergency (SAE) or General Emergency (GE) threshold values. The Drywell radiation monitors are not used as effluent radiation monitors so they would not be used in Radiological Effluent EAL thresholds; however, they are used on the Fission Product Barrier.
- c. The Emergency Condenser ventilation radiation monitor was not used as a threshold instrument, since it is not a typical effluent release point. To obtain levels at the SAE Initiating Condition (IC) threshold of 100 mRem Total Effective Dose Equivalent (TEDE) or 500 mRem Committed Dose Equivalent (CDE) thyroid would require a significant amount of fuel damage coincident with an Emergency Condenser tube leak. This type of event would be classified using dose assessment or field monitoring to declare under the Radiological Effluent series of EALs. This type of event is addressed and bounded by the Fission Barrier Matrix EALs.

RAI-5 (CCNPP, Ginna, NMP-1, NMP-2)

The initiating condition for proposed CCNPP, Ginna, NMP-1, and NMP-2 EAL RU3 is "[r]eactor coolant activity greater than Technical Specification [TS] allowable limits." If certain conditions are met, then the TSs associated with these EALs require the reactor to be shut down within a specified time period (i.e., completion time). It is not clear if these completion times should be considered when determining if the initiating condition for these proposed EALs is met.

Clarify whether or not the TS completion times will be considered when assessing CCNPP, Ginna, NMP-1, and NMP-2 EAL RU3.

Response

Technical Specification (TS) completion times will not be considered. The threshold used in this EAL is one that exceeds the maximum transient activity level (indicating some level of fuel clad damage), and not the lower threshold that restricts the length of time the plant can operate allowing time to correct the issue. This is made clear in the threshold by providing the discrete activity level that requires immediate Operator action to shut down the plant as the IC threshold value in EAL #2 or for Ginna as EAL #2 and #3. The activity level in EAL #2 (Ginna EAL #2 and #3) is the same level that the radiation monitor alarm setpoint is associated with provided in EAL #1 of this IC. In reference to the TS Limited Condition of Operation (LCO) time being exceeded, when the transition was made from the NEI 99-01, Revision 5 guidance to the NEI 99-01, Revision 6 guidance, NEI 99-01, Revision 5 EAL SU2 (Inability to reach required shutdown within Technical Specification limits) was deleted based on the following justification:

"The inability to reach required shutdown within Technical Specification limits does not meet any ECL attribute for an Unusual Event and thus should not be a classifiable event; however, this event would be reported to the NRC per the non-emergency notification requirements of 10 CFR 50.72."

RAI-6 (CCNPP, Ginna, NMP-1, NMP-2)

The basis discussion for CCNPP, Ginna, NMP-1, and NMP-2 EAL RU3 states, in part: "Conditions that cause the specified monitor to alarm that are not related to fuel clad degradation should not result in the declaration of an Unusual Event."

Explain how a decision-maker can quickly and accurately determine whether or not a letdown radiation monitor alarm is due to clad damage. Alternatively, revise the EAL RU3 basis for each facility to remove the identification of fuel cladding degradation as a criterion.

Response

EAL RU3 basis has been revised for each facility to remove the identification of fuel cladding degradation as a criterion.

RAI-7 (Ginna)

The proposed fission product barrier EALs FC2.3 and RC2 for Ginna state that if Red Path conditions exist, then F-0.3 Heat Sink is used. However, NEI 99-01 states, in part:

In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.

While this guidance is included in the Ginna fission product barrier threshold basis discussions, it is not included in the relevant barrier thresholds. Explain why this condition is not included in the fission product barrier thresholds, as this could result in an inaccurate EAL declaration.

Response

The following Note was added to the threshold for EALs FC2.3 and RC2:

"Note 1 (see below)

Note 1: In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using the threshold is not warranted."

RAI-8 (Ginna)

The proposed fission product barrier thresholds for the containment radiation monitor readings in Ginna EALs FC3.1 and CT3 are substantially higher than the current Ginna EALs. The proposed Ginna EAL FC3.1 establishes a threshold of 700 roentgen per hour (R/hr) for the containment radiation monitor reading. Consistent with NEI 99-01, the basis for Ginna EAL FC3.1 states in part:

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the containment, assuming that reactor coolant activity equals 300 $\mu\text{Ci/gm}$ [microcuries per gram] dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

However, the Ginna comparison matrix states that the FC3.1 threshold is based on 2 percent fuel clad damage.

Proposed Ginna EAL CT3 establishes a threshold of 7000 R/hr for the containment radiation monitor reading. Consistent with NEI 99-01, the basis for Ginna EAL CT3 states, in part: "The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into containment, assuming that 20% of the fuel cladding has failed."

The NRC staff audited the licensee's calculations (EP-EAL-0512, Revision 1, and EP-EAL-0712, Revision 0) supporting the proposed Ginna fission product barrier EALs FC3.1 and CT3. EP-EAL-0712 indicates that 1 percent fuel clad damage results in an exposure rate of 600 R/hr and 300 $\mu\text{Ci/gm}$ dose equivalent iodine-131. However, EP-EAL-0512 indicates that 60 $\mu\text{Ci/gm}$ corresponds to 1 percent fuel clad failure.

Explain how the containment radiation monitor threshold values for Ginna EALs FC3.1 and CT3 were determined, and explain why these thresholds have substantially changed from the current Ginna EAL scheme. Justify the similar exposure rates for 1 percent and 2 percent fuel clad failures. Justify the substantially different activities in the calculations for dose equivalent iodine-131 for a 1 percent fuel clad failure.

Response

New values for EALs FC3.1 and CT3 were determined using a different methodology and a Core Damage Assessment Program, which is based on the NRC response guidance found in Emergency Preparedness Frequently Asked Question (EPFAQ) 2015-010. This process uses percent (%) core damage and not a Reactor Coolant System (RCS) activity level (per NEI 99-01, Revision 6, 300 $\mu\text{Ci/gm}$ Dose Equivalent Iodine (DEI) is equivalent to 2% - 5% clad damage). The new method uses 2% clad damage to determine the threshold for EAL FC3.1, then ratios this to 20% to determine the threshold for EAL CT3. As such, only Calculation EP-EAL-0512 uses a $\mu\text{Ci/gm}$ RCS activity. The table referenced in Calculation EP-EAL-0512 was used to determine percent (%) Iodine isotopic concentrations and then ratios it to the 60 $\mu\text{Ci/gm}$ DEI TS activity level. This table was selected since it was directly taken from the most recent

Westinghouse core uprate calculation. The table assumes a 1% clad damage, since activity levels of this magnitude are not achievable without some clad damage. The current Ginna EAL threshold levels use an approved simple escalation of 10x greater for each successive loss of Fission Product Barrier. This accounts for the difference in values between the current EALs and what is proposed in this License Amendment Request (LAR) based on the guidance contained in NEI 99-01, Revision 6.

The revised computation can be made available for NRC review and audit similar to the process used for providing the computations that were provided in conjunction with the original Reference 1 submittal.

RAI-9 (CCNPP)

The proposed fission product barrier thresholds for the containment radiation monitor readings in CCNPP EALs FC3.1, RC3, and CT3 are substantially higher than the current CCNPP EALs. The proposed value for CT3 is of particular concern as it could delay the declaration of a General Emergency classification.

Justify the proposed threshold values in CCNPP EALs FC3.1, RC3, and CT3, and explain why the proposed values have substantially changed from the current CCNPP EAL scheme. Explain how timely emergency classification can be made for each of these EALs. Alternatively, revise these EALs to be consistent with the current, NRC-approved EALs for CCNPP.

Response

The CCNPP current EALs base the threshold values on different methodology and assumptions based on site Procedure ERPIP-801. The threshold value calculated for EAL RC3 in the submittal used industry guidance contained in the Microshield program. A revised computation using the guidance contained in the NRC response to EPFAQ 2015-010 as its methodology was developed for new EALs FC3.1 and CT3 thresholds. This allows for timely classification since each threshold is based on the guidance provided in NEI 99-01, Revision 6 and is in keeping with the most recent industry guidance.

The revised computation can be made available for NRC review and audit similar to the process used for providing the computations that were provided in conjunction with the original Reference 1 submittal.

RAI-10 (NMP-1, NMP-2)

The proposed fission product barrier thresholds for the drywell radiation monitor reading in NMP-1 and NMP-2 EALS FC5, RC5 and CT5 are listed in the table below. Despite the substantial differences in size and design of NMP-1 and NMP-2, the three threshold values are the same. The current, NRC-approved threshold values for Oyster Creek Nuclear Generating Station and LaSalle County Station are also listed in the table for comparison.

Fission Product Barrier	NMP-1	Oyster Creek	NMP-2	LaSalle
FC5 Loss	1,800 R/HR	530 R/HR	1,800 R/HR	190 R/HR
RC5 Loss	100 R/HR	100 R/HR	100 R/HR	100 R/HR
CT5 Potential Loss	18,000 R/HR	1210 R/HR	18,000 R/HR	435 R/HR

NMP-1 and Oyster Creek are both General Electric Type 2 boiling-water reactors with Mark I containments. Although the proposed NMP-1 EAL RC5 threshold is identical to the Oyster Creek threshold, the proposed NMP-1 EALs FC5 and CT5 thresholds were substantially greater than the Oyster Creek thresholds.

NMP-2 and LaSalle are both General Electric Type 5 boiling-water reactors with Mark II containments. Although the proposed NMP-2 EAL RC5 threshold is identical to the LaSalle threshold, the proposed NMP-2 EALs FC5 and CT5 thresholds were substantially greater than the Oyster Creek thresholds.

In addition, the CG6 radiation values for core uncover for NMP1, NMP2, Oyster Creek, and LaSalle are all 3 Rem/hr.

Explain why the thresholds for the drywell radiation monitor readings for NMP-1 and NMP-2 EALs FC5, RC5, and CT5 are identical, when the plants are different in size and design. Explain why these thresholds are substantially different than similar facilities within the Exelon fleet, and explain why the proposed values have substantially changed from the current NMP-1 and NMP-2 EAL schemes.

Response

The thresholds for NMP-1 and NMP-2 are no longer the same since a new methodology has been applied using the NRC Response Guidance contained in EPFAQ 2015-010.

The proposed values are different from similar facilities in the Exelon fleet based on the methodology and assumptions applied, and particularly in the use of guidance provided in the EPFAQ 2015-010 and the use of a linear relationship between core damage and drywell radiation levels. This process was validated against other similar facilities in the industry and similar results were obtained. The legacy Exelon fleet will be adopting this same methodology in future revisions to be completed in 2018.

The revised computation can be made available for NRC review and audit similar to the process used for providing the computations that were provided in conjunction with the original Reference 1 submittal.

RAI-11 (CCNPP, Ginna)

The proposed CCNPP and Ginna fission product barrier EALs RC1.2 and CT1 use a reactor coolant system (RCS) leak rate of 50 gallons per minute (gpm) as a threshold.

Explain how using a 50 gpm leak rate, instead of charging pump capacity, will permit timely event classification. This explanation should cover the operational significance of a 50 gpm leak rate, as well as what indication of a 50 gpm leak rate is readily available to the operators.

Response

At Ginna, each of the three (3) charging pumps has a capacity of 60 gpm per Updated Final Safety Analysis Report (UFSAR) Table 9.3-7. The speed of each charging pump can be controlled manually or automatically. During Modes 1 and 2, two (2) of the three (3) pumps are running with one (1) in automatic and one (1) in manual control. The automatically operated charging pump speed is modulated in accordance with Pressurizer level. If the Pressurizer level increases, the speed of the pump decreases; likewise, if the level decreases, the speed increases. If the charging pump on automatic control reaches the high setpoint value (approximately 60% demand on Main Control Board Hand Controller), an alarm is actuated. The speed of the second pump is manually regulated. If the speed of the charging pump on automatic control reaches its high-speed limit and the second charging pump is operating at maximum speed, the third charging pump can be started and its speed manually regulated (UFSAR Section 9.3.4.2.2.2).

Given that two (2) charging pumps, with a total design capacity of 120 gpm, are normally in operation, operation of the third charging pump as a fission product barrier threshold may not permit timely event classification. Since normal charging pump flow is designed for 46 gpm (UFSAR Table 9.3-6) and the Developer Notes for EAL RC1.2 states that developers may use a Reactor Coolant System (RCS) leak rate value of 50 gpm, or an appropriate site-specific value, as an Alternate Potential Loss threshold, Ginna has selected 50 gpm as an appropriate leak rate threshold for EAL RC1.2. Since the conditions for EAL CT1 are determined using the thresholds for EALs RC1.1 and RC1.2, the more conservative value from EAL RC1.2 is used as the value for EAL CT1.

At CCNPP, the Charging and Volume Control System (CVCS) includes three (3) positive displacement horizontal pumps with a capacity of 44 gpm each. The Pressurizer level control program regulates letdown purification subsystem flow by adjusting the letdown flow control valve so that the Reactor Coolant Pump (RCP) controlled leak-off plus the letdown flow matches the input from the operating charging pump. Equilibrium Pressurizer level conditions may be disturbed due to RCS temperature changes, power changes, or RCS inventory loss due to leakage. A decrease in Pressurizer water level below the programmed level results in a control signal to start one or both standby charging pumps to restore water level. The need for a second or third charging pump to makeup leakage in excess of letdown flow would be indicative of substantial RCS leakage. The single charging pump capacity is rounded up to 50 gpm for this threshold and clearly signals that operation of more than one charging pump is needed.

At both sites (Ginna and CCNPP) Operators are required to determine an RCS leak rate in a timely manner (within 15 minutes) to determine if the conditions of EAL MU6 (NEI SU4) have been met (10 or 25 gpm leak rate). It would be the same method that is employed for the determination of the 50 gpm leak rate in EALs RC1.2 and CT1 and would provide a timely classification.

Leak rate determination indications are readily available to the operators within the control room as board indications and/or computer points on the Plant Process Computer (PPC).

RAI-12 (NMP-1, NMP-2)

For the proposed NMP-1 and NMP-2 fission product barrier EAL RC4, the basis discussion regarding unisolable leakage states, in part: "Failure to isolate the leak, within 15 minutes or if known that the leak cannot be isolated within 15 minutes, from the start of the leak requires immediate classification." This statement is not consistent with NEI 99-01 which states, in part: "If it is determined that the ruptured line cannot be promptly isolated from the Control Room, the RCS barrier Loss threshold is met." The proposed wording could imply that operators have up to 15 minutes to attempt local isolation or to begin event classification.

Justify that the proposed wording will not cause inaccurate or delayed classifications of EAL RC4. Alternatively, revise the EAL RC4 basis to be consistent with the NEI 99-01 guidance.

Response

The following statement was added for the Exelon legacy sites in conjunction with the transition to the NEI 99-01, Revision 5 EAL schemes, which were submitted by letter dated December 22, 2009, and approved by the NRC as documented in a letter dated June 30, 2011:

"Failure to isolate the leak, within 15 minutes or if known that the leak cannot be isolated within 15 minutes, from the start of the leak requires immediate classification."

This above statement was added to better define the word "promptly" that was used in the following statement.

"If it is determined that the ruptured line cannot be promptly isolated from the Control Room, the RCS barrier Loss threshold is met."

Also, UNISOLABLE is defined in NEI 99-01, Revision 6 as:

"An open or breached system line that cannot be isolated, remotely or locally."

Based on this definition local isolation determination is part of determination if the leak is UNISOLABLE, to ensure an inordinate amount of time was not to be taken attempting local isolation the additional words were added not to cause an inaccurate or delayed classification but to ensure an accurate and timely classification. This same previously approved wording has been successfully used at legacy Exelon sites.

RAI-13 (CCNPP, NMP-1, NMP-2)

The proposed CCNPP EAL CT4.3, NMP-1 EAL CT3.3, and NMP-2 EAL CT3.3 specify a threshold based on the internal design pressure for primary containment or the torus, as applicable. Each of these EALs are exceeded if the pressure exceeds the specified threshold and is rising. The NEI 99-01 guidance states that a containment pressure greater than a site-specific value should be used, but it does not include a rising pressure as part of the EAL criteria. The licensee stated that if the containment or torus pressure, as applicable, exceeds the design pressure, this represents a potential loss of the containment barrier.

The comparison matrices for NMP-1, and NMP-2 stated that: "The words 'and rising' were added to account for the momentary spike in pressure where pressure is now lowering, the risk of a potential loss of containment is no longer present...."

Provide the basis for including the "and rising" pressure criteria in CCNPP EAL CT4.3, NMP-1 EAL CT3.3, and NMP-2 EAL CT3.3. Explain how a containment pressure in excess of the design pressure, with a decreasing pressure due to barrier degradation, would be appropriately assessed.

Response

The words "and rising" were removed from CCNPP EAL CT4.3, NMP-1 EAL CT3.3, and NMP-2 CT3.3.

RAI-14 (Ginna, NMP-2)

For the 125-volt direct-current (VDC) buses, the proposed Ginna EALs CU3, MS2, and MG2 include a threshold of 110.6 VDC, which is higher than the 108-VDC threshold in the current Ginna EALs. Similarly, for the 125-VDC buses, the proposed NMP-2 EALs CU3, MS2, and MG2 include a threshold of 108 VDC, which is higher than the 105-VDC threshold in the current NMP-2 EALs.

Explain why the proposed voltage thresholds for the 125-VDC buses for Ginna and NMP-2 EALs CU3, MS2, and MG2 are different from the current NRC-approved EAL threshold values.

Response

The proposed threshold values have been revised to use the 125 VDC Bus Technical Specifications (TS) value for operability. Ginna EALs CU3, MS2 and MG2 have been revised to 108.6 VDC, and NMP Unit 2 EALs CU3, MS2 and MG2 has been revised to 105 VDC.

RAI-15 (CCNPP, Ginna, NMP-1, NMP-2)

The proposed EALs MU3, MA3, and MS3 use a power level of 5 percent for CCNPP, 5 percent for Ginna, 6 percent for NMP-1, and 4 percent for NMP-2 as an indication that the reactor is shutdown. The related guidance in NEI 99-01 states: "A reactor shutdown is determined in accordance with applicable Emergency Operating Procedure Criteria." NEI 99-01 is intended, in part, to align the classification of EALs MU3, MA3, and MS3 with site-specific EOP criteria for a successful reactor shutdown to provide decision-makers with consistent criteria.

The proposed criteria in EALs MU3, MA3, and MS3 does not clearly align with the EOP criteria. For example, CCNPP EOP-0, "Post-Trip Immediate Actions," uses a prompt drop in nuclear instrument power and a negative startup rate as indications of reactor shutdown.

Provide justification for using only the specified power levels in EALs MU3, MA5, and MS3 as the sole indication of a shutdown reactor, rather than the criteria in the EOP. Alternatively, provided revised EALs consistent with the EOP criteria.

Response

Historically, in the Anticipated Transient Without Scram (ATWS) EALs power level representing the maximum decay heat load for which the safety systems are designed has been used as the condition that satisfies failure to shut down. This concept was not revised as indicated in the NEI 99-01, Revision 5 to Revision 6 change comparison document. The power levels used at each site are the power levels that would be within the decay heat removal capability of the sites safety systems. The same power levels are used as entry conditions to N1-EOP-2 (RPV Control) at NMP Unit 1 and N2-EOP-RPV (RPV Control) at NMP Unit 2 and also coincide with the Average Power Range Monitor (APRM) downscale trip setpoint making it easily recognizable to the Operators. At Ginna, the same power level is used within the CFST F-0.1 (Subcriticality) procedure as indication that the reactor is producing more heat than the maximum decay heat load safety systems are designed to remove. At CCNPP, 5% was selected since power above this level indicates that the reactor is producing more heat than the Auxiliary Feedwater system and Atmospheric Dump Valves are designed to remove. As per the NEI 99-01, Revision 6 basis:

"If these manual actions are successful in shutting down the reactor, core heat generation will quickly fall to a level within the capabilities of the plant's decay heat removal systems."

There is no threat to public health and safety if the plant power levels are reduced to within the capability of plant decay heat removal system, since this ensures no challenge to the RCS or primary containment barriers, and would not require a site emergency declaration.

RAI-16 (NMP-1)

The NMP-1 comparison matrix for proposed EAL MA4 states that an electrical load rejection of greater than 25 percent is not considered a significant transient at NMP-1 because the "generator voltage will respond to the event and very little if any change to the reactor plant will occur." However, the currently approved NMP-1 EAL SA5.1 includes an electric load rejection of 25 percent as a significant transient.

- a. Explain in greater detail why an electrical load rejection of 25 percent is not considered as a significant transient.*
- b. Identify the load rejection value that would constitute a significant transient, and explain why it is not used in NMP-1 EAL MA4.*

Response

An electrical load rejection of > 35% instead of > 25% was selected, and is used in EAL MA4 significant transient table, since the NMP Unit 1 turbine bypass valves are designed for 35% full load. A load reduction of 25% would not result in a significant transient on the plant, but a load reduction of > 35% is a significant transient since it will result in a generator trip and will cause a plant scram.

RAI-17 (CCNPP)

For CCNPP, explain why the proposed EAL Table M3, "Communications Capability," is different from Table C1, "Communications Capability." Alternatively, revise the tables to be consistent.

Response

The tables have been revised to be consistent.

RAI-18 (NMP-1, NMP-2)

For NMP-1 and NMP-2, the tables for proposed EALs MU7 and CU4 include the control room installed satellite phone as a method of onsite communications. Typically, licensees do not have the ability to use satellite phones for routine operations.

Explain how the control room installed satellite phone can be used as a communication method for the performance of routine operations.

Response

Satellite phones has been removed as an onsite communication method at NMP Unit 1 and NMP Unit 2 for RALs CU4 and MU7.

RAI-19 (CCNPP, Ginna)

NEI 99-01 provides a pressure-based indication for RCS heat-up. In the proposed EAL CA5.2 for CCNPP and Ginna, the threshold is for an unplanned RCS pressure rise "as a result of a temperature rise." This could imply that an unplanned RCS pressure rise must be validated by determining that RCS temperature is also rising.

Explain how a timely emergency classification could be made if the decision-maker must verify that the unplanned pressure rise is a result of a temperature rise. Alternatively, remove the phrase "as a result of a temperature rise" from the proposed CCNPP and Ginna EAL CA5.2.

Response

The phrase "as a result of a temperature rise" has been removed from the CCNPP and Ginna EAL CA5.2.

RAI-20 (CCNPP)

The CCNPP EAL CS6.2 uses a reactor vessel level monitoring system (RVLMS) indication that is relatively close to the threshold value for approximately the top of active fuel. This indication is not typically available while the reactor is being refueled.

Explain why RCS level indication typically available during shutdown conditions is not used for CCNPP EAL CS6.2.

Response

Besides RVLMS, CCNPP has no RCS level instrumentation that can read RCS level inside the Reactor Vessel below the bottom of the Hot Leg.

RAI-21 (Ginna)

The Ginna comparison matrix for the proposed EAL CS6 identified the following differences with NEI 99-01 EAL CS1.1 and CS1.2, respectively:

- 1) EAL 1 not included as per guidance in developer notes since 6" below bottom [inside diameter] of RCS loop is below level indication lowest value.*
- 2) EAL 2 not included as per guidance in developer notes since top of active fuel is below level indication lowest value.*

Similarly, the Ginna comparison matrix for the proposed EAL CG6 indicates that NEI 99-01 EAL CG1.1 cannot be developed because no level indication exists that corresponds to the top of active fuel.

The NEI 99-01 Developer Notes state that if the level can be determined during some shutdown modes or conditions, but not others, then specify the mode-dependent and/or configuration states during which the level indication is applicable. In addition, the guidance states that the

level indication is for "approximately the top of active fuel," so it does not have to be exactly the top of active fuel.

- a. Identify the RCS level indications that are available that would provide the closest approximately to the top of active fuel. Explain why an indication that is normally available while in shutdown cooling was not used to provide a site-specific RCS level for Ginna EALs CS6 and CG6.*
- b. During shutdown conditions, licensees typically have level indication available near the bottom inside diameter of the RCS loop. Explain why such level indication was not used for Ginna EAL CS6.*

Response

A bounding EAL based on RCS level for generic NEI 99-01, Revision 6 EALs CS1.1, CS1.2, and CG1.1 cannot be provided for Ginna. The Reactor Vessel Level Indication System (RVLIS) is removed from service upon entry into Mode 4 during Plant Shutdown from Hot Shutdown to Cold Conditions.

The installed RCS level instrumentation available in Modes 5 and 6 cannot measure below the level equal to approximately the bottom of the RCS loop penetration (0 inches indicated level is approximately 4 inches above the bottom of the RCS loop nozzles) (Procedure O-2.3.1, Draining and Operation at Reduced Inventory of the Reactor Coolant System).

- a. NEI 99-01, Revision 6 CS1 [CG1] Developer Notes specifies for EAL #2.b [EAL #1.a] – the "site-specific level" should be approximately the top of active fuel and further specifies that if the design and operation of water level instrumentation is such that this level value cannot be determined at any time during Cold Shutdown or Refueling modes, then do not include EAL #2 [EAL #1] (classification will be accomplished in accordance with EAL #3 [EAL #2]). In accordance with these Developers Notes, EAL #2 [EAL #1] is not included since a level approximately the top of active fuel cannot be determined at any time during Cold Shutdown or Refueling Modes. Top of active fuel is at elevation 241'-10 $\frac{7}{8}$ " with the zero RCS reference level tap at elevation 246' (Procedure D421-0052, Reactor Containment Vessel Reactor Vessel Section & Details, and Procedure O-2.3.1).
- b. NEI 99-01, Revision 6 EAL CS1 Developer Notes specifies for EAL #1.b – the "site-specific level" is 6 inches below the bottom ID of the RCS loop (6 inches below the bottom ID of the reactor vessel penetration and not the low point of the loop) and further specifies that if the design and operation of water level instrumentation is such that this level value cannot be determined at any time during Cold Shutdown or Refueling modes, then do not include EAL #1 (classification will be accomplished in accordance with EAL #3). In accordance with this Developers Notes, EAL #1 is not included since 6" below the bottom ID of the RCS loop cannot be determined at any time during Cold Shutdown or Refueling Modes.

A response to similar RAIs was provided by Ginna in its letter from Constellation Energy Group to U.S. Nuclear Regulatory Commission - "Response to Request for Additional Information - RE: Emergency Action Level Changes," dated November 1, 2012 (ML12311A 115) and was found to be acceptable by the NRC staff in its Safety Evaluation dated December 18, 2012 (ML12346A311)

RAI-22 (CCNPP, Ginna, NMP-1, NMP-2)

The proposed CCNPP, Ginna, NMP-1, and NMP-2 EALs HU1.3, HA1.2, and HS1 rely on notification by the "Security Force." The basis for these EALs state, in part: "Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event." In addition, the guidance in NEI 99-01 indicate that the licensee should list the site-specific security shift supervision for these EALs.

Explain how the term "'Security Force" is equivalent to "security supervision," as the intent of EALs HU1.3, HA1.2, and HS1 is to ensure an individual specifically trained to identify a hostile action and communicate with the control room is tasked with this responsibility. Alternatively, revise these EALs to include the site-specific security shift supervision.

Response

Revised EAL HS1, HA1.2 and HU1.3 to reflect the term "Security Supervisor" vice "Security Force" at all the sites.

RAI-23 (CCNPP, Ginna, NMP-1, NMP-2)

For CCNPP, Ginna, NMP-1, and NMP-2, the second criterion of proposed EAL HS2 is met if any of the key safety functions (i.e., reactivity control and core and RCS heat removal) is not reestablished in 15 minutes. The basis discussion for EAL HS2 states, in part:

The time period to establish control of the plant starts when either:

- a. Control of the plant is no longer maintained in the Main Control Room*

OR

- b. The last Operator has left the Main Control Room.*

The first condition does not provide a clear indication of when the time period to reestablish control of the key safety functions begins. It is not clear how "control of the plant" relates to control of the key safety functions.

Clarify the start time for determining when control of the key safety functions needs to be reestablished.

Response

Changed "Control of the plant..." to "Control of needed safety functions..." to more clearly identify when the time period to establish control of key safety functions starts.

RAI-24 (CCNPP, Ginna)

For CCNPP and Ginna, proposed EAL HU3.2 requires an emergency classification for the receipt of a single fire alarm in any vital area listed in Table H2 and the existence of is not verified within 30 minutes of the alarm. The containment building is listed as a vital area in Table H2, and EAL HU2 could result in an event declaration due to the spurious actuation of a single fire alarm.

Explain why, or why not, including the containment building as a vital area in EAL Table H2 for CCNPP and Ginna is appropriate. Provide a revision to EAL HU3.2, as appropriate.

Response

Neither site can provide a basis to prove that any fire would cause more than one fire alarm in the containment, also there are a limited number of detectors in these containments. As such Exelon has elected to maintain the current proposed EAL Table H2 of vital areas in accordance with NEI 99-01.

RAI-25 (CCNPP, Ginna, NMP-1, NMP-2)

For CCNPP, Ginna, NMP-1, and NMP-2, the proposed EAL HU4.2.b requiring validation of the seismic event is not consistent with NEI 99-01. For CCNPP, NMP-1, and NMP-2, the proposed EAL criterion HU4.2.b does not include a threshold value stating that the occurrence of a seismic event is confirmed by the Shift Manager, as discussed in the NEI 99-01 Developers Notes.

For CCNPP, Ginna, NMP-1, and NMP-2, the basis discussion for EAL HU4 states, in part:

Event verification with external sources should not be necessary during or following an [operating basis earthquake]. Earthquakes of this magnitude should be readily felt by on-site personnel and recognized as a seismic event (e.g., typical lateral accelerations are in excess of 0.08g)

This basis appears to be the same as the generic guidance in NEI 99-01, as it includes the same lateral acceleration value. The justification that the earthquake should be readily felt and recognized as a seismic event by onsite personnel needs to consider the site-specific operating basis earthquake.

- a. *Describe the procedures and/or guidance that are available to control room personnel to support the timely performance of EAL HU4.2.b validation actions.*

- b. *For CCNPP, NMP-1, and NMP-2, provide justification for not including a threshold value in EAL HU4.2.b that the shift manager confirms the seismic event. Alternatively, revise EAL HU4.2.b, consistent with NEI 99-01, to include confirmation by the shift manager as part of the EAL.*
- c. *Explain why the basis discussion includes typical lateral acceleration values used in the generic NEI 99-01 guidance. Confirm that personnel could readily feel and recognize a seismic event consistent with the operating basis earthquake.*

Response

- a. Each control room can contact the United States Geological Survey (USGS) earthquake website where this information is readily available to the Shift Manager/Emergency Director.
- b. The following bullet has been added to CCNPP, NMP-1, and NMP-2 EAL HU4.2.b:
 - *If the above bullets are not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director.*
- c. Removed the typical lateral acceleration value from each site's Basis section. Site personnel will be able to readily feel and recognize a seismic event consistent with the operating basis earthquake as discussed in the basis statement:

"Earthquakes of this magnitude should be readily felt by on-site personnel and recognized as a seismic event...."

Also added "EAL #1 Basis" to CCNPP, and NMP Unit 2 Basis section to better clarify to which EAL that this Basis information pertains.

RAI-26 (CCNPP, Ginna, NMP-1, NMP-2)

EAL HA5 is for a gaseous release that impedes access to equipment necessary for normal plant operations, cooldown, or shutdown. NEI 99-01 identifies EAL HA5 as applicable in all operating modes. For CCNPP, Ginna, NMP-1, and NMP-2, proposed EAL HA5 lists specific areas and is not applicable in all operating modes. Plant modifications could result in additional areas and/or operating modes that need to be included in EAL HA4[HA5].

Describe the administrative controls in place to ensure that future plant changes are considered for potential changes to EAL HA5 for CCNPP, Ginna, NMP-1, and NMP-2.

Response

Exelon's 50.59 Resource Manual includes the following:

Section 7.7, EMERGENCY PLAN GUIDANCE, GUIDANCE FOR DETERMINING POTENTIAL IMPACT TO THE EXELON NUCLEAR EMERGENCY PLAN.

The following list of processes, systems, equipment, and facilities are "Important to Emergency Preparedness" and should be reviewed when performing plant system, equipment, facility, or procedural changes. Changes to processes, systems, equipment and facilities "Important to Emergency Preparedness" need to be evaluated in accordance with 10 CFR 50.54(q) to determine Emergency Plan impacts and to determine if EP documents need revision, or if prior NRC approval is required if the proposed changes result in a decrease in Emergency Plan effectiveness. Changes to the Emergency Plan are controlled by Reference 4 in Appendix 7.8. Contact the EP Manager to arrange necessary EP evaluations and reviews.

RAI-27 (CCNPP, Ginna, NMP-1, NMP-2)

On June 29, 2017, the NRC and Exelon had a pre-application meeting to discuss potential changes to the EALs for its facilities (ADAMS Accession No. ML17184A009). Many of the EAL changes proposed by the licensee are discussed in emergency plan frequently asked questions, which are available on the NRC public Web site. Exelon stated it would supplement its May 31, 2017, application for CCNPP, Ginna, NMP-1, and NMP-2 to include the proposed changes discussed during the meeting.

Provide the proposed EAL changes discussed during the June 29, 2017, public meeting or identify those changes that Exelon will not include as part of this application.

Response

EPFAQs have been reviewed and all of the applicable EPFAQs are included except for EPFAQ 2016-002. Exelon has revised EALs MA5 and CA2 for Ginna, CCNPP, NMP Unit 1, and NMP Unit 2 using the guidance provided in EPFAQ 2016-002. The wording has been modified from the NRC recommended language contained in EPFAQ 2016-002 to better clarify the intent of EPFAQ 2016-002, and these would be considered as deviations from NEI 99-01, Revision 6 as discussed in EPFAQ 2016-002.

Additional Minor Changes:

Ginna – The specific radiation monitor (R-1) was removed from EAL RA3.1 in Table R3 (Main Control Room bullet) because it unnecessarily restricted the ability to declare the EAL, since there are multiple ways to determine radiation levels within the Main Control Room.

References

1. Letter from David T. Gudger (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission) - License Amendment Request to Adopt Emergency Action Level Schemes Pursuant to NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated May 31, 2017 (ML17164A149)
2. Electronic Mail Request from Blake Purnell (U.S. Nuclear Regulatory Commission) to Richard Gropp, et al. (Exelon Generation Company, LLC) – Calvert Cliffs, Ginna, and Nine Mile Point - Draft Request for Additional Information for EAL Scheme Change Amendments, dated November 27, 2017
3. Letter from Blake Purnell (U.S. Nuclear Regulatory Commission) to Bryan C. Hanson (Exelon Generation Company, LLC) – Calvert Cliffs Nuclear Power Plant, Units 1 and 2; Calvert Cliffs Independent Spent Fuel Storage Installation; Nine Mile Point Nuclear Station, Units 1 and 2; and R. E. Ginna Nuclear Power Plant - Request for Additional Information Regarding License Amendment Request to Revise Emergency Action Level Schemes (ML17331B134)

ATTACHMENT 2

REVISED RADIOLOGICAL EMERGENCY PLAN ANNEX INFORMATION

FOR

CALVERT CLIFFS NUCLEAR POWER STATION

EP-AA-1011

Enclosures

- Enclosure 2A – Revised EAL Comparison Matrix Document Pages
- Enclosure 2C – Revised EAL Basis Document Pages

Calvert Cliffs

Enclosure 2A

Fission Product Barrier Matrix

GENERAL EMERGENCY

SITE AREA EMERGENCY

ALERT

FG1 Loss of any two barriers AND Loss or Potential Loss of the third barrier.

1234

FS1 Loss or Potential Loss of ANY two barriers.

1234

FA1 ANY Loss or ANY Potential Loss of either Fuel Clad or RCS

1234

Sub-Category	FC - Fuel Clad		RC - Reactor Coolant System		CT - Containment	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
1. RCS or SG Tube Leakage	None	RVLMS indicates < 10 inch alarm	1. Automatic or manual ECCS (SIAS) actuation is required by EITHER of the following: a. UNISOLABLE RCS leakage OR b. SG tube RUPTURE	2. RCS leak rate > 50 gpm with letdown isolated due to EITHER of the following: a. UNISOLABLE RCS leakage OR b. SG tube leakage. OR 3. Uncontrolled RCS cooldown and to the left of Max Operating Pressure Curve (EQP Attachment 1, RCS Pressure Temperature Limits)	A leaking or RUPTURED S/G > 50 gpm is FAULTED outside containment.	None
2. Inadequate Heat Removal	1. Core Exit Thermocouple readings > 1200°F	2. Core Exit Thermocouple readings > 700°F OR 3. Once Through Core Cooling (OTCC) in effect	None	Once Through Core Cooling (OTCC) in effect	None	1. a. Core Exit Thermocouple readings > 1200°F AND b. Restoration procedures <u>not</u> effective in < 15 minutes. OR 2. a. Core Exit Thermocouples > 700 °F AND b. RVLMS indicates < 10 inch alarm AND c. Restoration procedures <u>not</u> effective in < 15 minutes
3. Containment Radiation / RCS Activity	1. Containment radiation monitor (5317A/B) reading > 1,500 R/hr OR 2. Coolant activity > 300 uCi/gm Dose Equivalent I-131 OR 3. Post-accident sample dose rate ≥ 40mRem/hr. (1ft from sample)	None	Containment radiation monitor (5317A/B) reading > 12 R/hr	None	None	Containment radiation monitor (5317A/B) reading > 10,000 R/hr
4. Containment Integrity or Bypass	None	None	None	None	1. Containment isolation is required AND ANY of the following: a. UNPLANNED lowering in containment pressure following initial pressure rise OR b. Containment pressure or sump level response <u>not</u> consistent with LOCA conditions. OR c. UNISOLABLE pathway from containment to the environment exists. OR 2. Indication of RCS leakage outside of containment	3. Containment Pressure ≥ 50 psig OR 4. Hydrogen Concentration in Containment ≥ 4%. OR 5. a. Containment pressure > 4.25 psig AND b. <u>Cannot</u> meet containment design cooling by at least one of the following for ≥ 15 minutes: • 2 Containment Spray Pumps Operating OR • 3 CAC's Operating OR • 1 Containment Spray Pump and 2 CAC's Operating
5. Emergency Director Judgment	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier.	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier.	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Containment Barrier	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Containment Barrier

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">FC3</p> <p>Category: Fuel Clad Barrier Containment Radiation / RCS Activity Operating Mode Applicability: Power Operation, Startup, Hot Standby, Hot Shutdown Fission Product Barrier Threshold: Loss A. Containment radiation monitor reading greater than (site-specific value). OR B. (Site-specific indications that reactor coolant activity is greater than 300 $\mu\text{Ci/gm}$ dose equivalent I-131).</p>	<p style="text-align: right;">FC3</p> <p>Category: Fuel Clad Barrier Containment Radiation / RCS Activity Operating Mode Applicability: 1, 2, 3, 4 Fission Product Barrier (FPB) Threshold: <u>LOSS</u> 1. Containment radiation monitor (5317A/B) reading $> 1,800$ R/hr. OR 2. Coolant activity > 300 $\mu\text{Ci/gm}$ Dose Equivalent I-131 OR 3. Post-accident sample dose rate $\geq 40\text{mRem/hr}$. (1ft from sample)</p>	<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Listed site-specific monitor and threshold value to ensure timely classification.</p> <p>2) In Accordance with NEI 99-01 Revision 6, reactor coolant activity above 300 $\mu\text{Ci/gm}$ is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. The radiation level in EAL #1 is based on 2% fuel clad damage</p> <p>3) Added Loss Threshold #3 is an equivalent threshold for indication of $> 300\mu\text{Ci/gm}$ DEI 131.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CT3</p> <p>Category: Containment Barrier</p> <p>Containment Radiation / RCS Activity</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Potential Loss</p> <p>A. Containment radiation monitor reading greater than (site-specific value).</p>	<p style="text-align: right;">CT3</p> <p>Category: Containment Barrier</p> <p>Containment Radiation / RCS Activity</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>POTENTIAL LOSS</u></p> <p>Containment radiation monitor (5317A/B) reading > 18,000 R/hr.</p>	<div> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site-specific threshold values to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CT4</p> <p>Category: Containment Barrier Containment Integrity or Bypass Operating Mode Applicability: Power Operation, Startup, Hot Standby, Hot Shutdown Fission Product Barrier Threshold: Loss A. Containment isolation is required AND EITHER of the following: 1. Containment integrity has been lost based on Emergency Director judgment. OR 2. UNISOLABLE pathway from the containment to the environment exists. OR B. Indications of RCS leakage outside of containment.</p> <p>Potential Loss A. Containment pressure greater than (site-specific value) OR B. Explosive mixture exists inside containment OR C. 1. Containment pressure greater than (site-specific pressure setpoint) AND 2. Less than one full train of (site-specific system or equipment) is operating per design for 15 minutes or longer.</p>	<p style="text-align: right;">CT4</p> <p>Category: Containment Barrier Containment Integrity or Bypass Operating Mode Applicability: 1, 2, 3, 4 Fission Product Barrier (FPB) Threshold: <u>LOSS</u> 1. Containment isolation is required AND ANY of the following: a. UNPLANNED lowering in containment pressure following initial pressure rise. OR b. Containment pressure or sump level response <u>not</u> consistent with LOCA conditions. OR c. UNISOLABLE pathway from containment to the environment exists. OR 2. Indication of RCS leakage outside of containment <u>POTENTIAL LOSS</u> 3. Containment Pressure \geq 50 psig. OR 4. Hydrogen Concentration in Containment \geq 4%. OR 5. a. Containment pressure > 4.25 psig AND b. <u>Cannot</u> meet containment design cooling by at least one of the following for \geq 15 minutes: • 2 Containment Spray Pumps Operating OR • 3 CAC's Operating OR • 1 Containment Spray Pump and 2 CAC's Operating</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div><input checked="" type="checkbox"/> No Change</div> <div><input type="checkbox"/> Difference</div> <div><input type="checkbox"/> Deviation</div> </div> <p>1) Listed site-specific monitor and threshold value to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>SA9 Initiating Condition: ALERT</p> <p>Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p>OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p style="text-align: right;">MA5</p> <p>Initiating Condition: ALERT</p> <p>Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> • If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. • For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. • If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p>AND</p> <p>b. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> • Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. <p>OR</p> <ul style="list-style-type: none"> • Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. <p>OR</p> <ul style="list-style-type: none"> • An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<p><input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation</p> <p>1) No additional site specific hazard noted</p> <p>2) Changed the word "needed" to "required" in the IC and to "required by Technical Specification" in the EAL, to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CA6</p> <p>Initiating Condition – ALERT</p> <p>Hazardous event affecting SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>Cold Shutdown, Refueling</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> ● Seismic event (earthquake) ● Internal or external flooding event ● High winds or tornado strike ● FIRE ● EXPLOSION ● (site-specific hazards) ● Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p>OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p style="text-align: right;">CA2</p> <p>Initiating Condition:</p> <p>Hazardous event affecting SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>5, 6</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> ● If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. ● For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. ● If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU5. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> ● Seismic event (earthquake) ● Internal or external flooding event ● High winds or tornado strike ● FIRE ● EXPLOSION ● Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>3. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p>AND</p> <p>c. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> ● Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR ● Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR ● An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation </div> <p>1) No additional site specific hazards noted</p> <p>2) Changed the word "needed" to "required" in the IC and "required by Technical Specification" in the EAL to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

CA3

Initiating Condition: ALERT

Inability to maintain the plant in cold shutdown.

Operating Mode Applicability:

Cold Shutdown, Refueling

Example Emergency Action Levels: (1 or 2)

Note: The Emergency Director should declare the Alert promptly upon determining that the applicable has been exceeded, or will likely be exceeded.

1. UNPLANNED increase in RCS temperature to greater than (site-specific Technical Specification cold shutdown temperature limit) for greater than the duration specified in the following table.
2. UNPLANNED RCS pressure increase greater than (site-specific pressure reading). (This EAL does not apply during water-solid plant conditions. [PWR])

Table: RCS Heat-up Duration Thresholds

RCS Status	Containment Closure Status	Heat-up Duration
Intact (but not RCS Reduced Inventory [PWR])	Not Applicable	60 minutes*
Not Intact (or at reduced inventory [PWR])	Established	20 minutes*
	Not Established	0 minutes

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

CA5

Initiating Condition:

Inability to maintain plant in cold shutdown.

Operating Mode Applicability:

5, 6

Emergency Action Levels (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

1. UNPLANNED rise in RCS temperature > 200°F for > Table C2 duration.

Table C2 RCS Heat-up Duration Thresholds

RCS Status	Containment Closure Status	Heat-up Duration
Intact	Not Applicable	60 minutes*
OR Not Intact	Established	20 minutes*
	Not Established	0 minutes

* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, then EAL #1 is not applicable.

OR

2. UNPLANNED RCS pressure rise > 10 psig. (This EAL does not apply in solid plant conditions.)

☐ No Change ☒ Difference ☐ Deviation

- 1) Listed site specific Technical Specification cold shutdown temperature limit to ensure timely classification.
- 2) Listed site specific pressure reading to enhance timely classification.
- 3) Added the following note, taken from the basis section of the EAL, to bring it to the attention of the SM/ED when using the "procedure matrix" (11x17 quick reference control room document) "A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification."
- 4) Changed the word increase to rise in the EALs to be consistent with operations language and training.
- 5) In Table C2 removed (but not RCS reduced inventory) from Intact since it was redundant to the RCS status of Not Intact or Reduced Inventory.

NEI 99-01 Rev 6	Proposed EAL	Justification
<div>HS1</div> <p>Initiating Condition: SITE AREA EMERGENCY</p> <p>HOSTILE ACTION within the Protected Area.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels:</p> <p>A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-security shift supervision).</p>	<div>HS1</div> <p>Initiating Condition:</p> <p>HOSTILE ACTION within the PROTECTED AREA.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, 6, D</p> <p>Emergency Action Levels (EAL):</p> <p>A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</p>	<div> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">HA1</p> <p>Initiating Condition: ALERT</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2)</p> <ol style="list-style-type: none"> 1. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the (site-specific security shift supervision). 2. A validated notification from NRC of an aircraft attack threat within 30 minutes of the site. 	<p style="text-align: right;">HA1</p> <p>Initiating Condition:</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, 6, D</p> <p>Emergency Action Levels (EAL):</p> <ol style="list-style-type: none"> 1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site. <p>OR</p> <ol style="list-style-type: none"> 2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA. 	<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <input checked="" type="checkbox"/> No Change </div> <div> <input type="checkbox"/> Difference </div> <div> <input type="checkbox"/> Deviation </div> </div> <p>1) Changed order of EALs to conform with the current legacy Exelon Fleet order.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: UNUSUAL EVENT HU1</p> <p>Confirmed SECURITY CONDITION or threat</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <ol style="list-style-type: none"> 1. A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the (site-specific security shift supervision). 2. Notification of a credible security threat directed at the site. 3. A validated notification from the NRC providing information of an aircraft threat. 	<p>Initiating Condition: HU1</p> <p>Confirmed SECURITY CONDITION or threat.</p> <p>Operating Mode Applicability:</p> <p>1. 2, 3, 4, 5, 6, D</p> <p>Emergency Action Levels (EAL):</p> <ol style="list-style-type: none"> 1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities. <p>OR</p> <ol style="list-style-type: none"> 2. A validated notification from the NRC providing information of an aircraft threat. <p>OR</p> <ol style="list-style-type: none"> 3. Notification by the Security Supervisor of a SECURITY CONDITION that does <u>not</u> involve a HOSTILE ACTION. 	<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Further described credible security threat through listing a site specific procedure.</p> <p>2) Changed order of EALs to conform with the current legacy Exelon Fleet order.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: UNUSUAL EVENT HU2</p> <p>Seismic event greater than OBE levels.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels:</p> <p>Seismic event greater than Operating Basis Earthquake (OBE) as indicated by:</p> <p>a. (site-specific indication that a seismic event met or exceeded OBE limits)</p>	<p>Initiating Condition: HU4</p> <p>Seismic event greater than OBE levels.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, 6, D</p> <p>Emergency Action Levels (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> Escalation of the emergency classification level would be via IC CA2 or MA5 For emergency classification if EAL 2 b is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in ≤ 15 mins of the event. <p>1. Seismic Acceleration Recorder (0-YRC-001) Event Indicator indicates > Operating Basis Earthquake (OBE)</p> <p>OR</p> <p>2. When Seismic Monitoring Equipment is <u>not</u> available:</p> <p>a. Control Room personnel feel an actual or potential seismic event.</p> <p>AND</p> <p>b. ANY one of the following confirmed in ≤ 15 mins of the event:</p> <ul style="list-style-type: none"> The earthquake resulted in Modified Mercalli Intensity (MMI) \geq VI and occurred ≤ 3.5 miles of the plant. The earthquake was magnitude ≥ 6.0 The earthquake was magnitude ≥ 5.0 and occurred ≤ 125 miles of the plant. If the above bullets are not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site specific indication to determining OBE limits have been met or exceeded to ensure timely classification.</p> <p>2) A difference to HU4.2 has been taken to make use of guidance contained in Reg Guide 1.166, Pre-earthquake Planning and Immediate Nuclear Power Plant Operator Post-earthquake Actions, Appendix A that provides guidance to plants without OBE seismic detection on applicable OBE determination. The revised HU4 EAL ensures that the SM/ED will make a timely determination by placing a 15 min clock on the ability to gain additional information through the addition of a note.</p> <p>3) Added note to easily direct the operator to the potential escalation ICs</p>

Calvert Cliffs

Enclosure 2C

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENTS**

RU3**Initiating Condition:**

Reactor coolant activity greater than Technical Specification allowable limits.

Operating Mode Applicability:

1, 2, 3, 4

Emergency Action Level (EAL):

1. Letdown monitor RY-202-1 high alarm ($\geq 1\text{E}+06$ cpm)

OR

2. Sample analysis indicates Coolant activity > ANY of the following:

- Dose equivalent I-131 0.5 uCi/gm for 100 hrs. continuous
- Dose equivalent I-131 acceptable region of T.S. Fig. 3.4.15-1
- Dose equivalent I-131 137.5 uCi/gm
- Gross activity 100/E-bar uCi/gm

Basis:

This IC addresses a reactor coolant activity value that exceeds an allowable limit specified in Technical Specifications. This condition is a precursor to a more significant event and represents a potential degradation of the level of safety of the plant.

This EAL addresses site-specific radiation monitor readings that provide indication of a degradation of fuel clad integrity.

Escalation of the emergency classification level would be via ICs FA1 or the Recognition Category R ICs.

Basis Reference(s):

1. NEI 99-01 Rev 6, SU3
2. Technical Specification 3.4.15 Reactor Coolant System - RCS Specific Activity
3. AOP-6A Abnormal Reactor Coolant Chemistry/Activity
4. 1(2)C07-ALM F-21 RAD MON LVL HI
5. UFSAR Section 9.1.3

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

FC3**Initiating Condition:**

Containment Radiation / RCS Activity

Operating Mode Applicability:

1, 2, 3, 4

Fission Product Barrier (FPB) Threshold:**LOSS**1. Containment radiation monitor (5317A/B) reading $> 1,800$ R/hr.**OR**2. Coolant activity > 300 $\mu\text{Ci/gm}$ Dose Equivalent I-131**OR**3. Post-accident sample dose rate $\geq 40\text{mRem/hr.}$ (1ft. from sample)**Basis:****Loss Threshold #1 Basis:**

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the containment, assuming that reactor coolant activity equals $300\mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

The radiation monitor reading in this threshold is higher than that specified for RCS Barrier RC3 Loss Threshold since it indicates a loss of both the Fuel Clad Barrier and the RCS Barrier. Note that a combination of the two monitor readings appropriately escalates the emergency classification level to a Site Area Emergency.

Loss Threshold #2 and #3 Basis:

This threshold indicates that RCS radioactivity concentration is greater than $300 \mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

It is recognized that sample collection and analysis of reactor coolant with highly elevated activity levels could require several hours to complete. Nonetheless, a sample-related threshold is included as a backup to other indications

There is no Fuel Clad Barrier Potential Loss threshold associated with RCS Activity / Containment Radiation.

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

CT3**Initiating Condition:**

Containment Radiation / RCS Activity

Operating Mode Applicability:

1, 2, 3, 4

Fission Product Barrier (FPB) Threshold:**POTENTIAL LOSS**

Containment radiation monitor (5317A/B) reading > 18,000 R/hr.

Basis:

There is no Loss threshold associated with RCS Activity / Containment Radiation.

Potential Loss Threshold Basis

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the containment, assuming that 20% of the fuel cladding has failed. This level of fuel clad failure is well above that used to determine the analogous Fuel Clad Barrier Loss and RCS Barrier Loss thresholds.

NUREG-1228, *Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents*, indicates the fuel clad failure must be greater than approximately 20% in order for there to be a major release of radioactivity requiring offsite protective actions. For this condition to exist, there must already have been a loss of the RCS Barrier and the Fuel Clad Barrier. It is therefore prudent to treat this condition as a potential loss of containment which would then escalate the emergency classification level to a General Emergency.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-3
2. EP-EAL-0714, Criteria for Choosing Containment Radiation values Indicating: Loss of Fuel Clad and Potential Loss of Containment for Calvert Cliffs Station

RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION

CT4

Initiating Condition:

Containment Integrity or Bypass

Operating Mode Applicability:

1, 2, 3, 4

Fission Product Barrier (FPB) Threshold:

LOSS

1. Containment isolation is required AND ANY of the following:

- a. UNPLANNED lowering in containment pressure following initial pressure rise.

OR

- b. Containment pressure or sump level response
- not
- consistent with LOCA conditions.

OR

- c. UNISOLABLE pathway from containment to the environment exists.

OR

2. Indication of RCS leakage outside of containment

POTENTIAL LOSS3. Containment Pressure ≥ 50 psig.

OR

4. Hydrogen Concentration in Containment $\geq 4\%$.

OR

5. a. Containment pressure > 4.25 psig

AND

- b.
- Cannot
- meet containment design cooling by at least one of the following for
- ≥ 15
- minutes:

- 2 Containment Spray Pumps Operating
- 3 CAC's Operating
- 1 Containment Spray Pump and 2 CAC's Operating

Basis:

FAULTED: The term applied to a steam generator that has a steam leak on the secondary side of sufficient size to cause an uncontrolled drop in steam generator pressure or the steam generator to become completely depressurized.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5****Initiating Condition:**

Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

1, 2, 3, 4

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
- For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
- If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of ANY of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

AND

b. ANY of the following for SAFETY SYSTEMS with multiple trains:

- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- An additional train of the SAFETY SYSTEM is inoperable or out of service.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5 (cont)****Basis:**

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

Operators will make a determination of VISIBLE DAMAGE based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS**

MA5 (cont)

Basis (cont):

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01, Rev 6 SA9

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU7****Initiating Condition:**

Loss of all onsite or offsite communications capabilities.

Operating Mode Applicability:

1, 2, 3, 4

Emergency Action Level (EAL):

1. Loss of **ALL** Table M3 **Onsite** communications capability affecting the ability to perform routine operations.
OR
2. Loss of **ALL** Table M3 **Offsite** communication capability affecting the ability to perform offsite notifications.
OR
3. Loss of **ALL** Table M3 **NRC** communication capability affecting the ability to perform NRC notifications.

Table M3 Communications Capability			
System	Onsite	Offsite	NRC
Plant Page System	X		
CCNPP Radio System	X	X	
Commercial landline telephones	X	X	X
FTS 2001 telephone system (HPN, ENS)			X
Satellite Phone System		X	X

Basis:

This IC addresses a significant loss of on-site, offsite, or NRC communications capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to Offsite Response Organizations (OROs) and the NRC.

This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of on-site information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2**Initiating Condition:**

Hazardous event affecting SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

5, 6

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
 - For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
 - If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6.
1. The occurrence of ANY of the following hazardous events:
 - Seismic event (earthquake)
 - Internal or external flooding event
 - High winds or tornado strike
 - FIRE
 - EXPLOSION
 - Other events with similar hazard characteristics as determined by the Shift Manager
- AND**
2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

AND

 - b. ANY of the following for SAFETY SYSTEMS with multiple trains:
 - Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

 - Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

 - An additional train of the SAFETY SYSTEM is inoperable or out of service.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2 (cont)

Basis:

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2 (cont)

Basis (cont):

Operators will make a determination of VISIBLE DAMAGE based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01 Rev 6, CA6

RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS

CA5**Initiating Condition:**

Inability to maintain the plant in cold shutdown.

Operating Mode Applicability:

5, 6

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

1. UNPLANNED rise in RCS temperature > 200°F for > Table C2 duration.

OR

2. UNPLANNED RCS pressure rise > 10 psig. (This EAL does not apply in solid plant conditions.)

Table C2 RCS Heat-up Duration Thresholds		
RCS Status	Containment Closure Status	Heat-up Duration
Intact	Not Applicable	60 minutes*
Not Intact OR Reduced Inventory	Established	20 minutes*
	Not Established	0 minutes
* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, then EAL #1 is <u>not</u> applicable.		

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS1**Initiating Condition:**

HOSTILE ACTION within the PROTECTED AREA.

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):

A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.

Basis:

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

This IC addresses the occurrence of a HOSTILE ACTION within the PROTECTED AREA. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HA1

Initiating Condition:

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

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):

1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site.

OR

2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA.

Basis:

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

OWNER CONTROLLED AREA (OCA): The property associated with the station and owned by the company. Access is normally limited to persons entering for official business.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU1

Initiating Condition:

Confirmed SECURITY CONDITION or threat.

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):

1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities.
OR
2. A validated notification from the NRC providing information of an aircraft threat.
OR
3. Notification by the Security Supervisor of a SECURITY CONDITION that does not involve a HOSTILE ACTION.

Basis:

SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS2**Initiating Condition:**

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

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per:
- AOP-9A Control Room Evacuation and Safe Shutdown Due to a Severe Control Room Fire
 - OR
 - AOP-11 Control Room Evacuation and Safe Shutdown – Non-Fire Conditions
- AND**
2. Control of ANY Table H1 key safety function is not reestablished in < 15 minutes.

Table H1 Safety Functions
<ul style="list-style-type: none">• Reactivity Control (ability to shut down the reactor and keep it shutdown)• Core and RCS Heat Removal (ability to cool the core and maintain heat sink)

Basis:

The time period to establish control of the plant starts when either:

- a. Control of needed safety functions is no longer maintained in the Main Control Room
- OR
- b. The last Operator has left the Main Control Room.

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations, and the control of a key safety function cannot be reestablished in a timely manner. The failure to gain control of a key safety function following a transfer of plant control to alternate locations is a precursor to a challenge to any fission product barriers within a relatively short period of time.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU4**Initiating Condition:**

Seismic event greater than OBE levels.

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):**Note:**

- Escalation of the emergency classification level would be via IC CA2 or MA5
- For emergency classification if EAL 2.b is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in ≤ 15 mins of the event.

1. Seismic Acceleration Recorder (0-YRC-001) Event Indicator indicates

> **Operating Basis Earthquake (OBE)**

OR

2. When Seismic Monitoring Equipment is not available:

a. Control Room personnel feel an actual or potential seismic event.

AND

b. **ANY** one of the following confirmed in ≤ 15 mins of the event:

- The earthquake resulted in Modified Mercalli Intensity (MMI) $\geq VI$ and occurred ≤ 3.5 miles of the plant.
- The earthquake was magnitude ≥ 6.0
- The earthquake was magnitude ≥ 5.0 and occurred ≤ 125 miles of the plant.
- If the above bullets are not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director.

Basis:

This IC addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE)¹. An earthquake greater

¹ An OBE is vibratory ground motion for which those features of a nuclear power plant necessary for continued operation without undue risk to the health and safety of the public will remain functional.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU4 (cont)

Basis (cont):

than an OBE but less than a Safe Shutdown Earthquake (SSE)² should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant.

EAL #1 Basis

Event verification with external sources should not be necessary during or following an OBE. Earthquakes of this magnitude should be readily felt by on-site personnel and recognized as a seismic event. The Shift Manager or Emergency Director may seek external verification if deemed appropriate (e.g., a call to the USGS, check internet news sources, etc.); however, the verification action must not preclude a timely emergency declaration.

EAL #2 Basis

2.b and the accompanying note is included to ensure that a declaration does not result from felt vibrations caused by a non-seismic source (e.g., a dropped load). The Shift Manager or Emergency Director may seek external verification if deemed appropriate (e.g., call to USGS, check internet source, etc.) however, the verification action must not preclude a timely emergency declaration. This guidance recognizes that it may cause the site to declare an Unusual Event while another site, similarly affected but with readily available OBE indications in the Control Room, may not.

Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA2 or MA5.

Basis Reference(s):

1. NEI 99-01, Rev 6 HU2
2. OI-46 Seismic Measurement Equipment
3. UFSAR Section 7.5.7 Seismic Instrumentation
4. Calvert Cliffs ISFSI USAR Section 2.1.1 Site Location
5. STPI M-260-0 Seismic Instrumentation Channel Check
6. ECP-13-000653, Replace the existing five channel SMA-3 Seismic Monitor with a Kinometrics Condor Seismic Monitoring System

² An SSE is vibratory ground motion for which certain (generally, safety-related) structures, systems, and components must be designed to remain functional.

ATTACHMENT 3

REVISED RADIOLOGICAL EMERGENCY PLAN ANNEX INFORMATION

FOR

NINE MILE POINT NUCLEAR STATION

EP-AA-1014

Enclosures

Unit 1

- Enclosure 4A – Revised EAL Comparison Matrix Document Pages
- Enclosure 4C – Revised EAL Basis Document Pages

Unit 2

- Enclosure 5A – Revised EAL Comparison Matrix Document Pages
- Enclosure 5C – Revised EAL Basis Document Pages

**Nine Mile Point
Unit 1**

Enclosure 4A

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">AU1</p> <p>Initiating Condition – UNUSUAL EVENT</p> <p>Release of gaseous or liquid radioactivity greater than 2 times the (site-specific effluent release controlling document) limits for 60 minutes or longer</p> <p>Operating Mode Applicability: All</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <p>Note:</p> <ul style="list-style-type: none"> The Emergency Director should declare the Unusual Event promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded. If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes. If the effluent flow past an effluent monitor is known to have stopped, indicating that the release path is isolated, the effluent monitor reading is no longer valid for classification purposes. <ol style="list-style-type: none"> Reading on ANY effluent radiation monitor greater than 2 times the (site-specific effluent release controlling document) limits for 60 minutes or longer: (site-specific monitor list and threshold values corresponding to 2 times the controlling document limits) Reading on ANY effluent radiation monitor greater than 2 times the alarm setpoint established by a current radioactivity discharge permit for 60 minutes or longer. Sample analysis for a gaseous or liquid release indicates a concentration or release rate greater than 2 times (site-specific effluent release controlling document limits) for 60 minutes or longer. 	<p style="text-align: right;">RU1</p> <p>Initiating Condition:</p> <p>Release of gaseous or liquid radioactivity greater than 2 times the ODCM limits for 60 minutes or longer.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, D</p> <p>Emergency Action Level (EAL):</p> <p>Notes:</p> <ul style="list-style-type: none"> The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded. If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes. Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes. <ol style="list-style-type: none"> Reading on the Rad Waste Discharge effluent monitor > 2x alarm setpoint established by a current radioactive release discharge permit for ≥ 60 minutes. OR Reading on Stack (RN 10 A/B) Effluent Monitor > 2.85 E+02 cps (285 cps) for ≥ 60 minutes OR Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2x ODCM Limit with a release duration of ≥ 60 minutes. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site-specific monitors and Threshold values to ensure timely classification.</p> <p>2) Added the following to bullet #3 " Classification based on effluent monitor readings assumes that a release path to the environment is established." In order to delete the following from the basis "Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes." This allows for more timely classification since all the basis information pertaining to Note bullet 3 will be contained in the IC and therefore readily available on the 11x17 procedure matrix used by the SM.</p> <p>3) Radiation monitors for SW effluent are not used in the EALs based on NEI 99-01 Rev 6 as they are not considered as typical effluent release points. They would require an RCS leak to provide activity release via these pathways, in the event of a leak the system effluent would be sampled and classified under EAL #3. Also this would be bound and classifiable under MU6 and the FPB EALs within the NEI 99-01 Rev 6 scheme.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">SU3</p> <p>Initiating Condition: UNUSUAL EVENT Reactor coolant activity greater than Technical Specification allowable limits.</p> <p>Operating Mode Applicability: Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels:</p> <ol style="list-style-type: none"> 1. (Site-specific radiation monitor) reading greater than (site-specific value). <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> 2. Sample analysis indicates that a reactor coolant activity value is greater than an allowable limit specified in Technical Specifications. 	<p style="text-align: right;">RU3</p> <p>Initiating Condition: Reactor coolant activity greater than Technical Specification allowable limits.</p> <p>Operating Mode Applicability: 1, 2</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1 Offgas radiation monitor RN-12A or RN-12B \geq UPSCL alarm. <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> 2. Specific coolant activity > 4.0 uCi/gm I-131 equivalent. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div><input type="checkbox"/> No Change</div> <div><input checked="" type="checkbox"/> Difference</div> <div><input type="checkbox"/> Deviation</div> </div> <p>1) Listed site-specific monitor and Threshold value to ensure timely classification.</p> <p>2) Listed this system category EAL in the radiological category EAL section to maintain consistency with current and previous revisions of Exelon EALs. This will ensure a timely classification since the threshold values are more aligned with the radiological category vice system category.</p>

Proposed Fission Product Barrier Matrix

Fission Product Barrier Matrix						
GENERAL EMERGENCY			SITE AREA EMERGENCY		ALERT	
FG1 Loss of any two barriers AND Loss or Potential Loss of third barrier. 12			FS1 Loss or Potential Loss of ANY two barriers. 12		FA1 ANY Loss or ANY Potential Loss of either Fuel Clad or RCS 12	
Sub-Category	FC - Fuel Clad		RC - Reactor Coolant System		CT - Containment	
	Loss	Potential Loss	Loss		Loss	Potential Loss
1. RCS Activity	Coolant activity > 300 uCi/gm I-131 equivalent.	None	None	None	None	None
2. RPV Water Level	1 SAP entry required	2. RPV water level <u>cannot</u> be restored and maintained > -84 inches. OR 3. RPV water level <u>cannot</u> be determined.	1. RPV water level <u>cannot</u> be restored and maintained > -84 inches. OR 2. RPV water level <u>cannot</u> be determined	None	None	SAP entry required
3. Primary Containment Pressure/Conditions	None	None	1. a. Primary Containment pressure > 3.5 psig. AND b. Primary Containment pressure rise is due to RCS leakage	None	1. UNPLANNED rapid drop in Primary Containment pressure following Primary Containment pressure rise. OR 2. Primary Containment pressure response <u>not</u> consistent with LOCA conditions.	3. Torus pressure > 35 psig. OR 4. a. Primary Containment hydrogen concentration ≥ 8%. AND b. Primary Containment oxygen concentration ≥ 5%. OR 5. Heat Capacity Temperature Limit (N1-EOP-4 Figure M) exceeded.
4. RCS Leak Rate	None	None	1. UNISOLABLE Main Steam line, EC steam line, Feedwater, or RWCU line break. OR 2. RPV Blowdown is required.	3. UNISOLABLE primary system leakage that results in EITHER of the following: a. ANY area temperature > N1-EOP-6 Detail T alarm set point. OR b. ANY area radiation level > N1-EOP-5 Detail R alarm set point.	None	None
5. Primary Containment Radiation	Drywell radiation reading > 1.1 E+03 R/hr. (1100 R/hr).	None	Drywell radiation reading > 100 R/hr.	None	None	Drywell radiation reading > 1.1 E+04 R/hr (1100 R/hr)
6. Primary Containment Isolation Failure	None	None	None	None	1. UNISOLABLE direct downstream pathway to the environment exists after primary containment isolation signal. OR 2. Intentional Primary Containment venting/purging per EOPs or SAPs due to accident conditions. OR 3. UNISOLABLE primary system leakage that results in EITHER of the following: a. Maximum safe general area temperature > 135°F. OR b. Maximum safe area radiation level > 8 R/hr.	None
7. Emergency Director Judgment	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier.	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier.	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier.	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier.	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier.	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier.

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">FC4</p> <p>Category: Fuel Clad Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Loss</p> <p>A. Primary Containment Radiation Monitor reading greater than (site-specific value).</p>	<p style="text-align: right;">FC5</p> <p>Category: Fuel Clad Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>1, 2</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Loss</u></p> <p>Drywell radiation reading > 1.1 E+03 R/hr (1100 R/hr).</p>	<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div> <input type="checkbox"/> No Change </div> <div> <input checked="" type="checkbox"/> Difference </div> <div> <input type="checkbox"/> Deviation </div> </div> <p>1) Listed site-specific monitor and threshold value to ensure timely classification.</p> <p>2) In accordance with NEI 99-01 Revision 6, reactor coolant activity above 300 $\mu\text{Ci/gm}$ is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. The radiation level in EAL #1 is based on 2% fuel clad damage</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CT1</p> <p>Category: Containment Barrier</p> <p>Primary Containment Pressure/Conditions</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Loss</p> <p>A. UNPLANNED rapid drop in primary containment pressure following primary containment pressure rise</p> <p>OR</p> <p>B. Primary containment pressure response not consistent with LOCA conditions.</p> <p>Potential Loss</p> <p>A. Primary containment pressure greater than (site-specific value)</p> <p>OR</p> <p>B. (site-specific explosive mixture) exists inside primary containment</p> <p>OR</p> <p>3. HCTL exceeded.</p>	<p style="text-align: right;">CT3</p> <p>Category: Containment Barrier</p> <p>Primary Containment Pressure/Conditions</p> <p>Operating Mode Applicability:</p> <p>1, 2</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Loss</u></p> <p>1. UNPLANNED rapid drop in Primary Containment pressure following Primary Containment pressure rise.</p> <p>OR</p> <p>2. Primary Containment pressure response <u>not</u> consistent with LOCA conditions.</p> <p><u>Potential Loss</u></p> <p>3. Torus pressure > 36 psig.</p> <p>OR</p> <p>4. a. Primary Containment hydrogen concentration $\geq 6\%$.</p> <p>AND</p> <p>b. Primary Containment oxygen concentration $\geq 5\%$.</p> <p>OR</p> <p>5. Heat Capacity Temperature Limit (N1-EOP-4 Figure M) exceeded.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site-specific threshold values to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CT4</p> <p>Category: Containment Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Potential Loss</p> <p>A. Primary Containment Radiation Monitor reading greater than (site-specific value).</p>	<p style="text-align: right;">CT5</p> <p>Category: Containment Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>1, 2</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Potential Loss</u></p> <p>Drywell radiation reading > 1.1 E+04 R/hr (1100 R/hr).</p>	<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="display: flex; align-items: center;"> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <div style="margin-top: 10px;"> <p>1) Listed site-specific monitor and threshold value to ensure timely classification.</p> </div> </div>

NEI 99-01 Rev 6	Proposed EAL	Justification																		
<div>SA2</div> <div>Initiating Condition: ALERT</div> <div>UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress.</div> <div>Operating Mode Applicability:</div> <div>Power Operation, Startup, Hot Standby, Hot Shutdown</div> <div>Example Emergency Action Levels:</div> <div>Note: The Emergency Director should declare the Alert promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.</div> <div>1. a. An UNPLANNED event results in the inability to monitor one or more of the following parameters from within the Control Room for 15 minutes or longer. [see table below]</div> <div><table><tr><th>[BWR parameter list]</th><th>[PWR parameter list]</th></tr><tr><td>Reactor Power</td><td>Reactor Power</td></tr><tr><td>RPV Level</td><td>RCS Level</td></tr><tr><td>RPV Pressure</td><td>RCS Pressure</td></tr><tr><td>Primary Containment Pressure</td><td>In Core/Core Exit Temperature</td></tr><tr><td>Suppression Pool Level</td><td>Levels in at least (site specific number) steam generators</td></tr><tr><td>Suppression Pool Temperature</td><td>Steam Generator Auxiliary or Emergency Feed Water Flow</td></tr></table></div> <div>AND</div> <div>b. Any of the following transient events in progress.</div> <div><ul style="list-style-type: none">Automatic or Manual runback greater than 25% thermal reactor powerElectrical load rejection greater than 25% full electrical loadReactor Scram [BWR] / Trip [PWR]ECCS (SI) actuationThermal power oscillations greater than 10% [BWR]</div>	[BWR parameter list]	[PWR parameter list]	Reactor Power	Reactor Power	RPV Level	RCS Level	RPV Pressure	RCS Pressure	Primary Containment Pressure	In Core/Core Exit Temperature	Suppression Pool Level	Levels in at least (site specific number) steam generators	Suppression Pool Temperature	Steam Generator Auxiliary or Emergency Feed Water Flow	<div>MA4</div> <div>Initiating Condition:</div> <div>UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress.</div> <div>Operating Mode Applicability:</div> <div>1, 2</div> <div>Emergency Action Level (EAL):</div> <div>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</div> <div>1. UNPLANNED event results in the inability to monitor ANY Table M1 parameter from within the Control Room for ≥ 15 minutes.</div> <div><table><tr><th>Table M1 Control Room Parameters</th></tr><tr><td><ul style="list-style-type: none">Reactor PowerRPV Water LevelRPV PressurePrimary Containment PressureTorus Water LevelTorus Water Temperature</td></tr></table></div> <div>AND</div> <div>2. ANY Table M2 transient in progress.</div> <div><table><tr><th>Table M2 Significant Transients</th></tr><tr><td><ul style="list-style-type: none">Turbine runback > 25% thermal reactor powerElectric load rejection > 35% full electric loadReactor scramADS or Core Spray actuationThermal power oscillations > 10%</td></tr></table></div>	Table M1 Control Room Parameters	<ul style="list-style-type: none">Reactor PowerRPV Water LevelRPV PressurePrimary Containment PressureTorus Water LevelTorus Water Temperature	Table M2 Significant Transients	<ul style="list-style-type: none">Turbine runback > 25% thermal reactor powerElectric load rejection > 35% full electric loadReactor scramADS or Core Spray actuationThermal power oscillations > 10%	<div><div><input type="checkbox"/> No Change</div><div><input checked="" type="checkbox"/> Difference</div><div><input type="checkbox"/> Deviation</div></div> <div>1) Electrical Load Rejection of >35% instead of >25% was selected since the NMP-1 turbine bypass valves are designed for 35% full load, as such a load reduction of 25% would not result in a significant transient on the plant but a load reduction of >35% is a significant transient since it will result in a generator trip and will cause a plant scram.</div> <div>2) Replaced "ECCS" with "ADS or Core Spray" to conform to site terminology used for the applicable ECCS systems.</div>
[BWR parameter list]	[PWR parameter list]																			
Reactor Power	Reactor Power																			
RPV Level	RCS Level																			
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NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: ALERT</p> <p>Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> Seismic event (earthquake) Internal or external flooding event High winds or tornado strike FIRE EXPLOSION (site-specific hazards) Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p>OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p>Initiating Condition: ALERT</p> <p>Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> Seismic event (earthquake) Internal or external flooding event High winds or tornado strike FIRE EXPLOSION Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p>AND</p> <p>b. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<p><input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation</p> <p>1) No additional site specific hazard noted</p> <p>2) Changed the word "needed" to "required" in the IC and to "required by Technical Specification" in the EAL, to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification																												
<p>Initiating Condition: UNUSUAL EVENT SU6</p> <p>Loss of all onsite or offsite communications capabilities</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <ol style="list-style-type: none"> Loss of ALL of the following onsite communication methods: (site-specific list of communications methods) Loss of ALL of the following ORO communication methods: (site-specific list of communications methods) Loss of ALL of the following NRC communication methods: (site-specific list of communications methods) 	<p>Initiating Condition: MU7</p> <p>Loss of all onsite or offsite communication capabilities.</p> <p>Operating Mode Applicability:</p> <p>1, 2</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> Loss of all Table M3 onsite communication capabilities affecting the ability to perform routine operations. OR Loss of all Table M3 offsite communication capabilities affecting the ability to perform offsite notifications. OR Loss of all Table M3 NRC communication capabilities affecting the ability to perform NRC notifications. <table border="1"> <caption>Table M3 Communication Capabilities</caption> <thead> <tr> <th>System</th> <th>Onsite</th> <th>Offsite</th> <th>NRC</th> </tr> </thead> <tbody> <tr> <td>Gaitronics</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>Hand Held Portable Radio (Station Radio)</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>PBX (Conventional Telephone lines)</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Control Room installed satellite phone (non portable)</td> <td></td> <td>X</td> <td>X</td> </tr> <tr> <td>ENS</td> <td></td> <td>X</td> <td>X</td> </tr> <tr> <td>RECS</td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table>	System	Onsite	Offsite	NRC	Gaitronics	X			Hand Held Portable Radio (Station Radio)	X			PBX (Conventional Telephone lines)	X	X	X	Control Room installed satellite phone (non portable)		X	X	ENS		X	X	RECS		X		<p><input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation</p> <p>1) Listed site specific communication methods to ensure timely classification.</p> <p>2) Added a descriptor sentence as to the capability being affected for each EAL.</p>
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RECS		X																												

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CA6</p> <p>Initiating Condition – ALERT</p> <p>Hazardous event affecting SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>Cold Shutdown, Refueling</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p>OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p style="text-align: right;">CA2</p> <p>Initiating Condition:</p> <p>Hazardous event affecting SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>4, 5</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> • If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. • For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. • If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p>AND</p> <p>b. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> • Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR • Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR • An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation </div> <p>1) No additional site specific hazards noted</p> <p>2) Changed the word "needed" to "required" in the IC and "required by Technical Specification" in the EAL to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification																												
<p align="right">CU5</p> <p>Initiating Condition: UNUSUAL EVENT</p> <p>Loss of all onsite or offsite communications capabilities</p> <p>Operating Mode Applicability:</p> <p>Cold Shutdown, Refueling, Defueled</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <ol style="list-style-type: none"> 1. Loss of ALL of the following onsite communication methods: (site-specific list of communications method) 2. Loss of ALL of the following ORO communications s) methods: (site-specific list of communications methods) 3. Loss of ALL of the following NRC communications methods: (site-specific list of communications methods) 	<p align="right">CU4</p> <p>Initiating Condition:</p> <p>Loss of all onsite or offsite communication capabilities.</p> <p>Operating Mode Applicability:</p> <p>3, 4, D</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1. Loss of all Table C1 onsite communication capabilities affecting the ability to perform routine operations. <p align="center">OR</p> <ol style="list-style-type: none"> 2. Loss of all Table C1 offsite communication capabilities affecting the ability to perform offsite notifications. <p align="center">OR</p> <ol style="list-style-type: none"> 3. Loss of all Table C1 NRC communication capabilities affecting the ability to perform NRC notifications. <table border="1" data-bbox="778 613 1325 846"> <caption align="center">Table C1 Communication Capabilities</caption> <thead> <tr> <th>System</th> <th>Onsite</th> <th>Offsite</th> <th>NRC</th> </tr> </thead> <tbody> <tr> <td>Gaitronics</td> <td align="center">X</td> <td></td> <td></td> </tr> <tr> <td>Hand Held Portable Radio (Station Radio)</td> <td align="center">X</td> <td></td> <td></td> </tr> <tr> <td>PBX (Conventional Telephone lines)</td> <td align="center">X</td> <td align="center">X</td> <td align="center">X</td> </tr> <tr> <td>Control Room installed satellite phone (non portable)</td> <td></td> <td align="center">X</td> <td align="center">X</td> </tr> <tr> <td>ENS</td> <td></td> <td align="center">X</td> <td align="center">X</td> </tr> <tr> <td>RECS</td> <td></td> <td align="center">X</td> <td></td> </tr> </tbody> </table>	System	Onsite	Offsite	NRC	Gaitronics	X			Hand Held Portable Radio (Station Radio)	X			PBX (Conventional Telephone lines)	X	X	X	Control Room installed satellite phone (non portable)		X	X	ENS		X	X	RECS		X		<p align="center"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Listed site specific communications methods to ensure timely classification</p> <p>2) Added a descriptor sentence as to the capability being affected for each EAL.</p>
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RECS		X																												

NEI 99-01 Rev 6	Proposed EAL	Justification
<div data-bbox="651 240 687 259">HS1</div> <p>Initiating Condition: SITE AREA EMERGENCY</p> <p>HOSTILE ACTION within the Protected Area.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels:</p> <p>A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-security shift supervision).</p>	<div data-bbox="1257 240 1293 259">HS1</div> <p>Initiating Condition:</p> <p>HOSTILE ACTION within the Protected Area.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, D</p> <p>Emergency Action Level (EAL):</p> <p>A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</p>	<div data-bbox="1364 245 1400 274"><input checked="" type="checkbox"/></div> No Change <div data-bbox="1534 245 1570 274"><input type="checkbox"/></div> Difference <div data-bbox="1689 245 1725 274"><input type="checkbox"/></div> Deviation

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">HA1</p> <p>Initiating Condition: ALERT</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2)</p> <ol style="list-style-type: none"> 1. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the (site-specific security shift supervision). 2. A validated notification from NRC of an aircraft attack threat within 30 minutes of the site. 	<p style="text-align: right;">HA1</p> <p>Initiating Condition:</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, D</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site. <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> 2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA. 	<div style="display: flex; justify-content: space-between; align-items: center;"> <div><input type="checkbox"/> No Change</div> <div><input checked="" type="checkbox"/> Difference</div> <div><input type="checkbox"/> Deviation</div> </div> <p>1) Changed EAL numbering to conform with previous Exelon numbering scheme.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: UNUSUAL EVENT HU1</p> <p>Confirmed SECURITY CONDITION or threat.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <ol style="list-style-type: none"> 1. A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the (site-specific security shift supervision). 2. Notification of a credible security threat directed at the site. 3. A validated notification from the NRC providing information of an aircraft threat. 	<p>Initiating Condition: HU1</p> <p>Confirmed SECURITY CONDITION or threat.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, D</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities. <p>OR</p> <ol style="list-style-type: none"> 2. A validated notification from the NRC providing information of an aircraft threat. <p>OR</p> <ol style="list-style-type: none"> 3. Notification by the Security Supervisor of a SECURITY CONDITION that does <u>not</u> involve a HOSTILE ACTION. 	<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Further described credible security threat through listing a site specific procedure.</p> <p>2) Changed EAL numbering to conform with previous Exelon numbering scheme.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: UNUSUAL EVENT</p> <p>Seismic event greater than OBE levels.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels:</p> <p>Seismic event greater than Operating Basis Earthquake (OBE) as indicated by:</p> <p>a. (site-specific indication that a seismic event met or exceeded OBE limits)</p>	<p>Initiating Condition:</p> <p>Seismic event greater than OBE levels.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, D</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> For emergency classification if EAL 2 is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in ≤ 15 minutes of the event. Escalation of the emergency classification level would be via IC CA2 or MA5 <p>Seismic event as indicated by:</p> <p>1. Control Room personnel feel an actual or potential seismic event.</p> <p>AND</p> <p>2. ANY one of the following confirmed in ≤ 15 minutes of the event:</p> <ul style="list-style-type: none"> The earthquake resulted in Modified Mercalli Intensity (MMI) \geq VI and occurred ≤ 3.5 miles of the plant. The earthquake was magnitude ≥ 6.0 The earthquake was magnitude ≥ 5.0 and occurred ≤ 126 miles from the plant. NMP-2 seismic instrumentation indicates $> 0.075g$ If the above bullets are not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director. 	<p><input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation</p> <p>1) Used Alternate developer notes allowed wording since specific Control Room indication of a seismic event $> OBE$ is not available.</p> <p>2) A difference to HU4.2 has been taken to make use of guidance contained in Reg Guide 1.166, Pre-earthquake Planning and Immediate Nuclear Power Plant Operator Post-earthquake Actions, Appendix A that provides guidance to plants without OBE seismic detection on applicable OBE determination. The revised HU4 EAL ensures that the SM/ED will make a timely determination by placing a 15 min clock on the ability to gain additional information through the addition of a note.</p> <p>3) Added note to easily direct the SM/ED to the potential escalation ICs.</p> <p>4) Added additional bullet in EAL #2 for NMP-2 seismic instrumentation indicates $> 0.075g$. The NMP1 design basis operating earthquake is $0.11g$. However, due to the seismic instrumentation available at NMP1, determination of seismic activity levels beyond the Seismic Event value of $0.01 g$ will require evaluation of data recorded by the Seismic Monitoring Recorders. Since this could cause unnecessary delay in classification, action is taken at the lower NMP2 level which is indicated in real time by the NMP2 seismic instrumentation.</p>

**Nine Mile Point
Unit 1**

Enclosure 4C

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT**

RU1

Initiating Condition:

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

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Notes:

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.
- Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

1. Reading on the Rad Waste Discharge effluent monitor > 2x alarm setpoint established by a current radioactive release discharge permit for ≥ 60 minutes.

OR

2. Reading on Stack (RN 10 A/B) Effluent Monitor > 2.85 E+02 cps (285 cps) for ≥ 60 minutes

OR

3. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2x ODCM Limit with a release duration of ≥ 60 minutes.

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT**

RU3

Initiating Condition:

Reactor coolant activity greater than Technical Specification allowable limits.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):

1. Offgas radiation monitor RN-12A or RN-12B \geq UPSCL alarm.

OR

2. Specific coolant activity $> 4.0 \text{ uCi/gm I-131}$ equivalent.

Basis:

This IC addresses a reactor coolant activity value that exceeds an allowable limit specified in Technical Specifications. This condition is a precursor to a more significant event and represents a potential degradation of the level of safety of the plant.

This EAL addresses site-specific radiation monitor readings that provide indication of a degradation of fuel clad integrity.

Escalation of the emergency classification level would be via ICs FA1 or the Recognition Category R ICs.

Basis Reference(s):

1. CY-NM-107-301 3.6.14 & 15
2. N1-ARP-H1, Annunciator H1-2-7
3. N1-SOP-25.2 Fuel Failure or High Activity in RX Coolant or Off Gas
4. Technical Specification 3.2.4 Reactor Coolant System - RCS Specific Activity
5. NEI 99-01 Rev 6, SU3

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

FC5**Initiating Condition:**

Primary Containment Radiation

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:**LOSS**

Drywell radiation reading > 1.1 E+03 R/hr (1100 R/hr).

Basis:

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the primary containment, assuming that reactor coolant activity equals 300 $\mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

The radiation monitor reading in this threshold is higher than that specified for RCS Barrier RC5 Loss Threshold since it indicates a loss of both the Fuel Clad Barrier and the RCS Barrier. Note that a combination of the two monitor readings appropriately escalates the emergency classification level to a Site Area Emergency.

There is no Fuel Clad Barrier Potential Loss threshold associated with Primary Containment Radiation.

Basis Reference(s):

1. EP-EAL-0713, Criteria for Choosing Containment Radiation Values Indicating a Loss of Fuel Clad and a Potential Loss of Containment for Nine Mile Point Station Unit 1
2. NEI 99-01 Rev 6, Table 9-F-2

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

CT3**Initiating Condition:**

Primary Containment Conditions

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:**LOSS**

1. UNPLANNED rapid drop in Primary Containment pressure following Primary Containment pressure rise.

OR

2. Primary Containment pressure response not consistent with LOCA conditions.

POTENTIAL LOSS

3. Torus pressure > 35 psig.

OR

4. a. Primary Containment Hydrogen concentration $\geq 6\%$.

AND

- b. Primary Containment Oxygen concentration $\geq 5\%$.

OR

5. Heat Capacity Temperature Limit (N1-EOP-4 Figure M) exceeded.

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

Loss Threshold #1 and #2 Basis

Rapid UNPLANNED loss of Primary Containment pressure (i.e., not attributable to drywell spray or condensation effects) following an initial pressure rise indicates a loss of Primary Containment integrity. Primary Containment pressure should rise as a result of mass and energy release into the Primary Containment from a LOCA. Thus, Primary Containment pressure not increasing under these conditions indicates a loss of Primary Containment integrity.

These thresholds rely on operator recognition of an unexpected response for the condition and therefore a specific value is not assigned. The unexpected (UNPLANNED) response is important because it is the indicator for a Primary Containment bypass condition.

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

CT5**Initiating Condition:**

Primary Containment Radiation

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:**POTENTIAL LOSS**

Drywell radiation reading > 1.1 E+04 R/hr (1100 R/hr).

Basis:

There is no Loss threshold associated with Primary Containment Radiation.

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the primary containment, assuming that 20% of the fuel cladding has failed. This level of fuel clad failure is well above that used to determine the analogous Fuel Clad Barrier Loss and RCS Barrier Loss thresholds.

NUREG-1228, *Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents*, indicates the fuel clad failure must be greater than approximately 20% in order for there to be a major release of radioactivity requiring offsite protective actions. For this condition to exist there must already have been a loss of the RCS Barrier and the Fuel Clad Barrier. It is therefore prudent to treat this condition as a potential loss of containment which would then escalate the emergency classification level to a General Emergency.

Basis Reference(s):

1. EP-EAL-0713, Criteria for Choosing Containment Radiation Values Indicating a Loss of Fuel Clad and a Potential Loss of Containment for Nine Mile Point Station Unit 1
2. NEI 99-01 Rev 6, Table 9-F-2

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA4****Initiating Condition:**

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

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. UNPLANNED event results in the inability to monitor ANY Table M1 parameter from within the Control Room for ≥ 15 minutes.

Table M1 Control Room Parameters

- Reactor Power
- RPV Water Level
- RPV Pressure
- Primary Containment Pressure
- Torus Water Level
- Torus Water Temperature

AND

2. ANY Table M2 transient in progress.

Table M2 Significant Transients

- Turbine runback > 25% thermal reactor power
- Electrical Load Rejection >35% full electrical load
- Reactor scram
- ADS or Core Spray actuation
- Thermal power oscillations > 10%

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5****Initiating Condition:**

Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
- For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
- If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of **ANY** of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

AND

b. **ANY** of the following for SAFETY SYSTEMS with multiple trains:

- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.
OR
- Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.
OR
- An additional train of the SAFETY SYSTEM is inoperable or out of service.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5 (cont)****Basis:**

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5 (cont)****Basis (cont):**

Operators will make a determination of VISIBLE DAMAGE based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01, Rev 6 SA9

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU7****Initiating Condition:**

Loss of all onsite or offsite communication capabilities.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):

- Loss of all Table M3 onsite communication capabilities affecting the ability to perform routine operations.
- OR
- Loss of all Table M3 offsite communication capabilities affecting the ability to perform offsite notifications.
- OR
- Loss of all Table M3 NRC communication capabilities affecting the ability to perform NRC notifications.

Table M3 Communication Capabilities			
System	Onsite	Offsite	NRC
Gaitronics	X		
Hand Held Portable Radio (Station Radio)	X		
PBX (Conventional Telephone lines)	X	X	X
Control Room installed satellite phone (non portable)		X	X
ENS		X	X
RECS		X	

Basis:

This IC addresses a significant loss of onsite, offsite, or NRC communication capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to Offsite Response Organizations (OROs) and the NRC.

This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of onsite information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2**Initiating Condition:**

Hazardous event affecting SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
- For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
- If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of **ANY** of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

AND

- b. **ANY** of the following for SAFETY SYSTEMS with multiple trains:

- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- An additional train of the SAFETY SYSTEM is inoperable or out of service.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2 (cont)

Basis:

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2 (cont)

Basis (cont):

Operators will make a determination of VISIBLE DAMAGE based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01 Rev 6, CA6

RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS

CU4**Initiating Condition:**

Loss of all onsite or offsite communication capabilities.

Operating Mode Applicability:

3, 4, D

Emergency Action Level (EAL):

1. Loss of all Table C1 onsite communication capabilities affecting the ability to perform routine operations.
OR
2. Loss of all Table C1 offsite communication capabilities affecting the ability to perform offsite notifications.
OR
3. Loss of all Table C1 NRC communication capabilities affecting the ability to perform NRC notifications.

Table C1 Communication Capabilities			
System	Onsite	Offsite	NRC
Gaitronics	X		
Hand Held Portable Radio (Station Radio)	X		
PBX (Conventional Telephone lines)	X	X	X
Control Room installed satellite phone (non portable)		X	X
ENS		X	X
RECS		X	

Basis:

This IC addresses a significant loss of onsite, offsite, or NRC communication capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to Offsite Response Organizations (OROs) and the NRC.

This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of onsite information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

EAL #1 Basis

Addresses a total loss of the communication methods used in support of routine plant operations.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS1**Initiating Condition:**

HOSTILE ACTION within the PROTECTED AREA.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.

Basis:

HOSTILE ACTION: An act toward a Nuclear Power Plant (NPP) or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the Nuclear Power Plant (NPP). Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a Nuclear Power Plant (NPP) that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

This IC addresses the occurrence of a HOSTILE ACTION within the PROTECTED AREA. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HA1**Initiating Condition:**

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

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site.
- OR**
2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA.

Basis:

HOSTILE ACTION: An act toward a Nuclear Power Plant (NPP) or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the Nuclear Power Plant (NPP). Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a Nuclear Power Plant (NPP) that could cause concern for its continued operability, reliability, or personnel safety.

OWNER CONTROLLED AREA (OCA): The property associated with the station and owned by the company. Access is normally limited to persons entering for official business.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the PROTECTED AREA, or the need to prepare the plant and staff for a potential aircraft impact.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU1**Initiating Condition:**

Confirmed SECURITY CONDITION or threat.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities.
OR
2. A validated notification from the NRC providing information of an aircraft threat.
OR
3. Notification by the Security Supervisor of a SECURITY CONDITION that does not involve a HOSTILE ACTION.

Basis:

SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

HOSTILE ACTION: An act toward a Nuclear Power Plant (NPP) or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the Nuclear Power Plant (NPP). Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a Nuclear Power Plant (NPP) that could cause concern for its continued operability, reliability, or personnel safety.

This IC addresses events that pose a threat to plant personnel or SAFETY SYSTEM equipment, and thus represent a potential degradation in the level of plant safety. Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR § 73.71 or 10 CFR § 50.72. Security events assessed as HOSTILE ACTIONS are classifiable under ICs HA1, HS1 and HG1.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS2**Initiating Condition:**

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

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per N1-SOP-21.2, Control Room Evacuation.
- AND**
2. Control of ANY Table H1 safety function is not reestablished in < 15 minutes.

Table H1 Safety Functions
<ul style="list-style-type: none">• Reactivity Control (ability to shut down the reactor and keep it shutdown)• RPV Water Level (ability to cool the core)• RCS Heat Removal (ability to maintain heat sink)

Basis:

The time period to establish control of the plant starts when either:

- a. Control of needed safety functions is no longer maintained in the Main Control Room
- OR**
- b. The last Operator has left the Main Control Room.

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations, and the control of a key safety function cannot be reestablished in a timely manner. The failure to gain control of a key safety function following a transfer of plant control to alternate locations is a precursor to a challenge to any fission product barrier within a relatively short period of time.

The determination of whether or not "control" is established at the remote safe shutdown location(s) is based on Emergency Director judgment. The Emergency Director is expected to make a reasonable, informed judgment within 15 minutes whether or not the operating staff has control of key safety functions from the remote safe shutdown location(s).

Escalation of the emergency classification level would be via IC FG1 or CG6.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU4**Initiating Condition:**

Seismic event greater than OBE levels.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Note:**

- For emergency classification if EAL #2 is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in **≤ 15 minutes** of the event.
- Escalation of the emergency classification level would be via IC CA2 or MA5

Seismic event as indicated by:

1. Control Room personnel feel an actual or potential seismic event.

AND

2. **ANY** one of the following confirmed in **≤ 15 minutes** of the event:

- The earthquake resulted in Modified Mercalli Intensity (MMI) \geq VI and occurred **≤ 3.5 miles** of the plant.
- The earthquake was magnitude ≥ 6.0
- The earthquake was magnitude ≥ 5.0 and occurred **≤ 125 miles** from the plant.
- NMP-2 seismic instrumentation indicates **$> 0.075g$**
- If the above bullets are not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director.

Basis:

This IC addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE)¹. An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE)² should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event

¹ An OBE is vibratory ground motion for which those features of a nuclear power plant necessary for continued operation without undue risk to the health and safety of the public will remain functional.

² An SSE is vibratory ground motion for which certain (generally, safety-related) structures, systems, and components must be designed to remain functional.

**Nine Mile Point
Unit 2**

Enclosure 5A

Proposed Fission Product Barrier Matrix

GENERAL EMERGENCY			SITE AREA EMERGENCY			ALERT	
FG1 Loss of ANY two barriers AND Loss or Potential Loss of third barrier. 1 2 3			FS1 Loss or Potential Loss of ANY two barriers. 3			FA1 ANY Loss or ANY Potential Loss of either Fuel Clad or RCS 2 3	
Sub-Category	FC – Fuel Clad		RC – Reactor Coolant System		CT - Containment		
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss	
1 RCS Activity	Coolant activity > 300 uCi/gm Dose Equivalent I-131	None	None	None	None	None	
2 RPV Water Level	1. SAP entry required	2. RPV water level <u>cannot</u> be restored and maintained > -14 inches (TAF) OR 3. RPV water level <u>cannot</u> be determined.	1. RPV water level <u>cannot</u> be restored and maintained > -14 inches (TAF) OR 2. RPV water level <u>cannot</u> be determined.	None	None	SAP entry required	
3 Primary Containment Pressure / Conditions	None	None	1. a. Primary Containment pressure > 1.68 psig. AND b. Primary Containment pressure rise is due to RCS leakage.	None	1. UNPLANNED rapid drop in Primary Containment pressure following Primary Containment pressure rise. OR 2. Primary Containment pressure response <u>not</u> consistent with LOCA conditions	3. Primary Containment pressure ≥ 45 psig OR 4. a. Primary Containment hydrogen concentration ≥ 5%. AND b. Primary Containment oxygen concentration ≥ 5%. OR 5. Heat Capacity Temperature Limit (HCTL) (N2-EOP-PC Figure M) exceeded	
4 RCS Leak Rate	None	None	1. UNISOLABLE Main Steam Line (MSL), RCIC, Feedwater, or WCS line break. OR 2. RPV Blowdown is required.	3. UNISOLABLE primary system leakage that results in EITHER of the following: a. RB area temperature above an isolation setpoint. OR b. RB area radiation above an alarm setpoint.	None	None	
5. Primary Containment Radiation	Drywell radiation monitor reading > 1.4 E+03 R/hr (1.4 E+05 mR/hr).	None	Drywell radiation monitor reading > 100 R/hr (1.0 E+05 mR/hr).	None	None	Drywell radiation monitor reading > 1.4 E+04 R/hr (1.4 E+07 mR/hr).	
6. Primary Containment Isolation Failure	None	None	None	None	1. UNISOLABLE direct downstream pathway to the environment exists after Primary Containment isolation signal. OR 2. Intentional Primary Containment venting/purging per EOPs or SAPs due to accident conditions. OR 3. UNISOLABLE primary system leakage that results in EITHER of the following: a. Exceeding RB area temperature Maximum Safe Value (N2-EOP-SC Detail S). OR b. RB area radiation > 8.00 E+03 mR/hr	None	
7. Emergency Director Judgment	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier	1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Containment Barrier	2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Containment Barrier	

NEI 99-01 Rev 5	Proposed EAL	Justification
<p style="text-align: right;">FC4</p> <p>Category: Fuel Clad Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Loss</p> <p>A. Primary Containment Radiation Monitor reading greater than (site-specific value).</p>	<p style="text-align: right;">FC5</p> <p>Category: Fuel Clad Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Loss</u></p> <p>Drywell radiation monitor reading > 1.4 E+03 R/hr (1.4 E+06 mR/hr).</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site-specific monitor and threshold value to ensure timely classification.</p> <p>2) In Accordance with NEI 99-01 Revision 6, reactor coolant activity above 300 $\mu\text{Ci/gm}$ is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. The radiation level in EAL #1 is based on 2% fuel clad damage</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CT1</p> <p>Category: Containment Barrier</p> <p>Primary Containment Conditions</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Loss</p> <p>C. UNPLANNED rapid drop in primary containment pressure following primary containment pressure rise</p> <p>OR</p> <p>B. Primary containment pressure response not consistent with LOCA conditions.</p> <p>Potential Loss</p> <p>D. Primary containment pressure greater than (site-specific value)</p> <p>OR</p> <p>E. (site-specific explosive mixture) exists inside primary containment</p> <p>OR</p> <p>1. HCTL exceeded.</p>	<p style="text-align: right;">CT3</p> <p>Category: Containment Barrier</p> <p>Primary Containment Pressure/Conditions</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Loss</u></p> <p>1. UNPLANNED rapid drop in Primary Containment pressure following Primary Containment pressure rise.</p> <p>OR</p> <p>2. Primary Containment pressure response <u>not</u> consistent with LOCA conditions.</p> <p><u>Potential Loss</u></p> <p>3. Primary Containment pressure > 45 psig.</p> <p>OR</p> <p>4. a. Primary Containment hydrogen concentration \geq 6%.</p> <p>AND</p> <p>b. Primary Containment oxygen concentration \geq 5%.</p> <p>OR</p> <p>5. Heat Capacity Temperature Limit (HCTL) (N2-EOP-PC Figure M) exceeded.</p>	<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Listed site-specific threshold values to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CT4</p> <p>Category: Containment Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Potential Loss</p> <p>A. Primary Containment Radiation Monitor reading greater than (site-specific value).</p>	<p style="text-align: right;">CT5</p> <p>Category: Containment Barrier</p> <p>Primary Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Potential Loss</u></p> <p>Drywell radiation reading > 1.4 E+04 R/hr (1.4 E+07mR/hr).</p>	<div> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site-specific monitor and threshold value to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: ALERT SA9</p> <p>Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager <p style="text-align: center;">AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p style="text-align: center;">OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p>Initiating Condition: ALERT MA5</p> <p>Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> • If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. • For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. • If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p style="text-align: center;">AND</p> <p>2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p style="text-align: center;">AND</p> <p>b. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> • Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. <li style="text-align: center;">OR • Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. <li style="text-align: center;">OR • An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation </div> <p>1) No additional site specific hazard noted</p> <p>2) Changed the word "needed" to "required" in the IC and to "required by Technical Specification" in the EAL, to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification																												
<p>Initiating Condition: UNUSUAL EVENT</p> <p>Loss of all onsite or offsite communications capabilities</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <ol style="list-style-type: none"> 1. Loss of ALL of the following onsite communication methods: (site-specific list of communications methods) 2. Loss of ALL of the following ORO communication methods: (site-specific list of communications methods) 3. Loss of ALL of the following NRC communication methods: (site-specific list of communications methods) 	<p>Initiating Condition:</p> <p>Loss of all onsite or offsite communication capabilities.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1. Loss of all Table M3 onsite communication capabilities affecting the ability to perform routine operations. <p>OR</p> <ol style="list-style-type: none"> 2. Loss of all Table M3 offsite communication capabilities affecting the ability to perform offsite notifications. <p>OR</p> <ol style="list-style-type: none"> 3. Loss of all Table M3 NRC communication capabilities affecting the ability to perform NRC notifications. <table border="1"> <caption>Table M3 Communications Capability</caption> <thead> <tr> <th>System</th> <th>Onsite</th> <th>Offsite</th> <th>NRC</th> </tr> </thead> <tbody> <tr> <td>Gaitronics</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>Hand Held Portable Radio (Station Radio)</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>PBX (Conventional Telephone lines)</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Control Room installed satellite phone (non portable)</td> <td></td> <td>X</td> <td>X</td> </tr> <tr> <td>ENS</td> <td></td> <td>X</td> <td>X</td> </tr> <tr> <td>RECS</td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table>	System	Onsite	Offsite	NRC	Gaitronics	X			Hand Held Portable Radio (Station Radio)	X			PBX (Conventional Telephone lines)	X	X	X	Control Room installed satellite phone (non portable)		X	X	ENS		X	X	RECS		X		<p><input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation</p> <p>1) Listed site specific communication methods to ensure timely classification.</p>
System	Onsite	Offsite	NRC																											
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ENS		X	X																											
RECS		X																												

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CA6</p> <p>Initiating Condition – ALERT Hazardous event affecting SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability: Cold Shutdown, Refueling</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p>OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p style="text-align: right;">CA2</p> <p>Initiating Condition: Hazardous event affecting SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability: 4, 5</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> • If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. • For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. • If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p>AND</p> <p>b. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> • Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR • Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR • An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<p style="text-align: center;"> <input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation </p> <p>1) No additional site specific hazards noted</p> <p>2) Changed the word "needed" to "required" in the IC and "required by Technical Specification" in the EAL to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification																												
<p align="right">CU5</p> <p>Initiating Condition: UNUSUAL EVENT</p> <p>Loss of all onsite or offsite communications capabilities</p> <p>Operating Mode Applicability:</p> <p>Cold Shutdown, Refueling, Defueled</p> <p>Example Emergency Action Levels: {1 or 2 or 3}</p> <ol style="list-style-type: none"> 1. Loss of ALL of the following onsite communication methods: (site-specific list of communications method) 2. Loss of ALL of the following ORO communications s) methods: (site-specific list of communications methods) 3. Loss of ALL of the following NRC communications methods: (site-specific list of communications methods) 	<p align="right">CU4</p> <p>Initiating Condition:</p> <p>Loss of all onsite or offsite communication capabilities.</p> <p>Operating Mode Applicability:</p> <p>4, 5, D</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1. Loss of all Table C1 onsite communication capabilities affecting the ability to perform routine operations. <p align="center">OR</p> <ol style="list-style-type: none"> 2. Loss of all Table C1 offsite communication capabilities affecting the ability to perform offsite notifications. <p align="center">OR</p> <ol style="list-style-type: none"> 3. Loss of all Table C1 NRC communication capabilities affecting the ability to perform NRC notifications. <table border="1"> <caption>Table C1 Communication Capabilities</caption> <thead> <tr> <th>System</th> <th>Onsite</th> <th>Offsite</th> <th>NRC</th> </tr> </thead> <tbody> <tr> <td>Gaitronics</td> <td align="center">X</td> <td></td> <td></td> </tr> <tr> <td>Hand Held Portable Radio (Station Radio)</td> <td align="center">X</td> <td></td> <td></td> </tr> <tr> <td>PBX (Conventional Telephone lines)</td> <td align="center">X</td> <td align="center">X</td> <td align="center">X</td> </tr> <tr> <td>Control Room installed satellite phone (non portable)</td> <td></td> <td align="center">X</td> <td align="center">X</td> </tr> <tr> <td>ENS</td> <td></td> <td align="center">X</td> <td align="center">X</td> </tr> <tr> <td>RECS</td> <td></td> <td align="center">X</td> <td></td> </tr> </tbody> </table>	System	Onsite	Offsite	NRC	Gaitronics	X			Hand Held Portable Radio (Station Radio)	X			PBX (Conventional Telephone lines)	X	X	X	Control Room installed satellite phone (non portable)		X	X	ENS		X	X	RECS		X		<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Listed site specific communications methods to ensure timely classification</p> <p>2) Added a descriptor sentence as to the capability being affected for each EAL.</p>
System	Onsite	Offsite	NRC																											
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ENS		X	X																											
RECS		X																												

NEI 99-01 Rev 6	Proposed EAL	Justification
<div>HS1</div> <p>Initiating Condition: SITE AREA EMERGENCY</p> <p>HOSTILE ACTION within the Protected Area.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels:</p> <p>A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-security shift supervision).</p>	<div>HS1</div> <p>Initiating Condition:</p> <p>HOSTILE ACTION within the Protected Area.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, D</p> <p>Emergency Action Level (EAL):</p> <p>A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</p>	<div> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">HA1</p> <p>Initiating Condition: ALERT</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2)</p> <ol style="list-style-type: none"> 1. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the (site-specific security shift supervision). 2. A validated notification from NRC of an aircraft attack threat within 30 minutes of the site. 	<p style="text-align: right;">HA1</p> <p>Initiating Condition:</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, D</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site. <p>OR</p> <ol style="list-style-type: none"> 2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Changed formatting to make EAL1 to be 2 and EAL 2 to be 1 to conform with the Exelon fleet formatting.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: UNUSUAL EVENT HU1</p> <p>Confirmed SECURITY CONDITION or threat.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <ol style="list-style-type: none"> 1. A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the (site-specific security shift supervision). 2. Notification of a credible security threat directed at the site. 3. A validated notification from the NRC providing information of an aircraft threat. 	<p>Initiating Condition: HU1</p> <p>Confirmed SECURITY CONDITION or threat.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, D</p> <p>Emergency Action Level (EAL):</p> <ol style="list-style-type: none"> 1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities. OR 2. A validated notification from the NRC providing information of an aircraft threat. OR 3. Notification by the Security Supervisor of a SECURITY CONDITION that does <u>not</u> involve a HOSTILE ACTION. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Further described credible security threat through listing a site specific procedure.</p> <p>2) Changed EAL numbering to conform with Exelon fleet numbering format.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: UNUSUAL EVENT HU2</p> <p>Seismic event greater than OBE levels.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels:</p> <p>Seismic event greater than Operating Basis Earthquake (OBE) as indicated by:</p> <p>a. (site-specific indication that a seismic event met or exceeded OBE limits)</p>	<p>Initiating Condition: HU4</p> <p>Seismic event greater than OBE levels.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, D</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> For emergency classification if EAL 2 is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Emergency Director in ≤ 15 minutes of the event. Escalation of the emergency classification level would be via IC CA2 or MA5 <p>1. Seismic event > Operating Basis Earthquake (OBE) as indicated by:</p> <ul style="list-style-type: none"> Computer Point ERSNC02, OBE Detected <p>OR</p> <ul style="list-style-type: none"> ANY amber LED light lit at the Seismic Monitor Panel, Response Spectrum Annunciator. <p>OR</p> <p>2. When Seismic Monitoring Equipment is <u>not</u> available:</p> <p>a. Control Room personnel feel an actual or potential seismic event.</p> <p>AND</p> <p>b. ANY one of the following confirmed in ≤ 15 minutes of the event:</p> <ul style="list-style-type: none"> The earthquake resulted in Modified Mercalli Intensity (MMI) ≥ VI and occurred ≤ 3.5 miles of the plant. The earthquake was magnitude ≥ 6.0 The earthquake was magnitude ≥ 5.0 and occurred ≤ 125 miles of the plant. If the above bullets are not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Used Alternate developer notes allowed wording for when Control Room indication of a seismic event > OBE is not available.</p> <p>2) A difference to HU4.2 (alternate threshold) has been taken to make use of guidance contained in Reg Guide 1.166, Pre-earthquake Planning and Immediate Nuclear Power Plant Operator Post-earthquake Actions, Appendix A that provides guidance to plants without OBE seismic detection on applicable OBE determination. The revised HU4 EAL ensures that the SM/ED will make a timely determination by placing a 15 min clock on the ability to gain additional information through the addition of a note.</p> <p>3) Added note to easily direct the operator to the escalation ICs.</p>

**Nine Mile Point
Unit 2**

Enclosure 5C

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT**

RU3**Initiating Condition:**

Reactor coolant activity greater than Technical Specification allowable limits.

Operating Mode Applicability:

1, 2, 3

Emergency Action Level (EAL):

1. Offgas radiation DRMS high (red) alarm for ≥ 15 minutes.
- OR
2. Specific coolant activity $> 4.0 \mu\text{Ci/gm}$ Dose Equivalent I-131.

Basis:

This IC addresses a reactor coolant activity value that exceeds an allowable limit specified in Technical Specifications. This condition is a precursor to a more significant event and represents a potential degradation of the level of safety of the plant.

This EAL addresses site-specific radiation monitor readings that provide indication of a degradation of fuel clad integrity.

Escalation of the emergency classification level would be via ICs FA1 or the Recognition Category R ICs.

Basis Reference(s):

1. Improved Technical Specifications Nine Mile Point Nuclear Station, Unit No. 2, 3.4.8
2. Improved Technical Specifications Nine Mile Point Nuclear Station, Unit No. 2, 3.4.8.A.1
3. Improved Technical Specifications Nine Mile Point Nuclear Station, Unit No.2, 3.7.4
4. N2-ARP-01 Annunciator Response Procedures for annunciator 851253
5. N2-ARP-01 Annunciator Response Procedures for annunciator 851326
6. N2-SOP-17 Fuel Failure or High Activity in Rx Coolant or Offgas
7. CY-NM-170-301 Section 3.3.2
8. NEI 99-01 Rev 6, SU3

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

FC5**Initiating Condition:**

Primary Containment Radiation

Operating Mode Applicability:

1, 2, 3

Fission Product Barrier (FPB) Threshold:**LOSS**Drywell area radiation monitor reading $> 1.4 \text{ E}+03 \text{ R/hr}$ ($1.4 \text{ E}+06 \text{ mR/hr}$).**Basis:**

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the primary containment, assuming that reactor coolant activity equals $300 \mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

The radiation monitor reading in this threshold is higher than that specified for RCS Barrier RC5 Loss Threshold since it indicates a loss of both the Fuel Clad Barrier and the RCS Barrier. Note that a combination of the two thresholds appropriately escalates the emergency classification level to a Site Area Emergency.

There is no Fuel Clad Barrier Potential Loss threshold associated with Primary Containment Radiation.

Basis Reference(s):

1. EP-EAL-0716, Criteria for Choosing Containment Radiation Values Indicating a Loss of Fuel Clad and a Potential Loss of Containment for Nine Mile Point Station Unit 2
2. NEI 99-01 Rev 6, Table 9-F-2

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

CT3**Initiating Condition:**

Primary Containment Pressure / Conditions

Operating Mode Applicability:

1, 2, 3

Fission Product Barrier (FPB) Threshold:**LOSS**

1. UNPLANNED rapid drop in Primary Containment pressure following Primary Containment pressure rise.

OR

2. Primary Containment pressure response not consistent with LOCA conditions.

POTENTIAL LOSS

3. Primary Containment pressure > 45 psig.

OR

4. a. Primary Containment hydrogen concentration $\geq 6\%$.

AND

- b. Primary Containment oxygen concentration $\geq 5\%$.

OR

5. Heat Capacity Temperature Limit (HCTL) (N2-EOP-PC Figure M) exceeded.

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

Loss Threshold #1 and #2 Basis

Rapid UNPLANNED loss of primary containment pressure (i.e., not attributable to Drywell spray or condensation effects) following an initial pressure rise indicates a loss of primary containment integrity. Primary containment pressure should rise as a result of mass and energy release into the primary containment from a LOCA. Thus, primary containment pressure not increasing under these conditions indicates a loss of primary containment integrity.

These thresholds rely on operator recognition of an unexpected response for the condition and therefore a specific value is not assigned. The unexpected (UNPLANNED) response is important because it is the indicator for a containment bypass condition. A pressure suppression bypass path would not be an indication of a containment breach.

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

CT5**Initiating Condition:**

Primary Containment Radiation

Operating Mode Applicability:

1, 2, 3

Fission Product Barrier (FPB) Threshold:**POTENTIAL LOSS**

Drywell radiation monitor reading > 1.4 E+04 R/hr (1.4 E+07 mR/hr).

Basis:

There is no Loss threshold associated with Primary Containment Radiation.

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the primary containment, assuming that 20% of the fuel cladding has failed. This level of fuel clad failure is well above that used to determine the analogous Fuel Clad Barrier Loss and RCS Barrier Loss thresholds.

NUREG-1228, *Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents*, indicates the fuel clad failure must be greater than approximately 20% in order for there to be a major release of radioactivity requiring offsite protective actions. For this condition to exist there must already have been a loss of the RCS Barrier and the Fuel Clad Barrier. It is therefore prudent to treat this condition as a potential loss of containment which would then escalate the emergency classification level to a General Emergency.

Basis Reference(s):

1. EP-EAL-0716, Criteria for Choosing Containment Radiation Values Indicating Loss of Fuel Clad and a Potential Loss of Containment for Nine Mile Point Station Unit 2
2. NEI 99-01 Rev 6, Table 9-F-2

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5****Initiating Condition:**

Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

1, 2, 3

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
- For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
- If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of **ANY** of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

AND

b. **ANY** of the following for SAFETY SYSTEMS with multiple trains:

- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- An additional train of the SAFETY SYSTEM is inoperable or out of service.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5 (cont)****Basis:**

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS**

MA5 (cont)

Basis (cont):

Operators will make a determination of VISIBLE DAMAGE based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01, Rev 6 SA9

RECOGNITION CATEGORY SYSTEM MALFUNCTIONS

MU7

Initiating Condition:

Loss of all onsite or offsite communication capabilities.

Operating Mode Applicability:

1, 2, 3

Emergency Action Level (EAL):

1. Loss of ALL Table M3 onsite communication capabilities affecting the ability to perform routine operations.

OR

2. Loss of ALL Table M3 offsite communication capabilities affecting the ability to perform offsite notifications.

OR

3. Loss of ALL Table M3 NRC communication capabilities affecting the ability to perform NRC notifications.

Table M3 Communication Capabilities			
System	Onsite	Offsite	NRC
Gaitronics	X		
Hand Held Portable Radio (Station Radio)	X		
PBX (Conventional Telephone lines)	X	X	X
Control Room installed satellite phone (non portable)		X	X
ENS		X	X
RECS		X	

Basis:

This IC addresses a significant loss of onsite, offsite, or NRC communication capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to Offsite Response Organizations (OROs) and the NRC.

This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of on-site information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

EAL #1 Basis

Addresses a total loss of the communication methods used in support of routine plant operations.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2**Initiating Condition:**

Hazardous event affecting SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

4, 5

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
- For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
- If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of ANY of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

AND

- b. ANY of the following for SAFETY SYSTEMS with multiple trains:

- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- An additional train of the SAFETY SYSTEM is inoperable or out of service.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2 (cont)

Basis:

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2 (cont)

Basis (cont):

Operators will make a determination of VISIBLE DAMAGE based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01 Rev 6, CA6

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CU4**Initiating Condition:**

Loss of all onsite or offsite communication capabilities.

Operating Mode Applicability:

4, 5, D

Emergency Action Level (EAL):

1. Loss of **ALL** Table C1 onsite communication capabilities affecting the ability to perform routine operations.

OR

2. Loss of **ALL** Table C1 offsite communication capabilities affecting the ability to perform offsite notifications.

OR

3. Loss of **ALL** Table C1 NRC communication capabilities affecting the ability to perform NRC notifications.

Table C1 Communication Capabilities			
System	Onsite	Offsite	NRC
Gaitronics	X		
Hand Held Portable Radio (Station Radio)	X		
PBX (Conventional Telephone lines)	X	X	X
Control Room installed satellite phone (non portable)		X	X
ENS		X	X
RECS		X	

Basis:

This IC addresses a significant loss of onsite, offsite, or NRC communication capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to Offsite Response Organizations (OROs) and the NRC.

This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of on-site information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

EAL #1 Basis

Addresses a total loss of the communication methods used in support of routine plant operations.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS1**Initiating Condition:**

HOSTILE ACTION within the PROTECTED AREA.

Operating Mode Applicability:

1, 2, 3, 4, 5, D

Emergency Action Level (EAL):

A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.

Basis:

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

This IC addresses the occurrence of a HOSTILE ACTION within the PROTECTED AREA. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HA1**Initiating Condition:**

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

Operating Mode Applicability:

1, 2, 3, 4, 5, D

Emergency Action Level (EAL):

1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site.
- OR**
2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA.

Basis:

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

OWNER CONTROLLED AREA (OCA): The property associated with the station and owned by the company. Access is normally limited to persons entering for official business.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU1**Initiating Condition:**

Confirmed SECURITY CONDITION or threat.

Operating Mode Applicability:

1, 2, 3, 4, 5, D

Emergency Action Level (EAL):

1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities.
OR
2. A validated notification from the NRC providing information of an aircraft threat.
OR
3. Notification by the Security Supervisor of a SECURITY CONDITION that does not involve a HOSTILE ACTION.

Basis:

SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

This IC addresses events that pose a threat to plant personnel or SAFETY SYSTEM equipment, and thus represent a potential degradation in the level of plant safety. Security events which do not meet one of these EALs are adequately addressed by the

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS2**Initiating Condition:**

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

Operating Mode Applicability:

1, 2, 3, 4, 5, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per N2-SOP-78, Control Room Evacuation.
AND
 2. Control of **ANY** Table H1 key safety function is not reestablished in **< 15 minutes**.

Table H1 Safety Functions
<ul style="list-style-type: none">• Reactivity Control (ability to shut down the reactor and keep it shutdown)• RPV Water Level (ability to cool the core)• RCS Heat Removal (ability to maintain heat sink)

Basis:

The time period to establish control of the plant starts when either:

- a. Control of needed safety functions is no longer maintained in the Main Control Room

OR

- b. The last Operator has left the Main Control Room.

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations, and the control of a key safety function cannot be reestablished in a timely manner. The failure to gain control of a key safety function following a transfer of plant control to alternate locations is a precursor to a challenge to any fission product barrier within a relatively short period of time.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU4**Initiating Condition:**

Seismic event greater than OBE levels.

Operating Mode Applicability:

1, 2, 3, 4, 5, D

Emergency Action Level (EAL):**Note:**

- For emergency classification if EAL # 2.b is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Emergency Director in ≤ 15 minutes of the event.
- Escalation of the emergency classification level would be via IC CA2 or MA5

1. Seismic event > Operating Basis Earthquake (OBE) as indicated by:

- Computer Point ERSNC02, OBE Detected
- OR**
- ANY amber LED light lit at the Seismic Monitor Panel, Response Spectrum Annunciator.

OR**2. When Seismic Monitoring Equipment is not available:**

- a. Control Room personnel feel an actual or potential seismic event.

AND

- b. ANY one of the following confirmed in ≤ 15 minutes of the event:

- The earthquake resulted in Modified Mercalli Intensity (MMI) \geq VI and occurred ≤ 3.5 miles of the plant.
- The earthquake was magnitude ≥ 6.0
- The earthquake was magnitude ≥ 5.0 and occurred ≤ 125 miles of the plant.
- If the above bullets are not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director.

RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY
HU4 (cont)

Basis:**EAL #1 Basis**

This IC addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE)¹. An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE)² should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant.

Event verification with external sources should not be necessary during or following an OBE. Earthquakes of this magnitude should be readily felt by on-site personnel and recognized as a seismic event. The Shift Manager or Emergency Director may seek external verification if deemed appropriate (e.g., a call to the USGS, check internet news sources, etc.); however, the verification action must not preclude a timely emergency declaration.

EAL #2 Basis

EAL #2 is included to ensure that a declaration does not result from felt vibrations caused by a non-seismic source (e.g., a dropped load). The Shift Manager or Emergency Director may seek external verification if deemed appropriate (e.g., call to USGS, check internet source, etc.) however, the verification action must not preclude a timely emergency declaration. This guidance recognizes that it may cause the site to declare an Unusual Event while another site, similarly affected but with readily available OBE indications in the Control Room, may not.

Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA2 or MA5.

¹ An OBE is vibratory ground motion for which those features of a nuclear power plant necessary for continued operation without undue risk to the health and safety of the public will remain functional.

² An SSE is vibratory ground motion for which certain (generally, safety-related) structures, systems, and components must be designed to remain functional.

ATTACHMENT 4

REVISED RADIOLOGICAL EMERGENCY PLAN ANNEX INFORMATION

FOR

R.E. GINNA NUCLEAR POWER PLANT

EP-AA-1012

Enclosures

- Enclosure 3A – Revised EAL Comparison Matrix Document Pages
- Enclosure 3C – Revised EAL Basis Document Pages

Ginna

Enclosure 3A

NEI 99-01 Rev 6	Proposed EAL	Justification												
<div>AA3</div> <div>Initiating Condition – ALERT</div> <div>Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.</div> <div>Operating Mode Applicability: All</div> <div>Example Emergency Action Levels: (1 or 2)</div> <div>Note: If the equipment in the listed room or area was already inoperable or out of service before the event occurred, then no emergency classification is warranted.</div> <div><div>1. Dose rate greater than 15 mR/hr in ANY of the following areas:<ul style="list-style-type: none">Control RoomCentral Alarm Station(other site-specific areas/rooms)</div><div>2. An UNPLANNED event results in radiation levels that prohibit or impede access to any of the following plant rooms or areas: (site-specific list of plant rooms or areas with entry-related mode applicability identified)</div></div>	<div>RA3</div> <div>Initiating Condition:</div> <div>Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.</div> <div>Operating Mode Applicability:</div> <div>1, 2, 3, 4, 5, 6,D</div> <div>Emergency Action Levels (EAL) :</div> <div>Note: If the equipment in the rooms or areas listed in Table R4 was already inoperable, or out of service, before the event occurred, then no emergency classification is warranted.</div> <div><div>1. Dose rate > 15 mR/hr in ANY of the areas contained in Table R3.</div><div><table><tr><th colspan="2">Table R3 Areas Requiring Continuous Occupancy</th></tr><tr><td colspan="2"><ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey)</td></tr></table></div><div>OR</div><div>2. UNPLANNED event results in radiation levels that prevent or significantly impede access to ANY of the plant rooms or areas contained in Table R4.</div><div><table><tr><th colspan="2">Table R4 Areas with Entry-Related Mode Applicability</th></tr><tr><th>Area</th><th>Entry-Related Mode Applicability</th></tr><tr><td>Auxiliary Building Top Floor</td><td rowspan="3">Mode 3, 4, and 5</td></tr><tr><td>Auxiliary Building Middle Level</td></tr><tr><td>Auxiliary Building Basement</td></tr></table></div></div>	Table R3 Areas Requiring Continuous Occupancy		<ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey)		Table R4 Areas with Entry-Related Mode Applicability		Area	Entry-Related Mode Applicability	Auxiliary Building Top Floor	Mode 3, 4, and 5	Auxiliary Building Middle Level	Auxiliary Building Basement	<div><div><input type="checkbox"/> No Change</div><div><input checked="" type="checkbox"/> Difference</div><div><input type="checkbox"/> Deviation</div></div> <div>1) Listed site specific plant rooms and areas with identified mode applicability to ensure timely classification.</div> <div>2) Additional discussion added to the basis section describing Table R4 as follows:</div> <div><p>“This IC addresses elevated radiation levels in certain plant rooms/areas sufficient to preclude or impede personnel from performing actions necessary to transition the plant from normal plant operation to cooldown and shutdown as specified in normal plant procedures. As such, it represents an actual or potential substantial degradation of the level of safety of the plant. The Emergency Director should consider the cause of the increased radiation levels and determine if another IC may be applicable.</p><p>Assuming all plant equipment is operating as designed, normal operation is capable from the Main Control Room (MCR). The plant is also able to transition into a hot shutdown condition from the MCR, therefore Table R4 is a list of plant rooms or areas with entry-related mode applicability that contain equipment which require a manual/local action necessary to transition the plant from normal plant operation to cooldown and shutdown as specified in normal operating procedures (establish shutdown cooling), where if this action is not completed the plant would not be able to attain and maintain cold shutdown. This Table does not include rooms or areas for which entry is required solely to perform actions of an administrative or record keeping nature (e.g., normal rounds or routine inspections).</p><p>Rooms and areas listed in EAL #1 do not need to be included in EAL #2, including the Control Room.”</p></div>
Table R3 Areas Requiring Continuous Occupancy														
<ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey)														
Table R4 Areas with Entry-Related Mode Applicability														
Area	Entry-Related Mode Applicability													
Auxiliary Building Top Floor	Mode 3, 4, and 5													
Auxiliary Building Middle Level														
Auxiliary Building Basement														

GENERAL EMERGENCY			SITE AREA EMERGENCY		ALERT	
FG1 Loss of any two barriers AND Loss or Potential Loss of third barrier. 1,2,3,4			FS1 Loss or Potential Loss of ANY two barriers. 1,2,3,4		FA1 ANY Loss or ANY Potential Loss of either Fuel Clad or RCS barrier. 1,2,3,4	
Sub-Category	FC – Fuel Clad		RC – Reactor Coolant System		CT - Containment	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
1 RCS or SG Tube Leakage	None	Orange Path conditions exist, F-0.2 Core Cooling	1. Automatic or manual SI actuation is required by EITHER of the following: a. UNISOLABLE RCS leakage OR b. Steam Generator tube RUPTURE.	2. RCS leak rate ≥ 50 gpm with letdown isolated. OR 3. Red path conditions exist, F-0.4 Integrity	A leaking or RUPTURED SG ≥ 50 gpm is FAULTED outside of containment.	None
2. Inadequate Heat Removal	1. Red Path conditions exist, F-0.2 Core Cooling	2. Orange Path conditions exist, F-0.2 Core Cooling OR 3. Red Path conditions exist, F-0.3 Heat Sink. Note 1 (see below)	None	Red Path conditions exist, F-0.3 Heat Sink. Note 1 (see below)	None	Red Path conditions exist, F-0.2 Core Cooling AND Functional Restoration procedures <u>not</u> effective in < 15 minutes
3. Containment Radiation/RCS Activity	1. Containment radiation monitor R-29/R-30 reading $> 1,000$ R/hr OR 2. Letdown Monitor reading (R-9) ≥ 24 R/hr with letdown in service OR 3. Coolant activity as sampled $> 300 \mu\text{Ci/gm}$ Dose Equivalent I-131.	None	Containment radiation monitor R-29/R-30 reading > 10 R/hr	None	None	Containment radiation monitor R-29/R-30 reading $> 10,000$ R/hr
4 Containment Integrity or Bypass	None	None	None	None	1. Containment isolation is required AND EITHER of the following: a. UNPLANNED lowering in containment pressure or rise in radiation monitor readings outside of containment that in the Emergency Director's judgment indicate a loss of containment integrity OR b. UNISOLABLE pathway from containment to the environment exists. OR 2. Indication of RCS leakage outside of containment	3. Red path conditions exist, F-0.5 Containment. OR 4. Hydrogen Concentration in Containment $\geq 4\%$. OR 5. a. Containment pressure ≥ 26 psig AND b. EITHER of the following conditions for ≥ 15 minutes: • < 2 CRFC units operating • < 1 CS pump operating
5. Emergency Director Judgment	1. ANY Condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier.	2. ANY Condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier	1. ANY Condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier.	2. ANY Condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier	1. ANY Condition in the opinion of the Emergency Director that indicates Loss of the Containment Barrier.	2. ANY Condition in the opinion of the Emergency Director that indicates Potential Loss of the Containment Barrier

Note 1: In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">FC2</p> <p>Category: Fuel Clad Barrier</p> <p>Inadequate Heat Removal</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Loss</p> <p>A. Core exit thermocouple readings greater than (site-specific temperature value).</p> <p>Potential Loss</p> <p>A. Core exit thermocouple readings greater than (site-specific temperature value).</p> <p>OR</p> <p>B. Inadequate RCS heat removal capability via steam generators as indicated by (site-specific indications).</p>	<p style="text-align: right;">FC2</p> <p>Category: Fuel Clad Barrier</p> <p>Inadequate Heat Removal</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Loss</u></p> <p>1. Red Path conditions exist, F-0.2 Core Cooling</p> <p><u>Potential Loss</u></p> <p>2. Orange Path conditions exist, F-0.2 Core Cooling</p> <p>OR</p> <p>3. Red Path conditions exist, F-0.3 Heat Sink. Note 1 (see below)</p> <p>Note 1: In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site-specific threshold value as a CSFST path in lieu of parameters and values. As per the developer notes, developers should consider including a threshold the same as, or similar to,</p> <p>Loss</p> <p>1) developers should consider including a threshold the same as, or similar to, "Core Cooling Red entry conditions met"</p> <p>Potential Loss</p> <p>1) developers should consider including a threshold the same as, or similar to, "Core Cooling Orange entry conditions met"</p> <p>2) developers should consider including a threshold the same as, or similar to, "Heat Sink Red entry conditions met"</p> <p>in accordance with the guidance in NEI 99-01 Rev 6 to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">FC3</p> <p>Category: Fuel Clad Barrier</p> <p>RCS Activity / Containment Radiation</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Loss</p> <p>A. Containment radiation monitor reading greater than (site-specific value). OR</p> <p>B. (Site-specific indications that reactor coolant activity is greater than 300 $\mu\text{Ci/gm}$ dose equivalent I-131).</p>	<p style="text-align: right;">FC3</p> <p>Category: Fuel Clad Barrier</p> <p>Containment Radiation / RCS Activity</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Loss</u></p> <p>1. Containment radiation monitor R-29/R-30 reading > 1,000 R/hr. OR</p> <p>2. Letdown Monitor reading (R-9) \geq 24 R/hr with letdown in service. OR</p> <p>3. Coolant activity as sampled > 300$\mu\text{Ci/gm}$ Dose Equivalent I-131.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site-specific monitor and threshold value to ensure timely classification. 2) In Accordance with NEI 99-01 Revision 6, reactor coolant activity above 300 $\mu\text{Ci/gm}$ is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. The radiation level in EAL #1 is based on 2% fuel clad damage</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">RC2</p> <p>Category: Reactor Coolant System Barrier</p> <p>Inadequate Heat Removal</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Potential Loss</p> <p>A. Inadequate RCS heat removal capability via steam generators as indicated by (site-specific indications).</p>	<p style="text-align: right;">RC2</p> <p>Category: Reactor Coolant System Barrier</p> <p>Inadequate Heat Removal</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Potential Loss</u></p> <p>Red Path conditions exist, F-0.3 Heat Sink. Note 1 (see below)</p> <p>Note 1: In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input checked="" type="checkbox"/> No Change </div> <div style="text-align: center;"> <input type="checkbox"/> Difference </div> <div style="text-align: center;"> <input type="checkbox"/> Deviation </div> </div> <p>1) Listed site-specific threshold value as a CSFST path in lieu of parameters and values. As per the developer notes, developers should consider including a threshold the same as, or similar to "Heat Sink Red entry conditions met" in accordance with the guidance in NEI 99-01 Rev 6 to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CT3</p> <p>Category: Containment Barrier</p> <p>Containment Radiation / RCS Activity</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Fission Product Barrier Threshold:</p> <p>Potential Loss</p> <p>A. Containment radiation monitor reading greater than (site-specific value).</p>	<p style="text-align: right;">CT3</p> <p>Category: Containment Barrier</p> <p>Containment Radiation / RCS Activity</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Fission Product Barrier (FPB) Threshold:</p> <p><u>Potential Loss</u></p> <p>Containment radiation monitor R-29/R-30 reading > 10,000 R/hr</p>	<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <input checked="" type="checkbox"/> No Change </div> <div> <input type="checkbox"/> Difference </div> <div> <input type="checkbox"/> Deviation </div> </div> <p>1) Listed site-specific threshold values to ensure timely classification.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">SG8</p> <p>Initiating Condition: GENERAL EMERGENCY</p> <p>Loss of all AC and Vital DC power sources for 15 minutes or longer.</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels:</p> <p>Note: The Emergency Director should declare the General Emergency promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.</p> <p>1. a. Loss of ALL offsite and ALL onsite AC power to (site-specific emergency buses) for 15 minutes or longer.</p> <p style="padding-left: 40px;">AND</p> <p>b. Indicated voltage is less than (site-specific bus voltage value) on ALL (site-specific Vital DC busses) for 15 minutes or longer.</p>	<p style="text-align: right;">MG2</p> <p>Initiating Condition:</p> <p>Loss of all AC and Vital DC power sources for 15 minutes or longer.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Emergency Action Levels (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>1. Loss of ALL offsite and ALL onsite AC power to 480V safeguards buses 14 and 16.</p> <p style="padding-left: 40px;">AND</p> <p>2. Voltage is < 108.6 VDC on unit 125 VDC buses 1A and 1B.</p> <p style="padding-left: 40px;">AND</p> <p>3. ALL AC and Vital DC power sources have been lost for \geq 15 minutes.</p>	<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Listed site specific voltage and site specific buses to ensure timely classification.</p> <p>2) Removed the word "indicated" this will allow for an indication problem to not cause confusion on the need to declare.</p> <p>3) Changed formatting to be 1 AND 2 AND 3 formatting.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: SITE AREA EMERGENCY SS8</p> <p>Loss of all Vital DC power for 15 minutes or longer.</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels:</p> <p>Note: The Emergency Director should declare the Site Area Emergency promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.</p> <p>1. Indicated voltage is less than (site-specific bus voltage value) on ALL (site-specific Vital DC busses) for 15 minutes or longer.</p>	<p>Initiating Condition: MS2</p> <p>Loss of all Vital DC power for 15 minutes or longer.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Emergency Action Levels (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Voltage is < 108.6 VDC on unit 125 VDC buses 1A and 1B for \geq 15 minutes.</p>	<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Listed site specific buses and site specific value to ensure timely classification.</p> <p>2) Removed the word "indicated" this will allow for an indication problem to not cause confusion on the need to declare.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>SA9</p> <p>Initiating Condition: ALERT</p> <p>Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>Power Operation, Startup, Hot Standby, Hot Shutdown</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p>OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p>MA5</p> <p>Initiating Condition: ALERT</p> <p>Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> • If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. • For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. • If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p>AND</p> <p>b. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> • Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. <p>OR</p> <ul style="list-style-type: none"> • Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. <p>OR</p> <ul style="list-style-type: none"> • An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<p><input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation</p> <p>1) No additional site specific hazard noted</p> <p>2) Changed the word "needed" to "required" in the IC and to "required by Technical Specification" in the EAL, to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CA6</p> <p>Initiating Condition – ALERT Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode.</p> <p>Operating Mode Applicability: Cold Shutdown, Refueling</p> <p>Example Emergency Action Levels:</p> <p>1. a. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode.</p> <p>OR</p> <p>2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.</p>	<p style="text-align: right;">CA2</p> <p>Initiating Condition: Hazardous event affecting SAFETY SYSTEM required for the current operating mode.</p> <p>Operating Mode Applicability: 5, 6</p> <p>Emergency Action Level (EAL):</p> <p>Note:</p> <ul style="list-style-type: none"> • If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted. • For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted. • If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6. <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>3. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.</p> <p>AND</p> <p>c. ANY of the following for SAFETY SYSTEMS with multiple trains:</p> <ul style="list-style-type: none"> • Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR • Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode. OR • An additional train of the SAFETY SYSTEM is inoperable or out of service. 	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input type="checkbox"/> Difference <input checked="" type="checkbox"/> Deviation </div> <p>1) No additional site specific hazards noted</p> <p>2) Changed the word "needed" to "required" in the IC and "required by Technical Specification" in the EAL to be consistent with terminology used by operators and minimize confusion.</p> <p>3) Added note to easily direct the operator to potential lesser ICs.</p> <p>4) Revised to add notes and wording to warrant the escalation to Alert only if the hazardous event has caused VISIBLE DAMAGE or degraded performance in more than one operable train of a SAFETY SYSTEM (for multiple train SAFETY SYSTEMS) or in one train of single train SAFETY SYSTEM. As such this will reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. The addition of the notes and wording are consistent with the current NRC-endorsed Alert classification language and are revised from the NRC endorsed NEI language to better clarify the intent of EP-FAQ 2016-002. The definition for VISIBLE DAMAGE has been revised since it is only used for CA2 and MA5 and the EALs are revised to be based upon SAFETY SYSTEM trains and not individual components and structures.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">CU4</p> <p>Initiating Condition: UNUSUAL EVENT Loss of Vital DC power for 15 minutes or longer. Operating Mode Applicability: Cold Shutdown, Refueling Example Emergency Action Levels: Note: The Emergency Director should declare the Unusual Event promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded. Indicated voltage is less than (site-specific bus voltage value) on required Vital DC buses for 15 minutes or longer.</p>	<p style="text-align: right;">CU3</p> <p>Initiating Condition: Loss of Vital DC power for 15 minutes or longer. Operating Mode Applicability: 5, 6 Emergency Action Levels (EAL): Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded. Voltage is < 108.6 VDC on required unit 125 VDC buses 1A and 1B for ≥ 15 minutes.</p>	<p> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Listed site specific voltage and buses to ensure timely classification.</p> <p>2) Removed the word "indicated" this will allow for an indication problem to not cause confusion on the need to declare.</p>

NEI 99-01 Rev 6	Proposed EAL	Justification																						
<p style="text-align: right;">CA3</p> <p>Initiating Condition: ALERT</p> <p>Inability to maintain the plant in cold shutdown.</p> <p>Operating Mode Applicability:</p> <p>Cold Shutdown, Refueling</p> <p>Example Emergency Action Levels: (1 or 2)</p> <p>Note: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> UNPLANNED increase in RCS temperature to greater than (site-specific Technical Specification cold shutdown temperature limit) for greater than the duration specified in the following table. <table border="1" data-bbox="163 613 714 847"> <caption>Table: RCS Heat-up Duration Thresholds</caption> <thead> <tr> <th>RCS Status</th><th>Containment Closure Status</th><th>Heat-up Duration</th></tr> </thead> <tbody> <tr> <td>Intact (but not at reduced inventory [PWR])</td><td>Not Applicable</td><td>60 minutes*</td></tr> <tr> <td rowspan="2">Not Intact (or at reduced inventory [PWR])</td><td>Established</td><td>20 minutes*</td></tr> <tr> <td>Not Established</td><td>0 minutes</td></tr> </tbody> </table> <p>* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, the EAL is not applicable.</p> <ol style="list-style-type: none"> UNPLANNED RCS pressure increase greater than (site-specific pressure reading). (This EAL does not apply during water-solid plant conditions. [PWR]) 	RCS Status	Containment Closure Status	Heat-up Duration	Intact (but not at reduced inventory [PWR])	Not Applicable	60 minutes*	Not Intact (or at reduced inventory [PWR])	Established	20 minutes*	Not Established	0 minutes	<p style="text-align: right;">CA5</p> <p>Initiating Condition:</p> <p>Inability to maintain plant in cold shutdown.</p> <p>Operating Mode Applicability:</p> <p>5, 6</p> <p>Emergency Action Levels (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification.</p> <ol style="list-style-type: none"> UNPLANNED rise in RCS temperature to > 200°F for > Table C2 duration. <p>OR</p> <ol style="list-style-type: none"> UNPLANNED RCS pressure rise > 10 psig (This EAL does not apply in water-solid plant conditions.) <table border="1" data-bbox="829 735 1243 1036"> <caption>Table C2 – RCS Heat-up Duration Thresholds</caption> <thead> <tr> <th>RCS Status</th><th>Containment Closure Status</th><th>Heat-up Duration</th></tr> </thead> <tbody> <tr> <td>Intact</td><td>Not Applicable</td><td>60 minutes*</td></tr> <tr> <td rowspan="2">Not Intact</td><td>Established</td><td>20 minutes*</td></tr> <tr> <td>Not Established</td><td>0 minutes</td></tr> </tbody> </table> <p>* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, then EAL #1 is not applicable.</p>	RCS Status	Containment Closure Status	Heat-up Duration	Intact	Not Applicable	60 minutes*	Not Intact	Established	20 minutes*	Not Established	0 minutes	<div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> No Change <input checked="" type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> <p>1) Listed site specific Technical Specification cold shutdown temperature limit to ensure timely classification.</p> <p>2) Listed site specific pressure reading to enhance timely classification.</p> <p>3) Added the following note, taken from the basis section of the EAL, to bring it to the attention of the SM/ED when using the "procedure matrix" (11x17 quick reference control room document) "A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification."</p> <p>4) Changed the word increase to rise in the EALs to be consistent with operations language and training.</p> <p>5) In Table C2 removed (but not RCS reduced inventory) from Intact since it was redundant to the RCS status of Not Intact or Reduced Inventory.</p>
RCS Status	Containment Closure Status	Heat-up Duration																						
Intact (but not at reduced inventory [PWR])	Not Applicable	60 minutes*																						
Not Intact (or at reduced inventory [PWR])	Established	20 minutes*																						
	Not Established	0 minutes																						
RCS Status	Containment Closure Status	Heat-up Duration																						
Intact	Not Applicable	60 minutes*																						
Not Intact	Established	20 minutes*																						
	Not Established	0 minutes																						

NEI 99-01 Rev 6	Proposed EAL	Justification
<div> <div>HS1</div> <div>Initiating Condition: SITE AREA EMERGENCY</div> <div>HOSTILE ACTION within the PROTECTED AREA.</div> <div>Operating Mode Applicability:</div> <div>All</div> <div>Example Emergency Action Levels:</div> <div>A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-security shift supervision).</div> </div>	<div> <div>HS1</div> <div>Initiating Condition:</div> <div>HOSTILE ACTION within the PROTECTED AREA.</div> <div>Operating Mode Applicability:</div> <div>1, 2, 3, 4, 5, 6, D</div> <div>Emergency Action Levels (EAL):</div> <div>A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</div> </div>	<div> <div> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div> </div>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p style="text-align: right;">HA1</p> <p>Initiating Condition: ALERT</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2)</p> <ol style="list-style-type: none"> 1. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the (site-specific security shift supervision). 2. A validated notification from NRC of an aircraft attack threat within 30 minutes of the site. 	<p style="text-align: right;">HA1</p> <p>Initiating Condition:</p> <p>HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, 6, D</p> <p>Emergency Action Levels (EAL):</p> <ol style="list-style-type: none"> 1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site. OR 2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA. 	<div> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </div>

NEI 99-01 Rev 6	Proposed EAL	Justification
<p>Initiating Condition: UNUSUAL EVENT HU1</p> <p>Confirmed SECURITY CONDITION or threat.</p> <p>Operating Mode Applicability:</p> <p>All</p> <p>Example Emergency Action Levels: (1 or 2 or 3)</p> <ol style="list-style-type: none"> 1. A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the (site-specific security shift supervision). 2. Notification of a credible security threat directed at the site. 3. A validated notification from the NRC providing information of an aircraft threat. 	<p>Initiating Condition: HU1</p> <p>Confirmed SECURITY CONDITION or threat.</p> <p>Operating Mode Applicability:</p> <p>1, 2, 3, 4, 5, 6, D</p> <p>Emergency Action Levels (EAL):</p> <ol style="list-style-type: none"> 1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities. OR 2. A validated notification from the NRC providing information of an aircraft threat. OR 3. Notification by the Security Supervisor of a SECURITY CONDITION that does <u>not</u> involve a HOSTILE ACTION. 	<p> <input checked="" type="checkbox"/> No Change <input type="checkbox"/> Difference <input type="checkbox"/> Deviation </p> <p>1) Further described credible security threat through listing a site specific procedure.</p>

Ginna

Enclosure 3C

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENTS**

RA3**Initiating Condition:**

Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):**Note:**

- If the equipment in the rooms or areas listed in Table R4 was already inoperable, or out of service, before the event occurred, then no emergency classification is warranted.

1. Dose rate > 15 mR/hr in ANY of the areas contained in Table R3

Table R3 Areas Requiring Continuous Occupancy	
<ul style="list-style-type: none"> • Main Control Room • Central Alarm Station – (by survey) 	

OR

2. UNPLANNED event results in radiation levels that prevent or significantly impede access to ANY of the plant rooms or areas contained in Table R4.

Table R4 Areas with Entry-Related Mode Applicability	
Area	Entry-Related Mode Applicability
Auxiliary Building Top Floor	Mode 3, 4, and 5
Auxiliary Building Middle Level	
Auxiliary Building Basement	

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENTS**

RU3**Initiating Condition:**

Reactor coolant activity greater than Technical Specification allowable limits.

Operating Mode Applicability:

1, 2, 3, 4

Emergency Action Level (EAL):

1. Letdown Monitor (R-9) reading ≥ 4.8 R/hr
OR
2. RCS specific activity > 60.0 $\mu\text{Ci/gm}$ Dose Equivalent I-131
OR
3. RCS specific activity > 650 $\mu\text{Ci/gm}$ Dose Equivalent Xe-133

Basis:**EAL#1 Basis**

This EAL addresses site-specific radiation monitor readings that provide indication of a degradation of fuel clad integrity.

EAL #2 and 3 Basis

This IC addresses a reactor coolant activity value that exceeds an allowable limit specified in Technical Specifications. This condition is a precursor to a more significant event and represents a potential degradation of the level of safety of the plant.

Escalation of the emergency classification level would be via ICs FA1 or the Recognition Category R ICs.

Basis Reference(s):

1. NEI 99-01 Rev 6, SU3
2. Technical Specifications Section 3.4.16 Reactor Coolant System-RCS Specific Activity
3. CALC-2011-0019 NEI 99-01 Technical Basis for the Ginna R-9 Letdown Line Monitor Emergency Action Levels (EAL)

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

FC2**Initiating Condition:**

Inadequate Heat Removal

Operating Mode Applicability:

1, 2, 3, 4

Fission Product Barrier (FPB) Threshold:**LOSS**

1. Red Path conditions exist, F-0.2 Core Cooling

POTENTIAL LOSS

2. Orange Path conditions exist, F-0.2 Core Cooling

OR

3. Red Path conditions exist, F-0.3 Heat Sink. Note 1 (see below)

Note 1: In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.

Basis:**Loss Threshold #1 Basis**

Indicates temperatures within the core are sufficient to cause significant superheating of reactor coolant.

Core Cooling - RED indicates significant superheating and core uncover and is considered to indicate loss of the Fuel Clad Barrier.

Potential Loss Threshold #2 Basis

Indicates temperatures within the core are sufficient to allow the onset of heat-induced cladding damage.

Core Cooling - ORANGE indicates subcooling has been lost and that some clad damage may occur.

Potential Loss Threshold #3 Basis

This condition indicates an extreme challenge to the ability to remove RCS heat using the steam generators (i.e., loss of an effective secondary-side heat sink). This condition represents a potential loss of the Fuel Clad Barrier. In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators by reducing total feed flow; during these conditions, classification using this threshold is not warranted.

Meeting this threshold results in a Site Area Emergency because this threshold is identical to RCS Barrier RC2 Potential Loss threshold; both will be met. This condition warrants a Site Area Emergency declaration because inadequate RCS heat removal may result in fuel heat-up sufficient to damage the cladding and raise RCS pressure to the point where mass will be lost from the system.

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

FC3**Initiating Condition:**

Containment Radiation / RCS Activity

Operating Mode Applicability:

1, 2, 3, 4

Fission Product Barrier (FPB) Threshold:**LOSS**1. Containment radiation monitor R-29/R-30 reading $> 1,000$ R/hr.**OR**2. Letdown Monitor reading (R-9) ≥ 24 R/hr with letdown in service.**OR**3. Coolant activity as sampled $> 300 \mu\text{Ci/gm}$ Dose Equivalent I-131.**Basis:****Loss Threshold #1 Basis**

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the containment, assuming that reactor coolant activity equals $300 \mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

The radiation monitor reading in this threshold is higher than that specified for RCS Barrier RC3 Loss Threshold since it indicates a loss of both the Fuel Clad Barrier and the RCS Barrier. Note that a combination of the two monitor readings appropriately escalates the emergency classification level to a Site Area Emergency.

Loss Threshold #2 and #3 Basis

This threshold indicates that RCS radioactivity concentration is greater than $300 \mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

It is recognized that sample collection and analysis of reactor coolant with highly elevated activity levels could require several hours to complete. Nonetheless, a sample-related threshold is included as a backup to other indications

There is no Potential Loss threshold associated with RCS Activity / Containment Radiation.

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

RC2**Initiating Condition:**

Inadequate Heat Removal

Operating Mode Applicability:

1, 2, 3, 4

Fission Product Barrier (FPB) Threshold:**POTENTIAL LOSS****Red Path** conditions exist, F-0.3 Heat Sink. Note 1 (see below)

Note 1: In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators; during these conditions, classification using threshold is not warranted.

Basis:

There is no Loss threshold associated with Inadequate Heat Removal.

Potential Loss Threshold Basis

Heat Sink - RED when heat sink is required indicates the ultimate heat sink function is under extreme challenge.

This condition indicates an extreme challenge to the ability to remove RCS heat using the steam generators (i.e., loss of an effective secondary-side heat sink). This condition represents a potential loss of the RCS Barrier. In accordance with EOPs, there may be unusual accident conditions during which operators intentionally reduce the heat removal capability of the steam generators by reducing total feed flow; during these conditions, classification using this threshold is not warranted.

Meeting this threshold results in a Site Area Emergency because this threshold is identical to Fuel Clad Barrier FC2 Potential Loss threshold # 3; both will be met. This condition warrants a Site Area Emergency declaration because inadequate RCS heat removal may result in fuel heat-up sufficient to damage the cladding and raise RCS pressure to the point where mass will be lost from the system.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-3
2. CSFST for F-0.3 Heat Sink
3. FR-H.1 Response to Loss of Secondary Heat Sink

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

CT3**Initiating Condition:**

Containment Radiation / RCS Activity

Operating Mode Applicability:

1, 2, 3, 4

Fission Product Barrier (FPB) Threshold:**POTENTIAL LOSS**

Containment radiation monitor R-29/R-30 reading > 10,000 R/hr.

Basis:

There is no Loss threshold associated with Containment Radiation / RCS Activity.

Potential Loss Threshold Basis

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into containment, assuming that 20% of the fuel cladding has failed. This level of fuel clad failure is well above that used to determine the analogous Fuel Clad Barrier Loss (FC3) and RCS Barrier Loss (RC3) thresholds.

NUREG-1228, *Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents*, indicates the fuel clad failure must be greater than approximately 20% in order for there to be a major release of radioactivity requiring offsite protective actions. For this condition to exist, there must already have been a loss of the RCS Barrier and the Fuel Clad Barrier. It is therefore prudent to treat this condition as a potential loss of containment which would then escalate the emergency classification level to a General Emergency.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-3
2. P-9 Radiation Monitoring System
3. EP-EAL-0712, Criteria for Choosing Containment Radiation Values Indicating a Loss of Fuel Clad and a Potential Loss of Containment for Ginna Station
4. NUREG-1228 Source Term Estimation During Incident Response to Severe Nuclear Power Plant Accidents

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MG2****Initiating Condition:**

Loss of all AC and Vital DC power sources for 15 minutes or longer.

Operating Mode Applicability:

1, 2, 3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

1. Loss of ALL offsite and ALL onsite AC power to 480V safeguards buses 14 and 16.

AND

2. Voltage is < 108.6 VDC on unit 125 VDC buses 1A and 1B.

AND

3. ALL AC and Vital DC power sources have been lost for ≥ 15 minutes.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a concurrent and prolonged loss of both AC and Vital DC power. A loss of all AC power compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A loss of Vital DC power compromises the ability to monitor and control SAFETY SYSTEMS. A sustained loss of both AC and DC power will lead to multiple challenges to fission product barriers.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses. The 15-minute emergency declaration clock begins at the point when all EAL conditions are met.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MS2****Initiating Condition:**

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

Operating Mode Applicability:

1, 2, 3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Voltage is < 108.6 VDC on unit 125 VDC buses 1A and 1B for ≥ 15 minutes.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a loss of Vital DC power which compromises the ability to monitor and control SAFETY SYSTEMS. In modes above Cold Shutdown, this condition involves a major failure of plant functions needed for the protection of the public.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation of the emergency classification level would be via ICs RG1, FG1 or MG2.

Basis Reference(s):

1. NEI 99-01 Rev 6, SS8
2. UFSAR Section 8.3.2 Direct Current Power Systems
3. Technical Specifications Basis B.3.8.b
4. DA-EE-99-047 125 VDC System Loads and Voltages
5. Ginna Technical Evaluation ECP-17-000028

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5****Initiating Condition:**

Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

1, 2, 3, 4

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
- For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
- If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of **ANY** of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

AND

b. **ANY** of the following for SAFETY SYSTEMS with multiple trains:

- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- An additional train of the SAFETY SYSTEM is inoperable or out of service.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5 (cont)****Basis:**

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5 (cont)****Basis (cont):**

Operators will make a determination of **VISIBLE DAMAGE** based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This **VISIBLE DAMAGE** should be significant enough to cause concern regarding the operability or reliability of the **SAFETY SYSTEM** train.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01, Rev 6 SA9
2. ER-SC.4 Earthquake Emergency Plan
3. ER-SC.1 Adverse Weather Plan
4. ER-SC.2 High Water (Flood) Plan
5. Ginna Station Fire Protection Program Volume 1 Part III Section 7 Fire Area/Fire Zone Analysis

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2**Initiating Condition:**

Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

5, 6

Emergency Action Level (EAL):**Note:**

- If the only affected SAFETY SYSTEM train was already inoperable or out of service before the hazardous event occurred, then this emergency classification is not warranted.
- For SAFETY SYSTEMS with multiple trains if the hazardous event only resulted in VISIBLE DAMAGE or degraded performance to the one train, then this emergency classification is not warranted.
- If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of ANY of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

- 2. a. Event damage has caused indications of degraded performance or VISIBLE DAMAGE to one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.**

AND**b. ANY of the following for SAFETY SYSTEMS with multiple trains:**

- Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- Event damage has resulted in VISIBLE DAMAGE to a second train of the SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- An additional train of the SAFETY SYSTEM is inoperable or out of service.

RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS

CA2 (cont)

Basis:

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a SAFETY SYSTEM train that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected SAFETY SYSTEM train.

This IC addresses a hazardous event that causes damage to SAFETY SYSTEMS required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. In order to provide the appropriate context for consideration of an Alert classification, the hazardous event must have caused indications of degraded performance or VISIBLE DAMAGE. For single train SAFETY SYSTEMS, in addition to the occurrence of the hazardous event, only 2.a of this EAL need be satisfied. In SAFETY SYSTEMS with multiple trains there must be either indications of degraded performance with the second SAFETY SYSTEM train, VISIBLE DAMAGE to the second train, or the second train is inoperable or out of service. Note that this second SAFETY SYSTEM train is from the same SAFETY SYSTEM that has degraded performance or VISIBLE DAMAGE for criteria 2.a of this EAL; commercial nuclear power plants are designed to be able to support single system issues without compromising public health and safety from radiological events. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

Indications of degraded performance address damage to a SAFETY SYSTEM train that is in service/operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA2 (cont)

Basis (cont):

Operators will make a determination of VISIBLE DAMAGE based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage. This VISIBLE DAMAGE should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01 Rev 6, CA6
2. ER-SC.4 Earthquake Emergency Plan
3. ER-SC.1 Adverse Weather Plan
4. ER-SC.2 High Water (Flood) Plan
5. Ginna Station Fire Protection Program Volume 1 Part III Section 7 Fire Area/Fire Zone Analysis

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CU3**Initiating Condition:**

Loss of Vital DC power for 15 minutes or longer.

Operating Mode Applicability:

5, 6

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Voltage is < 108.6 VDC on required unit 125 VDC buses 1A and 1B for ≥ 15 minutes.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a loss of Vital DC power which compromises the ability to monitor and control operable SAFETY SYSTEMS when the plant is in the cold shutdown or refueling mode. In these modes, the core decay heat load has been significantly reduced, and coolant system temperatures and pressures are lower; these conditions increase the time available to restore a vital DC bus to service. Thus, this condition is considered to be a potential degradation of the level of safety of the plant.

As used in this EAL, "required" means the Vital DC buses necessary to support operation of the in-service, or operable, train or trains of SAFETY SYSTEM equipment. For example, if Train A is out-of-service (inoperable) for scheduled outage maintenance work and Train B is in-service (operable), then a loss of Vital DC power affecting Train B would require the declaration of an Unusual Event. A loss of Vital DC power to Train A would not warrant an emergency classification.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Depending upon the event, escalation of the emergency classification level would be via IC CA6 or CA5, or an IC in Recognition Category R.

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA5**Initiating Condition:**

Inability to maintain the plant in cold shutdown.

Operating Mode Applicability:

5, 6

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
 - A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification.
1. UNPLANNED rise in RCS temperature to **> 200°F** for **> Table C2 duration**.
OR
 2. UNPLANNED RCS pressure rise **> 10 psig**. (This EAL does not apply in water-solid plant conditions.)

Table C2 – RCS Heat-up Duration Thresholds		
RCS Status	Containment Closure Status	Heat-up Duration
Intact	Not Applicable	60 minutes*
Not Intact OR Reduced Inventory	Established	20 minutes*
	Not Established	0 minutes
* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, then EAL #1 is not applicable.		

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS1**Initiating Condition:**

HOSTILE ACTION within the PROTECTED AREA.

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):

A notification from the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.

Basis:

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

This IC addresses the occurrence of a HOSTILE ACTION within the PROTECTED AREA. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HA1

Initiating Condition:

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

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):

1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site.

OR

2. Notification by the Security Supervisor that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA.

Basis:

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

OWNER CONTROLLED AREA (OCA): The property associated with the station and owned by the company. Access is normally limited to persons entering for official business.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

HOSTILE FORCE: Any individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the PROTECTED AREA or the need to prepare the plant and staff for a potential aircraft impact.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU1**Initiating Condition:**

Confirmed SECURITY CONDITION or threat.

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):

1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities.
OR
2. A validated notification from the NRC providing information of an aircraft threat.
OR
3. Notification by the Security Supervisor of a SECURITY CONDITION that does not involve a HOSTILE ACTION.

Basis:

SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS2**Initiating Condition:**

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

Operating Mode Applicability:

1, 2, 3, 4, 5, 6, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- 1. A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per AP-CR.1 or the ER-FIRE series.
AND
- 2. Control of ANY Table H1 key safety function is not reestablished in **≤ 35 minutes**.

Table H1 – Safety Functions

- | |
|---|
| <ul style="list-style-type: none">• Reactivity Control (ability to shut down the reactor and keep it shutdown)• Core Cooling (ability to cool the core)• RCS Heat Removal (ability to maintain heat sink) |
|---|

Basis:

The time period to establish control of the plant starts when either:

- a. Control of needed safety functions is no longer maintained in the Main Control Room
OR
- b. The last Operator has left the Main Control Room.

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations, and the control of a key safety function cannot be reestablished in a timely manner. The failure to gain control of a key safety function following a transfer of plant control to alternate locations is a precursor to a challenge to any fission product barriers within a relatively short period of time.

The determination of whether or not "control" is established at the remote safe shutdown location(s) is based on Emergency Director judgment. The Emergency Director is expected to make a reasonable, informed judgment within 35 minutes whether or not the operating staff has control of key safety functions from the remote safe shutdown location(s).

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU4 (cont)

Basis (cont):

the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant.

Event verification with external sources should not be necessary during or following an OBE. Earthquakes of this magnitude should be readily felt by on-site personnel and recognized as a seismic event.

EAL #2 is included to ensure that a declaration does not result from felt vibrations caused by a non-seismic source (e.g., a dropped load). The Shift Manager or Emergency Director may seek external verification if deemed appropriate (e.g., call to USGS, check internet source, etc.); however, the verification action must not preclude a timely emergency declaration. This EAL wording recognizes that it may cause the site to declare an Unusual Event while another site similarly affected but with readily available OBE indications in the Control Room, may not.

Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA2 or MA5.

Basis Reference(s):

1. NEI 99-01, Rev 6 HU2
2. UFSAR Section 3.7.1.2 Design Response Spectra
3. ER-SC.4 Earthquake Emergency Plan
4. US NRC Reg. Guide 1.166, Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Earthquake Actions.