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June 11, 2001  
2130-01-20122

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station  
Docket No. 50-219  
Emergency Plan Implementing Procedure Revisions

In accordance with 10 CFR 50, Appendix E, Section V, enclosed is the newly revised Index for the Oyster Creek Emergency Plan Implementing Procedures and the below listed procedures.

<u>Procedure Number</u>	<u>Title</u>	<u>Revision</u>
EPIP-01	CLASSIFICATION OF EMERGENCY CONDITIONS	10

If further information is required, please contact Mr. Daniel McMillan, Manager, Regulatory Assurance at 609-971-4081.

Very truly yours,

  
Ron J. DeGregorio  
Vice President  
Oyster Creek

RJD/JJR:ew

Enclosures

cc: Administrator, Region I  
NRC Sr. Project Manager  
NRC Resident Inspector

A045

**EPIP SERIES - EMERGENCY PLAN IMPLEMENTING PROCEDURES**

<b><u>PROCEDURE NO.</u></b>	<b><u>TITLE</u></b>	<b><u>REV. NO.</u></b>	<b><u>DATE</u></b>
6630-ADM-4010.03	Emergency Dose Calculation Manual (EDCM)	11	07/23/00
EPIP-OC-.01	Classification of Emergency Conditions	10	06/17/01
EPIP-OC-.02	Direction of Emergency Response/Emergency Control Center	27	11/27/00
EPIP-OC-.03	Emergency Notification	26	09/14/00
EPIP-OC-.06	Additional Assistance and Notification	23	11/27/00
EPIP-OC-.10	Emergency Radiological Surveys Onsite	10	08/08/00
EPIP-OC-.11	Emergency Radiological Surveys Offsite	15	08/08/00
EPIP-OC-.12	Personnel Accountability	8	08/08/00
EPIP-OC-.13	Site Evacuation and Personnel Mustering at Remote Assembly Areas	8	11/09/00
EPIP-OC-.25	Emergency Operations Facility (EOF)	23	12/08/00
EPIP-OC-.26	The Technical Support Center	22	11/27/00
EPIP-OC-.27	The Operations Support Center	11	11/09/00
EPIP-OC-.31	Environmental Assessment Command Center	11	08/08/00
EPIP-OC-.33	Core Damage Estimation	5	08/08/00
EPIP-OC-.35	Radiological Controls Emergency Actions	14	08/08/00
EPIP-OC-.40	Site Security Emergency Actions	10	11/30/00
EPIP-OC-.41	Emergency Duty Roster Activation	5	08/08/00
EPIP-OC-.44	Thyroid Blocking	1	08/08/00
EPIP-OC-.45	Classified Emergency Termination/Recovery	1	08/08/01
OEP-ADM-1311.03	Emergency Preparedness Section Administration	4	08/08/01
OEP-ADM-1319.01	Oyster Creek Emergency Preparedness Program	8	05/12/00
OEP-ADM-1319.02	Emergency Response Facilities & Equipment Maintenance	8	05/14/00
OEP-ADM-1319.04	Prompt Notification System	3	12/08/00
OEP-ADM-1319.05	Emergency Preparedness Event Reports	1	08/08/00

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# AmerGen

Telephone No. 609-971-4652 RM Dept.

## DOCUMENT TRANSMITTAL

June 8, 2001

To:

Bette Wilson  
for NRC Washington  
OCAB-2

SEE LOTUS NOTES OC PROCEDURE INFORMATION DATABASE FOR LATEST REVISIONS

**PLEASE NOTE: IT IS IMPERATIVE THAT YOU NOTIFY RM OF ADDRESS CHANGES!!**

FILE CURRENT

DESTROY OUTDATED

EPIP-OC-.01 ENTIRE REV. 10

EPIP-OC-.01 ENTIRE REV. 9

PLEASE NOTE: REQUIRED ACTION BELOW HAS BEEN CHANGED. FAILURE TO COMPLY, WITHIN FIVE (5) WORKING DAYS OF THIS REQUEST, COULD RESULT IN A CAP.

- REQUIRED ACTION:
1. ADD REVISION TO YOUR CONTROLLED COPIES.
  2. DESTROY OUTDATED MATERIAL.
  3. RETURN TRANSMITTAL SIGNED AND DATED.

SIGN AND RETURN TO: RECORDS MANAGEMENT, OCAB-1

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

YOUR SIGNATURE ON THIS FORM INDICATES THAT YOU HAVE FILED THE CURRENT REVISION. THIS SIGNED FORM CAN BE USED FOR AUDITING PURPOSES.

Title <b>CLASSIFICATION OF EMERGENCY CONDITIONS</b>		Revision No. <b>10</b>
Applicability/Scope Applies to work at Oyster Creek	Usage Level <b>1</b>	Responsible Department Emergency Preparedness
This document is within QA plan scope 50.59 Reviews Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Effective Date <b>(06/07/01) 06/17/01</b>

Prior Revision 9 incorporated the following Temporary Changes:

N/A

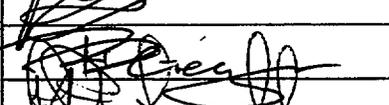
This Revision 10 incorporates the following Temporary Changes:

N/A

List of Pages (all pages rev'd to Rev. 10)

- 1.0 to 9.0
- E1-1 to E1-13
- E2-1 to E2-38
- E3-1 to E3-4
- E4-1

**NON-CONTROLLED  
THIS DOCUMENT WILL NOT  
BE KEPT UP TO DATE  
IRMC OYSTER CREEK**

	Signature	Concurring Organization Element	Date
Originator		Emergency Preparedness Planner	6/1/01
Concurred By		Vice President, OC	6/4/01
Approved By		Manager Nuclear Oversight	6/4/01
By	For J. Grimwood	Mgr. Emergency Preparedness	6/4/01

Title  
**CLASSIFICATION OF EMERGENCY CONDITIONS**

Revision No.  
10

PROCEDURE HISTORY

REV	DATE	ORIGINATOR	SUMMARY OF CHANGE
4	11/95	P. Hays	Adds description of "explosion", add EAL for ISFSI facility, rewords UE I.4 to reflect physical changes to plant, and revised/deleted EAL's based on NRC's EPPOS #1.
5	01/99	A. Smith	Add phone number for Lamont-Doherty Observatory, to Category "O" Basis. Add note to Category "Q" Fire to Review Cat. P-2 for Potential Explosive Damage. Update the reference to Rolm phones to Meridian in Category "L" Basis. Change "AND" to "AN" in Category "P" Basis as it relates to explosion.
6	05/99	A. Smith	Rephrase statement in CAT "K" basis for "Major Spent Fuel Damage"
7	03/00	S. Smith	Provide examples of fuel clad damage in table on E4-1. Correct typo on E2-16 MR/HR to MR/YR. Correct typo on E2-29. EAL #4 to EAL #5, add clarifying words to basis relating to the "Facility" for tornado touch down and add "area" to protected boundary.
8	DOS	A. Smith	Change references from GPU or GPUN to OCNCS.
9	11/00	A. Smith	Move applicability statements to conform to procedure format.
10	05/01	A. Smith	Remove reference to MPC limits in Cat. "J" Basis statement for UE Alert, typo CHARMS to CHRRMS, Safety Review req. to "NO".

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Title	Revision No.
<b>CLASSIFICATION OF EMERGENCY CONDITIONS</b>	10

1.0 PURPOSE

1.1 To define those conditions which shall be classified as emergency conditions at the Oyster Creek Nuclear Generating Station (OCNGS).

1.2 To provide guidance in classifying such conditions.

2.0 APPLICABILITY/SCOPE

2.1 To the OCNGS Plant Operations Department and the Emergency Response Organization to identify and classify in-plant or onsite emergency conditions as defined under the OCNGS Emergency Plan.

3.0 DEFINITIONS

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

3.2 Emergency Action - Those measures or steps taken to ensure that an emergency situation is assessed (assessment actions) and that the proper corrective and/or protective actions are taken.

3.3 Emergency Actions Levels (EAL's) - Predetermined conditions or values, including radiological dose rates, specific contamination levels of airborne or waterborne concentrations of radioactive materials, events such as natural disasters or fire, or specific instrument indications which, when reached or exceeded, require the implementation of the Emergency Plan. See Appendix 1 of this procedure, "Matrix of Emergency Action Levels".

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**CLASSIFICATION OF EMERGENCY CONDITIONS**

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3.4 EAL Applicability - Reactor Plant conditions are specified for which each EAL category of events are applicable. If the plant is in an applicable condition as listed in the category an emergency declaration is required. If the plant is not in a condition listed, an emergency declaration is not required. The definitions of the five possible plant conditions are listed on the bottom of each page in the Matrix of EALs.

3.5 Fission Product Barriers

- The Fuel Cladding
- The Reactor Coolant System (RCS)
- The Primary Containment

3.6 Fuel cladding integrity - The fuel cladding shall be considered breached if coolant activity exceeds 300 uci/gm Dose Equivalent Iodine (DEI) or, Off-gas discharge indicates greater than 10,000 mR/Hr.

3.7 General Emergency - Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

3.8 Primary Containment Integrity - The primary containment shall be considered breached if any of the following conditions exist during an accident sequence:

3.8.1 Unexplained rapid decrease in D.W. Pressure (exceeds makeup capacity)

-or-

3.8.2 Unexplained increase in Secondary Containment A.R.M.'s in more than one area with known or suspected leakage from Primary Containment.

-or-

3.8.3 Venting of the D.W. is required for accident control.

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3.9 RCS Integrity - Shall be considered breached if there is confirmed leakage from the RCS in excess of 50 gpm.

3.10 Site Area Emergency - Events are in process or have occurred which involve an actual or likely major failure of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near Site Boundary.

3.11 Sustained - In excess of (5) five consecutive minutes or less at the Emergency Director's discretion.

3.12 Unusual Event - Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

4.0 RESPONSIBILITIES

4.1 The Group Shift Supervisor (GSS) is responsible for the initial evaluation of abnormal or emergency site conditions and for directing immediate Emergency Plan Implementing Procedure emergency actions once assuming the duties of the Emergency Director.

4.2 The GSS is responsible for implementing this procedure until relieved of Emergency Director duties by a qualified Emergency Director.

4.3 The Emergency Director is responsible for the continuous assessment and evaluation of emergency conditions and for directing immediate Emergency Plan Implementing Procedure emergency actions.

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5.0 PROCEDURE

- 5.1 The GSS/Emergency Director (ED) shall evaluate upon recognition of in-plant and onsite conditions to determine if an Emergency Action Level (EAL) has been attained or will be attained. Appendix 1 of this procedure, "Matrix of Emergency Action Levels", will aid in rapid identification of the appropriate emergency classification. Appendix 2 of this procedure provides the basis for specific EALs. Exhibit 2 provides a guideline for assessing the status of the fission product barriers.
- 5.2 The GSS/ED shall CLASSIFY the emergency condition when an EAL has been confirmed to be attained or exceeded at the highest applicable Emergency level. The GSS/ED should CLASSIFY an emergency condition before the EAL has been reached if it has been determined with his judgment that the EAL will be reached.
- 5.2.1 Emergency Classifications shall be made as soon as possible after confirmation that an EAL has been met or will be met. This ensures that proper protective and corrective actions are implemented and that appropriate offsite authorities are promptly notified (within 15 minutes of declaration).
- 5.2.2 If a time requirement for an entry condition is not met and information is available indicating that the time requirement will eventually be met, the GSS/ED should without waiting declare the event prior to the time requirement being met.

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5.2.3 If an EAL is missed and discovered at some time in the future, an emergency declaration is not appropriate if the EAL is no longer met. Timely (approximately within 15 minutes) notification to NRC and NJOEM should still be performed indicating the EAL missed and current plant status. Judgment must be exercised in determining if the EAL is no longer in existence. All effects on plant safety must be considered even after the event has passed. (i.e. A tornado striking the facility would normally pass quickly, but the effects on safety equipment could be sustained. Therefore, an ALERT (cat. 0.4.) should be declared as soon as possible even after the tornado has passed.)

5.3 When an emergency classification has been made, the GSS/ED shall IMPLEMENT EPIP-OC-.02 and assume the duties of the Emergency Director until relieved of Emergency Director duties by a qualified Emergency Director.

5.4 The GSS/ED shall CONTINUE ASSESSMENT of in-plant, onsite and offsite emergency conditions that may prompt emergency reclassification.

6.0 REFERENCES

- OCNGS Emergency Plan, 2000-PLN-1300.01.
- OCNGS Emergency Plan Implementing Procedure (EPIP-OC-.02)  
"Direction of Emergency Response/Emergency Control Center".
- OCNGS Emergency Operating Procedures.
- NRC Branch Position on Acceptable Deviations to Appendix 1 to  
NUREG-0654/FEMA-REP-1.

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7.0 EXHIBITS

7.1 Appendix 1, "Matrix of Emergency Action Levels for Emergency Classification".

7.2 Appendix 2, EAL Basis Exhibits.

RPV Level

RPV Pressure

Rx Power

D.W. Temp, Cont. Press, Torus Temp/Level

RCS Integrity

Fuel Conditions

Radiological Releases

Contamination/Rad Material Control

Control Room Indications

Electrical Power

Plant Equipment/Eng. Safety Features

Natural and Man-Made Hazards

Fire

Security/Sabotage

Fission Product Barriers

Emergency Directors Judgement

Ex. 1 Cross Reference Index

Ex. 2 Fission Product Barrier Guidelines

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
(A) RPV LEVEL  Applicability: Power Operations Hot Shutdown Cold Shutdown Refuel	1. RPV Level $\leq$ 86" TAF (Low Low Level) for 5 minutes or longer, -and- Not lowered by procedure	1. RPV Level $\leq$ 61" TAF (Low Low level) for 5 minutes or longer, -and- Not lowered by procedure	1. RPV Level $\leq$ 0" TAF for 5 minutes or longer, -and- Not lowered by procedure, -or- 2. RPV Level cannot be determined for 2 minutes or longer.	1. RPV Level $\leq$ 30" TAF for 2 minutes or longer NOTE: This condition is indicative of a "loss of 2 out of 3 fission product barriers with a potential loss of the third".
(B) RPV PRESSURE  Applicability: Power Operations Hot Shutdown	NONE	1. RX pressure greater than 1230 psig.	1. RX pressure greater than 1375 psig.	NONE
(C) RX POWER  Applicability: Power Operations	NONE	1. A scram signal received and power remains greater than 2%.	1. A scram signal received and power remains greater than 2% with torus temperature greater than or equal to Fig. L Boron injection temp. limit per EMG-3200.01B.	NONE
(D) DRYWELL TEMPERATURE  Applicability: Power Operations Hot Shutdown	1. Drywell bulk temp. $\geq$ 150°F (normal maximum drywell temperature) but $<$ 281°F for 5 minutes or longer.	1. Drywell bulk temp. cannot be maintained below 281°F. (maximum drywell design temperature)	1. Drywell bulk temp. cannot be maintained below 281°F. (maximum drywell temperature) and containment spray inoperable.	NONE

Power Operations - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

Cold Shutdown - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
(E) CONTAINMENT PRESSURE  Applicability: Power Operations Hot Shutdown	1. Three (3) psig or greater containment pressure and RPV level cannot be maintained greater than 138 inches TAF (Lo level scram).	1. Torus pressure >12.0 psig.	1. Torus pressure above primary containment pressure limit (Figure J, EMG-3200.02 - Containment Venting required).	1. Containment hydrogen Concentration equal to or greater than 6% <u>and</u> Drywell or Torus Oxygen Concentration greater than 5%. <u>NOTE:</u> This condition is indicative of a "Loss of 2 out of 3 fission product barriers with a potential loss of the third".
(F) TORUS TEMPERATURE  Applicability: Power Operations Hot Shutdown	1. Torus water temperature cannot be restored and maintained below 95°F within 24 hrs. during normal operations or below 105°F while testing.	1. Torus water temperature at or above 110°F.	1. Torus temperature and Rx pressure cannot be maintained below the heat capacity temperature limit. (Figure F, per EMG-3200.02).	NONE
(G) TORUS LEVEL  Applicability: Power Operations Hot Shutdown *Cold Shutdown *Refuel	1. Torus water level below minimum LCO (143 inches W.R.) but greater than 110 inches W.R. actual level and cannot be restored within 4 hours. -or- 2. Torus water level above maximum LCO (156 inches W.R.) and cannot be restored within 4 hours.	1. Torus water level at or below 110 inches W.R., and Torus level cannot be restored within 4 hours.	1. Torus level and RPV pressure cannot be maintained below the torus load limit. (Figure E, per EMG-3200.02)	NONE
*Torus Level is <u>not</u> applicable in cold shutdown or refuel conditions if Tech Spec section 3.5.A.1 is <u>not</u> required to be met.				

EE-2

**Power Operations** - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

**Cold Shutdown** - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>(H) RCS INTEGRITY</p> <p>Applicability: Power Operations Hot Shutdown</p>	<p>1. a. Rx isolation confirmed to be caused by:</p> <ul style="list-style-type: none"> <li>• Low-Low Level, -or-</li> <li>• MSL Hi Flow, -or-</li> <li>• MSL Low Press, (with verified pipe break) -or-</li> <li>• MSL Trunnion Room high temperature -or-</li> </ul> <p>b. ISO Condenser Isolation confirmed to be caused by:</p> <p>Isolation Condenser Hi Flow (with verified pipe break) -or-</p> <p>c. Primary containment isolation confirmed to be initiated by:</p> <ul style="list-style-type: none"> <li>• Low-Low Level, -or-</li> <li>• Hi Drywell Pressure -or-</li> </ul> <p>2. Confirmed Leak rate greater than:</p> <p>a. 5 gpm total unidentified leakage -or-</p> <p>b. 25 gpm total (identified and unidentified) but less than 50 gpm from the Rx Coolant System.</p>	<p>1. a. Rx Isolation required -and- MSIV's malfunction causing unisolated Main Steam Line -or-</p> <p>b. ISO Condenser (IC) isolation required -and- ISO Condenser steam or condensate valves malfunction causing unisolated I.C. -or-</p> <p>c. Primary Cont. isolation required and Primary Cont. isolation valves malfunction causing unisolated release path. -or-</p> <p>2. Confirmed leak rate exceeds 50 gpm from the Rx Coolant System.</p>	<p>1. a. Confirmed main steam line break which exceeds 500,000 lbm/hr outside primary containment -and- MSL's are not isolated -or-</p> <p>b. ISO Condenser break outside primary containment -and- ISO Condenser steam or condensate lines are not isolated.</p> <p><u>NOTE:</u> These conditions represent a loss of containment and Rx Coolant System Barriers.</p>	<p>NONE</p>

E1-3

Power Operations - Tech Spec Definition.

Hot Shutdown - Shutdown Condition or Refuel Mode as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

Cold Shutdown - Tech Spec Definition.

Refuel - Tech Spec Definition of Refuel Mode and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

<u>CATEGORY</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE AREA EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>(I) <b>FUEL CONDITIONS</b></p> <p>Applicability: All plant conditions</p>	<p>Fuel Damage Indicated</p> <ol style="list-style-type: none"> <li>1. Offgas of 3,330 mR/hr or increase of 666 mR/hr in 30 minutes. -or-</li> <li>2. Reactor coolant Iodine activity of greater than 0.2 uCi/gm, but less than 300 uCi/gm Dose Equivalent Iodine (DEI) -or-</li> <li>3. Unexplained, verified stack gas rad monitor Hi-Hi Alarm; -or- Unexplained, verified HI-Hi alarm on any process rad monitor. -or-</li> <li>4. Main Steam Isolation Valve Closure due to MSL High Radiation</li> </ol>	<p>Loss Fuel Cladding</p> <ol style="list-style-type: none"> <li>1. Offgas of greater than 10,000 mR/Hr -or-</li> <li>2. Reactivity coolant Iodine (DEI) activity of greater than or equal to 300 uCi/gm, DEI.</li> </ol>	<p>Significant (20%) Fuel Cladding failure indicated by:</p> <ol style="list-style-type: none"> <li>1. Containment Hi-Range Radiation Monitoring System (CHRRMS) reading greater than or equal to 2.0E+4 R/Hr -or-</li> <li>2. Containment Hydrogen greater than or equal to 10%.</li> </ol>	<p>NONE</p>

E1-4

**Power Operations** - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

**Cold Shutdown** - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>(J)            RADIOLOGICAL            RELEASES</p> <p>Applicability:            All plant            conditions</p>	<p>1. Noble Gas: Stack Monitor greater than CPSUE*            -or-            2. Iodine: Release rate greater than 4 uCi/sec            -or-            3. 10 CFR 20, Appendix B, Table 2, Column 2, Limits exceeded in discharge canal at Rt. 9 Bridge            -or-            Offsite Dose:</p> <p>4. A valid integrated dose at (or beyond) the Site Boundary of greater than or equal to 0.1 mRem total whole body dose (TEDE) but less than 10 mRem total whole body dose (TEDE) exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul> <p>-or-</p> <p>5. A valid integrated dose at (or beyond) the Site Boundary of greater than 0.5 mRem (CDE) adult thyroid but less than 50 mRem (CDE) adult thyroid dose exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul>	<p>1. Noble Gas: Stack Monitor greater than CPSA**            -or-            2. Iodine: Release rate greater than 40 uCi/sec            -or-            3. 10 CFR 20, Appendix B, Table 2, Column 2, Limits exceeded by a factor of 10 in discharge canal at Rt. 9 Bridge.            -or-            Offsite Dose:</p> <p>4. A valid integrated dose at (or beyond) the Site Boundary of greater than or equal to 10 mRem total whole body dose (TEDE) but less than 50 mRem total whole body dose (TEDE) exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul> <p>-or-</p> <p>5. A valid integrated dose at (or beyond) the Site Boundary of greater than or equal to 50 mRem (CDE) adult thyroid but less than 250 mRem (CDE) adult thyroid dose exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul>	<p>Offsite Dose:</p> <p>4. A valid integrated dose at (or beyond) the Site Boundary of greater than or equal to 50 mRem total whole body dose (TEDE) but less than 1000 mRem (1 Rem) total whole body dose (TEDE) exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul> <p>-or-</p> <p>5. A valid integrated dose at (or beyond) the Site Boundary of greater than or equal to 250 mRem (CDE) adult thyroid but less than 5000 mRem (5 Rem) (CDE) adult thyroid dose exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul>	<p>Offsite Dose:</p> <p>4. A valid integrated dose at (or beyond) the Site Boundary of greater than or equal to 1000 mRem (1 Rem) total whole body dose (TEDE) exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul> <p>-or-</p> <p>5. A valid integrated dose at (or beyond) the Site Boundary of greater than or equal to 5000 mRem (5 Rem) (CDE) adult thyroid exists as indicated by:</p> <ul style="list-style-type: none"> <li>• dose projections -or-</li> <li>• field team readings</li> </ul>
<p>*CPSUE is the Unusual Event trigger provided routinely by Chemistry.            **CPSA is the Alert trigger provided routinely by Chemistry.</p>				

E1-5

Power Operations - Tech Spec Definition.

Hot Shutdown - Shutdown Condition or Refuel Mode as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

Cold Shutdown - Tech Spec Definition.

Refuel - Tech Spec Definition of Refuel Mode and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

<u>CATEGORY</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE AREA EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
(K) CONTAMINATION/ RAD MATERIAL CONTROL  Applicability: All plant conditions	Independent Spent Fuel Storage Installation  1. 2R/hr at the face of a SF Module  -or-  1R/hr at 1 foot from a damaged Module in the Independent Spent Fuel Storage Installation	Rad Material Control  1. Verified mechanical damage to irradiated fuel which results in a high alarm on any of the following refuel floor ARM's: B-9, C-9, C-10.  -or-  2. Any incident involving rad material which results in unexpected increase of in-plant rad levels or air-borne contamination by a factor of 1000.	Fuel Handling  1. Major damage to spent fuel resulting in uncontrolled release of radioactive material, or uncontroll- able decrease in fuel pool water level below top of spent fuel.	NONE

E1-6

**Power Operations** - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

**Cold Shutdown** - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

<u>CATEGORY</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE AREA EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>(L) CONTROL ROOM INDICATIONS</p> <p>Applicability: Power Operations</p>	<p>Loss of Indications:</p> <p>1. Loss of indication or alarm on processing monitored systems or effluent stream in Control Room, causing Rx to be shutdown.</p> <p style="text-align: center;">-or-</p> <p>2. Loss of any means of plant assessment, <u>causing</u> Rx to be shutdown.</p>	<p>Loss of Indications:</p> <p>1. Loss of 3 or more Control Room Annunciator Panels during power operations for greater than 5 mins. No backup alarm information capability available (SAR &amp; PCS).</p>	<p>Loss of Indications:</p> <p>1. Loss of 3 or more Control Room Annunciator Panels during power operations for greater than 5 mins. No backup alarm information capability available (SAR &amp; PCS).</p> <p style="text-align: center;">-and-</p> <p>A plant transient condition exists which causes a change in Rx power of more than 10% (APRM).</p>	NONE
<p>(L) CONTROL ROOM INDICATIONS</p> <p>Applicability: All Plant Conditions</p>	<p>3. Valid unplanned loss of all communications capability such that no means of notification to offsite agencies exist as determined by the GSS/ED.</p>	<p>2. Evacuation of Control Room anticipated or required with control of shutdown system established from local stations within 15 minutes.</p>	<p>2. Evacuation of Control Room <u>and</u> control of shutdown systems <u>not</u> established from local stations within 15 minutes.</p>	NONE

E1-7

**Power Operations** - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

**Cold Shutdown** - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

<u>CATEGORY</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE AREA EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>(M) ELECTRICAL POWER</p> <p>Applicability: Power Operations Hot Shutdown</p>	<p>Loss of Power:</p> <p>1. Loss of power to 4160V Buses 1A and 1B for greater than one hour;</p> <p>-or-</p> <p>2. Loss of both diesel generator capabilities for greater than one hour.</p>	<p>Loss of Power:</p> <p>1. Loss of power to 4160V Buses 1A and 1B for greater than 60 seconds but <u>less than 15 minutes</u></p> <p>-and-</p> <p>-Loss of both diesel generator capabilities;</p> <p>-or-</p> <p>2. Loss of all plant vital DC power for greater than 60 seconds but less than 15 minutes.</p>	<p>Loss of Power:</p> <p>1. Loss of power to 4160V Buses 1A and 1B <u>Exceeds</u> 15 minutes</p> <p>-and-</p> <p>-Loss of both diesel generator capabilities;</p> <p>-or-</p> <p>2. Loss of all plant vital DC power for more than 15 minutes.</p>	NONE
<p>(M) ELECTRICAL POWER</p> <p>Applicability: Cold Shutdown Refuel/Defueled</p>	<p>3. Loss of power to 4160V Buses 1A and 1B for greater than 60 seconds but <u>less than 15 minutes</u></p> <p>-and-</p> <p>Loss of both diesel generator capabilities</p> <p>-or-</p> <p>4. Loss of all plant vital DC power for greater than 60 seconds but less than 15 minutes.</p>	<p>3. Loss of power to 4160V Buses 1A and 1B <u>Exceeds</u> 15 minutes.</p> <p>-and-</p> <p>Loss of both diesel generator capabilities;</p> <p>-or-</p> <p>4. Loss of all plant vital DC power for more than 15 minutes.</p>	NONE	NONE

**Power Operations** - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

**Cold Shutdown** - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

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MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

<u>CATEGORY</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE AREA EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>(N) PLANT EQUIPMENT ENGINEERED SAFETY FEATURES OR FIRE PROTECTION SYSTEM</p> <p>Applicability: Power Operations Hot Shutdown for SAE, and GE</p> <p>Power Operations Hot Shutdown Cold Shutdown Refuel for UE and Alert</p>	<p>Failure to comply with Tech. Spec. L.C.O.'s</p> <p>1. Plant is not brought to required operating mode within Technical Specification L.C.O Action Statement Time.</p>	<p>Loss of Cold Shutdown Equipment</p> <p>1. Complete loss of all ability to achieve and maintain cold shutdown.</p>	<p>Loss of Hot Shutdown Equipment</p> <p>1. Complete loss of any function needed for plant hot shutdown, (e.g. Rx Prot. Sys. or CRD System) when hot shutdown is required.</p>	<p>Loss of Decay Heat Heat Removal</p> <p>1. Shutdown occurs, but all decay heat removal capability is lost. Significant cladding failure or fuel melt <u>could</u> occur in 10 hours with subsequent containment failure.</p>

EP-9

**Power Operations** - Tech Spec Definition.

**Hot Shutdown** - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

**Cold Shutdown** - Tech Spec Definition.

**Refuel** - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

**Defueled** - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>(O) NATURAL HAZARDS (Earthquakes, Intake Levels High Winds)</p> <p>Applicability: All Plant Conditions for UE and Alert</p> <p>Applicability for SAE 1, 2, 3, &amp; 4 Power Operations, Hot Shutdown.</p>	<p>Natural Phenomenon</p> <ol style="list-style-type: none"> <li>1. Verified earthquake felt in plant.</li> <li>-or-</li> <li>2. Intake canal water level <math>\leq</math>-2.0 feet as measured by the staff gauge.</li> <li>-or-</li> <li>3. Intake water level 4.5 feet above sea level (1.5 feet below intake structure lower deck).</li> <li>-or-</li> <li>4. Sustained high winds greater than 74 mph, as indicated on wind speed recorder.</li> <li>-or-</li> <li>5. The National Weather Service is forecasting sustained winds in excess of 74 mph for the site within 4 hours.</li> <li>-or-</li> <li>6. The Oyster Creek site is included in a tornado "warning" area.</li> </ol>	<p>Natural Phenomenon</p> <ol style="list-style-type: none"> <li>1. Earthquake affecting plant operations.</li> <li>-or-</li> <li>2. Intake canal water level <math>\leq</math>-2.5 feet as measured by the staff gauge.</li> <li>-or-</li> <li>3. Intake water level at the intake structure lower deck.</li> <li>-or-</li> <li>4. Sustained hurricane force winds of greater than 95 mph, as indicated on wind recorder.</li> <li>-or-</li> <li>5. Any tornado striking the facility.</li> </ol>	<p>Natural Phenomenon</p> <ol style="list-style-type: none"> <li>1. Earthquake affecting systems required for shutdown.</li> <li>-or-</li> <li>2. Intake canal water level <math>\leq</math>-3.0 feet, as measured by the staff gauge.</li> <li>-or-</li> <li>3. Intake water level greater than 8 feet above sea level. (2.0 feet above intake structure lower deck).</li> <li>-or-</li> <li>4. Sustained wind speed in excess of 100 mph indicated in the Control Room.</li> </ol>	<p>NONE</p>

01-10

Power Operations - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

Cold Shutdown - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>(P) MAN-MADE HAZARDS</p> <p>Applicability: All Plant Conditions for UE and Alert</p> <p>Applicability for SAE 1, 2 &amp; 3 Power Operations Hot Shutdown</p>	<p>Hazards Experienced/Projected</p> <p>1. Onsite aircraft crash outside the protected area fence <b>AND NOT</b> impacting permanent plant structures.</p> <p>-or-</p> <p>2. Unanticipated explosion detected near the site <b>OR</b> onsite.</p> <p>-or-</p> <p>3. Near the site or onsite TOXIC GAS, FLAMMABLE GAS or LIQUID release which could affect the habitability required for normal plant operability.</p> <p>-or-</p> <p>4. Turbine rotor component (i.e., blades, wheels, shroud, bearings, or other rotating component) failure causing a Rx trip.</p>	<p>Hazards Experienced/Projected</p> <p>1. Aircraft crash <b>OR</b> other missile impact within the protected area <b>OR</b> onto any permanent structures.</p> <p>-or-</p> <p>2. Known explosion damage to any permanent plant structure.</p> <p>-or-</p> <p>3. Release of TOXIC, or FLAMMABLE GAS into the plant which affects the safe operation of the plant as determined by the Group Shift Supervisor/ Emergency Director.</p> <p>-or-</p> <p>4. Turbine failure resulting in casing penetration.</p>	<p>Hazards Experienced/Projected</p> <p>1. Aircraft crash which affects vital structures by impact <b>OR</b> by fire.</p> <p>-or-</p> <p>2. Explosion <b>OR</b> missile impact which caused severe damage to safe shutdown equipment.</p> <p>-or-</p> <p>3. Entry of TOXIC or FLAMMABLE GAS into vital area which affects the operation of safe shutdown equipment.</p>	<p>NONE</p>
<p>(Q) FIRE</p> <p>Applicability: All Plant Conditions</p>	<p>Fire</p> <p>1. Valid Fire inside the Protected Area which cannot be controlled by the fire brigade within 10 minutes from the time of verification.</p> <p><b>NOTE:</b> Also see Cat. P-2</p>	<p>Fire</p> <p>1. Fire which potentially affects the operability of a Safety System and the plant is in a transient condition requiring the use of the System.</p> <p><b>NOTE:</b> Also see Cat. P-2</p>	<p>Fire</p> <p>1. Fire which renders a Safety System completely inoperable and that system is needed to function for accident control.</p> <p><b>NOTE:</b> Also see Cat. P-2</p>	<p>NONE</p>

Power Operations - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

Cold Shutdown - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>(R) SECURITY- SABOTAGE</p> <p>Applicability: All Plant Conditions</p>	<p>Security Threat</p> <p>1. Group Shift Supervisor/ Emergency Director determination based on advice from the Site Protection Supervisor that a security threat, attempted entry, or attempted sabotage of the site (owner controlled area) condition exists.</p> <p>-or-</p> <p>2. Any attempted act of sabotage which is deemed legitimate in the judgment of the Group Shift Supervisor/Emergency Director, and affects the operations of the plant.</p>	<p>Security Threat</p> <p>1. Group Shift Supervisor/ Emergency Director determination based on advice from the Site Protection Shift Supervisor that the compromise is onsite, but no penetration of the protected area has occurred.</p> <p>-or-</p> <p>2. Any act of sabotage which results in an actual or potential substantial degradation of the level or safety of the plant, as judged by the Group Shift Supervisor/Emergency Director.</p>	<p>Security Threat</p> <p>1. Group Shift Supervisor/ Emergency Director determination based on advice from the Site Protection Shift Supervisor that security of the plant (vital area) is threatened by unauthorized (forcible) entry of the facility (protected area).</p> <p>-or-</p> <p>2. Any act of sabotage which results in an actual or likely major failures of plant functions needed for the protection of the public, as judged by the Group Shift Supervisor/Emergency Director.</p>	<p>Security Threat</p> <p>1. Group Shift Supervisor/ Emergency Director determination based on advice from the Site Protection Shift Supervisor that the loss of physical security control of the plant (vital area) has occurred.</p> <p>-or-</p> <p>2. Any act of sabotage which results in imminent significant cladding failure or fuel melting with the potential for loss of containment integrity or the potential for the release of significant amounts of radioactivity in a short time as judged by the Group Shift Supervisor/Emergency Director.</p>
<p>(S) FISSION PRODUCT BARRIERS</p> <p>Applicability: Power Operations Hot Shutdowns</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>Fission Product Barriers</p> <p>1. Loss of 2 of 3 fission product barriers with potential loss of the third (i.e., loss of coolant accident, failure of ECCS, Core Melt Probable and Loss of Containment imminent).</p>

E1-12

Power Operations - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

Cold Shutdown - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

APPENDIX 1

MATRIX OF EMERGENCY ACTION LEVELS FOR EMERGENCY CLASSIFICATION

<u>CATEGORY</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE AREA EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>(T)            EMERGENCY            DIRECTOR'S            JUDGMENT</p> <p>Applicability:            All Plant            Conditions</p>	<p>Whenever plant conditions are in progress or have occurred which may indicate a potential degradation of the level of safety of the plant, as judged by the Shift Supervisor/Emergency Director.</p> <p><u>NOTE:</u> In exercising the judgment as to the need for declaring an Unusual Event, uncertainty concerning the safety status of the plant, the length of time the uncertainty exists and the prospects of resolution of ambiguities in a reasonable time period is sufficient basis for declaring an Unusual Event.</p>	<p>Whenever plant conditions are in progress or have occurred which may involve actual or potential substantial degradation of the level of safety of the plant, as judged by the Shift Supervisor/Emergency Director.</p> <p><u>NOTE:</u> In exercising the judgment as to the need for declaring an Alert, uncertainty concerning the safety status of the plant, the length of time the uncertainty exists the prospects for resolution of ambiguities beyond a reasonable time period and the potential of the level of safety of the plant is sufficient basis for declaring an Alert.</p>	<p>Whenever plant conditions are in progress or have occurred which may involve actual or likely major failures of the plant functions needed for the protection of the public as judged by the Shift Supervisor/Emergency Director.</p> <p><u>NOTE:</u> In exercising the judgment as to the need for declaring a Site Area Emergency, uncertainty concerning the status of the plant functions needed for the protection of the public, the length of time of the uncertainty exists, the prospects for resolution of ambiguities beyond a reasonable time and the potential degradation of the plant functions needed for protection of the public is sufficient basis for declaring a Site Area Emergency.</p>	<p>None</p>

E1-13

**Power Operations** - Tech Spec Definition.

Hot Shutdown - **Shutdown Condition or Refuel Mode** as defined by Tech Spec and Rx coolant temperature not below 212°F or not vented.

**Cold Shutdown** - Tech Spec Definition.

Refuel - Tech Spec Definition of **Refuel Mode** and Rx coolant temperature below 212°F and vented.

Defueled - No fuel in the reactor vessel.

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APPENDIX 2

Category A "RPV Level"

(A) Condition Applicability	<i>Power Operations, Hot Shutdown, Cold Shutdown, Refuel</i>
Basis	<i>Because Tech Specs recognize reactor level as a Safety Limit when there is irradiated fuel in the vessel, this EAL category shall apply for all conditions while there is fuel in the vessel. The only condition which does not apply is the Defueled condition.</i>
Classification	Unusual Event
EAL	RPV level $\leq 86$ " TAF (Low-Low Level) for 5 minutes or longer, -and- Not lowered by procedure
Basis	This EAL is a precursor to situations leading to inadequate core cooling conditions. This situation indicates a potential degradation of the level of safety of plant due to an apparent inability to maintain normal makeup to the reactor vessel. This EAL is not intended to be applied to momentary reductions of level due to transients such as a Rx scram where level is controlled below the normal operating level. The use of 86" TAF as the setpoint is based on the Tech Spec value (7'2") as discussed under the Limiting Safety System Settings bases as an initiation signal to Core Spray System to ensure adequate Core Cooling. The 5 minutes is to prevent declaration of events which are simply transient conditions and not sustained failures. Intentional level reductions in accordance with SBEOPs or approved operation/maintenance procedures are not considered level control emergencies for the UE, Alert or SAE classes.
Classification	Alert
EAL	RPV level $\leq 61$ " TAF (Low-Low-Low Level) for 5 minutes or longer, -and- Not lowered by procedure
Basis	The inability to maintain RPV level above 61" TAF should be considered a substantial degradation of the level of safety of the plant. The use of 61" TAF as the setpoint is based on the Symptom Based Emergency Operating Procedures. This lower limit for the alternate RPV water level control band is to ensure contingency actions can be initiated before RPV level decreases to the top of active fuel. This value is utilized to be consistent with the SBEOP's concern for Core Cooling by submergence. The 5 minutes is to prevent declaration of events which are simply transient conditions and not sustained failures. Intentional level reductions in accordance with SBEOPs or approved operation/maintenance procedures are not considered level control emergencies for the Alert class.

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APPENDIX 2  
(continued)

## Category A "RPV Level"

Basis (con't)  
Classification

Site Area Emergency

EAL

- (1) RPV level  $\leq$  0" TAF for 5 minutes or longer  
-and-  
Not lowered by procedure  
-or-  
(2) RPV level cannot be determined for 2 minutes or longer

Basis

- (1) This EAL addresses the potential concern of adequate core cooling resulting from major failure of plant functions needed for the protection of the public. This condition assumes a loss of coolant in excess of makeup capacity with the potential loss of adequate core cooling. The use of 0" TAF is based on the SBEOP concern that the only mechanism to assure adequate core cooling is steam cooling. Intentional level reductions in accordance with SBEOPs or approved operation/maintenance procedures are not considered level control emergencies for the SAE class.
- (2) This EAL is intended to address the circumstances where "RPV level cannot be determined" as used by the SBEOP's. Since level cannot be determined the conservative assumption is made that it is less than the top of the active fuel. The 2 minutes is used because it is the most limiting maximum core uncover time and therefore provides additional conservatism. This EAL may escalate to the GE class based on indications of further degradation such as increasing Containment Hydrogen concentration, Containment High Range Radiation Monitors or other indicators of a "loss of 2 out of 3 fission product barriers with a potential loss of the third".

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(continued)

Category A "RPV Level"

Classification	General Emergency
EAL	RPV level $\leq$ -30" TAF for 2 minutes or longer,
Basis	<p>This EAL assumes a breach of the RCS is the cause of the low RPV level. Due to the low level, overheating of the fuel clad with subsequent failure could occur leading to a potential containment failure. The cladding failure may be exhibited by the production of hydrogen. If this condition exists venting of the containment could be required. Under this set of circumstances plant conditions are unstable indicating a "loss of two out of three fission product barriers with a potential loss of the third. The use of -30" TAF is in recognition of the loss of core submergence and the loss of the Minimum Steam Cooling Water Level as identified in the SBEOP's. Further degradation may lead to clad failure and ultimately substantial core damage. The 2 minutes establishes the conservative approach by assuming the core is uncovered within 5 minutes of S/D, thereby meeting the max. core uncover time limit.</p> <p>It should also be noted, the classification is required even if a procedure would instruct such actions (level/power control) due to the potential for fuel damage under such extreme conditions.</p>

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APPENDIX 2

## Category B "RPV Pressure"

**(B)****Condition  
Applicability****Power Operations, Hot Shutdown****Basis*****For the vessel to have pressure present the reactor must be in either Power Operation or Hot Standby condition. The other conditions by definition do not include any pressure operation.***

Classification Alert

EAL Rx pressure greater than 1230 psig.

Basis

This EAL is an escalation of the U.E. class. The value of 1230 psig was selected because it is the highest opening value for the safety valves as specified in Technical Specifications. This condition is indicative of a continuing pressure control failure which was not corrected by several safety functions. This EAL is not intended for short-lived pressure spikes such as after the design based transient - turbine trip without bypass capability, but rather a continuous high pressure condition, (existing for 5 consecutive minutes).

Classification Site Area Emergency

EAL Rx Pressure greater than 1375 psig

Basis

This EAL is a further escalation of the high pressure condition. The value 1375 psig was selected because it is the safety limit value provided in Tech Specs. The pressure vessel is capable of withstanding this pressure, however, the extent to which this value can be exceeded and the duration of the condition is not readily known. Pressures in excess of design can lead to catastrophic failure of the vessel, having unknown impact on the fuel clad and containment barriers. Additionally this condition is indicative of a major loss of pressure control ability. For these reasons confirmed RPV pressures in excess of 1375 psig for any length of time should be classified at this level.

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APPENDIX 2

Category C "Rx Power"

**(C)  
Condition  
Applicability**

**Power Operation**

**Basis** *The Alert and SAE levels require Rx power to remain above 2%. By definition the only condition which the Rx can be critical in is Power Operations. The other conditions do not allow criticality by design and therefore do not apply.*

**Classification** Alert

**EAL** A scram signal received and power remains greater than 2%.

**Basis** This EAL is intended to address the failure of the RPS to initiate and complete a scram which brings the reactor subcritical. This condition represents a major failure of the reactor protection system to complete its intended function. Such a failure is a substantial degradation of the level of safety of the plant. This EAL does not distinguish between a manually initiated scram or automatically initiated scram. If either method fails to initiate and complete the scram function and power remains greater than 2%, this EAL is met regardless of whether a backup function is implemented to completion.

**Classification** Site Area Emergency

**EAL** A scram signal received and power remains greater than 2% with torus temperature greater than or equal to Figure L, Boron injection initiation temperature limit per EMG-3200.01B.

**Basis** This EAL is an upgraded condition of the Alert Classification. In conjunction with the failure of the RPS, the main condenser is assumed to be lost causing the containment to absorb the energy from the reactor. Continued operation in this manner could lead to a major failure of the primary containment which would have a significant impact on the general public.

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APPENDIX 2

Category D, E, F, G "D.W. Temp, Cont. Press. Torus Temp and Level"

*(D & E)***Condition  
Applicability****Power Operations, Hot Shutdown****Basis**

*The OC EAL basis for both of these categories is to address conditions which could lead to a loss of containment integrity. OC Tech Specs require containment integrity to be provided whenever the plant is greater than 212°F. or the Rx is critical (except during physics testing). By definition the only conditions which apply to critical or hot operations are Power Operation and Hot Shutdown.*

*(F)***Condition  
Applicability****Power Operation, Hot Shutdown****Basis**

*Torus temperature is an indication of a reactor coolant leak when at power or hot. Additionally, its temperature is considered in accident analysis for accidents occurring while at power.*

*Tech Specs Section 3.5.A.1.C specifies when torus temperature limits apply. All limits are stated for power operation.*

*Because containment integrity is required when hot or critical, torus temperature EALS are required when in Power Operation or Hot Shutdown.*

*(G)***Condition  
Applicability****Power Operations, Hot Shutdown, \*Cold Shutdown, \*Refuel****Basis**

*Torus level is required for conditions beyond conditions requiring containment integrity. Tech Spec Section 3.5.A.1.a&b state the max and min level allowed in the Torus and they are limiting if there is irradiated fuel in the vessel and work is being done which has potential to lower vessel level or the RPV is pressurized. This means torus level limits apply to all defined EAL Rx conditions except for Defueled or if Tech Spec Section 3.5.A.1 is not required to be met (\*while in Cold Shutdown or Refuel).*

**Classification**

Unusual Event

**EAL's**

- Cat. D Drywell bulk temperature  $\geq 150^{\circ}\text{F}$ . (Normal maximum D.W. temperature) but less than  $281^{\circ}\text{F}$  for 5 minutes or longer.
- Cat. E Three psig or greater containment pressure and RPV level cannot be maintained greater than 138 inches TAF. (Lo Level Scram)
- Cat. F Torus water temperature cannot be restored and maintained below  $95^{\circ}\text{F}$  within 24 hours during normal power operations or below  $105^{\circ}\text{F}$  while testing.
- Cat. G Torus water level below minimum LCO - or above maximum LCO -, and cannot be restored within 4 hours.

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APPENDIX 2  
(Continued)

Category D, E, F, G "D.W. Temp, Cont. Press. Torus Temp and Level"

**Basis** The EAL's in these categories at the U.E. Class are intended to address those precursor events and conditions which could lead to a loss of containment integrity. These EAL's are considered potential problems which have an impact on containment integrity. The primary concern is mitigation of the condition which is posing a threat to the containment.

**Classification** Alert

**EAL's**

- Cat. D Drywell bulk temp cannot be maintained below 281°F. (Maximum drywell design temperature.)
- Cat. E Torus pressure >12.0 psig.
- Cat. F Torus water temperature at or above 110°F.
- Cat. G Torus water level at or below 110 inches W.R., and torus level cannot be restored within 4 hours.

**Basis** The alert classification assumes a breach of the reactor coolant system has caused the increased containment parameters or a breach of the containment is the cause of the decreased torus level. Under these assumptions, the containment parameters utilized are indicative of a substantial degradation in the level of safety of the plant. These conditions should be validated by other plant parameters indicating a loss of coolant to the containment or a torus leak.

**Classification** Site Area Emergency

**EAL's**

- Cat. D Drywell bulk temp. cannot be maintained below 281°F and containment spray is inoperable.
- Cat. E Torus pressure above primary containment pressure limit (Figure J - EMG-3200.02 Containment Venting req'd).
- Cat. F Torus temperature and Rx pressure cannot be maintained below the heat capacity temperature limit (Figure F, EMG-3200.02).
- Cat. G Torus level and RPV pressure cannot be maintained below the torus load limit (Figure E, EMG-3200.02).

**Basis** The conditions necessary to meet these EAL's are assumed to be from a breach of the Reactor Coolant System. These conditions are upgraded from the Alert Class because of the potential loss of containment. The breach of the containment may be from it's inability to withstand further stress or, intentional venting when directed by procedure. In any case this provides a release path to the environment which could adversely affect the general public.

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APPENDIX 2  
(Continued)

Category D, E, F, G "D.W. Temp, Cont. Press. Torus Temp and Level"

Classification	General Emergency
EAL	Cat. E Containment H2 concentration equal to or greater than 6% and D.W. or Torus O2 concentration greater than 5%.
Basis	This EAL is intended to cover those situations where the hydrogen production is due to the zirconium-water reaction expected in fuel melt sequences. The oxygen component may be achieved through venting the containment or other means are possible. With the levels of 6% hydrogen and 5% oxygen an explosive mixture could exist. If ignited this could cause a breach of the containment. Since the fuel clad is already breached (zirc-water reaction) and the RCS is breached (hydrogen in containment) then this situation should be considered a loss of 2 out of 3 fission product barriers with a potential loss (or actual loss) of the third.

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APPENDIX 2

## Category H "RCS Integrity"

**(H)****Condition  
Applicability****Power Operations, Hot Shutdown****Basis****All items listed in this category are listed for systems required if hot or at power.****When in Cold S/D or Refuel condition, excessive leakage will cause RPV level to decrease and EAL category (A) will become the entry action level for these events.****This category is not applicable in the Defueled condition because RPV conditions are no longer supporting irradiated fuel containment.**

Classification

Unusual Event

EAL

1a. Rx Isolation confirmed to be caused by:

- Low-Low level, -or-
- MSL hi flow, -or-
- MSL Low Press, (with verified pipe break)
- MSL Trunnion Room high temperature

-or-

b. Iso Condenser isolation confirmed to be caused by:  
Isolation Condenser Hi Flow (with verified pipe break)

-or-

c. Primary Containment Isolation confirmed to be initiated  
by:

- Low-Low Level, -or-
- Hi Drywell Pressure

-or-

2. Confirmed leak rate greater than:

a. 5 gpm total unidentified leakage

-or-

b. 25 gpm total (identified and unidentified) but  
less than 50 gpm from the Rx Cool. System

Basis

The EAL's presented in this class are indicative of a significant leak from the Reactor Coolant System. The conditions under item 1 indicate the need to stop a presumed leak and the isolation function works. The EAL's under item 2 are derived from the Tech Spec LCO on Rx Coolant allowable leak rate, since the Nureg specifically requires meeting this condition. In order to address relatively small leak rate concerns, confirmatory actions (assessment) should be done expeditiously, preferably within one hour of identification of problem. These EAL's should not be applied in circumstances which do not require meeting the Tech Spec conditions such as testing, or when the vessel is de-fueled.

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APPENDIX 2

Category H "RCS Integrity"

Classification Alert

- EAL
- 1a. Rx isolation required
    - and-
    - MSIV's malfunction causing unisolated main steam line
    - or-
  - b. Iso Condenser (I.C.) isolation required
    - and-
    - Iso Condenser steam or condensate valves malfunction causing unisolated I.C.
    - or-
  - c. Primary Containment isolation required and primary containment isolation valves malfunction causing unisolated release path
    - or-
  - 2. Confirmed leak rate exceeds 50 gpm from the Rx Coolant System

Basis

The intent of EAL #1 is to address the failure of the automatic isolation function. This is considered a significant degradation in the level of safety of the plant since the automatic function was required and did not occur or continue to completion. If a manual isolation is initiated by operator actions prior to the automatic function taking place this classification should not be declared. Alternately, if the automatic function fails to occur and a manual isolation or operator initiated isolation (eg. mode switch placed in run with MSL pressure less than 850) is implemented, the conditions of these EAL's are met. If the manual isolation actions fail to be effective consideration should be given to the SAE class of this category for continued release concerns.

Title

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APPENDIX 2

## Category H "RCS Integrity"

Classification Alert

Basis

The intent of EAL #2 is to address excessive leak rates from the Rx Coolant System. Confirmation of the leak rate should be done expeditiously, preferably within one hour of identification of the problem. Leak rate may be integrated over a reasonable period of time (e.g., 30 minutes) in cases where accuracy is important (i.e., around 50 gpm), but in cases of obvious large leaks, this period should be minimized. Thirty minutes was chosen as the integration period because it represents approximately 8 inches of RPV level at 50 gpm and is a marked step increase from the Unusual Event EAL. Thirty minutes also allows for an accurate measurement that reduces effects of transient conditions. A leak of this magnitude has the potential to cause damage to other equipment even during periods when there is no fuel in the vessel. For this reason, leaks from the RCS at this rate or higher require declaration of an Alert.

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APPENDIX 2

Category H "RCS Integrity"

Classification	Site Area Emergency
EAL	1a. Confirmed main steamline break which exceeds 500,000 lbm/hr outside primary containment -and- Main steamlines are not isolated -or- b. Iso Condenser break outside primary containment -and- Iso Condenser steam or condensate lines are not isolated

Basis

The conditions cited in these EAL's represent a release path to the environment. Under these conditions 2 fission product barriers are breached (Rx Coolant System indicated by the leak and primary containment indicated by failure to isolate or is being bypassed). Off-site dose assessment should be performed before de-escalation or termination from this condition because of the unknown release impact. The reason that 500,000 lb/hr was chosen is that this is the smallest value that CR instrumentation can indicate on the main steamline flow instrument on the front panel.

Other situations may occur which indicate a failure of the RCS and also bypass containment, under these conditions E.D. Judgement may apply, but in all cases dose assessment should be performed.

These EAL's are intended to address the Nureg statement "BWR steam line break outside containment without isolation".

Title

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APPENDIX 2

## Category I "Fuel Conditions"

(I)

**Condition  
Applicability****All Plant Conditions.****Basis****All conditions apply because even fuel pool accidents could lead to conditions meeting some of the EALs listed here.**

Classification

Unusual Event

EAL's

Fuel Damage Indicated

1. Offgas of 3,330 mR/hr, or increase of 666 mR/hr in 30 min.  
-or-
2. Reactor coolant Iodine activity of greater than 0.2uCi/gm, but less than 300 uCi/gm Dose Equivalent Iodine (DEI)  
-or-
3. Unexplained, verified stack gas rad monitor Hi-Hi Alarm;  
-or-  
Unexplained, verified Hi-Hi Alarm on any process rad monitor;  
-or-
4. Main Steam Isolation Valve Closure due to MSL High Radiation.

Basis

These EAL's are intended to address indications of irradiated fuel cladding perforation and the subsequent release of fission product gases. These conditions are precursors of more serious cladding degradation. The use of alarmed functions provides warning to the operator of potential fuel damage. The off-gas value of 3,330 mR/hr is derived from the use of the conversion factor of "150". The Nureg 0654 limit is 500,000 uci/sec. The conversion factor is normally less than the "150" value, however this provides the appropriate conservatism when assessing the status of the fuel.

Classification

Alert

EAL's

Loss of Fuel Cladding

1. Offgas of greater than 10,000 mR/hr:  
-or-
2. Reactor coolant Iodine activity of greater than or equal to 300 uCi/cc, DEI.

Basis

These EAL's are indicative of a breach of the fuel clad fission product boundary. This condition should be considered a "loss of 1 out of 3 fission product barriers" and requires classification as an alert.

Classification

Site Area Emergency

EAL's

Significant (20%) Fuel Cladding failure indicated by:

1. Containment Hi-Range Radiation Monitoring System (CHRRMS) reading greater than or equal to 2.0E+4 R/Hr.  
-or-
2. Containment Hydrogen greater than or equal to 10%.

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APPENDIX 2

Category I "Fuel Conditions"

Basis

The radiation reading or hydrogen concentration inside the primary containment are expected to be due to a degraded core condition and a breach of the RCS boundary. This condition is indicative of a "loss of 2 out of 3 fission product barriers". The use of 10% H<sub>2</sub> concentration in this case has no bearing on the impact to the containment, but rather is indicative of the amount of fuel clad damage by the metal-water reaction.

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APPENDIX 2

## Category J "Radiological Releases"

(J)

**Condition  
Applicability****All Plant Conditions.****Basis****This covers any event which leads to a rad release regardless of plant condition.**

Classifications

Unusual Event

EAL's

1. Noble Gas: Stack Monitor greater than CPS<sub>UE</sub>  
-or-
  2. Iodine: Release rate greater than 4 uCi/sec  
-or-
  3. 10 CFR 20, Appendix B, Table 2, Column 2, limits exceeded in discharge canal at Rt. 9 Bridge  
-or-
- Off-site Dose:
4. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 0.1 mRem total whole body (TEDE) but less than 10 mRem total whole body dose (TEDE) exists as indicated by: dose projections or field team readings  
-or-
  5. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 0.5 mRem (CDE) adult thyroid but less than 50 mRem (CDE) adult thyroid dose exists as indicated by: dose projections or field team readings.

Basis

Unplanned releases in excess of the site technical specifications that continue for 5 minutes or longer represent a potential degradation in the level of safety. The final integrated dose is not the primary concern here, it is the degradation in plant control implied by the fact that the release was not isolated. The term "Unplanned", as used in this context, includes any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions (e.g., minimum dilution flow, maximum discharge flow, alarm setpoints, etc.) on the applicable permit. Offsite Dose due to plant releases (readings above background) can be determined from field measurement readings or dose projections. Monitor indications are calculated on the basis of the methodology of the Offsite Dose Calculation Manual (ODCM), which demonstrates compliance with 10CFR20 and/or 10CFR50 Appendix I requirements. In EAL 4, the 0.1 mR value is based on a proration of two times the 500 mR/yr for an individual member of the public stated in the Oyster Creek Off-Site Dose Calculation Manual, rounded down to 0.1 mRem per event.

Title

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APPENDIX 2

## Category J "Radiological Releases"

Classification Alert

- EAL's
1. Noble Gas: Stack Monitor greater than CPS<sub>A</sub>  
-or-
  2. Iodine: Release rate greater than 40 uCi/sec  
-or-
  3. 10 CFR 20, Appendix B, Table 2, Column 2, Limits exceeded by a factor of 10 in discharge canal at Rt. 9 Bridge.  
-or-

## Offsite Dose:

4. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 10 mRem but less than 50 mRem total whole body dose (TEDE) exists as indicated by: dose projections or field team readings.  
-or-
5. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 50 mRem but less than 250 mRem (CDE) adult thyroid dose exists as indicated by: dose projections or field team readings.

Basis This event escalates from the Unusual Event by escalating the magnitude of the release by a factor of 10. In EAL 3, the 10.0 mR/hr value is based on a proration of 200 times the 500 mR/Yr limit for an individual member of the public stated in the Oyster Creek Off-Site Dose Calculation Manual, rounded down to 10.0 mR/hr. EALs' at this level or higher are entry conditions to Procedure EMG-3200.12.

Classification Site Area Emergency

EAL's Offsite Dose:

4. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 50 mRem but less than 1000 mRem (1 Rem) total whole body dose (TEDE) exists as indicated by: dose projections or field team readings.  
-or-
5. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 250 mRem but less 5000 mRem (5 Rem) (CDE) adult thyroid exists as indicated by: dose projections or field team readings.

Basis The 50 mRem is based on the corporate philosophy for classification relative to the EPA's protective action guidelines, where 5% of the lower limit shall be the trigger value for a Site Area Emergency. The 250 mRem child thyroid dose is in consideration of the 1:5 ratio established by the PAG's for total whole body dose (TEDE) to (CDE) adult thyroid relationship.

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APPENDIX 2

## Category J "Radiological Releases"

Classification General Emergency

EAL's

Offsite Dose:

4. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 1000 mRem (1 Rem) total whole body dose (TEDE) exists as indicated by: dose projections or field team readings.

-or-

5. A valid integrated dose at or beyond the Site Boundary of greater than or equal to 5000 mRem (5 Rem) (CDE) adult thyroid exists as indicated by: dose projections or field team readings.

Basis

The 1000 mRem total whole body (TEDE) and the 5000 mRem (CDE) adult thyroid integrated dose are based on the proposed EPA protective action guidance which indicates that public protective actions are warranted if the dose exceeds 1 rem total whole body (TEDE) or 5 rem (CDE) adult thyroid. This is consistent with the emergency class description for a General Emergency and the Nureg's initiating conditions. Actual meteorology (including forecasts) should be used.



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APPENDIX 2

## Category K "Contamination/Rad Material Control"

Basis

EAL #1 is intended to meet the Nureg concern for a fuel damage accident which results in a release of radioactivity to the secondary containment. The damage addressed by this EAL is expected from bumping, dropping or otherwise mishandling of a fuel bundle during fuel handling evolutions. In the case of both EAL #1 and #2 not all area radiation monitors are installed for the purposes of providing general habitability information in normal and emergency conditions. Some area monitors are in effect process monitors which provide the health physics staff a quick indication of routine but radical changes in radiological conditions. For example, an area radiation monitor in the vicinity of a radwaste filtration system backwash filter may routinely increase by a factor of several hundred times when the system is in use. This information is important real time information for health physics in providing work permits but is not an indication of an emergency. Thus, this EAL addresses an event of significance to the protection of the public, i.e., failure of the fuel cladding resulting in high RCS activity with high area radiation monitor readings in the vicinity of the RCS, or radiation levels or airborne contamination which indicates a severe degradation in the control of radioactive materials.

Classification

Site Area Emergency

EAL

Fuel Handling

1. Major damage to spent fuel resulting in uncontrolled release of radioactive material, or uncontrollable decrease in fuel pool water level below top of spent fuel.

Basis

This EAL is an escalation of the Alert condition caused by mechanical damage or overheating of multiple fuel bundles. Readings of approximately 10 times the set points of ARMS's B-9, C-9 or C10 is indicative of "Major Damage". This EAL is intended to address irradiated spent fuel requiring water coverage. It is not intended to address spent fuel which is licensed for dry storage or other incidents not related to irradiated fuel storage. The concern addressed by this condition is a release of gap activity from damaged fuel rods or excessive heating of the fuel from decay heat leading to clad perforation. This release is of sufficient magnitude to be detected by the ventilation monitoring system. Since a release is expected from this condition off-site dose assessment should be performed immediately.

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APPENDIX 2

Category L "Control Room Indications"

(L)  
**Condition  
Applicability**

*Power Operations or All Plant Conditions as Listed in EAL.*

**Basis**

*Events which apply only to Power Operations can only occur during power operations as worded. Events which apply to all Plant Conditions could occur during any plant condition.*

**Classification**

Unusual Event

**EAL**

Loss of Indications

1. Loss of indication or alarm on process monitored systems or effluent streams in Control Room, causing Rx to be shutdown.

-or-

2. Loss of any means of plant assessment, causing Rx to be shutdown.

-or-

3. Valid unplanned loss of all communications capability such that no means of notification to off-site agencies exist as determined by the GSS/ED.

**Basis**

The loss of assessment capability sufficient to necessitate a plant shutdown due to a tech spec condition or as a prudent measure should be considered sufficient cause for declaration of an Unusual Event since this may be a precursor to a more serious condition as well as a loss of the ability to monitor plant conditions. The process monitored systems addressed in this category include - Offgas System, Turbine Bldg. - Rx. Bldg. Ventilation Systems, RAGEMS System I & II or other radiological monitored release points to the environment. The loss of all communication capability prevent notification of offsite agencies. This loss is meant to include loss of the Meridian phone system, the Dedicated Telephone lines, the direct NJ Bell lines which is in the TSC, CR and OSC, the microwave lines and the radio channels between the site and the outside world. If notification can be accomplished via any of the above systems then conditions of the EAL are not met. On the other hand if conditions are met it will not be possible to make this notification from the site. It would be prudent to send a driver to a offsite location to attempt to complete the notification.

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APPENDIX 2

Category L "Control Room Indications"

Classification	Alert
EAL	<p>Loss of Indications</p> <ol style="list-style-type: none"> <li>1. Loss of 3 or more Control Room Annunciator Panels during power operations for greater than 5 minutes. No backup alarm information capability available (SAR and PCS).</li> </ol> <p style="text-align: center;">-or-</p> <ol style="list-style-type: none"> <li>2. Evacuation of Control Room anticipated or required with control of shutdown systems established from local stations within 15 minutes.</li> </ol>
Basis	<p>A major failure of a significant portion of indications severely hampers assessment of off-normal conditions. The use of 3 or more panels is intended to provide a point of reference, however, if the condition is less than 3 panels, judgement should be applied to determine the safety significance of the loss considering specific information. The backup <u>Alarm</u> information does not have to be located in the C.R. however it should be readily available. EAL #2 applies to those circumstances where the Control Room is unavailable for plant operation regardless of cause. Plant operations conducted from areas outside the Control Room reduce the operating staff's ability to assess plant conditions and warrants declaration of an Alert.</p>
Classification	Site Area Emergency
EAL	<p>Loss of Indications</p> <ol style="list-style-type: none"> <li>1. Loss of 3 or more Control Room Annunciator Panels during power operations for greater than 5 minutes. No backup alarm information capability available (SAR and PCS).</li> </ol> <p style="text-align: center;">-and-</p> <p>A plant transient condition exist which causes a change in Rx power of more than 10% (APRM).</p> <p style="text-align: center;">-or-</p> <ol style="list-style-type: none"> <li>2. Evacuation of Control Room <u>and</u> control of shutdown systems <u>not</u> established from local stations within 15 minutes.</li> </ol>
Basis	<p>These EAL's are escalations of the Alert classifications where a plant transient, including conduct of a shutdown, places the operating condition in a less stable state with the additional burden of reduced assessment capabilities.</p>

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APPENDIX 2

Category M "Electrical Power"

*(M)*  
**Condition  
Applicability**

*Power Operations, Hot Shutdown or All Plant Conditions as Listed in EAL.*

**Basis**

*In Tech Specs 3.7, electrical power requirements are for Power Operations or Hot Shutdown on only. Events 1. and 2. for each level of emergency apply for Power Operation or Hot Shutdown.*

*Loss of power when Cold Shutdown, Refuel or Defuel will not cause any immediate release problem which is not covered by other EALs.*

*The reactor temperature will rise with loss of cooling and at 212 F events 1. or 2. will become applicable because Cold Shutdown was not maintained.*

*If in Cold S/D, Refuel or Defueled condition, the level of emergency is reduced to a more appropriate response as listed for events 3. and 4. If temperatures increase to > 212°F the levels in this category revert back to the higher level of response.*

**Classification**

Unusual Event

**EAL's**

Loss of Power

1. Loss of power to 4160V buses 1A and 1B for greater than one hour;

-or-

2. Loss of both diesel generator capabilities for greater than one hour.

**Basis**

Prolonged loss of AC power reduces required redundancy and potentially degrades the level of safety of the plant by rendering the plant more vulnerable to a complete Loss of AC Power (Station Blackout). The intent of these EAL's is to identify electrical power concerns which are outside the Tech Spec LCO's on Aux. Elect. Power.

Title

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APPENDIX 2

## Category M "Electrical Power"

Classification Alert

EAL's

Loss of Power

1. Loss of power to 4160V buses 1A and 1B for greater than 60 seconds but less than 15 minutes and:
  - loss of both diesel generator capabilities;
  - or-
2. Loss of all plant vital DC power; for greater than 60 seconds but less than 15 minutes.

Basis

Loss of backup AC power or vital DC power compromises all plant safety systems requiring electric power including those systems needed for residual heat removal, ECCS and spent fuel heat removal. Intermittent power interruptions lasting less than 15 minutes should be indicative of a potential complete power failure which would escalate this event to the Site Area Emergency.

Classification

Site Area Emergency

EAL's

Loss of Power

1. Loss of power to 4160V busses 1A and 1B exceeds 15 minutes and:
  - loss of both diesel generator capabilities;
  - or-
2. Loss of all plant vital DC power for more than 15 minutes.

Basis

A prolonged loss of power condition will compromise all plant safety systems. The systems necessary for heat removal from the Reactor and containment will be adversely affected leading to core uncovering and loss of containment integrity. This event will escalate to a General Emergency through the loss of fission product barriers.

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APPENDIX 2

Category N "Plant Equipment/Engineered Safety Features or Fire Protection System"

<i>(N)</i> <b>Condition Applicability</b>	<b>Power Operations, Hot Shutdown for SAE and GE</b>
	<b>Power Operations, Hot Shutdown, Cold Shutdown and Refuel for UE and Alert</b>
<b>Basis</b>	<b>For the SAE and GE apply when coolant temperature is &gt; 212 F.</b>  <b>For the Alert all conditions with fuel in the vessel apply due to the interpretation of NRC Nureg 0654 example 10 for Alert.</b>
<b>Classification</b>	Unusual Event
<b>EAL</b>	Failure to comply with Tech. Spec. L.C.O.'s  1. Plant is not brought to required operating mode within Technical Specification LCO Action Statement Time.
<b>Basis</b>	This EAL is intended to address the loss of Tech. Spec. required equipment, systems and/or condition. Although exceeding a Tech. Spec. LCO is not an indication that the safety of the plant is challenged when coupled with the inability to meet the LCO Action Statement within the required time does indicate a substantial challenge to plant safety. This condition could lead to the inability to reach and maintain Hot and/or Cold Shutdown and thus would escalate to an ALERT, SAE or GE.  This EAL should be declared as soon as it is determined that the plant cannot be brought to the required mode within the time limit.
<b>Classification</b>	Alert
<b>EAL</b>	Loss of Cold Shutdown Equipment  1. Complete loss of all ability to achieve and maintain cold shutdown.

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APPENDIX 2

Category N "Plant Equipment/Engineered Safety Features"

**Basis** If the ability is lost at any time to achieve or maintain cold shutdown, an Alert level of emergency is warranted by interpretation of NUREG 0654 example 10. This means that if there is no way to achieve or maintain cold shutdown regardless of the methods or systems used, an Alert is required. Escalation to Site Area Emergency or General Emergency would be via radiological release or fission product barrier categories.

**Classification** Site Area Emergency

**EAL** Loss of Hot Shutdown Equipment

1. Complete loss of any function needed for plant hot shutdown, (e.g. Rx Protection System or CRD System) when hot shutdown is required.

**Basis** This condition refers to the capability to bring the reactor from full power to a controlled hot shutdown condition. To accomplish this operation a minimum of safety related equipment would be necessary. The selected equipment should be capable of maintaining the following parameters within acceptable limits:

- Rx Power (Reactivity Control - CRD/SBLC/RPS)
- Rx Pressure (EMRV's, Iso Cond, Bypass Valves)
- RPV Inventory (Feed/Condensate, CRD, Core Spray)
- Decay Heat Removal (Mn Condenser, Suppression Pool, Ultimate Heat Sink)

It is appropriate to utilize any means available to control the identified parameters, however the control should be a direct result of intended actions. There are numerous alternatives to controlling each of the identified parameters, the intent is that the inability to control any one of these in a hot, pressurized condition can lead to significant consequences.

**Classification** General Emergency

**EAL** Loss of Decay Heat Removal

1. Shutdown occurs, but all decay heat removal capability is lost. Significant cladding failure or fuel melt could occur in 10 hours with subsequent containment failure.

**Basis** This EAL assumes a Rx S/D has occurred however, the lack of heat removal capability such as possibly an extended station blackout condition could lead to fuel clad overheating, energy release to the containment followed by its failure providing a release path to the environment. This condition is expected to be slow in development and thus protective actions adequately addressed.

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APPENDIX 2

Categories O &amp; P "Natural and Man-made Hazards"

*(O & P)  
Condition  
Applicability**All Plant Conditions for UE and Alert**Power Operations, Hot Shutdown for SAE**Basis**Events listed under UE and Alert could affect plant safety and lead to offsite release warranting an UE or Alert level of emergency regardless of plant condition.**Events listed under SAE could only warrant an SAE level of emergency if the plant is Hot or Critical. This is because there is a driving force available in the reactor vessel which could cause a more significant potential for offsite rad release under these conditions.*

Classification

Unusual Event

EAL's

Natural Phenomenon

1. Verified earthquake felt in plant.
- or-
2. Intake canal water level  $\leq$  -2.0 feet as measured by the staff gauge.
- or-
3. Intake water level 4.5 feet above mean sea level (1.5 feet below intake structure lower deck).
- or-
4. Sustained high winds greater than 74 mph, as indicated on wind speed recorder.
- or-
5. The National Weather Service is forecasting sustained winds in excess of 74 mph for the site within 4 hours.
- or-
6. The Oyster Creek Site is included in a tornado warning.

Man-made Hazards

1. Onsite aircraft crash outside the protected area fence AND NOT impacting permanent plant structures.
- or-
2. Unanticipated explosion detected near the site OR onsite.
- or-
3. Near the site or onsite TOXIC GAS, FLAMMABLE GAS or LIQUID release which could affect the habitability required for normal plant operability.
- or-
4. Turbine rotor component (i.e., blades, wheels, shroud, bearings or other rotating component) failure causing a Rx trip.

APPENDIX 2

Categories O & P "Natural and Man-made Hazards"

Natural Phenomenon Cat. O

Basis

These two categories deal with those destructive hazards which could lead to plant damage. The condition at this level should be considered from an industrial hazards perspective. The problems created by these hazards are expected to create personnel safety concerns. If the extent of damage is sufficient to interrupt plant operations or affect safety systems adversely these conditions will escalate to an Alert or Site Area Emergency class.

EAL #1 is based on the Nureg criteria - earthquake felt in plant, and should be verified by the Lamont-Doherty Geological Observatory Business Hours 914-359-2900, After Hours 914-365-2487, through the Environmental Controls Department if possible. The primary concern is to ensure increased awareness on the part of the plant staff and outside agencies in the event conditions worsen. It is expected that any damage associated with an earthquake will be visible upon inspection. This condition may escalate or terminate based on plant damage assessment.

EAL #2 is based on the Nureg concern for low water level related to the ultimate heat sink. A situation indicative of a potential loss of the suction to the circulating water pumps, emergency service water pumps and service water pumps is sufficient reason to make this declaration. This is not intended to address situations where the travelling screens become clogged and can be remedied immediately. This condition can be caused by strong winds from a westerly direction or by a hurricane in the vicinity of OCNGS. Other causes are possible, however, they are not addressed by the updated FSAR directly. Nureg guidance suggest that the 50 yr. low water level be used for this EAL. 50 yr. data is not available for OCNGS but an engineering assessment of the ESW pump operability as a function of intake level (memo 5310-90-005) identified -2.0' MSL to be the most appropriate level for the U.E. Class.

EAL #3 addresses high water level conditions in the intake canal. The primary concern is a potential loss of plant cooling capability through the loss of pump motors at the intake. At the designated levels the motors are not in immediate jeopardy, however, additional caution and concern should be exercised due to the inability to predict the course of events initiated by environmental changes in weather. This condition is expected to be initiated by hurricane force winds. Unusually high tides are not expected to cause declaration of this condition unless it is accompanied by additional concerns such as high winds, earthquake or other phenomenon.

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APPENDIX 2

Categories O & P "Natural and Man-made Hazards"

Basis (con't)

Natural Phenomenon Cat. O

EAL #4, #5, and #6 address high wind conditions where physical damage to plant property may exist due to the weather. This damage may be caused by direct impact of high winds or as the result of high winds, because of the unknown extent of such damage the EAL intends to increase awareness on the part of the staff.

Man-made Hazards Cat. P

EAL #1 addresses the Nureg concern of aircraft falling from the sky, causing damage to the plant which the extent of may not be fully appreciated without close inspection. The intent is to increase the awareness of the plant staff.

EAL #2 addresses the potential for damage caused by an explosion from any source. The amount of damage must be assessed to determine if this condition should escalate, however, the intent here is to declare the event based on the possibility of increasing damage from an unknown source.

NOTE

Explosions can cause fires, therefore, a review of Category "Q" Fires EAL's should be considered when declaring the appropriate EAL.

As used here, an explosion is a rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment, that potentially imparts significant energy to near-by structures and materials. No attempt is made in this EAL to assess the actual magnitude of the damage. The occurrence of the explosion with reports of evidence of damage (e.g., deformation, scorching) is sufficient for declaration.

EAL #3 addresses releases of substances that inhibit normal day-to-day operation of the plant. For instance, gas releases which necessitate evacuation of personnel from a particular area or require the use of respiratory equipment to enter the area because of the release and would not be required otherwise. This condition would escalate to an alert if this release affected operations of the plant.

EAL #4 is intended to meet the Nureg concern for a major plant component failure causing a reactor trip.

Title

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APPENDIX 2

## Categories O &amp; P "Natural and Man-made Hazards"

Classification

Alert

EAL's

Natural Phenomenon

1. Earthquake affecting plant operations.  
-or-
2. Intake canal water level  $\leq$  -2.5 feet, as measured by the staff gauge.  
-or-
3. Intake water level at the intake structure lower deck.  
-or-
4. Sustained hurricane force winds of greater than 95 mph, as indicated on wind speed recorder.  
-or-
5. Any tornado striking the facility.

Man-made Hazards

1. Aircraft crash OR other missile impact within the protected area OR onto any permanent plant structure.  
-or-
2. Known explosion damage to any permanent plant structure.  
-or-
3. Release of TOXIC or FLAMMABLE GAS into the plant which affects the safe operation of the plant as determined by the Group Shift Supvr/Emergency Director.  
-or-
4. Turbine failure resulting in casing penetration.

Basis

An Operational Basis Earthquake (0.11G) may cause damage to some portions of the site but should not affect the ability of safety functions to operate. Method of detection is validated by a reliable source (e.g. Lamont-Doherty Geological Observatory: (914)359-2900). The OBE is as determined from 10CFR100. The EAL's addressing intake water level both high and low are escalations of a worsening condition cited in the U.E. class. The level's address the Nureg concern for approaching design conditions where the heat sink's effectiveness may be reduced and subsequently lost. EAL #5 is based on the assumption that a tornado striking (touching down) the facility (within the protected area boundary) may have potentially damaged plant structures containing function or systems required for safe shutdown of the plant. If such damage is confirmed, the event may be escalated to a Site Area Emergency.

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APPENDIX 2

## Categories O &amp; P "Natural and Man-made Hazards"

EAL's (con't)

Man-made Hazards

Category P is intended to address such items as plane or helicopter crash or barge crash that may potentially damage plant structures containing functions and systems required for safe shutdown of the plant. If the incident is confirmed to affect a plant vital area, the event may be escalated to Site Area Emergency.

With regard to explosions, only those explosions of sufficient force to damage permanent structures or equipment should be considered. As used here, an explosion is a rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment, that potentially imparts significant energy to near-by structures and materials.

NOTE

Explosions can cause fires, therefore, a review of Category "Q" Fires EAL's should be considered when declaring the appropriate EAL.

The release of toxic gases affecting the safe operation of the plant is intended to address those situations where routine habitability is restricted or routine evolutions are modified to compensate for a "life threatening" atmosphere.

Classification

Site Area Emergency

EAL

Natural Phenomenon

1. Earthquake affecting systems required for shutdown.  
-or-
2. Intake canal water level  $\leq$  -3.0 feet, as measured by the staff gauge.  
-or-
3. Intake water level greater than 8 feet above sea level. (2.0 feet above intake structure lower deck), and not in cold shutdown.  
-or-
4. Sustained wind speed in excess of 100 mph indicated in the Control Room.

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APPENDIX 2

Categories O &amp; P "Natural and Man-made Hazards"

EAL's (con't)

Man-made Hazards

1. Aircraft crash which affects vital structures by impact  
OR by fire.  
-or-
2. Explosion OR missile impact which causes severe damage  
to safe shutdown equipment.  
-or-
3. Entry of TOXIC or FLAMMABLE GAS into vital area which  
affects the operation of safe shutdown equipment.

Basis

The EAL dealing with earthquakes is based on the FSAR's Safe Shutdown Earthquake (SSE) value of 0.22 G. Seismic events of this magnitude can cause widespread damage to safety functions. These EAL's are escalated events from the Alert Classification and represent significant damage to the plants ability to complete a "safe shutdown". These conditions are of significant concern if the plant is not in cold shutdown. If the plant is in cold shutdown the possibility of radioactive releases from incidental damage is reduced as well as being in a very stable configuration. A further degradation of the events is expected to cause slow escalation of jeopardy to the plant and may be handled with additional assistance relatively easily.

With regard to explosions, only those explosions of sufficient force to damage permanent structures or equipment required for safe shutdown, such that it cannot perform its intended function, should be considered.

As used here, an explosion is a rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment, that potentially imparts significant energy to near-by structures and materials.

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APPENDIX 2

## Category Q "Fire"

**(Q)****Condition  
Applicability*****All plant conditions*****Basis*****This applies to all conditions - exceptions are inherent within current wording.***

Classification

Unusual Event

EAL

Fire

1. Valid fire inside the Protected Area which CANNOT be controlled by the fire brigade within 10 minutes from the time of verification.

Basis

This EAL is written to address any fire occurring inside the protected area. The 10 minute time is intended to start when the fire has been verified to be actual by two independent means.

A fire of this magnitude implies additional assistance may be required and the extent of damage will not be readily apparent. Increased awareness and concern should be demonstrated by the staff in preparation for possible degrading conditions.

Fires arising outside the protected area will be handled by off-site authorities and do not pose a significant threat to the plant. If such a threat were to occur the GSS/ED should use his judgement to ensure the safety of the plant and personnel.

NOTE

Fires can be caused by explosions, therefore, a review of Category "P" Man Made Hazards should be considered when declaring the appropriate EAL.

Classification

Alert

EAL

Fire

1. Fire which potentially affects the operability of a Safety System and the Plant is in a transient conditions requiring the use of the System.

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APPENDIX 2

Category Q "Fire"

**Basis** The intent of this EAL is to address those circumstances where the operability of a safety system is questionable due to a fire. This would be evidenced by such things as burn marks on equipment, insulation disfigured or other indications which would warrant closer scrutiny of the components during plant operations requiring the use of such system, subsystem, train or component.

NOTE

Fires can be caused by explosions, therefore, a review of Category "P" Man Made Hazards should be considered when declaring the appropriate EAL.

**Classification** Site Area Emergency

**EAL** Fire  
1. Fire which renders a Safety System completely inoperable and that system is needed to function for accident control.

**Basis** This EAL is intended to encompass those situations where a safety system, or subsystem, is unable to perform it's intended function as a direct result of a fire and plant conditions require the use of that systems function. The emphasis is placed on the significance of a fire having such severity to disable a safety system. Additional damage may have been done; however, this will not be immediately evident. As a conservative measure a Site Area Emergency is prudent given that accident mitigation is also taking place.

NOTE

Fires can be caused by explosions, therefore, a review of Category "P" Man Made Hazards should be considered when declaring the appropriate EAL.

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APPENDIX 2

Category R "Security/Sabotage"

**(R)  
Condition  
Applicability***All plant conditions***Basis***Events could occur during all plant conditions.*

Classification

Unusual Event, Alert, Site Area and General Emergency

EAL's

U.E. - Security Threat

1. Group Shift Supervisor/Emergency Director determination based on advice from the Site Protection Supervisor that a security threat, attempted entry, or attempted sabotage of the site (owner controlled area) condition exists.

-or-

2. Any attempted act of sabotage which is deemed legitimate in the judgement of the Group Shift Supervisor/Emergency Director, and affects the operation of the plant.

A. - Security Threat

1. Group Shift Supervisor/Emergency Director determination based on advice from the Site Protection Supervisor that the compromise is onsite, but no penetration of the protected area has occurred.

-or-

2. Any act of sabotage which results in an actual or potential substantial degradation of the level of safety of the plant, as judged by the Group Shift Supervisor/Emergency Director.

S.A.E. - Security Threat

1. Group Shift Supervisor/Emergency Director determination based on advice from the Site Protection Supervisor that security of the plant (vital area) is threatened by unauthorized (forcible) entry of the facility (protected area).

-or-

2. Any act of sabotage which results in actual or likely major failures of plant functions needed for the protection of the public, as judged by the Group Shift Supervisor/Emergency Director.

G.E. Security Threat

1. Group Shift Supervisor/Emergency Director determination based on advice from the Site Protection Supervisor that the loss of physical security control of the plant (vital areas) has occurred.

-or-

2. Any act of sabotage which results in imminent significant cladding failure or fuel melting with the potential for loss of containment integrity or the potential for the release of significant amounts of radioactivity in a short time, as judged by the Group Shift Supervisor/Emergency Director.

Title

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APPENDIX 2

## Category R "Security/Sabotage"

## Basis

These EAL's are intended to be gradient conditions of threats directed at OCNCS. The U.E. class deals with threats or conditions limited to outside the owner controlled area or vandalism of the plant which results in off-normal component condition (i.e., valve mispositioned, setpoint changes) where there is no indication of major damage (i.e., wiring cut, valves or piping cut, or disassembled).

The Alert class is an escalation of the conditions for the U.E. This level deals with situations between the Owner Controlled Area and the Protected Area or acts of vandalism which causes a major plant component to malfunction or otherwise not perform its intended function in the expected manner.

The S.A.E. class is intended to address entry into the Protected Area by a hostile force. Vital Areas are threatened in this circumstance. Acts of vandalism consistent with this classification would consist of the loss of a safety system function (i.e., complete loss of all Core Spray, or Containment Spray).

The General Emergency class addresses entry into Vital Areas. Damage to major plant equipment which indicates the ability to ensure adequate core cooling and containment integrity may not be possible due to acts by a hostile force should be considered sufficient reason for a G.E. declaration.

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APPENDIX 2

Category S "Fission Product Barriers"

(S)  
Condition  
Applicability

*Power Operations, Hot Shutdown*

Basis

*The definitions of the other conditions mean that 2 of the 3 barriers are not required to be intact. The only barrier required to be intact for these conditions is the cladding. (i.e. RCS is vented and Primary containment is not required.)*

*Regardless of the plant condition, consideration should be given in declaring a General Emergency for a loss of cladding accident which has Rad level increases as specified in EAL category J (Radiological Releases). If dose monitoring equipment or dose assessment capabilities are unavailable and cladding has failed with no RCS or Containment a General Emergency is warranted during any plant condition.*

Classification

General Emergency

EAL

Loss of 2 of 3 fission product barrier's with the potential loss of the third i.e. loss of coolant accident, failure of ECCS, Core Melt Probable and Loss of containment imminent.

Basis

The fission product barriers addressed by this EAL are:

- Fuel Cladding
- Rx Coolant System Boundary
- Primary Containment

The concern is that a significant radioactive release to the environment is imminent during unstable plant conditions. The intent is to make the G.E. declaration because of plant conditions which are leading to a release of known or unknown magnitude. Releases during accident conditions are expected to require protective actions for the general public. Declaration of this class prior to such releases improves the effectiveness and completeness of appropriate protective actions. This EAL is not dependent on a dose assessment or projection, it is intended to be applied based on the status of fission product barriers and the potential for a release to the environment with a degraded core. This EAL should not be applied during situations where primary containment is not enforced unless "a degraded core condition" which could lead to a significant release is of primary concern. Exhibit 2 provides guidelines for assessing fission product barriers status. This is not all inclusive and does not address such things as an "interfacing LOCA" where the containment is effectively bypassed, however when assessing each barrier consideration should be given to the barriers ability to perform its intended function under the circumstances presented.

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APPENDIX 2

Category T "Emergency Director's Judgement"

(T)  
Condition  
Applicability

*All Plant Conditions.*

Basis

*Judgment for events not covered specifically in the EALs could apply to any plant condition.*

Classification

Unusual Event, Alert, Site Area Emergency

EAL's

Unusual Event

Whenever plant conditions are in progress or have occurred which may indicate a potential degradation of the level of safety of the plant, as judged by the Shift Supervisor/Emergency Director.

NOTE

In exercising the judgement as to the need for declaring an Unusual Event, uncertainty concerning the Safety Status of the plant, the length of time the uncertainty exists and the prospects for resolution of ambiguities in a reasonable time period is sufficient basis for declaring an Unusual Event.

Alert

Whenever plant conditions are in progress or have occurred which may involve an actual or potential substantial degradation of the level of safety of the plant, as judged by the Shift Supervisor/Emergency Director.

NOTE

In exercising the judgement as to the need for declaring an Alert, uncertainty concerning the safety status of the plant, the length of time the uncertainty exists the prospects for resolution of ambiguities beyond a reasonable time period and the potential of the level of safety of the plant is sufficient basis for declaring an Alert.

Site Area Emergency

Whenever plant conditions are in progress or have occurred which may involve actual or likely major failures of plant functions needed for the protection of the public, as judged by the Shift Supervisor/Emergency Director.

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APPENDIX 2

Category T "Emergency Director's Judgement"

NOTE

In exercising the judgement as to the need for declaring a Site Area Emergency, uncertainty concerning the status of the plant functions needed for protection of the public, the length of time the uncertainty exists, the prospects for resolution of ambiguities beyond a reasonable time and the potential degradation of the plant functions needed for protection of the public is sufficient basis for declaring a Site Area Emergency.

Basis

These EAL's are intended to address unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency class because conditions exist which are believed by the Emergency Director to fall under one of the above classes. The Unusual Event level implies that Plant Safety is jeopardized, however, operation may continue with heightened awareness (e.g., outside Tech. Spec. LCO's). The Alert level implies that Plant Safety has been significantly impaired, (e.g., Operations beyond FSAR design consideration). The Site Area Emergency level concern is for the loss of the ability to ensure the protection of the public due to a lack of confidence in plant functions (i.e., containment integrity, adequate Core Cooling, other Fission Product barriers). There is no General Emergency EAL for this category since the required actions directly impact the public. This is to ensure that if declared there is no doubt a G.E. condition exist (i.e., core melt sequence with a loss of containment integrity imminent).

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EXHIBIT 1

Cross-Reference Index

Unusual Events

Nureg-0654 Initiating Conditions	EPIP-OC-.01 Appendix 1
1.	A-1, E-1
2.	J-1, J-2, J-3
3.a	I-1, I-3
3.b	I-2, I-4
3.c	N/A BWR
4.	*
5.	A-1, D-1, E-1, H-1, H-2
6.	D-1, E-1, F-1, H-1
7.	M-1, M-2
8.	N-1 *
9.	N-1 *
10.	Q-1
11.	L-1, L-2, L-3 *
12.	R-1, R-2
13.	O-1 through 5
14.	P-1 through 5
15.	T
16.	*
17.	N/A BWR

\* Coverage deleted/changed based on NRC's Branch Position of Acceptable Deviations to Appendix 1 to NUREG-0654/FEMA-REP-1.

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**CLASSIFICATION OF EMERGENCY CONDITIONS**

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EXHIBIT 1  
(continued)

## Cross-Reference Index

	<u>Alert</u>	
Nureg-0654 Initiating Conditions		EPIP-OC-.01 Appendix 1
1a.		I-1
1b.		I-2
1c.		N/A BWR
2.		N/A BWR
3.		N/A BWR
4.		H-1a, H-1b
5.		H-1c, A-1, H-2
6.		K-2
7.		M-1
8.		M-2
9.		I-1, I-2
10.		N-1
11.		N-1, C-1
12.		K-1
13.		Q-1
14.		L-1
15.		J-1 through 5
16.		R-1 & 2
17.		O-1 through 5
18.		P-1 through 4
19.		T
20.		L-2

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EXHIBIT 1  
(continued)

## Cross-Reference Index

Site Area Emergency

Nureg-0654 Initiating Conditions	EPIP-OC-.01 Appendix 1
1.	A-1, A-2
2.	I-1 & 2
3.	N/A BWR
4.	H-1a & b
5.	N/A BWR
6.	M-1
7.	M-2
8.	N-1
9.	C-1, N-1
10.	K-1
11.	Q-1
12.	L-1
13a, b, c	J-1 & 2
14.	R-1 & 2
15.	O-1 through 4
16.	P-1 through 3
17.	T
18.	L-2

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EXHIBIT 1  
(continued)

## Cross-Reference Index

General EmergencyNureg-0654  
Initiating ConditionsEPIP-OC-.01  
Appendix 1

1a.	J-1 & 2
1b.	A-1, E-1
2.	A-1, E-1, S-1
3.	R-1 & 2
4.	A-1, E-1, S-1
5.	N/A BWR
6.	A-1, E-1, N-1, S-1
7.	A-1, E-1, N-1, S-1

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EXHIBIT 2

Fission Product Barriers Guidelines

Cat. "S" - Fission Product Barriers Guidelines - This table is not all inclusive, it is provided as possible indications of boundary breaches.

EAL - Loss of 2 of 3 Fission Product Barriers with the Potential Loss of the third Barrier. (For example, loss of Reactor Coolant System Boundary, Fuel Clad failure and high potential for loss of Containment.)

<u>Boundary</u>	<u>Potential Loss</u>	<u>Barrier Loss</u>
Rx Coolant System	1. Drywell Pressure >3 psig due to suspected L.O.C.A.	1. Confirmed leakage from Rx. Coolant System >50 gpm.
Fuel Clad	1. Main Steamline Radiation monitor High-High Alarm. 2. RPV Level $\leq$ -30" TAF. 3. Rx. Power Oscillations	1. Coolant activity exceeds 300 uci/gm dose equivalent iodine. * SEE TABLE BELOW 2. Off-gas discharge indicates >10,000 mR/Hr.
Primary Containment	1. D.W. Bulk temperature cannot be maintained below 281°F. 2. Boron injection required IAW EMG-3200.01 RPV Control. 3. Containment H2 concentration $\geq$ 6% and D.W. or Torus O2 concentration >5%.	1. Unexplained rapid decrease in D.W. pressure after initial increase due to L.O.C.A. 2. Unexplained increase in Area Radiation monitors outside Primary Containment in more than one area with known or suspected leakage from the Pri. Containment. 3. Venting of the Containment is required for Accident Control.

**FUEL CLAD DAMAGE CONDITIONS FOR COOLANT ACTIVITY EXCEEDING 300 UCI/GM DOSE EQUIVALENT IODINE**

\*

Conditions	CHRRMS	Stack	Rad Engineering Calculation Number
LOCA Reactor Building	N/A	0.13 $\mu$ Ci/cm3	2820-99-012
LOCA Drywell	440 R/hr	N/A	2820-99-017
No LOCA	63 R/hr	N/A	96-004