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Rev. 14

YANKEE NUCLEAR POWER STATION  
IMPLEMENTING PROCEDURES TO THE EMERGENCY PLAN  
TABLE OF CONTENTS

TABLE OF CONTENTS		Rev. 14
CONTACT LIST		Rev. 1
IMPLEMENTING PROCEDURES		
Classification of Emergencies	OP-3300	Rev. 2
Unusual Event	OP-3301	Rev. 4
Alert	OP-3302	Rev. 4
Site Area Emergency	OP-3303	Rev. 5
General Emergency	OP-3304	Rev. 5
Evaluation of Radiological Data	OP-3310	Rev. 2
Emergency Off-Site Radiation Monitoring	OP-3311	Rev. 1
Emergency Deescalation Procedure	OP-3321	Rev. 0
Emergency Radiation Exposure Control	OP-3330	Rev. 1
Emergency Medical Procedure	OP-3305	Rev. 1
Security Force Actions Under Emergency Conditions	OP-3344	Rev. 1
Release of Public Information Under Emer- gency Conditions	OP-3343	Rev. 0
Coordination and Communications During an Emergency	OP-3345	Rev. 0
Vital Computer System Operation Under Emergency Conditions	OP-3346	Rev. 0
SUPPLEMENTAL PROCEDURES		
Emergency Plan Training	OP-3340	Rev. 0
Emergency Preparedness Exercises & Drills	OP-3341	Rev. 0
Emergency Equipment Readiness Check	OP-3325	Rev. 1

## CLASSIFICATION OF EMERGENCIES

### SCOPE

To provide a means to classify an emergency based on initiating conditions which have reached specific predetermined levels.

### ENCLOSURES

OP-3300 - Pg. 1 - Rev. 2  
OP-3300 - Pgs. 2-3 - Original  
Appendix "A" - Pg. 1 - Rev. 1  
Attachment "A" - Pgs. 1-5, 8, 12, 15, 17-19, 21-22 - Rev. 1  
Attachment "A" - 6-7, 9, 13-14, 16, 20 - Original  
Attachment "A" - Pgs. 10-11 - Rev. 2

### REFERENCES

1. Yankee Rowe Nuclear Power Station Emergency Plan
2. NUREG 0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants".

### DISCUSSION

It is the responsibility of the Shift Supervisor/Emergency Director or in his absence the Lead Control Room Operator to classify an emergency and initiate the emergency plan.

At the present time an emergency will be classified as one of the following classes:

1. Unusual Event
2. Alert
3. Site Area Emergency
4. General Emergency

This procedure provides a method to determine which class is appropriate for the event(s) which is/are occurring. The method of classifying an emergency is the use of specific plant instrumentation readings, system status, and outside forces which could impact the plant.

An event will be assigned one of the four possible emergency classes, and the emergency plan will be implemented based on that classification, (i.e., Unusual Event, Alert, Site Area or General).

### PREREQUISITES

1. Perform this procedure concurrent with other emergency/operating procedures and operator actions which are in progress to mitigate and control the event(s) at hand.

### DEFINITIONS

1. The mechanics of classifying an event based on an Emergency Action Level (EAL) will be more straightforward if the following rules are applied:
  - a. The use of the word "AND" between specific items in the EAL means each of the items must be true for the EAL to have been reached.
  - b. The used of the word "OR" between specific items in the EAL means that if any of the items are true the EAL has been reached.
  - c. Since some of the EALs have both "AND" and "OR" between specific items, apply the above rules to the EAL as a whole to determine if the EAL has been reached.

### PROCEDURE

#### IMMEDIATE ACTION

1. Refer to Attachment "A" "Classification Table".
2. Based on the event in progress (or anticipated), locate the appropriate general category of events.
3. Determine if the specific Emergency Action Level (EAL) has been reached for any of the four emergency classes (i.e., Unusual Event, Alert, Site Area, General).
4. If an EAL has been reached classify the emergency, always choosing the most severe emergency class for which an EAL has been reached.

NOTE: Prompt notification of offsite authorities is intended to be initiated within about 15 minutes for the Unusual Event Class and sooner (consistent with the need for other emergency actions) for other classes. This time is measured from the time at which operators recognize that an EAL has been reached and hence, that the event warrants an emergency classification.

5. If no specific EAL in Attachment "A" has been reached, yet in the opinion of the Shift Supervisor/Emergency Director, the event in progress warrants implementation of the Emergency Plan (for assistance, resources, etc.), refer to the "generic category" at the end of Attachment "A" and classify the event as is appropriate for the situation at hand or anticipated.
6. Determine to which class the event has been identified.

NOTE: If conditions deteriorate, upgrade the emergency class as determined by appropriate EAL's.

7. Based on Step 6, initiate the appropriate procedure:
  - a. Unusual Event - OP-3301
  - b. Alert - OP-3302
  - c. Site Area Emergency - OP-3303
  - d. General Emergency - OP-3304

FINAL CONDITIONS

1. An event or occurrence has been classified and the Emergency Plan has been initiated as appropriate.

OR

2. If plant conditions have deteriorated the emergency has been re-classified, if appropriate, and the applicable emergency procedure (Unusual Event, Alert, Site Area or General) has been implemented.

APPENDIX "A"

OP-3300  
Appendix "A"  
Rev. 1  
EAL

<u>EVENT NO</u>	<u>INITIATING EVENT</u>	<u>UE</u>	<u>A</u>	<u>S</u>	<u>G</u>
1	Radioactive Releases to the Environment	1, 2	14	8	6,9
2	Fuel Clad Failure	3	1		7A,7B
3	Irradiated Fuel Handling Accidents		12	6	
4	Events which result in MC System Parameter Abnormalities	4,18			
5	Plant conditions that results in the failure or possible failure of safety systems		11 16	10.C,12 10.D	3
6	Plant mode reductions in accordance with the Technical Specifications	8			
7	Loss of ability to reduce operational modes		10	5	
8	Loss of electric power systems		7, 8	10A 10B	4
9	Decrease in MC System inventory within the Charging Pump capacity	5.B	6		
10	LOCA	6a	2	3,1,11	1,5,7C
11	SG tube rupture	5a	4,3	2	
12	MSLB	6b, 20	5	4	
13	Loss of MC flow		9		
14	Loss of load	12			
15	Loss of Feedwater	17			2
16	Transients initiated by Reactivity Changes	11, 13, 14, 15			
17	Waste Disposal System Accidents		15, 19		
18	Fire Emergencies	7	13	7	
19	Security Emergencies	9	17	9	8
20	Personnel Injuries involving contamination	10			
21	Unusual Phenomena which could/will effect the plant	16	18	13	
22	General Events	19	20	14	10

NOTE: Numbers under UE, A, S & G refer to assigned designations in Appendix A of the YR Nuclear Station Emergency Plan.

## UNUSUAL EVENT

## ALERT

## SITE

## GENERAL

UNUSUAL EVENT	ALERT	SITE	GENERAL
<p>1. Radioactive Release to the environment.</p> <p>#1 TS limits on noble gas, iodine and particulate airborne releases exceeded for a 24-hr. average.</p> <p>EAL: 1) Notification by plant chemistry OR 2) PVS particulate &gt;1000 cpm above bkg for 24-hrs. OR 3) PVS iodine &gt;5000 cpm above bkg for 24-hrs. OR 4) PVS noble gas &gt;5000 cpm above bkg for 24-hr.</p> <p>#2 TS limits on liquid effluent activity releases exceeded.</p> <p>EAL: 1) Notification by plant chemistry. OR 2) Liquid effluent monitors exceeding alarm setpoint for &gt;1-hr. with a release in progress.</p>	<p>#14 Any radiological effluent in excess of 10X the TS limit.</p> <p>EAL: 1) Notification to the Control Room. OR 2) PVS particulate &gt;10,000 cpm for 24-hrs. OR 3) PVS iodine &gt;50,000 cpm for 24-hrs. OR 4) PVS noble gas &gt;50,000 cpm for 24-hrs. OR 5) Liquid effluent monitors &gt; 10 x alarm setpoint for 1-hr.</p>	<p>#8 High airborne radioactivity releases.</p> <p>EAL: 1) PVS or steam line monitors resulting in projected (.5mi) whole body dose rates exceeding 50 Mr/hr but less than 1 R/hr.</p> <p>Monitor response leading to the above whole body dose rates (assuming adverse meteorological conditions are as follows: a) VC high range monitor response; 5000 R/hr b) Main steam line monitor response; 10 mr/hr c) PVS monitor response; 50 mr/hr</p> <p>Monitor response leading to EPA protective actions guidelines (assuming 8 hours duration) are: d) VC high range monitor response; 15000 R/hr e) Main steam line monitor response 30 mr/hr f) PVS monitor response; 150 mr/hr</p>	<p>#6 Effluent monitors detect levels corresponding to 1 r./hr W.B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions</p> <p>These dose rates are projected based on other plant parameters (e.g., radiation levels in containment; with leak rate appropriate for existing containment pressure with some confirmation from effluent monitors) or are measured in the environs.</p> <p>Radiation Monitor levels exceed those specified for Site Emergency; AND Calculation on Dose Assessment Forms indicates levels exceeding 1 rem/hr whole body or 5 rem/hr thyroid at the exclusion area.</p> <p>#9 Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short time period possible, e.g., any core melt situation.</p>

EAL:

Shift Supervisor's opinion.

Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL
2. Fuel Clad Failure Accidents	#3 Fuel damage indication verifying an increase in failed fuel > 0.1% in 30-min.  EAL: 1) High bleedline radiation monitor readings. AND 2) Chem. analysis verifying: > 1 $\mu$ Ci/gm <sup>131</sup> I equiv. for > 48-hrs, OR 100/E ( $\mu$ Ci/gm) specific coolant activity.	#1 Severe loss of fuel cladding condition: A. Primary coolant sample >300 $\mu$ Ci/gm OR B. Bleed line monitor indicates an increase in failed fuel >1% in 30 minutes or > 5% total failed fuel  EAL: 1)A. Chemistry sample indicating >300 $\mu$ Ci/gm <sup>131</sup> I equivalent. OR 2) Verified bleed line monitor high or off-scale (alarmed) (verified by hand held radiation detection instrument) and laboratory analysis which indicates an increase in failed fuel of 1% in 30 minutes or total failed fuel $\geq$ 5%.	7.A & B Loss of 2 of 3 fission product barriers with a potential loss of 3rd barrier (e.g. loss of primary coolant boundary, clad failure, and high potential for loss of containment).  EAL 7.A Failure of fuel cladding and main coolant boundary; 1. Loss of coolant accident or steam generator tube rupture accident has occurred (Site Area EALS) AND 2. Incore thermocouple temperature >650°F or loss of subcooling margin or main coolant activity > Site Area EAL levels OR 3. Shift Supervisor's opinion B. Failure of cladding and containment integrity. 1. Incore thermocouple temperature >650°F or loss of subcooling margin or main coolant activity >Site Area EAL levels and 2. Containment isolation system panel indicates open CIS valve or open non-return valve or main steam line break outside of containment upstream of non-return valve and 3. Loss of ECCS OR 4. Shift Supervisor's opinion

UNUSUAL EVENT

ALERT

SITE

GENERAL

3. Irradiated Fuel Handling Accidents

#12 Irradiated fuel damage with the release of radioactivity to the containment or spent fuel pit building.

EAL:  
A.1) Visual observation of fuel damage incident

OR

B.1) Alarm on fuel manipulator area radiation monitor

AND

B.2) High airborne radioactivity in containment or spent fuel pit building.

#6 Major damage to irradiated fuel in containment or spent fuel pit building causing significant radioactivity release to the building.

EAL:

1) Visual observation of dropped fuel or damaged fuel assembly or inability to maintain water level over fuel

AND

2) Fuel manipulator area radiation monitor radiation level exceeding 500 Mr/hr



## UNUSUAL EVENT

## ALERT

## SITE

## GENERAL

4. Events which result in Main Coolant System parameter abnormalities (decreased margin to DNB)
- #1 Plant operating transient or equipment failure causing:
- abnormal coolant temperature
  - abnormal coolant pressure
  - abnormal fuel temperature
- Applicable only in Modes 1-3
- EAL:
- Tavg >537°F OR
  - Main Coolant pressure indication of >2170 psig OR <1800 psig OR
  - Core thermocouples >600°F OR
  - Subcooling margin <40°F
- 
- #18 Initiation of Safety Injection System with flow to main coolant loops and reactor vessel.
- Applicable only during operating Modes 1-5 when the main coolant system pressure >300 psig.
- EAL:
- Safety injection system initiation, AND
  - Safety injection loop flow initiation.

Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL
<p>5. Plant conditions that result in the failure or possible failure of Safety Systems.</p>	<p>#11 Failure of the reactor protection system to initiate and complete a scram which brings the reactor sub-critical.</p> <p><u>EAL:</u> Any condition where a scram is called for and the neutron flux indication does not decrease such that the reactor remains sub-critical</p> <p>-----</p> <p>#16 Evacuation of the Control Room.</p> <p><u>EAL:</u> Evacuation of the control room with control of the plant established from local stations.</p>	<p>#10 Plant conditions that represent major failure of plant safety systems and warrant full implementation of the plant emergency plan to include:</p> <p>C. Evacuation of the control room and inability to establish control of shutdown system promptly.</p> <p>D. Inability to promptly restore alarms lost during a plant transient.</p> <p><u>EAL:</u> C. Evacuation of the control room for whatever reason with inability to establish control from local stations within 15 minutes. OR</p> <p>D. All alarms (annunciators lost for more than 15-min) or plant transients initiated while alarms are inoperable. Applicability Modes 1-4 indicated by: 1) Inspection or surveillance during operation.</p> <p>-----</p> <p>12. Transient requiring operation of the Reactor Protection System with no scram occurring.</p> <p><u>EAL:</u> Automatic or manual initiation of the Reactor Protection System with no scram occurring.</p>	<p>#3 Transient requiring operation of shutdown systems with failure to scram which results in core damage or additional failure of core cooling and makeup systems.</p> <p><u>EAL:</u> A. Reactor remains critical after attempted scram. <u>AND</u> B. 1. Reactor pressure <math>\geq</math> safety valve setpoint OR 2. Rapidly increasing containment pressure OR 3. Rapidly increasing containment temperature.</p>

Attachment "A" - OP-3300

UNUSUAL EVENT

ALERT

SITE

GENERAL

6. Plant Mode reductions in accordance with Technical Specifications.

#8 Events or conditions which require a plant mode reduction in accordance with Technical Specifications:

EAL:

Events or conditions which require a plant mode reduction in accordance with Tech. Spec. to include:

- A. Loss of engineered safeguards
- B. Loss of containment integrity
- C. Loss of off-site power and on-site AC

Attachment "A" - OP-3300

UNUSUAL EVENT

ALERT

SITE

GENERAL

7. Loss of ability to reduce operational modes.

#10 Loss of functions needed for plant cooldown to cold shutdown, (i.e. inability to reduce main coolant temperature to  $\leq 200^{\circ}\text{F}$  through normal means) Applicable in Modes 1-4

EAL:  
Complete loss of any of the following systems or indications:

- 1) Shutdown cooling system
- 2) Component cooling system
- 3) Service water system

#5 Loss of functions needed for emergency plant cooldown condition ( $T_{avg} > 200^{\circ}\text{F}$  but  $< 300^{\circ}\text{F}$ )

EAL:  
Complete loss of any of the following systems or indications:

- 1) Main coolant pressure indication.
- 2) Main coolant temperature indication.
- 3) Pzr. level indication.
- 4) Charging and volume control system.
- 5) Feedwater system.
- 6) Chemical shutdown system.
- 7) Source range channels
- 8) Steam dump or atmospheric steam dump.
- 9) SG Level indication.

UNUSUAL EVENT	ALERT	SITE	GENERAL
8. Loss of electric power systems.	<p>#7 Loss of off-site power and loss of all emergency diesel generators. Applicable during Modes 1-4.</p> <p>EAL:</p> <p>1) Loss of "line alive" lights AND</p> <p>2) Zero voltage on 115KV busses AND</p> <p>3) Loss of control room normal lighting AND</p> <p>4) Emergency generator breakers (all) open with no load.</p> <p>-----</p> <p>#8 Loss of all on-site DC power. Applicable only during Modes 1-4.</p> <p>EAL:</p> <p>1) Battery low and critical low voltage alarms AND</p> <p>2) Battery voltmeters (control room) indicating low.</p>	<p>#10 Plant conditions that represent major failure of plant safety systems and warrant full implementation of the plant Emergency Plan to include:</p> <p>A. Loss of offsite power and loss of all diesel generators and the inability to restore these systems promptly.</p> <p>B. Loss of all vital onsite DC power and the inability to restore this system promptly.</p> <p>EAL:</p> <p>A. Loss of off-site power and loss of all diesel generators for approximately 15-minutes. Applicability Modes 1-4. Indicated by:</p> <p>1) Loss of line alive lights AND</p> <p>2) Zero voltage on 115 KV busses AND</p> <p>3) Loss of control room normal lighting AND</p> <p>4) All emergency breakers open with no load for greater than 15 minutes.</p> <p>OR</p> <p>B. Loss of all onsite DC power for approximately 15-minutes. Applicability Modes 1-4 Indicated by: Panalarms S9-S10-S11 (battery low &amp; critical low voltage alarm) AND Battery voltmeters (control room) indicating low.</p>	<p>#4 Failure of offsite and onsite power along with total loss of emergency feedwater makeup capability for several hours. Core melt likely if feedwater is not supplied within several hours. Ultimate failure of the containment is possible if core melt is not terminated prior to vessel melt through.</p> <p>EAL:</p> <p>1. Total loss of all offsite and onsite A.C. power for &gt;2 hours AND</p> <p>2. Loss of steam driven emergency boiler feed pump.</p>

## Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL
9. Decreases in Main Coolant System inventory, within charging pump capacity.	<p>#5b Main Coolant system TS leak rate exceeded but &lt; 1 charging pump capacity. (Modes 1-4 only)</p> <p>EAL:</p> <p>1) Notification to Control Room of main coolant system leakage exceeding TS but &lt; 1 charging pump capacity.</p> <p>OR</p> <p>2) MCSLAPM alarm</p> <p>AND</p> <p>3) VC drain tank level increase exceeding TS limit.</p>	<p>#6 Main coolant leak rate &gt; 1 charging pump capacity but &lt; 3 charging pump capacity. (Modes 1-4 only)</p> <p>EALS:</p> <p>1) Increase charging flow</p> <p>AND</p> <p>2) LPST decreasing level with alarm</p> <p>AND/OR</p> <p>3) MCSLAPM high alarm</p> <p>AND</p> <p>4) VC drain tank level increase in excess of limit in less than one minute.</p>	

Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL	
<p>10. LOCA (intended to cover all decreases in Main Coolant inventory above charging pump capacity)</p>	<p>#6A Partial or total failure of a pressurizer safety or relief valve to close. Modes 1-3 only.</p> <p><u>EAL:</u> Indications or report of failure of pZR, safety valves or PORV to close.</p> <p>A.1) Valid pressurizer safety valve or PORV acoustic flow monitor indication AND 2) Irratic or increasing pressurizer level AND 3) Containment radiation monitors increasing</p>	<p>#2 ECCS initiation due to a LOCA such that adequate core cooling is maintained.</p> <p><u>EAL:</u> LOCA indicated by: 1) Reactor trip AND 2) PZR level decrease and alarm AND 3) MCS pressure decrease AND 4) SI actuation/CIS actuation (total-VC press. &gt;5 psi partial-VC press. &lt; 5 psi) AND 5) MCSLAPM increase and alarm OR VC drain tank level increase OR VC pressure increase.</p>	<p>#1 Rupture of control rod drive mechanism causing small break LOCA.</p> <p><u>EAL:</u> 1. Reactor trip on high flux OR Reactor trip on low MC Pressure AND 2) MCS pressure decrease AND 3) PZR level decrease AND 4) SI initiation</p> <hr/> <p>#1 Degraded core with possible loss of coolable geometry.</p> <p><u>EAL:</u> 1) Saturation monitor less than 40°F, OR Core thermocouple temperatures increasing AND 2) Severe fuel clad failure: chem. analysis &gt;5% failed fuel or &gt;300 <math>\mu\text{Ci/gm}^{235}\text{U}</math> in the coolant, OR Accident area radiation monitor &gt;200 Mr/hr but &lt;500 R/hr. and other process monitors alarmed</p> <hr/> <p>11. Verified loss of coolant accident with leakage greater than charging pumps capacity (&gt;100 gpm)</p> <p><u>EAL:</u> A.1) Main coolant pressure decreasing or reactor trip on low pressure and 2) Containment pressure increasing or gravity drain tank level alarm or containment radiation levels increasing and 3) Steam generator pressures uniform OR B.1) Reactor trip on low pressure and 2) Loss of subcooling margin</p>	<p>#1 Small or large LOCA with failure of ECCS to perform leading to severe core degradation or melt or from Minutes to Hours</p> <p><u>EAL:</u> A.1) Reactor trip on low pressure AND 2) Containment pressure high or increasing or VC drain tank level alarm or AARM actuation OR B.1) Reactor trip on low pressure AND C.1) Loss of subcooling C.2) Loss of VC flow or leakage</p> <hr/> <p>#5 Small or large LOCA and partially successful ECCS operation with subsequent failure of the PZR's Recirculation System, low recirculated flow, resulting leading to a core melt. Possible failure of the containment or possible of core melt is not transferred prior to vessel melt through.</p> <p><u>EAL:</u> 1) Staff Supervisor judgment that a LOCA has occurred AND 2) Loss of Recirculation flow AND 3) Containment low pressure or excessive and/or rising</p> <hr/> <p># C Loss of 1 of 3 Steam generator heaters with a potential loss of 2nd heater or a loss of positive coolant boundary, clad failure, and high potential for loss of containment.</p> <p><u>EAL:</u> C. Failure of instrument integrity and main coolant boundaries 1. Loss of coolant accident on steam generator tube rupture accident has occurred (Note Area EAL's) AND 2. Containment isolation system panel indicates open CIS valves or open main return valves or main steam line break outside of containment but upstream of main return valve AND 3. Loss of ECCS or severe thermocouple temperatures rising or loss of onsite or offsite A.C. power OR 4. Staff Supervisor's opinion</p>

## Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL
11. Steam Generator Tube Rupture	#5a Primary to secondary Tech. Spec. leak rate exceeded due to steam generator tube failure. Modes 1-4 only.	#1 Rapid failure of several SG tubes (several hundred gpm leakage)	#2 Rapid failure of more than several SG tubes (several hundred gpm leak) coincident with loss of offsite power.
NOTE: Coincident with loss of off-site power for site emergency and for Alert #3.	EAL:  Primary to Secondary leak rate greater than 1GPM as identified by daily primary water balance or chemistry analysis.	EAL: A.1) Reactor trip on low pressure OR 2) Main Coolant pressure decreasing rapidly; OR 3) Affected steam generator pressure increasing AND B.1) Air ejector >100,000 cpm OR 2) Steam line monitor high AND C.1) No significant increase in containment radiation levels or VC tank level OR D.1) Shift Supervisor's opinion ----- #3 Loss of off-site power with damage or failure of a SG tube exceeding TS Primary to Secondary leak rate (i.e. > 1 gpm) EAL: A.1) Air ejector radiation monitor alarm or steam generator blowdown monitor alarm OR 2) Chem. analysis indicates > 1 gpm P to S <sup>o</sup> leakage OR 3) Increase in water level in affected steam generator OR 4) Decreasing main coolant pressure OR 5) Significant charging pump flow increase AND B.1) Loss of line-alive lights and loss of Z-126 and Y-177 voltage indication and 2) Shift Supervisor's opinion	EAL: A.1) Reactor trip on low pressure or rapidly decreasing main coolant pressure AND 2) Air ejector monitor alarming or steam line monitor alarm AND 3) No increase in containment pressure and no increase in VC drain tank level AND 4) Loss of all offsite power verified by "line alive" lights out AND 5) Loss of Z-126 and Y-177 line voltage indication. OR B.1) Shift Supervisor's opinion



Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL
<p>12. Main Steam Line Break Accidents. (coincident with other specific problems)</p>	<p>#6B Partial or total failure of main steam safety valves to close. Applicable Modes 1-3</p> <p><u>EAL:</u></p>	<p>#5 Main steam line break with significant (e.g. &gt;10 gpm) primary/secondary steam generator leakage.</p> <p><u>EAL:</u></p>	<p>#4 Main steam line break with &gt; TS limit primary to secondary leakage and indication of fuel damage.</p> <p><u>EAL:</u></p>
<p>Indications or report of failure of main steam safety valves to close.</p> <p>B.1) Steam generator pressure decreasing <u>AND</u>                  2) Excessive noise from non-return valve platform. <u>OR</u>                  3) Visual observation</p>	<p>1) Low SG level <u>AND</u>                  2) Reactor trip and SI initiation <u>AND</u>                  3) Secondary steam pressure decreasing <u>AND</u>                  4) Air ejector radiation alarm or steam line radiation monitor <u>OR</u>                  5) Audible or observed steam break</p>	<p>1) Reactor trip and SI initiation <u>AND</u>                  2) Low SG level <u>AND</u>                  3) Secondary steam pressure decrease <u>AND</u>                  4) Steam line radiation monitor increase or air ejector radiation monitor alarm <u>AND</u>                  5) Audible or observed steam break <u>AND</u>                  6) Fuel damage indicated by bleedline monitor alarm <u>OR</u>                  7) Chem analysis &gt;1<math>\mu</math>Ci/gm <sup>131</sup>I equiv. <u>OR</u> &gt; 100/E specific coolant activity equivalent.</p>	<p>#20 Rapid depressurization of secondary side of steam generators/main steam lines</p>
<p><u>EAL:</u></p> <p>1) Low or decreasing steam generator level <u>AND</u>                  2) Secondary steam pressure decreasing <u>AND</u>                  3) Main coolant temperature and pressure decreasing <u>AND</u>                  4) Audible or observed steam leak.</p>			

Attachment "A" - OP-3300

UNUSUAL EVENT

ALERT

SITE

GENERAL

13. Loss of MC  
Flow

#9 Total loss of Main Coolant  
Flow leading to fuel damage.

EAL:

- 1) Main coolant loop low  
flow indication and  
alarms from 4 loops OR  
Main coolant pump current  
low flow alarm from 4 loops  
AND
- 2) Increasing core thermocouple  
temperature  
AND
- 3) High main coolant bleed acti-  
vity OR Chemistry sample  
confirming failed fuel.

UNUSUAL EVENT

ALERT

SITE

GENERAL

14. Loss of Load

#12 Loss of load incident due to operator error or equipment malfunction.

EAL:

Turbine/generator trip AND Main Coolant System pressure increase and alarm AND Main Coolant System temperature increase AND pwr. level increase AND Reactor trip on high pwr level (approx. 20-sec. after turbine generator trip) AND possible power operated relieve valve opening.

Attachment "A" - OP-3300

UNUSUAL EVENT

ALERT

SITE

GENERAL

15. Loss of  
Feedwater

#17 Loss of normal feedwater  
due to loss of AC or  
feedline break.

EAL:

SG level decrease and alarm  
AND  
Reactor trip on SG low level  
AND  
BFP motor ammeters low  
AND  
BFP low suction and  
discharge pressure.

#2 Transient initiated by loss  
of feedwater and conden-  
sate systems followed by  
failure of emergency and  
backup feedwater systems  
for an extended period  
of time. Core melting will  
occur if feedwater is not  
restored within several  
hours or alternate core  
cooling methods (includ-  
ing primary feed and  
bleed) are implemented.

EAL:

- 1) Absence of steam gen-  
erator level without  
feedwater flow,  
AND
- 2) No ECCS or charging  
feed and bleed flow to  
the main coolant system.

## Attachment "A" - OP-3300

	UNUSUAL EVENT	ALERT	SITE	GENERAL
16. Transients initiated by reactivity changes.	<p>#14 Isolated loop start-up incident (opening Tc and Th valves and inadvertent startup of main coolant pump when main coolant system and loop temperatures are mismatched).</p>			
	<p>EAL:</p> <ol style="list-style-type: none"> <li>1) Neutron flux increase and alarm AND</li> <li>2) Reactor trip on high neutron flux level or rate AND</li> <li>3) Main Coolant temperature decrease AND</li> <li>4) Main Coolant system pressure decreases AND</li> <li>5) Pressurizer level decreases.</li> </ol>			
	<p>#11 Control rod withdrawal at power due to either operator error or equipment malfunction.</p>			
	<p>EAL:</p> <ol style="list-style-type: none"> <li>1) Primary/secondary rod position indication shows outward rod motion AND</li> <li>2) Neutron flux increase AND</li> <li>3) Control rod drive mechanism skipping sound in VC AND</li> <li>4) Reactor trip on high neutron flux level or SUR</li> </ol>			
	<p>#13 Control rod drop incident due to operator error or equipment malfunction.</p>			
	<p>EAL:</p> <ol style="list-style-type: none"> <li>1) Neutron flux decrease AND</li> <li>2) Low Tavg and alarm AND</li> <li>3) Low MC pressure and alarm AND</li> <li>4) Rod drop alarm AND</li> <li>5) Asymmetrical thermocouple readings</li> </ol>			
	<p>#15 Boron dilution incident</p>			
	<p>EAL:</p> <ol style="list-style-type: none"> <li>1) Mode 1 neutron flux increase AND Tavg increase and alarm AND Reactor trip on high flux</li> <li>2) Mode 2 &amp; 3 neutron flux increase and alarm</li> <li>3) Mode 6 increasing neutron flux increase and alarm AND VC evacuation alarm AND audible count rate increase.</li> </ol>			

## UNUSUAL EVENT

## ALERT

## SITE

## GENERAL

17. Waste Disposal System Accidents.

- #15 Waste gas system rupture or equipment malfunction causing loop seal gas release.
- EAL:
- 1) Waste gas loop seal radiation monitor and alarm AND/OR
  - 2) Plant vent stack increase and alarm AND/OR
  - 3) Loop seal outlet high/low level alarm AND/OR
  - 4) Waste gas surge drum pressure decreasing AND
  - 5) Compressor KO drum high/low pressure alarm.

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- #19 Radiation levels or airborne contamination indicating a severe degradation in the control of radioactive materials.

- EAL:
- 1) Verified radiation levels or airborne contamination level reading increases >1000 above normal within the plant

Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL
18. Fire Emergencies	#7 Fire in or near a plant building or structure that lasts >10 minutes.  <u>EAL:</u>  Observation or indications of a fire onsite in or near a plant building or structure lasting >10 minutes.	#13 Fire potentially affecting safety systems  <u>EAL:</u> Report to or detection by the control room of a fire potentially affecting any safety system.	#7 Fire defeating non-redundant safety related systems or equipment OR rendering redundant SR systems or equipment below the min. required by TS  <u>EAL:</u> Fire reported or detected by the control room which compromises the functioning of non-redundant safety related systems and equipment OR rendering redundant SR systems or equipment below the min. required by the TS.

Attachment "A" - OP-3300

UNUSUAL EVENT	ALERT	SITE	GENERAL
19. Security Emergencies	#9 Security threat or attempted entry or attempted sabotage.  <u>EAL:</u>  Covered by Yankee Rowe Security Contingency Plan.	#9 Loss of physical control of the plant has occurred or is imminent.  <u>EAL:</u> Covered by the Yankee Rowe Security Contingency Plan.	#8 Loss of physical control of the facility.  <u>EAL:</u> Physical attack on the plant has resulted in occupation of the Control Room by unauthorized personnel.



Attachment "A" - OP-3300

UNUSUAL EVENT

ALERT

SITE

GENERAL

20. Personnel injuries involving contamination.

#10 Personnel injury involving contamination requiring off-site medical treatment.

EAL:

Transportation of a contaminated injured individual from site to hospital

UNUSUAL EVENT	ALERT	SITE	GENERAL
#21 Unusual Phenomena which could/will effect the plant	#16 Other plant conditions exist that warrant increased awareness on the part of off-site authorities to include: <ul style="list-style-type: none"> <li>A. Severe natural phenomenon incidents</li> <li>B. Abnormal occurrences near site or on-site</li> <li>C. Significant loss of assessment or communications capability.</li> </ul> EAL: Notification or experiencing of conditions which could potentially affect plant to include: <ul style="list-style-type: none"> <li>A. Severe natural phenomenon conditions in the general vicinity of the site created by:               <ul style="list-style-type: none"> <li>1) Earthquakes</li> <li>2) Hurricanes</li> <li>3) Floods</li> <li>4) Low water conditions</li> <li>5) Tornadoes</li> <li>6) Forest fires</li> </ul> </li> <li>B. Other hazards created by:               <ul style="list-style-type: none"> <li>1) Aircraft crash on-site</li> <li>2) Unusual aircraft activity over site</li> <li>3) Explosions near site</li> <li>4) Toxic or flammable gas releases</li> </ul> </li> <li>C. Significant loss of assessment or communications capability indicated by:               <ul style="list-style-type: none"> <li>1) Loss of meteorological tower indications</li> <li>2) Loss of all off-site communications.</li> </ul> </li> </ul>	#18 Severe natural phenomenon or other hazards or conditions being experienced which involve an actual or potential substantial degradation of the level of safety of the plant that warrants activation of the Technical Support Center.  EAL: Severe natural phenomenon or other hazards causing actual or potential substantial degradation of plant safety to include: <ul style="list-style-type: none"> <li>a. <u>Severe Natural Phenomenon</u> <ul style="list-style-type: none"> <li>1) Earthquake</li> <li>2) Hurricane</li> <li>3) Flood</li> <li>4) Low water</li> <li>5) Tornado</li> <li>6) Forest fire</li> </ul> </li> <li>B. <u>Other Hazards</u> <ul style="list-style-type: none"> <li>1) Aircraft crash onsite</li> <li>2) Missile impacts onsite</li> <li>3) Explosion onsite</li> <li>4) Toxic or flammable gas release onsite</li> <li>5) Turbine missiles</li> </ul> </li> <li>C. Other conditions which warrant precautionary activation of the Technical Support Center and Emergency Coordination Center.</li> </ul>	#13 Severe natural phenomena in progress or projected and warrant full implementation of plant emergency plan, applicable to Mode 1-1 to include <ul style="list-style-type: none"> <li>A. Earthquake causing significant damage to safety related structures, systems or components.</li> <li>B. Flood or low water condition, flooding or vital equipment at low elevations.</li> <li>C. Sustained winds or tornadoes in excess of 120 MPH.</li> </ul> EAL: <ul style="list-style-type: none"> <li>A. Earthquake causing in the Shift Supervisor's opinion, significant damage to plant safety related structures, systems or components.</li> <li>B. Flooding or low water causing, in the Shift Supervisor's opinion, significant damage to vital equipment.</li> <li>C. Sustained winds or tornadoes in excess of 120 MPH.</li> </ul>

UNUSUAL EVENT

ALERT

SITE

GENERAL

#22. General Events

An abnormal event or occurrence that does not threaten plant safety

#19 Major turbine rotating component failure

EAL:

- 1) Turbine trip AND
- 2) Bearing vibration >12 mils AND
- 3) Excessive or unusual turbine noise

Activation of Engineered safety features and/or single failure of safety related equipment or power sources. An event leading to fuel failure, radioactivity release contained.

20 Loss of most or all annunciation

EAL:

Loss of most or all control room annunciation with no plant transient in progress or projected.

Events coupled with multiple failures threatening core coolability with the potential for a large release.

#14 Other hazards in progress or projected with plant not in cold shutdown or other plant conditions that warrant activation of emergency centers and monitoring teams for a precautionary modification to the public near the site.

EAL:  
Severe hazards with the plant not in cold shutdown, or other plant conditions, A. Severe hazard applicable Modes 1-4

1. Aircraft crash affecting vital structures by impact or fire
2. Severe damage to safe shutdown equipment from missiles or explosion
3. Entry of uncontrolled flammable gases into vital areas
4. Entry of uncontrolled toxic gases into vital areas where lack of access to areas constitutes a safety problem
5. As determined by the Shift Supervisor

B. Other conditions which warrant activation of emergency centers and monitoring teams or a precautionary notification to the public near the site, as determined by the Shift Supervisor.

Events leading to inadequate core cooling with core melt likely.

10. Any major internal or external events (e.g., fires, earthquakes, substantially beyond design basis) which could cause massive damage to plant systems resulting in any of the above initiating conditions.

EAL:

Shift Supervisor's opinion